## 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 26</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 31</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 1</td>
</tr>
<tr>
<td>Classes end</td>
<td>December 14</td>
<td>December 18</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>
</tr>
</tbody>
</table>

### 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>
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<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 23</td>
<td>March 22</td>
</tr>
<tr>
<td>Saturday classes only meet</td>
<td>March 23</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>
</tr>
<tr>
<td>Examination week</td>
<td>May 13-17</td>
<td>May 12-16</td>
</tr>
<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>
<th>Event</th>
<th>1985</th>
<th>1986</th>
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<tbody>
<tr>
<td>Registration</td>
<td>June 10</td>
<td>June 9</td>
</tr>
<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 for law and graduate students</td>
<td>August 2</td>
<td>August 1</td>
</tr>
<tr>
<td>Close of Independent Study Unit</td>
<td>August 23</td>
<td>August 22</td>
</tr>
</tbody>
</table>
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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 1983-84 was about 39,099 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 the traditional 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 literature. It offers training 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 other 49 states and more than 90 foreign countries. About 70 percent of the University's entering freshmen had a B 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 aids. 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 lifelong 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 new-courses, 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 Speech 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, 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 interference by others. This code applies 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 persons. 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.
2. If a satisfactory outcome is not obtained, the student may take the matter to the college dean.
3. In addition, graduate students should consult with the associate dean for academic affairs in the Graduate College concerning mechanisms for resolving complaints.

**Policy on Sexual Harassment**

Under the Regents Rules of Personal Conduct, the University of Iowa's Human Rights Policy, faculty, staff, and students have a right to be free of sexual harassment by colleagues, supervisors, or students. The University will 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 report it.
advise 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 other instances of violation of University policy.

University Marking System

Mark and Grade Points/ Semester Hour

Definition
A (4) superior
B (3) above average
C (2) average
F (1) below average but passing
I r incomplete
R nonpass
O no grade
P passing
A audit
U unsatisfactory (Graduate College only)
W (not used in computing grade-point averages)

The Council 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%
Division next highest 5%
Pharmacy
Highest distinction 3.75+ GPA
High distinction 3.50-3.74
Division 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 from 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 denied 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
Graduate College—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
College 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
Physical Assistant Program—January 15, summer session only
Teaching Education Program—May 1 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 Graduate College deadlines. Individual departments and programs may establish earlier deadlines which are indicated in their materials. Please carefully review all departmental materials for information about early deadlines.

Undergraduate Colleges

Business Administration
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 15 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 550 for admission. All newly admitted undergraduates are required to complete an EFL course 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 academic course which applies to their admission statements.

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 provisionally; 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 excusing 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 their anticipated registration.

Applicants who have completed the tests but did not have their scores reported to the University should request this reporting from the Regents Section, American College Testing Program, Box 451, Iowa City, Iowa 52242. 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 irrevocable 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 criterion 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 $50 per semester hour. Correspondence courses are $24 per semester hour. All fees are subject to the action of the State Board of Regents.

<table>
<thead>
<tr>
<th>Undergraduate</th>
<th>Nonresident 901</th>
<th>Nonresident 1725</th>
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<tr>
<td>Resident</td>
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<td>Dentistry</td>
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<td>Resident</td>
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<td>Law and Doctor of Pharmacy</td>
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<tr>
<td>Resident</td>
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<tr>
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<td>2135</td>
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<tr>
<td>Nonresident</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; subscription to the student newspaper, the Daily Iowan, delivered to housing units; certain student hospital services; and other activities and services as announced. 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>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
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<td>Dental hygiene</td>
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</tr>
<tr>
<td>89</td>
<td>Orthodontics</td>
<td>10</td>
</tr>
<tr>
<td>90</td>
<td>Pediatrics</td>
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</tr>
<tr>
<td>92</td>
<td>Periodontics</td>
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</tr>
<tr>
<td>111</td>
<td>Preventive and Community Dentistry</td>
<td>13</td>
</tr>
<tr>
<td>112</td>
<td>Dentistry Nondepartmental</td>
<td>13D</td>
</tr>
<tr>
<td>114</td>
<td>Family Dentistry</td>
<td>14</td>
</tr>
<tr>
<td>7C</td>
<td>Counseling Education</td>
<td>17</td>
</tr>
<tr>
<td>7D</td>
<td>Educational Administration</td>
<td>18</td>
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<tr>
<td>7E</td>
<td>Early Childhood and Elementary Education</td>
<td>19</td>
</tr>
<tr>
<td>7F</td>
<td>Foundations, Postsecondary, and Continuing Education</td>
<td>21</td>
</tr>
<tr>
<td>7P</td>
<td>Psychological and Quantitative Foundation</td>
<td>23A</td>
</tr>
<tr>
<td>7S</td>
<td>Secondary Education</td>
<td>24</td>
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<tr>
<td>7U</td>
<td>Spatial Education</td>
<td>22C</td>
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<tr>
<td>7X</td>
<td>Education Interdisciplinary</td>
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<td>51</td>
<td>Biomedical Engineering</td>
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<tr>
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<td>Chemical and Materials Engineering</td>
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<td>Engineering</td>
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<td>Civil and Environmental Engineering</td>
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<td>Electrical and Computer Engineering</td>
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<td>Industrial and Management Engineering</td>
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<td>Engineering Core</td>
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<td>Mechanical Engineering</td>
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<td>Bachelor of General Studies Courses</td>
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<td>Lakeside Laboratory</td>
<td>34</td>
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<tr>
<td>1A</td>
<td>Fundamentals</td>
<td>35</td>
</tr>
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<td>1B</td>
<td>Elements of Art</td>
<td>36</td>
</tr>
<tr>
<td>1C</td>
<td>Ceramics</td>
<td>36B</td>
</tr>
<tr>
<td>1D</td>
<td>Design</td>
<td>36C</td>
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<td>1E</td>
<td>Art Education</td>
<td>36R</td>
</tr>
<tr>
<td>1F</td>
<td>Drawing</td>
<td>36R</td>
</tr>
<tr>
<td>1G</td>
<td>Metalworking and Jewelry</td>
<td>36T</td>
</tr>
<tr>
<td>1H</td>
<td>Art History</td>
<td>37</td>
</tr>
<tr>
<td>1J</td>
<td>Multimedia</td>
<td>38</td>
</tr>
<tr>
<td>1K</td>
<td>Printing</td>
<td>39</td>
</tr>
<tr>
<td>1L</td>
<td>Photography</td>
<td>39A</td>
</tr>
<tr>
<td>1M</td>
<td>Printing</td>
<td>41</td>
</tr>
<tr>
<td>1N</td>
<td>Sculpture</td>
<td>42</td>
</tr>
<tr>
<td>1P</td>
<td>Art Interdepartmental Botany</td>
<td>44</td>
</tr>
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Services for Students

Academic Advising Offices

Faculty Advisers
Each student is assigned an academic adviser to assist with educational planning, academic counseling, and registration. Students with declared majors are assigned advisers in their major departments. Students with open majors or certain preprofessional majors are assigned advisers by the Graduate College dean or their designated representatives. Graduate students are advised by their department heads and the Graduate College dean.

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

Undergraduate Academic Advising Center
Professional advisers 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. Advisers 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 majors and/or minors, 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 students 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 realtors, 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 advisers 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 advisers and students and include planning traditional events, such as Homecoming and Rivetfest, 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 the 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 careers is available for student and alumni use in the Employer Information Room. The 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. Advisors 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, salary and opportunity, and geographical regions of the country. The Center also maintains a database of open jobs and career-related meetings and workshops. The Career Resource Center is available to students without cost.

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

Each semester, OCCA sponsors workshops to assist new 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 articulation agreements. The 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 are offered in a supervised work setting. Students must meet the eligibility requirements of their specific departments or colleges and receive faculty approval to participate. Opportunities are available year-round for undergraduate and graduate students in a 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 a number of workshops, consultations, and counseling services to students without cost.

Dental Service
The dental clinics at The University of Iowa College of Dentistry are primarily for educational purposes. All students 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 no student is required to seek treatment under the student health hospitalization fund. Fees established for treatment rendered, and patients are to pay cash.

Evaluation and Examination Service
Evaluation and Examination Service duplicates, scores, and analyzes many course examinations, 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 consulting services on questionnaire 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 (GFLE), 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 coordinator implements all scheduled relations 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 now sponsors nationally competitive intercollegiate athletic teams for women in basketball, cross country, field hockey, golf, gymnastics, softball, swimming and diving, tennis, track and field, and volleyball. All ten varsity teams compete for national championships sponsored by the Intercollegiate Conference of Faculty
Representatives (Big Ten Conference) and the National Collegiate Athletic Association (NCAA). Scholarships are available in all ten programs to qualified student-athletes. In 1982, women's intercollegiate athletics was included under the University Board in Control of Athletics.

**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 recreation 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 extracurricular 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 can help students contact study-abroad programs to complement their co-curricular experiences. It is also required to assure that students receive the correct credit. Students may also obtain information and applications for the Fulbright, Marshall, and Tubingen 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 except academic or support educational programs, such as the Host Family Program, the Conversational English Program, and lunchtime discussions to foster constructive interaction between students and scholars from other countries 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 other customer service; the Office of Campus Programs and Student Activities; a conferencehouse with live entertainment; the Bijou Films; a variety of food services; a recreation area with bowling, billiards, and electronic games; an art and craft resource center; a bookstore; rooms for lectures, concerts, meetings, and social events; art and sculpture display areas; and, in the adjoining Iowa House, 110 guest rooms for parents, guests, 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 Tourism, 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 intellectual 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 assistance to any individualized and class instruction for any University students who wish to improve their college-level reading performance. Students are first asked 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, test-taking abilities, command of vocabulary, critical reading, and speed and comprehension reading.

The Reading Lab offers one service course. Voluntary Reading Lab, which meets twice a week for 13 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 assigns no 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 B Rhetoric, a one-semester, two-credit course for students who need exceptional help preparing for college-level reading and RP 20, Advanced Reading Comprehension, RP 30, Speed Reading, and RP 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 verifications; assists students in obtaining graduation requirements, processing applications for degrees, and transferring 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 Services for Handicapped (OSH) provides services to students with both visible and non-visible disabilities. These services 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 attendant care, and health services. 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 subprogram: 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, servicemen, and servicewomen in matters relating to Veterans 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-on-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 and street harassment, 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 more effective writers of their own work 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 discrimination due to race, religion, or ancestry, except in certain instances involving owner-operator dwelling units. The Human Relations Commission is responsible for the observance of this ordinance and for the initiation of redress 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 half-board are available in the Central Area Residence Halls (east side of the campus), which include Hillcrest, Quadrangle, Westfawn, South Quadrangle, Rienow, and Stater halls, and in the Clinton Street Residence Halls (east side of the campus), which include Burge, Currier, 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 house hall coordinator, and there is a student resident assistant in each living unit. All students are encouraged to participate in residence hall government to plan programs and discuss issues.

Student- and staff-initiated programs and activities provide opportunities 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 board 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 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, nationality, 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 half board. Rates for the several revenues and board options vary according to the accommodations until 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 Palkslawn complexes. Rents for 1983-84 range from $132.25 to $135.75 per month for one-bedroom units and from $157.50 to $261.00 for two-bedroom units. Rent includes 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, studio 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 on campus houses at Iowa. Houses accommodate 35 to 45 men.

Undergraduate fraternities are Arpacia, 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 Xi, Sigma Nu, Sigma Pi, and Tau Kappa Epsilon.

Professional fraternities operating chapter houses are Alpha Chi Sigma (chemistry), Chi Kappa Kappa (dentistry), Phi Beta Pi (medicine), Phi 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 Beta 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 94777) or ACT Financial Aid Services (Box 1020, 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 needs 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 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 $2,300 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 26 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 the financial aid scholarship assistance, an incoming freshman must apply for financial aid, show a need for assistance, and either achieve an ACT composite score of 28 or above or rank in the upper 10 percent of his/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 $5,500 per academic year, minus the amount of the student's attendance, and the amount of any other student aid the student receives. The student may use his or her CSS or ACT financial statement 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 financial need. The maximum grant is $500 per academic year. There are no specific academic requirements for an SEOG award, but the student 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 $8,000 a year and $8,000 overall. Graduate students may borrow up to $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. Under the NDSL Guaranteed Student Loan Program, undergraduate students may borrow up to $25,500 a year. Graduate students may borrow up to $45,500 a year. The student will be notified directly by the Federal Student Aid Office of the amount borrowed, the interest rate, and the repayment period. The interest rate is 5 percent on the Health Profession Loans and 6 percent on the Nursing Student Loans.

Health Professions and Nursing Student Loans
These programs assist United States citizens and nationals studying full-time in the fields of dentistry, nursing, or medical or health-related fields. Amounts available depend on the federal funding. Loan recipients must complete repayment agreements with the University's Student Loan Accounting Office when they graduate or terminate full-time registration. The interest rate is 5 percent on the Health Profession Loans and 6 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 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.

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 student aid available from such non-University sources as foundations and professional associations. Most of this aid is for graduate study, but some is available to undergraduate students.

Information about financial assistance for educationally, economically, and 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 to War Orphans is available from the Iowa Bonus Board (State House, Des Moines, IA 50319).

An informed list of the University's financial resources 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 are found the academic programs, clinical facilities, and service lines involved in preparing students and practitioners to serve a wide spectrum of human health needs, ranging from basic first aid to the most advanced diagnostic and treatment procedures, and the search for entirely new knowledge.

As soon as they have acquired basic knowledge in their fields, health profession students begin to learn by doing, following the examples and directions of skilled practitioners who teach while providing health care for thousands of patients from the community, state, and region. The University of Iowa Health Center is thus simultaneously a center of learning and of service. It is one of the most advanced, comprehensive health science centers in the United States.

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

Programs, facilities, and courses of the colleges of Dentistry, Medicine, Nursing, and Pharmacy are described elsewhere in this Catalog. Other health care units and related programs are described below.

The University of Iowa Hospitals and Clinics

Director and successor to the provost for statewide health services: John M. Collison

Deputy director: Clifford W. Stone

Special assistant to the director: Douglas R. Weigle

Senior assistant director: David E. Wood, John H. Staley

Administrative directors: Mary A. Beck, Carl E. Elyon

Assistant to the director: William M. Heaton, Gary G. Lewis, Ann M. Rodgers

Clinical service heads: Dr. John H. Travers, Anesthesiology: Dr. Donald B. Osborne, Dentistry: Dr. John B. Strauss, Gastroenterology: Dr. Robert S. Stein, Family Practice: Dr. Francois Assaad, Internal Medicine: Dr. Maurice W. van Allen, Neurology: Dr. Roy W. Jenkins, Obstetrics and Gynecology: Dr. Charles O. Phelps, Ophthalmology: Dr. Raymond Cooper, Orthopedics: Dr. Brian McClean, Otolaryngology and Head/Neck Surgery: Dr. Richard G. Lynch, Pathology: Dr. Fred Smith, Pediatrics: Dr. George Wooters, Psychiatry: Dr. Edmund A. Pankow, Radiology: Dr. Robert Corby, 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 disciplines, including medicine, dentistry, nursing, pharmacy, hospital administration, physical therapy, vocational training, 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 they have chosen to pursue.

There are 1,026 beds in the hospital complex, 3800 with more than 40,000 admissions annually. In addition, 135 specialty clinics accommodate another 235,000 ambulatory patients each year. Nearly 10,000 major surgical procedures are performed annually in the hospitals 20 major operating rooms. Approximately 3,000 infants are delivered every year.

Highly specialized health services—for example, the burn unit, heart cardiological facilities, nuclear magnetic resonance, neonatal intensive care unit—are easily accessible to Iowans who reside in communities without such resources. The hospitals' transportation fleet of 15 vehicles travels nearly two million passenger-miles each year, transporting 10,500 Iowans. The AirCare Emergency Helicopter Service carries specially trained medical and nursing teams to set the most critically ill and injured, and to transport them to the hospitals for treatment. Many Iowans 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 hospitals' clinical staff includes more than 425 faculty physicians and dentists. The hospitals' house staff numbers over 500 resident and fellow physicians and dentists. The hospitals 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 38,000 blood and component transfusions.

Recent modernization provided new intensive care, cardiology, corner, and urology units. A seven-story, $12 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 in-and-outpatient, provides facilities for a multi-specialty training and emergency treatment center; physical therapy; dermatology; orthopedic surgery; and urology, and neurology inpatient, clinic and outpatient. UHC is the leading provider of medical, surgical and medical inpatient services, cardiology and psychiatry services, and laboratories of the Department of Pathology.

The $35 million first phase of the John W. Colloton Pavilion, named for the hospital's current director—opened in 1981 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 Colloton Pavilion, scheduled for completion in 1988, will house a new cancer center, digestive diseases center, cardiac care center, and center for nearsurgery patients. University Hospitals and Clinics collaborate in conducting accredited health professional education programs in dentistry, radiologic technology, medical technology, nuclear medicine technology, hospice pharmacy, physical therapy, physician assistant, and optometry, and provides supervised clinical settings for Kenwood Community College programs in nursing education, orthopaedic therapist's assistant, operating room technology, and respiratory therapy.

Of the programs cited above, those considered to be unique and distinctive programs are described in the appropriate sections of the People at Work section. The following programs are available exclusively by University Hospitals staff:

3000 Inhalation Therapy Program 1 ah
  Clinical science of mechanical ventilation, pulmonary function, the role of medical devices in respiratory therapy, and respiratory therapy techniques.

3000 Radiology Training Program 1 ah
  A 3-semester course that includes radiographic positioning, the role of medical devices in respiratory therapy, and respiratory therapy techniques.

3000 Respiratory Therapy Program 1 ah
  Clinical science of mechanical ventilation, pulmonary function, the role of medical devices in respiratory therapy, and respiratory therapy techniques.

3000 Radiology Training Program 1 ah
  A 3-semester course that includes radiographic positioning, the role of medical devices in respiratory therapy, and respiratory therapy techniques.

3000 Respiratory Therapy Program 1 ah
  Clinical science of mechanical ventilation, pulmonary function, the role of medical devices in respiratory therapy, and respiratory therapy techniques.

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The Bureau of Dental Health Education

The Bureau of Dental Health Education is sponsored by the Iowa Department of Health, which provides personnel, salaries, and office supplies, and the University, which provides space and equipment. The bureau's primary purpose is to report annually a program of dental health education and disease prevention in the public and parochial schools of the state.

Senior dental hygiene students from the University conduct team programs with the public health dental hygienists of the Iowa State Department of Health. These programs include instruction in oral hygiene and oral health care, nutrition, and dental health care.

The bureau also supplies dental referral cards to schools to remind parents of the need for regular dental care for children.

Council on Speech Pathology and Audiology

The council coordinates clinical services in speech pathology and audiology within The University of Iowa Hospitals and Clinics, the Iowa City Veterans Administration Medical Center, and the Department of Speech and Audiology.

Health Occupations Education

Through this program, the University collaborates with the State Department of Public Instruction in providing consulting and advisory services, teaching teachers, conducting research, and developing curricula and instructional materials for health occupations programs conducted for the most part by Iowa's 15 area community colleges, but also for a growing number of high schools. The Health Occupations Education staff also assists these institutions in their increasingly important role in conducting continuing education.

Health Sciences Library

The Health Sciences Library serves the combined information and research needs of the schools of Medicine, Dentistry, Nursing, and Pharmacy, and the graduate program in Hospital and Health Administration, and the Bureau of Dental Health Education. 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 library allows for enough reading and study space to accommodate approximately 1,100 people. Special features of the library include a 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.

Center For Health Services Research

See "Research Activities" section of the Catalog.

Oakdale Campus

Located seven miles northwest of Iowa City, the 500-acre Oakdale Campus includes such health related community programs as the Alcoholism Treatment Unit, Child Abuse and Neglect Resource Center, Dentistry Clinical Practice Management, Institute of Agricultural Medicine, Institute of Child Behavior and Development, portions of the Regional Child Health Specialty Clinics program, and the University Hygienic Laboratory. Other health related units on the campus are Continuing Nursing Education, dental research, Southeast Iowa Emergency Medical Services Center, Gerontology Education, Air-Care Helicopter Service, and the Research Animal Care Facility. University House provides office space and related support for faculty members engaged in research or curriculum development.

University (State)

Hygienic Laboratory

As the State of Iowa's environmental and public health laboratory, the University Hygienic Laboratory offers diagnostic, surveillance, analytical, and consulting services in bacteriology, immunology, parasitology, industrial hygiene, serology, virology, toxicology, health physics, mycology, and radiation chemistry.

The laboratory also provides a wide variety of services related to water, wastewater, air quality, and soil quality monitoring and analyses; pesticide and herbicide residue in food and feed; environmental and mineral and metal analyses; and disease surveillance.

The Hygienic Laboratory serves as Iowa's primary laboratory for drinking water analysis. It is an accredited industrial hygiene laboratory. It holds an interstate license for the diagnostic services involved in blood lead screening, and allows for screening for correct metabolic errors in newborn babies. Within The University of Iowa, the Hygienic Laboratory provides instruction and training in diagnostic microbiology and virology as part of regular academic courses, as well as in environmental engineering studies. In addition, the Laboratory provides classroom and individual field training to University students and to laboratory and medical personnel interested in learning specific laboratory procedures.

Laboratory facilities are available to University faculty, health care staff, and students for technical consultation.
Regional Child Health Specialty Clinics

The Regional Child Health Specialty Clinics (RCHSC) 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 Comprehensive Care Program for Hemophilia Patients, Statewide Perinatal Care Program, Iowa 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 19 with diagnosis and evaluation services in pediatrics, orthopedics, 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 and 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 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 inpatient services include a number of special clinics (Child Development Clinic, Mentoring/Neurology 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 child's local 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, practicums 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 Divisions of Genetics and Biochemistry in 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 or habilitation programs for children who can come to the clinic for such services, a summer residential program for children with speech, language-hearing, 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 this 327-bed hospital. University of Iowa Health Center facilities include a number of laboratories for the transplantation program, highly specialized laboratories in nuclear medicine, and special units for the study of metabolic and gastrointestinal diseases. The Veterans Administration Medical Center, which is closely affiliated with all four health sciences 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 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, a common characteristic and a significant part of 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 active 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 involvement in basic research or creative activity, one representative of the University staff, and two student members. Faculty members include two from each of 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 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 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 conducting 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 or for 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 honors and awards of visiting lecturer.

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 microprobe X-ray analyzer with three crystal spectrometers, a SII solid state
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 characteristic X-rays. Automated image analysis is performed for the digital stored and chemical characterization of small objects (1-100 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 EPMF Facility is available to all faculty, staff, and students in their research programs. Experienced investigators frequently perform their own analyses, but arrangements may be made to have samples analyzed by the facility staff. Training sessions are provided for inexperienced investigators and demonstrations of equipment capabilities are performed upon request.

Electron Microscopy Facility

The Electron Microscopy Facility provides instrumentation and technical assistance to research programs involving the use of viewing and transmission electron microscopy as well as X-ray microanalysis. Equipment includes a JEM-3000F SEM scanning electron microscope and a JEM 4000FX transmission electron microscope, a Hitachi H-600 transmission electron microscope, a Joel JEM-100CXII transmission electron microscope and a Jeol JEM-100 CXII transmission electron microscope, a Balzers BGA 1000 Balzers freeze-drying apparatus, an automatic tissue processor, glass knife makers, diamond knives, ultramicrotomes (including a Reichert-Jung Uctom), a Zeiss digital image analysis system, vacuum systems, cryostats, cryo sample preparing apparatus, light microscopes, electron microscopes, and equipped photographic darkrooms.

The facility also provides all solutions and supplies for Cryo Preparation conditions involving ultrarapid cooling, including specialized staining and embedding techniques, negative staining, metal-coating, autoradiography, electron tomography, immunocytochemistry, morphometry, 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 and processed by the facility. All instrumentation is available on a first-come, first-served basis. The laboratory is located in the Bowren 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, cell physiology, and cell kinetics. It is equipped with an advanced fluorescence-activated cell sorter (Beckton-Dickinson FACSort) which is integrated with a computerized data acquisition and storage system. The flow cytometer will measure any optically detectable cellular property, such as fluorescence or size, to generate population distributions. Up to four parameters can be concurrently evaluated per cell. A variety of cellular macromolecules can be thus quantitated. Detectable parameters include two spectral regions of fluorescence, narrow and wide angle light scattering, and fluorescence polarization anisotropy. Optical excitation is done with an argon ion laser with ultra-violet capability. The instrument will physically isolate any one indentifiable cell subpopulation to yield viable cells for subsequent experimental use. The facility provides all needed supporting 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 upon 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 dye lasers (ultraviolet capability) are employed, either alone or in combination on the Tunable Laser System throughout the visible and near infrared regions of the spectrum. Each CW Laser is routinely operated single mode with a bandwidth ten-thousandth of a reciprocal centimeter. This instrumentation is installed in a dedicated, multi-user, multi-user, multi-user, multi-user space laboratory which occupies the entire floor of the southwest wing of the Chemistry-Botany Building. It includes a mechanically and thermally stable 48-foot-long optical isolation bench with a variety of work stations for users.

High Field Nuclear Magnetic Resonance (NMR) Facility

A recently acquired 400 MHz Bruker WM-360 spectrometer forms the basis for the High Field NMR Facility. The powerful magnet operates at 4.6 kilogauss, and a frequency of 360 MHz is utilized for proton detection. Very high spectral resolution and sensitivity can be achieved for study of complex molecules in solution. Multinuclear, variable temperature, and selective pulse experiments are possible. Both hard disc and floppy disc systems provide for data storage. Either digital or standard X-Y plotting is available. About 500 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 double-19F decoupling of carbon-13 spectra is possible. The usual user spectra are recorded by a technician, whereas routine data-taking is performed by 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 student facilities, computing facilities to all students, faculty, and staff of the University. Located in the Lindquist Center, the Weeg Computing Center is accessible through the main 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 OF-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-credit educational services and computing facilities, including access to a computer-based information system. Detailed information on computer facilities and procedures is available in the Center information center, located in the Lindquist Center.

Video Center

The University Video Center provides research and student facilities, including those necessary to sustain and produce television programming, coordinates video equipment purchase plans with the College of Agriculture and Natural Resources, University support of campus video, and toward this end, the Center has the personnel and auxiliary resources to assist units in the purchase of equipment and personnel, and in production and post-production activities. Additionally, the Center provides centralized video maintenance and system design and maintains guidelines for 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 apportionment. The staff also assists in processing an application through the University and in arranging appropriate contact in the prospective donor’s office. After an award is made, it provides monitoring and advisory services for maximum rather than expenditure accounting.

University House

University House began in 1977 as a project dedicated to three separate but related missions. The first and most important is faculty development in general. To help faculty in their professional growth and advancement. University House provides, on the Oakdale campus, an environment free from distractions, in which faculty members can work—alone and together—in scholarly tasks in a collegial, supportive setting. It is a place in which scholars from different disciplines can meet in easy interchange for mutual benefit. University House sponsors many public lectures and conferences, visits by distinguished faculty from other campuses, and faculty seminars on a wide variety of topics. Faculty members in all disciplines are eligible for appointment and for participation in University House activities. Thanks to a large grant, University House has been able to provide a faculty member with access to the University and from the independent, four-year colleges of Iowa.

In addition to promoting faculty development in general, University House seeks to bring together university centers, institutes, committees, and other groups into consortia, interdisciplinary arrangements that foster the acquisition of external support for research, education, and appropriate service. University House has nearly six thousand square feet of office space in the Oakdale Hospital, including private faculty offices, several conference and project rooms, and a lounge. Secretarial services are available. Located in the same building are a cafeteria, an auditorium, a large conference room, a copy center, a video editing room, and a full-time assistant for computer services. Photocopying and book delivery services are also available from University Libraries. Half-county Campus service connects University House with the main campus.

Center for Health Services Research

The Center for Health Services Research fosters a program of research and education in health care policy and management. Center staff include an interdisciplinary core of faculty associates drawn from the colleges of Medicine, Dentistry, Nursing, Pharmacy, Health Administration, and Liberal Arts, as well as the University of Iowa Hospitals and Clinics. The Graduate Program in Hospital and Health Administration accords responsibility for the management and development of the University’s Center for Health Services Research in 1981.

Related Units

Although not directly connected with the Office of the Vice-President for Educational Development and Research, these units have a special role in the conduct of research at the University.

Institutes

dows Institute for Dental Research

Contact the College of Dentistry for information.

Industrial Relations Institute

See the “College of Business Administration” section of the Catalog.

Institute for Economic Research

See the “College of Business Administration” section of the Catalog.

Institute for Insurance Education and Research

See the “College of Business Administration” section of the Catalog.

Institute for School Executives

Contact the Division of Educational Administration in the College of Education for information.

Institute for Accounting Research

Contact the Department of Accounting in the College of Business Administration for information.

Institute of Agricultural and Occupational Health

See “Preventive Medicine and Environmental Health” in the “College of Medicine” section of the Catalog.

Institute of Hydraulic Research

See the “College of Engineering” section of the Catalog.

Institute of Public Affairs

See the “Vocational Education” section of the Catalog.

Centers

cancer Research Center

See the “College of Medicine” section of the Catalog.

cardiovascular Center

See the “College of Medicine” section of the Catalog.

center for Educational Experimentation, Development, and Evaluation

See the “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 the “College of Medicine” section of the Catalog.

Comparative Legislative Research Center

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

core 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.

toxicoLogic Center

See the “College of Medicine” section of the Catalog.

Laboratories

Accident Prevention Laboratory

See the “College of Medicine” section of the Catalog.

Iowa Lakeside 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.
Clincs
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 realizes a University dream of many generations: to bring the arts together in a single campus setting, near the geographical heart of the University.

The 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, E. C. Marske Theatre, and Goppert 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 1938. Major additions were added 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 artists Eva Drewelow, who in 1924 became the first recipient of the Master of Arts degree in art at The University of Iowa.

The school’s Corroborate Gallery, located in South Hall (the old Muss Building), features exhibitions of new and experimental work by students at 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 businesses 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 school children 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 Stanley Collection of African Sculpture, a gift of Max and Betty Stanly 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 Gielman of Iowa City.

Museum special events include slide lectures by visiting artists, scholars, and collectors. Music 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 art exhibits, and an active Print and Drawing Study Club.

University Theatres

The University Theatre Building houses the Division of the Fine Arts and the Department of Communication and Theatre Arts. It is the home of the C.E. Mabee Theatre, the integral setting for many major University productions each year. Mabee Theatre seats 477. A major addition to The University Theatre Building (completion date, 1985) will consolidate all production facilities in one location.

Units the addition is completed, three additional theater spaces in other parts of the campus will greatly expand the range of University Theatrical productions.

Old Armory Theatre, a flexible space that seats an audience of 200.

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

Studio II in the Old Armory 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 expansion of the school to accommodate the needs of the students.

In a given year, faculty artists and the many visiting ensembles of the school present about 100 major concerts, plus an additional 270 to 300 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 used for dress rehearsals and other concerts for music faculties.

The school's largest ensemble, the University Singers, a mixed choir, performs regularly in the Clapp Recital hall, and in other concerts of the Iowa Center for the Arts.

The school has produced operas since 1928. Like other major musical presentations, opera is interdepartmental in its opportunities for educational and performance excellence, utilizing the talents of the few voices and those 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 studios of faculty and student members of the Center for New Music are a repertoire ensemble for the performance of new music.

Two electronic music studios provide a wide range of technical capability for creative audio-musical forms. In Video/ Laser III, the school has the most advanced laser delivery system of any university, utilizing laser beams in brilliant colors to produce visual analogues to sound. Outstanding recording facilities link the various music performance departments with the School of Music/Hancher Auditorium studios, a recording studio of 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 virtually 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 which is available for the hearing impaired.

In addition to performances by the major units of the Iowa Center for the Arts, a guest artists series is presented each year. The series is throughout the world. The program is presented by the Hancher stage department, ensembles, theater and dance companies, major symphonic 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 a wide region in Iowa and western Illinois.

The auditorium has become a Midwest cultural center, a showcase for the performing arts, and a fine example of the golden rule that excellent acoustics, a beautiful interior design and spaciousness in the auditorium can not compensate for excellence in the performing arts. Hancher Auditorium is, in its first season, a community resource for the region.

The Opera Studio, opened in 1983, is the scene for smaller productions of the Opera Theater.

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Hancher Auditorium reflects another dimension in the University's educational and cultural services to its students and to the people of the Iowa. The auditorium is an active advocate of the 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 summer residencies, 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 communities (schools, centers for senior citizens and the handicapped, school organizations, specialty community arts groups, etc.), this 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-campus Conferences, workshops, and educational projects.

Dance

The University io-Dance Program is part of 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 interdisciplinary projects and programs. The Dance Program is assisted by the frequent campus visits of professional choreographers, dancers, and educators to produce lecture demonstrations and classes. The Dance Program is the home of the U.S.-China Dance Exchange Program, which brings Chinese dancers 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 stations KVIA and KXIC 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, 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. Straw Educational Services Center. During the summer the Clinic is in the Wondall 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 cooperation among various aspects of international studies—foreign language and area studies, comparative and topical studies, and foreign language departments. 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 the 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 on opportunities 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 Topecoff awards.

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 University of Iowa College 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 sciences departments of the University, the Museum of Natural History grew to include a repository and the proper care for specimens which come to the University either by gift or through the efforts of its own collectors. Today the collections are representative of the disciplines of biology, geology, and anthropology, and consist of over a million specimens.

The Museum of Natural History, a department of 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 exhibits of North American mammals include the bison, antelope, mountain lion, moose, and beaver.

The Layman Island cyclostoma is a large and well-known bird habitat exhibit.
The Division of Recreational Services administers a program of more than 20 intramural sports and recreational activities for all of Iowa's University students. It offers a wide range of recreational and team sports, such as activities as martial arts, tennis, golf, yoga, aerobics, racquetball, squash, and gymnastics; and provides informal activities for students, faculty and staff members, and their spouses and families. Activities include basketball, badminton, volleyball, tennis, soccer, handball, paddleball, racquetball, squash, racquetball, golf, archery, weight training, tennis, swimming, and jogging. The division's Touch the Earth Outdoor Program includes such activities as rafting, parachute jumping, bicycle trips, backpacking, fishing, country skiing, wildlife research, winter camping, kayaking, canoing, and horseback riding. Bicycles, camping equipment, topograghs, and cross-country skiing equipment are also available for a minimal rental fee.

The University of Iowa Alumni Association

The principal agency through which Iowa alumni continue their identification with the University after they leave the campus is The University of Iowa Alumni Association. The association was organized in 1892 and its membership includes university graduates and their families and alumni and the University to implement programs of service to alumni; to strengthen public recognition of the University as an institution vital to the economic 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 Foundation 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, and 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 personal record data for both faculty and staff employees.
Libraries

The University's Main Library and its 12 departmental libraries, plus the Law Library, contain approximately 2.5 million volumes. About two-thirds of this collection is in the Main Library.

The Art Library contains approximately 60,000 volumes. 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 Lehigh Hunt Collection, brought together by Leonard Elmer Brewer 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 his many famous literary friends, 100 association volumes, and 600 editions of Hunt's writings.

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

The French Revolution Collection includes more than 8,000 political pamphlets, chiefly from the years 1788-1796. Superintended by numerous French newspapers and government publications of the time.

The John Almy Collection of typography, given to the University by a long-time local City printer, includes nearly 8,000 items 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 negatives of nearly six thousand cartoons in which, for more than 45 years, Ding recorded and commented on the economic, political, and diplomatic 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 index to the collection enhances its usefulness for reference and research.

The Ballinger-Lincoln Collection, gathered by Judge James W. Ballinger 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. Broadsides 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 setters or manuscript items of English and American authors or historical figures, principally of the nineteenth and twentieth centuries, in addition to more than 450 inventions collections of papers, charts, and correspondence files relating to midwestern economic, political, and agricultural history.

Other special collections include the Harvey P. Goggins Collection of books by and on American Indians; the Levi C. Leonard Collection of manuscripts and documents dealing with building the Union Pacific Railroad; the Bibliotheca Americana, which contains several thousand letters and books from documents descriptive of the Chautauqua movement; the Byfield Collection of poetry, rare books, and manuscript; the Tennessee, Minnesota, and Kansas D. Morgan Letters; and letters relating to the contemporary English painter Edmund Blunden; the Iowa Authors Collection; The Map Collection, containing more than 190,000 maps and indexed atlas photographs 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 2,500 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 physical, 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, the interplay of human behavior, and the physical and biological world about us. A liberal arts education includes something called a "general education" because students receive involved preparation for the opportunities and problems they will encounter throughout their lives. This approach to education emphasizes that because we cannot foresee all of these opportunities and problems, students are better prepared for the future if they have learned and developed abilities, awareness, sensitivity, 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, Lifetraits, Library and Information Science, Religion, and Social Work. Over forty formally organized departments 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 undergraduate enrolled in the Colleges of Business Administration, Engineering, Nursing, and Pharmacy.

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

Liberal Arts Advisory Committee

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 academic advisor to help him or her meet with the registrar and the Progresso 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
Bachelor of General Studies and other degree programs, the College-Level Examination Program (CLEP), Advanced Placement (AP), pass-nurse-pass, satisfactory-fail, the second-grade-only option, deadlines for various administrative actions (such as dropping or adding courses and canceling registration), probation, dismissal, reinstatement, academic discipline, and any other academic matter.

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 major fields as indicated 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.
Italain—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 indicate a major in one of the fields of education in the time of admission or may change their majors to one of these fields at any time after enrolling, in order to be allowed to enroll in the foundation (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 a composite standing (28 semester hours) and must have earned a total cumulative grade-point average of at least 2.5. Transfer students may be admitted to the TEP upon admission to the University. In order to remain in the TEP, a student must maintain at least 2.3 cumulative grade-point average. Application forms for admission to the TEP may 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 majors, 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 "Area 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 advisement from 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 leads to the degree "with interdepartmental honors." The program of studies must be submitted for approval not later than the junior year.

Minors

Student 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 be a minor degree, 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 must consult with the minor department to identify acceptable courses. No course accepted toward the minor may be taken pass-fail-pass.

A student must have at least a 2.0 grade-point average on 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 applying 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, liberal education, and dental hygiene do not offer minors.

Students in the Bachelor of General Studies program and the Bachelor of Liberal Studies program are not eligible to earn minors, since these are programs without minors.

Students who earn bachelor’s degrees in interdisciplinary programs—such as ancient civilization, biology, or literature, science, and art—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 be registered for the first seven of these courses before applying for admission to the business minor program.

- Computer Programming course
  - Course in Accounting 3 s.h.
  - Course in Economics 3 s.h.
  - 641-2 Principles of Economics 3 s.h.
  - 641 Introduction to Financial Accounting 3 s.h.
  - 641-2 Introduction to Managerial Accounting 3 s.h.
  - 941-100 Introduction to Marketing 3 s.h.
  - 941-100 Administrative Financial Management 3 s.h.
  - 941-100 Administrative Management 3 s.h.
  - 941-47 Introduction to Law 3 s.h.
  - Must be taken junior or senior year.

Students complete the remaining courses for a total of 18 semester hours in the business minor program in the College of Business Administration. Students must meet the general admission requirements of the College of Business Administration (see "Program Requirements for Undergraduate Study in the College of Business Administration section of the Catalog to be considered for admission to the business minor program. Admission to the program is limited, and meeting minimum standards does not ensure admission.

Minor in Education
Students in the College of Liberal Arts may earn a minor in education for detailed requirements see the College of Education section of the Catalog.

Liberal Arts Minors for Business, Engineering, and Nursing Students
Undergraduate students in the College of Business Administration, College of Engineering, and College of Nursing may earn Liberal Arts minors by satisfying College of Liberal Arts requirements for minors. For specific requirements see College of Liberal Arts section of 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 began in 1959 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 conditions and concerns of Black Americans. Since then, these courses have been organized into 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
The Aging Studies Program is a multidisciplinary program administered to 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. This program offers a unique opportunity for students of varying disciplines to gain more background and develop some expertise in a field of current interest. Completion of the program leads to an undergraduate minor in Aging Studies.

Cultural Studies
The Global Studies Program is a cross-disciplinary study of major world problems. The purpose of the program is to give students an opportunity to examine the 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 are awarded a Certificate of Global Studies at the time they receive their bachelor’s degrees. Students fulfilling the requirements of the Certificate of Global Studies may also apply Global Studies as their minor.

Latin American Studies
Students may supplement their undergraduate majors by earning either certification or a minor in the Latin American Studies Program. Focusing on the nation of Latin America and its culture, history, society and economy, this program is a one-of-a-kind resource among academic institutions.

Literature, Science, and the Arts
The Program in Literature, Science, and the Arts (L.S.A.) offers a group of team-taught discussion courses on fundamental humanities topics. Students explore and evaluate important contemporary issues on the basis of their reading in outstanding works. They learn to draw upon books and discussions to develop ideas and problems and work them through. An L.S.A. major provides a strong background for graduate study in an area of specialization and for medical, law, business, and other professions.

Women’s Studies
The Women’s Studies Program is a multidisciplinary program in the liberal arts which is engaged in developing a body of knowledge about women in the humanities and social sciences and
institutionalizing that knowledge within the university community. The term "women's studies" does not connotate 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 contributions. Some supplements neglegted 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 departments serve as advisors to students in planning for the certificate. After seeking an area of interest in foreign studies, students wishing to earn the certificate will be guided by the appropriate chair 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.

Program leading to the certificate will include at least 15 semester hours in courses in the language and 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 department 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, Korea, Japan)

Classics (Ancient Greece or Roman)

French and Italian (France or Italy)

German (Germany or Austria)

Russian (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. Each studio emphasis, art history emphasis, interior design 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 Studies, and the School of Journalism and Mass Communication; photography and graphic design specialization with courses taken in the School of Art and Art History and the School of Journalism and Mass Communication; or a specialization in management with courses taken in the various social science departments. For more information on specializations within and between programs, see the program descriptions in this Catalog and advisors in the appropriate departments.

Preprofessional (Joint) Programs

Joint programs leading toward graduation from the College of Liberal Arts are the University of Iowa, the University of Iowa College of Medicine, and many 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, you must complete certain requirements. Prior to attending the pre-collegiate courses, a student must have earned at least 64 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 towards 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 graduation analysis section of the Office of the Registrar 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 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 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 to meet the combined degree requirements. The time required 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 requirement for both the College of Liberal Arts and the College of Engineering. The specific engineering courses taken will be determined by the College of Engineering, according to the engineering specialty selected. Since the courses in science, mathematics, and the humanities are regularly accepted for credit by both colleges, the residence requirement can be satisfied by the courses in any areas, satisfying the requirements for two colleges in the taking of a particular course.

Two or More Bachelor’s Degrees

Students seeking an additional bachelor's degree must complete at least 30 additional consecutively hours of study in residence in the college beyond the first degree. Students of the B.A. and B.S. degrees will be considered to have satisfied all or part of the 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 earn a total of 124 semester hours to meet the number of hours 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 credit 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 at 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:

1. By scoring 26 or above on the mathematics subcore of the ACT general test battery.
2. By completing two years of high school algebra and one year of high school geometry or their equivalent.
3. By successfully passing the Mathematics Proficiency Test. (The passing score will be equivalent to a score of 26 or above on the mathematics subcore 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.)
4. By passing 22M:1 Basic Mathematical Techniques, a three-semester hour course.
5. By competing any college-level mathematics course comparable to or more advanced than 22M:1 in the Division of Mathematics Sciences; or
6. 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 or by the end of the 32 semester hours at The University of Iowa.

Quantitative or Formal Reasoning

The requirement may be satisfied by:

- 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
- 22M:7 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:15 Mathematics for the Biological Sciences
- 22M:20 Elementary Functions
- 22M:25 Calculus I
- 22M:25 Calculus I
- 22S:2 Statistics and Society
- 22S:2 Quantitative Methods
- 22S:5 Elementary Statistics and
- 26:36 Principles of Reasoning
- 36C:40 Thinking and Practice of Argument
- 102:12 Language and Formal
- 36:36 Principles of Reasoning
- 36:40 Thinking and Practice of Argument
- 102:12 Language and Formal
- 36:36 Principles of Reasoning
- 36:40 Thinking and Practice of Argument
- 102:12 Language and Formal

This requirement should be met by the end of the student’s second year in
residence or during the first 60 semester hours of study at The University of Iowa. Students should have satisfied 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., B.F.A., and B.M. degrees. The requirement may be satisfied by the methods described below. Foreign languages offered at The University of Iowa are listed on the bulletin. Successful completion of the foreign language requirement includes 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 Foreign Language

One year of high school study in a foreign language is equivalent of one semester of college language. 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/norpass if it is part of a sequence of courses used to satisfy the foreign language requirement.

Students may receive credit for college courses that duplicate high school work in a foreign language.

If a student selects French, the foreign language requirement for the B.A. degree may be fulfilled by taking a sequence of courses culminating in F 12 Intermediate French, or C 25 Second-Year Composition and Conversation, or a combination of F 27 Second-Year Composition and Conversation and F 25 French Conversation First Level. F 9 alone is not sufficient to meet the fourth semester requirement. Other combinations are possible. Contact the French department, 10 Schaeffer Hall (phone 322-4987).

A two-semester sequence of either elementary Chinese or elementary Japanese (total of 12 semester hours) will meet the foreign language requirement for the B.A. degree. One semester of either of these languages (six semester hours) will meet the foreign language requirement for the B.S., B.F.A., or B.M. degrees.

There is no foreign language requirement for the Bachelor of General Studies or the Bachelor of Liberal Studies degrees.

Students who are proficient in a foreign language not usually taught at The University of Iowa may validate their proficiency. (Academic credit will not be given.) In some cases, foreign students may use English to satisfy the foreign language requirement.

Physical Education

All Students must complete four one-semester hours of physical education courses in the satisfactory-fail grading procedure.

NOTE: Because of extensive remodeling in the Field House, the physical education skills requirements for the B.A. degree have been temporarily reduced from four to three semester hours. The reduction applies to all freshmen and transfer students admitted for summer session 1983, first or second semester 1983-84, summer session 1984, and first or second semester 1984-85. All students who registered for any academic session prior to May 1983 and who have not graduated by May 1984 may satisfy the physical education skills requirement with two semester hours. Only courses 10:33, 10:41, 10:42, offered by the physical education departments, may be used to satisfy the requirement. Courses under these numbers have activity and sports titles and levels of proficiency. If a student repeats the same course or takes a more elementary one, the registrar will assess a penalty for either duplication or regression. In removing incoerence or using the second-grade-only option the student must complete or take again the same activity or sport at the same level.

Proficiency Examinations

The physical education skills requirement may be satisfied by those in or 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 skills will be counted towards a bachelor's degree.

Transfer Students

Transfer students may satisfy the requirement by:

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

Older Students

Students who have passed their twenty-first birthday prior to their first enrollment at the University, as well as those who have passed their twenty-first 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 U.S. armed forces.

Natural Sciences

Students must complete at least seven 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.",) 2

2.1 Introduction to Botany (Lab) 4 s.h.
2.100 Plant Diversity (Lab) 4 s.h.
4.5 Technology and Society 3-4 s.h.
4.7 General Chemistry I 3 s.h.
4.8 General Chemistry II 3 s.h.
4.3 Principles of Chemistry I 3 s.h.
4.14 Principles of Chemistry II 3 s.h.
4.16 Principles of Chemistry Lab I (Lab) 2 s.h.
11.21 Human Biology 3 s.h.
11.21 Human Biology (Lab) 4 s.h.
11.22 Ecology and Evolution 3 s.h.
12.5 Introduction to Geology (Lab) 4 s.h.
12.6 Evolution of the Earth (Lab) 4 s.h.
12.23 Earth History and Resources (Lab) 4 s.h.
12.24 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.

18 H Western Art and Culture Before 1400
3 s.h.

18 H Western Art and Culture After 1400
3 s.h.

18 H Islamic Art and Civilization
3 s.h.

18 H Introduction to Asian Art
3 s.h.

18 H Education, Politics, and Culture of Mainland Southeast Asia
3 s.h.

80-94 Literature of the African Peoples
3 s.h.

10 H German Heroic and Erotic Literature of the Middle Ages
3 s.h.

10 H Introduction to Modern German Literature
3 s.h.

10 H Introduction to Modern German Literature II
3 s.h.

10 H German Cultural History
3 s.h.

13 H Contemporary German Civilization
3 s.h.

13 H The Third Reich and Literature
3 s.h.

14 H The Classical Views
3 s.h.

16 H Western Civilization to 1792
3 s.h.

16 H Western Civilization since 1792
3 s.h.

16 H Civilizations of Asia
3 s.h.

16 H Civilizations of Latin America
3 s.h.

16 H Civilizations to Modern Latin America
3 s.h.

16 H Survey of Ancient Near East and Greece
3 s.h.

16 H The Hellenistic World and Rome
3 s.h.

16 H Medieval Civilization
3 s.h.

16 H History of the Medieval Church
3 s.h.

16 H Early France and the Age of Chivalry
3 s.h.

16 H Society and Culture in Europe 1500-1648
3 s.h.

16 H Age of the Renaissance
3 s.h.

16 H Science from Renaissance to Revolution
3 s.h.

16 H French Revolution and Napoleon
3 s.h.

16 H Fourteenth-Century Europe: The Imperial Era
3 s.h.

16 H France from 1815 to the Present
3 s.h.

16 H Germany 1789-1914: Consumption of Power
3 s.h.

16 H Germany since 1914: Society and Revolution
3 s.h.

16 H History of East Central Europe 1385-1795
3 s.h.

16 H East Central Europe: The Imperial Era
3 s.h.

16 H Klevan Ria and Historical Geography to 1682
3 s.h.

16 H Imperial Russia 1682-1917
3 s.h.

16 H Soviet Union 1917-1953
3 s.h.

16 H Soviet Society and Gender in Europe 1450-1750
3 s.h.

16 H Soviet Society and Gender in Europe 1750-1917
3 s.h.

16 H The Mexican Revolution
3 s.h.

16 H History of Ancient and Traditional India
3 s.h.

16 H Imperialism and Modern India
3 s.h.

16 H Traditional China
3 s.h.

16 H China: Civil War to Mao
3 s.h.

16 H Premodern Japan
3 s.h.

16 H Modern Japan
3 s.h.

16 H Third World Development Support
3 s.h.

25 H World Music I
3 s.h.

30 H Introduction to Soviet Government and Politics
3 s.h.

30 H Government and Politics of the Far East
3 s.h.

30 H The Politics of Southern Africa
3 s.h.

32 H Living Religions of the East
3 s.h.

35 H Contemporary Latin American Narrative
3 s.h.

36 H French Cinema and Culture
3 s.h.

36 H National Cinema
3 s.h.

36 H Introduction to Asian Art
3 s.h.

39 H Asian Humanities
3 s.h.

39 H Japanese Humanities
3 s.h.

39 H Japanese Civilization
3 s.h.

39 H China: Opium War to Mao
3 s.h.

39 H Government and Politics of the Far East
3 s.h.

39 H Japanese Society
3 s.h.

44 H Third World Development Support
3 s.h.

44 H African Development
3 s.h.

45 H Literatures of the African Peoples
3 s.h.

113 H Ethnology of Mesamerica
3 s.h.

113 H Ethnology of the Caribbean
3 s.h.

113 H Japanese Society
3 s.h.

113 H Ethnology of Oceania
3 s.h.

113 H Ethnology of Southeast Asia
3 s.h.

113 H Latin American Economy and Society
3 s.h.

Pass-NONSENS

No course used to satisfy any of the general education requirements may be taken pass-nonsense. 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) 55 H. The Interpretation of Literature. (b) 22 H. Basic Mathematics. Techniques, or those courses used to satisfy (c) the foreign language requirement. (d) the physical education requirement, or (e) 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., 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 use 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 general education of Iowa may count these courses toward the general education requirements (acceptance of transfer credit 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.A. degree 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
Electives

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

Elective Credit from Other

Colleges

The College of Liberal Arts will accept toward the bachelor's degree up to a maximum of 30 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) are 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, nor do they count in the computation of the grade-point average. Maximum credit that may be earned through 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. If a student has more than 62 semester hours of credit from a two-year college, that credit and grade will 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 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 have to be registered to apply for a degree.

Graduation Analysis

Students may obtain a written graduation analysis upon notification at the Office of the Registrar. This analysis may be requested at any time after the completion of the junior 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 competency requirements 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 may select from subjects represented in a related and as they see personal interest. Individuals may put together one or more of the courses to provide just 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 the number of courses when it seems in their best interests to do so. Credit toward the 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 M.B. 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.
while the student is enrolled in the College of Liberal Arts. Completion of an appropriate metric course, unless the student is exempt. Achievement of at least a 2.0 grade-point average both overall and in the 45 semester hours of upper-level work.

For purposes of the above requirements, all College of Education courses (prefix 77) are considered to be in one department; all of Business Administration courses (prefix 61) are considered to be in one department except those in economics (prefix 66); and all of Division of Mathematical Sciences courses (prefix 22) are considered to be in one department. Undergraduate courses offered by the College of Education are considered to be in the College of Liberal Arts.

All rules and regulations of the College of Liberal Arts apply to the B.G.S. degree (total hours, residence, academic standards, deadlines, pass-fail courses, credit by examination, correspondence study, etc.) except as specified otherwise.

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, course distribution requirements.

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

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 a field of education and psychology courses to avoid exceeding the B.G.S. maximum allowance of 60 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.

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 as full-time, on-campus students. The program has no residence requirement. Work done in community and private colleges in Iowa and in accredited out-of-state colleges may be applied toward the degree as may applicable courses taken from any of the three Iowa Regents universities. Types of courses available from the Regents universities include correspondence and independent study courses; radio, television, and newspaper courses; Saturday and evening classes; extension courses, pursuing 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
- Natural sciences and mathematical disciplines
- Social sciences
- Professional sciences

Graduate 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 do not have to be used to meet the distribution area requirements.

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

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 first five weeks of the summer session with the approval of the advisor and instructor. Special courses that meet on a different schedule or start and 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 five weeks of the duration of the course and dropped at any time during the first five weeks of the duration of the course. Stipulated proporitional 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 sessions 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 prefix 7 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.
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. These drop actions will be made without the assignment of a mark of W.

Other Changes in Original Registration

Changes involving pass/fail registration or registration for zero credit (audited) 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 see that 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 date 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 a F in each course.

Students who self-cancel may not be reenrolled to the fall semester classes 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 all 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, 18 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>Grade point for each s.h.</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>4</td>
</tr>
<tr>
<td>A-</td>
<td>3.5</td>
</tr>
<tr>
<td>B+</td>
<td>3</td>
</tr>
<tr>
<td>B</td>
<td>2.5</td>
</tr>
<tr>
<td>B-</td>
<td>2</td>
</tr>
<tr>
<td>C+</td>
<td>1.5</td>
</tr>
<tr>
<td>C</td>
<td>1</td>
</tr>
<tr>
<td>P</td>
<td>0</td>
</tr>
<tr>
<td>W</td>
<td>0</td>
</tr>
<tr>
<td>N</td>
<td>0.5</td>
</tr>
<tr>
<td>F</td>
<td>0</td>
</tr>
</tbody>
</table>

Alternative grading options may be used in courses in certain departments.

Incompletes (I)

A grade of I may be reported only if (a) the unfinished part is the result of work (other than in research, thesis, or independent study) is small; (b) the work is unfinished for reasons acceptable to the instructor; and (c) the student’s standing in the course is satisfactory. Courses may not be repeated to remove incompletes. Incomplete grades must be removed by completing the unfinished part of the work. 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 for submitting late in the fall or the next session in which the student is registered. No extensions to prevent the automatically changing to an F in the event the instructor, if they expire, may allow students to make up incompletes at any time subsequent to the deadline, even if the incomplete has been changed to an F. In such cases, special report to the registrar must be sent for approval to the dean of the college since the instructor now is changing a grade.

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, or for authorized courses in the College of Liberal Arts. Students registered on a P-N basis who receive grades of D or F will have N entered on their record. The grades of P and N will not be used in computing grade-point averages nor will the grade of N count as earned hours for graduation. Arts students taking courses in other colleges of the University will follow the grading policies of those colleges. Students from other colleges taking courses in the College of Liberal Arts will be subject to Liberal Arts grading policies.

Students registered on a P-N during registration or before the end of the third week of classes (or first one and one-half weeks of the summer session) for courses that begin on or end at times other than the beginning and end of the semester may register for P-N at any time during the first two weeks of the duration of the course. The signatures of both the adviser and the instructor must be obtained on the proper form, and the form must be submitted to the Registration Center before the deadline.

A student must be in good academic standing to be eligible for the P-N option. The academic adviser should not sign P-N forms unless the student is in good standing.

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 on the P-N form.

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

Not more than 16 semester hours of grades of P from all colleges will be accepted toward the bachelor’s degree. Transfer students admitted to the University with
fewer than 58 semester hours of credit may earn the maximum of 16 semester hours of grades. Those admitted with more than 55 semester hours are limited to eight semester hours.

Satisfactory-Fail (S-F)

The option of taking courses on a satisfactory-fail basis is available to all students in the College of Liberal Arts under the following conditions:

- When approved by the department and the dean of the college, the grade of S may be used in courses in which, in the judgment of the department, the instructional purposes of the course will be best served.

- Not more than 16 semester hours of S grades will be accepted toward the bachelor's degree of any student.

- Special forms are not necessary to register for S-F courses. All students in such courses will receive either an S or an F.

The grade of F earned in courses taken S-F will not be used in computing the grade-point average.

No Grade Reported (O)

The O (zero) designation appearing on a student's permanent record must be changed to a valid grade according to the same rules that apply to incompletes. Failure to remove the O by the specified date may result in F being assigned for each such record.

Registered (Audit)

Students in the College of Liberal Arts may register as auditors if approval is granted by the adviser and the instructor of the course. In addition to obtaining the signatures of the adviser and instructor, a student must register for zero credit in the course to be audited. To add a course for audit after the opening of the semester, a student must register for zero credit in that course prior to the original registration form. Any change from credit to audit or from audit to credit must be made within the first three weeks of the semester (first and one-half weeks if the summer session), using a change-of-registration form obtained from the necessary signatures.

The mark of R will be assigned if the student's attendance and performance are satisfactory, if unsatisfactory, the mark of W will be assigned. Courses offered for zero credit only will be graded on the Registered-Withdrawn basis. Courses offered for zero credit as well as for credit hours, when taken for zero credit, will be graded R or W.

Courses completed with a mark of R will not meet any college requirements and will carry no credit toward graduation. Auditing may not be used as a second-grade-only option.

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 F, P, or N have been given. Grades of A 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 advisers and to individual students. Delinquent grades are not recorded on a student's permanent record.

Classification of Students

Class

- Semester hours earned

- Freshman

- Sophomore

- Junior

- Senior

- 90 or more

Duplication

Duplication occurs 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 recorded below 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 rule should:

Register in the usual manner for the course he or she decides to repeat or add 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 his or her eligibility and complete the proper form. Current procedures of counting both grades in the transcript of the student, unless the 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, or 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 not take the course for a grade or for a grade the second time.

Deficiency in English

Any instructor who finds the written work of a student seriously defective in the use of the English is expected to report the case, together with specimen papers, to the writing supervisor of the student, a program, who shall have the authority to require additional work in composition without credit. Instructors are authorized to assign such students a reduced grade to written work that does not demonstrate an accurate, effective use of the English language.

Scholastic Probation and Dismissal

Students who fail to attain the following minimum cumulative grade-point averages (0 and overall) for their college academic (or commenced on an academic probation:

Freshmen: 1.60
Sophomores: 1.75
Juniors: 1.90
Seniors: 2.0

Students who enrolled at low for the fall term prior to May 1982 and who will graduate prior to May 1986 must meet the following minimum grade-point averages 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 S 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 Honor 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 grade point only, and (b) graduation with honors in a particular field. Credit for 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 honors 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 begun 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 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 for 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, New York 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 performance in the third and fourth semester-level (or above) course work.

Validation of Credit

Students with educational experience obtained at a nonaccredited institution or in a formal training program in which there is no standardized procedure for evaluation of credit may request the validation of 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 activities. 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 absences are frequent. When an instructor considers that a student has been excessively absent, that it, when such absence endangers 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, marching band, and other recognized University groups are expected to present to each instructor prior to each absen 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 the illness was caused. 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

Attendance at University commencement exercises is mandatory. Candidates for degrees should inform the Office of the Registrar whether or not they intend 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 this handbook. The time and location of examinations are scheduled before the official end of the summer session, either during a regular summer session 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 expelled 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 departmental chairman and with a statement of the necessary facts. The instructor concerned may also submit recommendations in each case for appropriate disciplinary action.

Disciplinary Action

The individual instructor may reduce the student's grade, including the assignment of the grade of F in the course. A with a prior warning may be used. At the discretion of the dean, the case is referred to the Student Discipline Committee. If referred to the Committee, the case is handled according to the procedures in the student's Student Handbook.

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 1983-1984, 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 and meet 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 ACT 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 purposes, 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 without 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 not 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 special 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 contained in the current issue of the Report of Credit Given by Educational Institutions published by the American Association of Collegiate Registrars and Admissions Officers 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 from 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 in a four-point system) for all college work attempted. No grade lower than a C may be used to satisfy a prerequisite.

In general, transfer applicants under academic suspension from the last college attended will not be considered for admission during the period of suspension. An applicant who is placed on academic probation or indefinite period, will not be considered unless six months have passed since 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 with the 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 be examined on probation, and his or her admission will be subject to cancellation.
The College of Liberal Arts may reject 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 (i.e., are not-admitted U.S. students) than the minimum requirements outlined for a resident graduate at an Iowa high school. Applicants whose native or official language is not English must provide a score report from the Test of English as a Foreign Language (TOEFL) before admission may be granted. The Admissions Office may use other tests or criteria for judgment of English language proficiency for admission purposes. Students admitted with a TOEFL score of 550 or more will be considered proficient in English, and they are not subject to any additional English-language requirements. Applicants with TOEFL scores below 550 are required to take the English proficiency examination conducted by the linguistics department. Undergraduate applicants with TOEFL scores below 550 may be admitted to the University conditionally. The provisional admission will be made final only after the student completes all English as a foreign language coursework as recommended as a result of the University 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 community college with which the University has a special agreement, foreign undergraduate applicants with TOEFL scores are above 550 must enroll in rhetoric upon completion of any English-language coursework before taking any English language coursework, as recommended by the linguistics department. Examination may or may not be required by their individual academic departments to take the course, as determined by the linguistics department.

Like foreign applicants, permanent residents of non-English-speaking countries may be required to submit a TOEFL result.
Four-Year Program

The four-year program consists of the General military course (GMC) and the Professional Officer Course (POC). The GMC affords a no-obligation look 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:1-12 The Air Force Today and as a sophomore takes 23A:21-32 The Development of Air Power. To be considered an AFROTC cadet, a student must also 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 a Professional Officer Course (POC). Entry into the two-year program is competitive and requires a student to have at least two academic years of attendance 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 Laboratory and 23A:112-113 National Security Forces in Contemporary American Society.

Students desiring to enter the two-year program should contact the professor of aerospace studies by the first day before the fall semester of their junior year. Applicants must be enrolled in the college of military, grade, acts/seat scores, the Air Force Officer Qualifying Test (AFQT), 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 required to serve a minimum of four years as a U.S. Air Force officer.

Leadership Laboratory

Leadership Laboratory is a class-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, bearing 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, aircraft, 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 must not certified as private pilots participate in the Flight Instruction Program. Normally, during the senior year these students receive 13 hours of flying lessons from the Iowa City Flying Service.

The program also includes 22A: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 Amor Flight Space, 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

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Afro-American Studies/LEGAL ARTS

Afro-American Studies

Program Chair: Dr. James T. Turner
Professor: David T. Turner (English/Afro-American Studies),
associate professors: Peter Nunnreich (English),
International Writing Program (American Studies),
Mary Woodard (English/African-American Studies),
assistant professor: Jonathan History (History/Afro-
American Studies), Karianna Arango (Anthropology/Afro-
American Studies)

Degree offered: M.A., also course cognates leading to B.A. M.A., and Ph.D. in American Studies.

Because the Afro-American Studies Program is interdisciplinary, it also draws cooperation faculty from various departments, including American Studies, Anthropology, Education, English, French, Geography, History, Political Science, Psychology, 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 mid-seventeenth century to the present. To provide a comprehensive view of that subject, the program also offers courses examining the primary relationships of African Americans in other lands. Because a thorough understanding of Afro-American culture cannot be achieved through study restricted to the perspective of a single discipline, all students in the program are required to pursue courses in both humanities and social sciences. Although the program at present emphasizes history and literature, the Afro-American studies steering committee engages in a continuing effort to expand program perspectives by developing courses which will give the knowledge drawn from many disciplines in the humanities and social sciences.

The program originated in 1968 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 conditions and concerns of Black Americans. Since then, these courses have been organized into 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 leading to a B.A., M.A., or Ph.D. in American Studies. It is also possible for students seeking Ph.D. degrees in English or history to organize courses in Afro-American history into a special field or to coordinate area requirements.

Most of the students in the Ph.D. program are preparing to work in colleges and universities as teachers and administrators, the B.A. and M.A. programs provide valuable background for many other students seeking careers in community work, public school teaching, religion, government, and political science. In short, the Afro-American Studies Program offers training important to many professional whose career will require understanding and knowledge of Black Americans.

Undergraduate Study

The Afro-American Studies Program offers a minor to undergraduate students. The semester hours required for the minor conform to the number specified for all minors in the College of Liberal Arts. In consultation with his or her advisor, the student selects 18 semester hours in designated Afro-American Studies courses. Lists of such courses are available in the office of Afro-American Studies (ISB English/Philosophy Building), in the Liberal Arts Advisory Office, and the offices of most departments.

Although the Afro-American Studies Program does not offer a major leading to a 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 45-48 hours in Afro-American Literature, Afro-American History, and Afro-American Arts and cultures, which would include at least 12 hours in two of the following: Afro-American History; Afro-American Literature; Afro-American Literature and History; Afro-American History; and Afro-American History; and Afro-American History; Afro-American History; and Afro-American History; Afro-American History. Students interested in such a concentration should consult their advisors.

The Master of Arts Program

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

The requirements include 45-21 Introduction to Research in Afro-American Culture; 45.312 Advanced Research in Afro-
American Culture, and 12 semester hours of required courses in Afro-American Studies.

Most students will be required to earn 6 hours toward the master's degree by taking 45-116-117 Afro-American Literature, II and II. Each of the following requirements includes 9-10 hours of the following: 45-116 Afro-American History, 1890-1890, 45.16 Afro-American History, 1890-1890, 45-168 Afro-American History, 1890-1890, and 45-168 Afro-American History, 1890-1890. Students who have earned undergraduate or graduate credit in any one of these courses may be approved by the student's advisor. Because the doctorate is not offered in Afro-American studies and the Afro-American studies steering committee will review the courses for both those who have the ability, interest, and resources. Students interested in the following 9 semester hours required in the Master of Arts program should consult the College of Liberal Arts for approval of course offerings. The courses that are offered in the Master of Arts program are required to explore educational doctoral education in disciplines outside of Afro-American studies.

Language/Tool Requirements

No foreign language or tool is required for the Master of Arts program in Afro-American studies, but individuals desiring to pursue a doctoral program in Afro-American studies must be proficient in at least one foreign language a year in the course in their curricula from those numbers.

In addition, students must complete 3 units in a foreign language, which will be determined by the department of Afro-American Studies.
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. If a student elects to write a thesis, the thesis must explore a topic of Afro-American culture and/or experience and must utilize research from more than one discipline. The maximum credit for such a thesis is a semester hour, and election of a thesis eliminates the requirement of 45:112 Advanced Research in Afro-American Culture.

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

Admission Requirements
In addition to the general requirements of the Graduate College, unconditional graduate status in Afro-American Studies Program requires that a student have an appropriate educational background in literature and the social sciences, including 12 semester hours of collegiate credit in Afro-American studies. A minimum grade-point average of 3.0 is required for admission to the Afro-American studies program. 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. Program in 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. The 38 post-baccalaureate semester hours required for the degree, 12 to 24 normally are taken in Afro-American studies. Since the Afro-American Studies Program's interdisciplinary nature, students taking 24 hours are required to take a course in Afro-American History 1650-1830, 45:165 Afro-American History 1830-1890, 45:165 Afro-American History 1890-1914, 45:165 Afro-American History 1914-Present, 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 with 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. The following courses are required: Introduction to Research in Afro-American Culture, Afro-American Literature I and II, and two of the following—45:165 Afro-American History 1650-1830, 45:165 Afro-American History 1830-1890, 45:165 Afro-American History 1890-1914, 45:165 Afro-American History 1914-Present, except when the student has completed equivalent year-long surveys in Afro-American History 1650-1830 or has already enrolled in the graduate program at The University of Iowa.

The interdisciplinary concentration in Afro-American humanities and social sciences requires students to explore both areas. The thesis must draw upon research from more than one field, while focusing on an aspect of Afro-American culture of experience. For additional requirements, please see the description of the requirements for the doctoral program in American studies in the Catalog.

Cognate Areas, Special Fields
It is possible for students to take concentrations in Afro-American courses as cognate areas or special fields in Ph.D. programs in history, English, and other disciplines. For further details, consult with an advisor in Afro-American studies.

Cocurricular Activities Related to Afro-American Studies
Black Kaleidoscope
Periodically the Afro-American Studies Program attempts to promote knowledge and consciousness of Afro-American culture by sponsoring Black Kaleidoscope, a series of lectures and demonstrations by scholars and artists distinguished in Afro-American culture.

Institute in Afro-American Culture
From 1888 through 1978, The University of Iowa each summer served as host for an Institute in Afro-American Studies for college and university teachers. The institutes, which brought renowned artists and lecturers to the campus, focused on such topics as the Harlem Renaissance, Richard Wright, W.E.B. DuBois, Black Americans in theater, and Steve narratives. Although students in residence at the University are not eligible to be official members of the Institute, they are permitted to enroll in three-three or four-hour courses which are offered at the same time as the Institute and 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 offers participants opportunities for experience in theatrical and musical 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 presents dance, music, poetry, and visual and dramatic presentations of Black culture and history.
Aging Studies Program

Coordinator: Hermine Kornblum

Aging Studies, in collaboration with the University of Iowa’s College of Liberal Arts and Sciences, offers an academic major leading to a Bachelor of Arts degree. The program provides students with a broad understanding of the social, economic, and cultural aspects of aging. Students may pursue a major or minor in Aging Studies, or a concentration in Gerontology.

The program consists of courses that have been coordinated and sequenced to provide a broad background in aging for students of various disciplines. All students plan their course of study with their academic adviser 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 300-level or above. This aging-specific course work is defined as courses within the University that are principally focused on older persons, the aging process, or intervention 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 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 graduates, upper-level undergraduates (must have completed 60 semester hours, and special status students with anticipated 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 advisers to shape the plan of study to complement each student’s academic program and career interests. Students should contact the Aging Studies Program coordinator to develop an appropriate plan of study. The program will include the required course work, 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 notify the registrar, who will indicate completion of the program on the student’s transcript.

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: 11:108 Basic Aspects of Aging 34:132 Aging and Society 42:184 Multidisciplinary Perspectives on Aging 96:129 Introduction to Gerontology

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: 17:119 Directed Studies in Family Development 42:184 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 42:149 Aging in America

Anthropology 113:149 Special Topics in Anthropology

Business Administration 67:123 Public Economic Security Programs

Counselor Education 7C:200 Topics Seminar in Counselor Education

Dentistry 12:145 Introduction to Geriatric Dentistry

Family Practice 115:531 Perspectives on the Process of Aging

Health and Hospital Administration 80:208 Long-Term Care Administration

Home Economics 17:211 Individual and Family Development: Life Skills (partial credit)
Nursing
96:104 Nursing IV (partial credit)
96:131 Nursing Care of the
Institutionalized Gerontological Client

Physical Education
27:112 Physical Activity and Aging

Recreation Education
104:146 Contemporary Issues in
Recreation and Leisure
104:182 Aging and Leisure

Religion
32:193 Death and Dying

Sociology
34:220 Sociology of the Family (partial
credit)
34:253 Aging and Human Development

Social Work
42:118 Aging and Social Work
42:185 Social Policy and the Elderly
42:280 Human Behavior: Selected
Aspects

Speech Pathology
3:030 Seminar on Communication and
Aging

Zoology
27:211 Behavior in Cell Physiology

American Studies Program

Program Chair: John Readburn
Faculty: professors Wayne Franklin (American Studies), John Readburn (American Studies/Spanish), Albert J. Stone (American Studies/English), Dan T. Turner (American Studies/English)
associate professor Richard P. houry (American Studies, Peter Sarnacki (English/International Writing Program/American Studies)
assistant professor Anna V. Manager (American
Studies/Anthropology), Jonathan W. Nathan (American Studies/History)

Degrees offered: B.A., M.A., Ph.D.

American Studies draws additional cooperating faculty from Afro-American Studies, Anthropology, Art and
History, Communication and Theatre Arts, Economics, Education, English, Geography, History, Journalism, and Mass
Communication, Law, Linguistics, Political Science, Psychology, Recreation Education, Religious Studies, Social Work, Sociology, Urban and
Regional Planning, and Women's

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 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/or 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 (6 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
45:93 Turning Points in American
Culture

Two of the following:

45:2 American Issues
45:3 Women in American Culture
45:4 Family and Society

Alternatives to Marriage
45:5 Media Studies
45:5 Regional Studies: The
American West
45:7 Sex, Race, and Ethnicity
45:9 American Music
45:60 Introduction to Afro-
American Society
45:91 Introduction to Afro-
American Culture

45:100 Readings in American
Studies
45:152 Childhood and Youth
in America
45:154 Aging in America
45:156 Visual Arts and American
Culture
45:151 American Institutions:
The Business Corporation
45:182 American Communities:
The Coreville Story
45:186 Autobiography and
American Culture
45:189 Popular Culture

General education courses in historical
perspectives, humanities, literature, and
social sciences provide relevant
preparation for the American Studies
major. (See American Lives is especially
recommended.)

Honors

Honors candidates in American studies must take 45:90 Turning Points in
American Culture and 45:95 Honors Project. With his or her advisor's help,
the student in 45:95 derives 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
4:5 201 History, Literature, and
Culture

Two other courses 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
in a minor or major field of study or
problem, 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 36 semester hours of
course work is the required minimum.

Consult department chair for details.

A joint program leading to the M.A.
degree in American studies and the J.D.
degree from the College of Law provides
a broad cultural context for the study and
practice of law. 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 coursework in a major field or topic; equivalent work in a second major field or topic; courses in two minor fields, including one in books or skills.

Although permissible considerable flexibility in planning a program, the American studies candidate must meet certain

basic requirements. One is that all students directly engage, in course work and research, in the cultural expression 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 content of all doctoral programs. The candidate normally takes 45-200 Theory and Practice in American Studies and 45-201 History, Literature, and Culture language examination of the first year of graduate study, and may include 46-530 Special Graduate Projects among the two or three other courses he or she takes in the area of interdisciplinary approaches and methodologies 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 (16-21 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, chosen as part of a specific topic or subdiscipline, as one minor area. Instead of a written final examination, the candidate prepares an annotated bibliography on the minor field for evaluation by the committee of three. The student will have her comprehensive examination committee. A candidate who has already submitted an annotated bibliography to the faculty is assigned a new committee. The faculty 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 such areas as foreign language, film-making, linguistics, computer science, statistics, etc. In addition, up to 6 semester hours from thesis research and writing, teaching methods, and/or courses on 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. The final requirement for the Ph.D. in American studies is presentation of an acceptable thesis on a topic whose investigation is consistent with a major field or discipline. The candidate will have to research a topic in depth, such as fiction, autobiography, film—combined with a critical analysis of the cultural experiences the text reflects, but permission for the Ph.D. on 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 Historic 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 business may also be arranged and course credit allowed when a research component is included.

Courses

For Undergraduates

4000 Cooperative Education Internship
4010 American Village
Introduction to American studies via representative texts, artifacts, and cultural values in historical and contemporary perspectives.
4030 American Issues
Topics and problems in American studies.
4050 Women in American Culture
Topics include personal women, women and work, women's popular culture, American women's history.
4060 Family and Sex Roles: Alternatives to Marriage
The American family, homosexuality in American history and culture, alternatives to marriage.
4065 Media Studies
Studies in film, television, cartoons, the new journalism.
4065 Regional Studies: The American West
The American West: the South in American culture.
4067 Sex, Race, and Ethnicity
The Modern Renaissance: mirror in urban America.
4069 Multicultural Music
Jazz, blues, rock' n' roll.
4080 Turner Points in American Culture
A transhistorical treatment of a single theme or period in American culture, analyzing a variety of materials and evaluating the significance of interrelated topics include cultural theory, history, art, history, history, and related
4096 Harvard Project
Independent research and writing on an intercultural level.

For Undergraduates and Graduates

4100 Readings in American Studies
4102 American Folk Literature
Same as 5117.
4102 Work and Leisure in American Life
Same as 5120.
4103 Psychosociology and Culture
Same as 5128.
4107 Literature and Culture of America Before 1789
The Formative period in American culture, studies through historical records, artifacts, and the arts: special attention to problems of ethnic, social, and cultural and historical contexts.
4101 Childbirth and Youth in America
Studies in child social and cultural contexts.
4103 Aging in America
Social, demographic, historical, and sociological perspectives on the older American.
4104 Visual Arts and American Culture
Study of the visual arts and their visual art expressions of American life and thought.
4105 Medieval Culture: American Vernacular Architecture
Historical and cultural studies in the vernacular architecture, rural and urban, chiefly of the East, Midwest, in course syllabus or published essay.
4106 American Community: The Midwest
Study of American culture and communities in the Midwest, major urban centers, and the Midwestern landscape, emphasizing the regional context.
4110 Architecture and American Culture
Topics in American cultural life and the influence of those who influence the American life.
4112 American Life and Community
Societies and the Midwest, major urban centers, and the Midwestern landscape, emphasizing the regional context.
4120 American Folk Art and American Culture
Societies and the Midwest, major urban centers, and the Midwestern landscape, emphasizing the regional context.
4120 American Popular Culture
Societies and the Midwest, major urban centers, and the Midwestern landscape, emphasizing the regional context.
4120 American Community: The Midwest
Study of American culture and communities in the Midwest, major urban centers, and the Midwestern landscape, emphasizing the regional context.
4120 American Community: The Midwest
Study of American culture and communities in the Midwest, major urban centers, and the Midwestern landscape, emphasizing the regional context.
4120 American Community: The Midwest
Study of American culture and communities in the Midwest, major urban centers, and the Midwestern landscape, emphasizing the regional context.
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 interactions 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 3 s.h.
114:1 Language and Human Behavior 3 s.h.

In addition, each student must take one course in anthropology (area or topical), one course in archaeology, 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 choice, 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 cultures, and urban anthropology. Specialization is encouraged in the undergraduate program, which is designed to enable the student to choose the broadest possible cross-cultural background. Course work is encouraged in such related areas as sociology, geology, 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 do 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 of Iowa faculty members, 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 thesis. The program without thesis precludes 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 36 to 38, 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 thesis is available in conjunction with a minor concentration in museology.

The following are the core area requirements at the M.A. level: Either

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

These four courses:

113:111 Anthropological Linguistics
113:266 Seminar: Anthropological Theory and Method
113:230 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/Museology 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 museology. The Ph.D. degree is offered. For further information, see 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 sub-fields 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, linguistic anthropology, and social-cultural anthropology.

Training in 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:

1. At least 36 hours of graduate course work;
2. Demonstration of a reading knowledge of one foreign language;
3. 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 paleoentymology;
4. Ethnographic or archaeological specialization in a major geographic area (for example, North America, Southeast Asia, the Caribbean, Europe), approved by the student's Ph.D. advisory committee.

Specialization in a major and minor topical area is required:

1. A written comprehensive examination in the student's area of specialization;
2. Preparation and oral defense of a dissertation;

The major topical area is the area of theoretical specialization and concentration for the dissertation. Levels of topics programs may serve either as major or minor areas in diverse fields of study in anthropology. Examples of possible major topical areas for students in the anthropology include migration, political economy, urban anthropology, and historical ecology, environmental archeology, and dating methods.
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 Anthropological Collections through the Office of the State Archaeologist. Prof. Thomas H. Chaterton 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 anthropologists access to source materials on more than 450 different cultures.

Faculty

Members of the anthropology faculty have studied and lived in the Pacific islands, Asia, Europe, the Caribbean, Mesoamerica, South America, and the Subartic. Department faculty have recently conducted field research in Mexico, Bolivia, Guatemala, Peru, Micronesia, Papua New Guinea, Thailand, the Canadian Subartic, New Guinea, Trinidad, India, Sri Lanka, Bangladesh, Hungary, Iceland, the American Southwest, and Java. 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 ethnographic studies of hunting-gathering groups, and archaeological investigations of Indian sites in Iowa, alcohol use and abuse in Micronesia and Melanesia, Mayan linguistics in Guatemala, market woman in Peru, and agrarian and economic decision making among rural peoples in Thailand, Bolivia, and Iowa.

Courses

For Undergraduates Only

101 Introduction to the Study of Culture and Society 3
4

5

1010 Anthropology and Contemporary Field Problems 3

1012 Introduction to Folklore 3

1013 Human Origins 3

1014 Language and Human Behavior 3

1020 Introduction to Midwest Prehistory 3

1037 Individual Study 1-3

1038 Methodology in Research in Anthropology 3

1050 General Anthropology 3

1050 Archaeological Data Analysis 2

1052 Introduction to Modern Anthropology 3

1053 Introduction to Field Research in Anthropology 3

1056 American Civilization: The Colonial Period 3

1059 Native American Cultural History and the Historic Period 3

1061 Native American Cultural History and the Historic Period 3

1063 History of Anthropology 3

1052 Special Topics in Anthropology 3

1053 Special Topics in Anthropology 3

1054 Special Topics in Anthropology 3
Art and Art History

School faculty: Wallace J. Torament

Enrollment: 4607 students

The University of Iowa School of Art and Art History pioneered the artist-teacher concept, appointing its teachers on the basis of their experience as artists rather than on 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 works by American painters and sculptors.

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 art works of all periods and nations, but also through its well-established program of employing visiting artists and scholars of both national and international prominence.

The faculty of its graduate and undergraduate 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 designations, graduates of the school have traditionally continued to find acceptable positions. This condition prevails, although the emphasis has always been placed on the fine arts and specifically commercial art courses are not part of the program, many graduates have taken positions as commodity designers.

As far as possible, the design of academic programs is arranged to meet the individual student's needs, permitting the development of special as well as general programs in studio arts and art history. The major requirements of the undergraduate program are broad and flexible; specialization is discouraged.

The art history major requires at least an introduction to studio work. The studio major requires development of a foundation in art history and at least six areas of studio art. The aim of the joint curriculum is to give students a basic understanding of fine 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 90 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 fulfilling the general liberal arts core and hour requirements.

Art majors in the B.A. degree program may enroll in no more than 9 credit hours of Historical Perspectives general education requirement; those in the B.F.A. degree program may enroll in no more than 12 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

Studio:
Two additional courses exclusive of those courses listed above

Major requirements for the B.A. degree with an emphasis in art history was 9-12 semester hours of studio courses, as defined, and six semester hours (two courses) from among 111, 115, 116, and 111H, plus 18 semester hours of intermediate and advanced art history.

Electives must be followed by the sequence of basic studio courses.

Art History Emphasis

Major requirements for the B.A. degree with emphasis in art history was 9-12 semester hours of studio courses, as defined, and six semester hours (two courses) from among 111, 115, 116, and 111H, plus 18 semester hours of intermediate and advanced art history.

Electives must be followed by the sequence of basic studio courses.

Art History Emphasis

Major requirements for the B.A. degree with emphasis in art history was 9-12 semester hours of studio courses, as defined, and six semester hours (two courses) from among 111, 115, 116, and 111H, plus 18 semester hours of intermediate and advanced art history.

Electives must be followed by the sequence of basic studio courses.
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:

- **1E196 Concepts in Art Education** 2 s.h.
- **1E198 Art Education Studio** 3 s.h.
- **7E143 Methods: Art** 3 s.h.
- **7S105 Advanced Methods: Art** 3 s.h.
- **7S127 Seminar: Curriculum and Student Teaching** 3 s.h.
- **7E152 Lab Practices in Elementary School** 6 s.h.
- **7S191 Observation and Lab Practices in Secondary School** 6 s.h.

The following course is an elective:

- **1E230 Art Education and the Museum** 3 s.h.

**Bachelor of Fine Arts (studio only)**

Prospective B.F.A. students must apply to enter the program following completion of at least one semester of work in the studio area of concentration, but before completion of 50 semester hours in art.

The B.F.A. requires 62 semester hours of credit in School of Art and Art History courses. In addition to the general education requirements (see "College of Liberal Arts" section) major requirements listed above for the B.A. degree. In studio areas, the B.F.A. candidate must complete three courses in a studio area of concentration beyond the fundamental course and must complete at least the second semester of course work in each of two additional studio areas. An evaluation matrix 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, become familiar with major periods and monuments of world art, and gain proficiency in techniques of research within the study areas. 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 50 semester hours of graduate-level course work, with a grade-point average of 3.0 or higher;
- At least a one-semester (100-level) seminar, or 3.0 grade-point average in each of five of the following areas of art history:
  - Ancient (to 300 A.D.)
  - Medieval (300-1500)
  - Renaissance to Baroque (1500-1750)
  - Nineteenth Century to Modern
  - Oriental
  - Pre-Columbian

Course distribution for the M.A. in art history is as follows:

- **1H294 Seminar: Methodology of Art History and Criticism** 3 s.h.
- **Two other art history seminars** (with different instructors) 6 s.h.
- Additional art history courses 12 s.h.
- Studio 6 s.h.
- Courses outside the school 6 s.h.

Students with little or no undergraduate studio training are required to take two courses in different studio fields; students with substantial undergraduate studio training will be exempted from the graduate studio requirement.

A student preparing to teach in both the art history and studio areas will take 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 20 semester hours of graduate work, the M.A. candidate will be expected to demonstrate the ability to read art historical works 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 (GSFL), 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 art with concentrations in design, drawing, metalworking and jewelry, multimedia and video art, painting, photography, printmaking, or sculpture. The degree requirements:

The B.A. or B.F.A. in art equivalent to that offered at The University of Iowa (undergraduate studio areas) will be a major sequence, to be made up concurrently with, but are in addition to, graduate requirements:

- A minimum of 36 semester hours of graduate work, including at least 12 semester hours in a major studio subject, 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.

Graduate students may elect to take at least one studio course with satisfactory-unsatisfactory basis.

Graduate students who have not had drawing at The University of Iowa must take at least one drawing course during the first year.

A student preparing to teach in both the studio and art history areas may offer an art history minor of 15 semester hours, under the supervision of the Department of Art History and Criticism, and one other minor. These hours are in addition to those required for the 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 are:

The B.A. or B.F.A. in art equivalent to that offered at The University of Iowa, teaching certification in art:

Completion of 38 semester hours of graduate credit, including 18 semester hours of studio and art history in a ratio of two to one (either 12 semester hours of graduate credit in studio and 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 either the student commences the program; 

An oral and/or written examination in art education will be given at the end of the first semester of the program.

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

Art education majors who elect to do a studio thesis and who have not had drawings at the University of Iowa are required to take at least one studio 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, film/working and jewelry, multimedia and video art, painting, photography, printmaking, or sculpture. The M.F.A. candidate must have an M.A. degree in an equivalent to that offered at The University of Iowa. A minimum of 60 semester hours of graduate work, including at least 12 semester hours in a major studio subject, at least six semester hours in a minor studio field, nine semester hours of general and theory, and eight semester hours in courses outside the school; clearance for M.F.A. candidacy by faculty review and studio and written thesis. Thesis credits earned in an M.A. program are not applicable toward the M.F.A. credit requirement.

Doctor of Philosophy (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 total hours required for the Ph.D.

The University of Iowa's written examination 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 18-25 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 days 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 satisfying 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 advisor 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. One minor field may be related to the major; this field may be in a discipline or disciplines outside the school, for example, religion, history, or philosophy.

The student must prepare a written dissertation constituting an original scholarly contribution to the field. The school will administer certain examinations and hours of credit toward the art history coursework requirements 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 student programs include a committee review of applications and, in some cases, of the applicant's supporting material. Contact the school for more specific 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 such as figure drawings, chisselings. Majors must submit from 6 to 20 original prints and drawings. Photography majors must submit a selection of original photographs. Sculpture majors should send 8-10 black-and-white photos—sideways, if color is important—to 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 either 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 all art history 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 the in-state tuition rate.

Scholarships paying partial or full tuition and retaining no departmental duties require at least 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 had 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, furnaces, and equipment for large-scale iron and 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 tents; 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 China, and the other intended for those who wish to concentrate on developing competence in one of the languages offered. 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 Asia 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 East and Southeast Asian cultures, both modern and traditional, and to prepare them for academic, professional, 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:

- 39:10-11 Second Year Chinese: 12 s.h.

At least one course on the history of the area whose language they are studying, chosen from:

- 39:133 History of Ancient and Traditional India
- 39:134 Imperialism and Modern India
- 39J:153 Traditional China
- 39:154 China: Opium War to Mao
- 39J:153 Premodern Japan
- 39J:154 Modern Japan

Other courses on Asia 100-level or above:

- for those taking Chinese or Japanese
- for those taking 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.
- 39:105-106 Third Year Chinese: 12 s.h.

For students of Sanskrit:

- 39:103-104 Second Year Sanskrit: 12 s.h.
- 39:105-106 Third Year Sanskrit: 12 s.h.
- 39:141 Traditional Japanese
- 39:142 Modern Japanese

For students of Japanese:

- 39:10-11 Second Year Japanese: 12 s.h.
- 39J:105-106 Third Year Japanese: 12 s.h.

This program is designed 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:

- 39:105-106 Third Year Chinese: 12 s.h.
- 39:103-104 Second Year Sanskrit: 12 s.h.
- 39:133 History of Ancient and Traditional India
- 39:134 Imperialism and Modern India
- 39J:153 Traditional China
- 39:154 China: Opium War to Mao
- 39J:153 Premodern Japan
- 39J:154 Modern Japan
- 39:133 History of Ancient and Traditional India
- 39:134 Imperialism and Modern India
- 39J:153 Traditional China
- 39:154 China: Opium War to Mao
- 39J:153 Premodern Japan
- 39J:154 Modern Japan
- 39:133 History of Ancient and Traditional India
- 39:134 Imperialism and Modern India
- 39J:153 Traditional China
- 39:154 China: Opium War to Mao
- 39J:153 Premodern Japan
- 39J:154 Modern Japan

This program is designed 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.
- 39:105-106 Third Year Chinese: 12 s.h.

For students of Sanskrit:

- 39:23-24 Second Year Sanskrit: 6 s.h.
- 39:185-187 Third Year Sanskrit*: 6 s.h.
- 39:163 Indian Religious Texts: 3 s.h.

*With the approval of the departmental adviser, 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 understand historical perspectives by completing 39:55-56 Civilizations of Asia.

Honor

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 required that the student 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 high school teaching, governmental service, or commerce, in which a knowledge of Chinese, Japanese, or a culture would be helpful. It also provides excellent preparation for advanced study in the diplomatic field.

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 Modern Japanese. 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, students will be examined on the History of China, History of Japan, and South Asian History, literature, art, or religion, depending on the specialization of the student. A curriculum for such a 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. In addition, applicants must submit a specimen of their writing—such as a term paper, seminar paper, or graduation thesis—to 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
381 Chinese 4.5
Introduction to spoken Mandarin, with some instruction in written characters, Chinese culture will be introduced. Open to freshmen. Offered: alternate semesters.
382 Chinese 4.5
Further study of spoken Mandarin with more emphasis on written language. Prerequisite: 381. Offered: alternate semesters.
383 Final Year Chinese 8
Standard system of Mandarin Chinese, basic grammatical patterns and important cultural aspects, satisfies the S.E. foreign language requirement. Open to seniors. Offered: alternate semesters.
385 Final Year Chinese 8
Together with 383, satisfies the B.A. foreign language requirement. Prerequisite: 383 or 381. Offered: first or second semester.
386 Final Year Chinese 8
Continued emphasis on spoken and written Chinese. Emphasizes vocabulary, sentence structure, and grammar, satisfies the S.E. foreign language requirement. Open to seniors. Offered: alternate semesters.
391 Second Chinese 8
Continued study of spoken and written Chinese. Emphasizes vocabulary, sentence structure, and grammar, satisfies the S.E. foreign language requirement. Prerequisite: 390. Offered: first or second semester.
392 Cultural Chinese 4.5
Introduction to classical Chinese of the late Han period, readings will be primarily from Han Shih, Mencius, and Chuang Tzu, and will examine grammatical structure and accent pronunciation. Prerequisite: 391 or 390.
392A First-Year Chinese 8
Introduction to classical Chinese of the late Han period, readings will be primarily from Han Shih, Mencius, and Chuang Tzu, and will examine grammatical structure and accent pronunciation. Prerequisite: 391 or 390.
392B First-Year Chinese 8
Introduction to classical Chinese of the late Han period, readings will be primarily from Han Shih, Mencius, and Chuang Tzu, and will examine grammatical structure and accent pronunciation. Prerequisite: 391 or 390.
393 Second-Year Chinese 8
Second-Year Chinese 8
Continued emphasis on spoken and written Chinese. Emphasizes vocabulary, sentence structure, and grammar, satisfies the S.E. foreign language requirement. Prerequisite: 390. Offered: second semester.
394 Final-Year Chinese 8
Reading of advanced modern Chinese texts with further practice in speaking and writing. Prerequisite: 3911. Offered: fall semester.
396 Final-Year Chinese 8
Introduction to modern Chinese. Emphasizes vocabulary, sentence structure, and grammar, satisfies the S.E. foreign language requirement. Prerequisite: 390. Offered: first or second semester.
399A First-Year Japanese 8
Introduction to the Japanese language. Prerequisite: 385 and 381; or 386 and 385. Offered: alternate semesters.
399B First-Year Japanese 8
Introduction to the Japanese language. Prerequisite: 385 and 381; or 386 and 385. Offered: alternate semesters.
399C Final-Year Japanese 8
Grammar and readings in classical Japanese. Prerequisite: Third-year Japanese and consent of instructor.
399D Final-Year Japanese 8
Grammar and readings in modern Japanese. Prerequisite: Third-year Japanese and consent of instructor.
319A Beginnings for Graduate Students I 4.5
Introduction to Chinese for graduate students. See 384B. Offered fall semester.
319B Beginnings for Graduate Students II 4.5
Prerequisite: 319A. See 384B. Offered spring semester.
319C Beginnings for Graduate Students III 4.5
Prerequisite: 319A or 384B. Offered fall semester.
319D Beginnings for Graduate Students IV 4.5
Prerequisite: 319A or 384B. Offered fall semester.
319A Classical Chinese 4.5
Introduction to classical Chinese of the late Han (fourth century B.C.) period, readings will be primarily from Han Shih, Mencius, and Chuang Tzu, and will examine grammatical structure and accent pronunciation. Prerequisite: 392 or consent of instructor.
319B Classical Chinese 4.5
Introduction to classical Chinese of the late Han (fourth century B.C.) period, readings will be primarily from Han Shih, Mencius, and Chuang Tzu, and will examine grammatical structure and accent pronunciation. Prerequisite: 392 or consent of instructor.
319C Classical Chinese 4.5
Introduction to classical Chinese of the late Han (fourth century B.C.) period, readings will be primarily from Han Shih, Mencius, and Chuang Tzu, and will examine grammatical structure and accent pronunciation. Prerequisite: 392 or consent of instructor.
319D Classical Chinese 4.5
Introduction to classical Chinese of the late Han (fourth century B.C.) period, readings will be primarily from Han Shih, Mencius, and Chuang Tzu, and will examine grammatical structure and accent pronunciation. Prerequisite: 392 or consent of instructor.
329A Advanced Classical Chinese 4.5
Selected readings from Zuo's Ban, and other works of the late classical Chinese period. Prerequisite: 319A-B.
329B Advanced Classical Chinese 4.5
Selected readings from Zuo's Ban, and other works of the late classical Chinese period. Prerequisite: 319A-B.
329C Advanced Classical Chinese 4.5
Selected readings from Zuo's Ban, and other works of the late classical Chinese period. Prerequisite: 319A-B.
329D Advanced Classical Chinese 4.5
Selected readings from Zuo's Ban, and other works of the late classical Chinese period. Prerequisite: 319A-B.
330 Language and Literature I 4.5
Chinese literature of the Tang (second to ninth century A.D.) period. Prerequisite: 319 or consent of instructor.
331 Language and Literature II 4.5
Chinese literature of the Tang (second to ninth century A.D.) period. Prerequisite: 319 or consent of instructor.
332 Language and Literature III 4.5
Chinese literature of the Tang (second to ninth century A.D.) period. Prerequisite: 319 or consent of instructor.
333 Language and Literature IV 4.5
Chinese literature of the Tang (second to ninth century A.D.) period. Prerequisite: 319 or consent of instructor.
334 Introduction to Chinese Literature for Graduate Students I 4.5
Prerequisite: 319 or 384B. Offered fall semester.
335 Introduction to Chinese Literature for Graduate Students II 4.5
Prerequisite: 319 or 384B. Offered fall semester.
336 Introduction to Chinese Literature for Graduate Students III 4.5
Prerequisite: 319 or 384B. Offered fall semester.
337 Introduction to Chinese Literature for Graduate Students IV 4.5
Prerequisite: 319 or 384B. Offered fall semester.
338 Final-Year Japanese 8
Grammar and readings in modern Japanese. Prerequisite: Third-year Japanese and consent of instructor.
339 Final-Year Japanese 8
Grammar and readings in modern Japanese. Prerequisite: Third-year Japanese and consent of instructor.
349 Beginnings for Graduate Students I 4.5
Introduction to Sinological literature: A study of Chinese literature, social and intellectual characteristics of the time. Same as 451.5.
350 Comparative Literature 4.5
A survey of Chinese literature from the seventh century to the sixteenth century. May be taken for credit or audit. Prerequisite: 319.
355 Western Japanese Fiction in Translation 4.5
Survey in English translation of major works of Japanese fiction from the seven–nineteenth century to the present. No knowledge of Japanese required.
361 Chinese Literature and Language 4.5
Development and characteristics of Chinese literature from the Han to the late T'ang period. Prerequisite: 319 with an emphasis on poetry.
365 Traditional Japanese Literature in Translation 4.5
A survey of English translation of major works of the Japanese literary tradition from the seventh century to early 20th century. Prerequisite: 319.
369 Chinese Literature and Language 4.5
Development and characteristics of Chinese literature from the Han to the late T'ang period. Prerequisite: 319 with an emphasis on poetry.
369B The Literature of Fuzi 4.5
Readings illustrating the pervasive influence of Confucianism and religious Taoism in such areas of rational Chinese life as political theory, poetry and the arts, alchemy and medicine, social customs and styles. Same as 369B.
369C Chinese Literary Poetry 4.5
Development and characteristics of Chinese literature from the Han to the late T'ang period. Prerequisite: 319 with an emphasis on poetry.
369D Traditional Japanese Literature in Translation 4.5
A survey of Chinese literary theory, translation, and the social and intellectual milieu of the time. Same as 451.5.
369E Chinese Drama 4.5
A study of Chinese drama from an historical and cultural perspective. Prerequisite: 319 or consent of instructor.
369F Chinese Drama 4.5
A study of Chinese drama from an historical and cultural perspective. Prerequisite: 319 or consent of instructor.
369G Chinese Drama 4.5
A study of Chinese drama from an historical and cultural perspective. Prerequisite: 319 or consent of instructor.
369H Traditional Japanese Literature in Translation 4.5
A survey of English translation of major works of the Japanese literary tradition from the seventh century to the sixteenth century. No knowledge of Japanese required.
369I Chinese Literature and Language 4.5
Development and characteristics of Chinese literature from the Han to the late T'ang period. Prerequisite: 319 with an emphasis on poetry.
369J Chinese Drama 4.5
A survey of Chinese drama from an historical and cultural perspective. Prerequisite: 319 or consent of instructor.
369K Chinese Drama 4.5
A survey of Chinese drama from an historical and cultural perspective. Prerequisite: 319 or consent of instructor.
369L Traditional Japanese Literature in Translation 4.5
A survey of Chinese literary theory, translation, and the social and intellectual milieu of the time. Same as 451.5.
369M East-West Literary Relations 4.5
Reading of avant-garde and mainstream literary works reflecting the influence of Chinese literature and the social and intellectual milieu of the time. Same as 451.5.
Individual Study for Advanced Students

39:101 Honors Tutorial
Offered on satisfactory basis.

39:105 Senior-Honors Thesis

39:200 Methods of Teaching Science
3 s.h.
Introduction to the teaching of elementary science. Prerequisites: 39:106 or equivalent.

39:250 Methods of Teaching Japanese
3 s.h.
Introduction to the teaching of Japanese. Prerequisites: 39:105 or equivalent.

39:271 Individual Courses in Advanced Science
Selection of individual courses in advanced science. Prerequisites: 39:105 or equivalent.

39:272 Individual Japanese for Advanced Students
Selection of individual courses in advanced Japanese. Prerequisites: 39:105 or equivalent.

39:293 W.A. Thesis
Offered fall semester.

39:295 W.A. Thesis II
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 and dynamic 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:

22M:25-26 Calculus I-Il
8 s.h.

22M:35-36 Engineering Calculus I-Il
8 s.h.

23:1-18 Introduction to Animal Biology
5 s.h.

2:1 Introduction to Botany
4 s.h.

61:175 General Microbiology
4 s.h.

61:147 Survey of Virology
3 s.h.

72:152 Mammalian Physiology
4 s.h.

Other biological area
3 s.h.

4:13 Principles of Chemistry I
3 s.h.

4:14 Principles of Chemistry II
3 s.h.

4:16 Principles of Chemistry Lab
2 s.h.

4:121-122 Organic Chemistry I-Il
8 s.h.

4:131 Physical Chemistry I
3 s.h.

4:132 Physical Chemistry II
3 s.h.

95:135 Physical Biochemistry
4 s.h.

1:141 Organic Chemistry Laboratory
3 s.h.

95:100 Seminar: Undergraduate
0-1 s.h.

(Three s.h. total required)

95:120 The Chemistry of Biological Molecules
3 s.h.

95:130 Metabolism
3 s.h.

95:120 Experimental Biochemistry
4 s.h.

95:100 Biochemistry of Informational Macromolecules
3 s.h.

95:155 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:

23W:15 Mathematics for the Biological Sciences
4 s.h.

22M:25-26 Calculus for the Biological Sciences
8 s.h.

25:11-12 College Physics
5 s.h.

37:3 Principles of Animal Biology
5 s.h.

2:1 Introduction to Botany
4 s.h.

61:175 General Microbiology
4 s.h.

61:147 Survey of Virology
3 s.h.

72:152 Mammalian Physiology
4 s.h.

Other biological area
3 s.h.

4:13 Principles of Chemistry I
3 s.h.

4:14 Principles of Chemistry II
3 s.h.

4:15 Principles of Chemistry Lab
2 s.h.

4:121-122 Organic Chemistry I-Ill
8 s.h.

4:130 Physical Chemistry for the Life Sciences
3 s.h.

95:100 Seminar: Undergraduate
0-1 s.h.

95:120 The Chemistry of Biological Materials
3 s.h.

95:130 Metabolism
3 s.h.

95:140 Experimental Biochemistry
4 s.h.

95:150 Biochemistry of Informational Macromolecules
3 s.h.

Advanced science electives
9 s.h.

Alternatively, B.A. students intending to go on to advanced degrees in the biological or health sciences are advised to include four semester hours of senior research among their electives.

Biochemistry majors, especially in the B.A. program, must qualify for teacher certification by taking additional courses in teacher education. For details consult with an adviser in the College of Education.

Honors Program

Qualified students may earn an honors degree by doing special work in 95:140 Experimental Biochemistry or more usually in 95:155 Research: Independent Study. The student presents the research results in a report written in the form of a journal article and in an oral report in 95:100 Seminar: Undergraduate, or to a departmental honors committee.
Undergraduate Program

The biology major is jointly administered and taught by the departments of Botany and Zoology.

The basic courses emphasize processes which unite or are 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 ample opportunity for this emphasis through the program in ecology and environmental biology, and through the program's use of the Macbride Field Station.

Also, a variety of courses is offered during the summer at the Iowa Lakeide Laboratory at Lake Okoboji.

The science requirements are identical for the Bachelor of Arts and Bachelor of Science degrees with a major in biology. They total 34 semester hours, as follows:

2:1 Introduction to Botany 4 s.h.
37.3 Principles of Animal Biology 5 s.h.
37.128 Fundamental Genetics 3 s.h.

37.126 Fundamental Genetics 3 s.h.
37.129 Fundamental Genetics Laboratory 2 s.h.
or
37.129 Fundamental Genetics Laboratory 2 s.h.
or
37.131 Evolution 4 s.h.
37.155 Cell Physiology 4 s.h.
Electives in botany, microbiology, zoology, or geology (prebotany) 12 s.h.

The twelve elective hours must be in courses numbered 100 or above, excluding 37.125. A Planet in Crisis, 61.164 Microbiology, and similar courses directed primarily at nonscience students; and including no more than three semester hours in botany and zoology honors courses, and 2:153 Special Topics and 37.199 Introduction to Research. Students may substitute up to 4 semester hours of advanced courses in physical sciences (physics, chemistry, or geology) courses numbered 100 or above that carry elementary course prerequisites and are directed at science students or in mathematics (any course that requires first-semester calculus as a prerequisite). Such substitutions may not include any of the "requirements in other disciplines" listed below.

Requirements for the major in biology also include these courses in other disciplines:

- Electives in botany, 4:13-14 Principles of Chemistry II 6 s.h.
- 4:16 Principles of Chemistry Lab I 3 s.h.
- 4:21 Organic Chemistry I 3 s.h.
- 99.120 The Chemistry of Biological Materials 3 s.h.
- 29:11-12 College Physics I and II 8 s.h.
- 29:9-18 Introduction to Physics III 8 s.h.
- 22M53 Calculus I 4 s.h.
or
- 22M54 Calculus II 4 s.h.
- 22M55 Calculus for the Biological Sciences 3 s.h.
- 22M58 Engineering Calculus I 4 s.h.
- BW.10 Expository Writing (or equivalent) 3 s.h.

Biology students planning to apply for admission to The University of Iowa College of Medicine must take a complete course in organic chemistry, with laboratory. This requirement may be fulfilled by taking 4:121 Organic Chemistry I and 4:122 Organic Chemistry II plus 4:141 Organic Chemistry Laboratory or by taking 4:121 and 99:120 The Chemistry of Biological Materials plus 99:140 Experimental Biochemistry. Biology students planning to teach in high schools should consult with advisors in the College of Education concerning psychology, education, and American government courses required for teaching certification.

Minor

A minor in biology is available for students majoring in other subjects. The biology minor requires 16 semester hours of credit in botany, microbiology, zoology, and/or geology (prebotany) courses taken at The University of Iowa and including at least 12 semester hours in 100-level courses, excluding those designated primarily for nonscience 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 Program

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 departments' 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 Honor 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 2:198 Honors Laboratory Research or 37.195 Honors Laboratory Research. At least 3 semester hours in 2:197 Honors Readings in Botany or 37.197 Honors Readings in Zoology, and at least 2 semester hours in 37.196 Honors Seminar in Zoology or a permanent 2:196 seminar course. Each student in biology must maintain at least a 3.2 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 biology, but do not offer a Bachelor of Science in Zoology. See Botany and "Zoology" in this section of the Catalog.

Botany

Department Chair: Jeff T. Schubert
Faculty professors: Robert W. Crane, Robert M. Hnilo, Jeff T. Schubert
Associate professors: Wayne P. Carter, Robert W. Eirbach, Douglas H. Hanula, Margaret B. Kuenzi, Richard G. Sponka, Wei-Han Wang
Assistant professor emeritus Henry G. Glew
Adjunct professor emeritus Jonathan S. Poulin, Dana G. Iverson

Assistant professor Kenneth Jensen
Research Assistant D.S., B.A., M.S., Ph.D. in biology, administered by Jeff T. Schubert with the Department of Biology.

Botany is a science contributing to our understanding of plants, their significance.
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 are often preparing for 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:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>21:13</td>
<td>Botany</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>21:101</td>
<td>Plant Anatomy</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>21:113</td>
<td>Plant Anatomy</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>21:129</td>
<td>Fundamental Genetics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>21:102</td>
<td>Algae and Fungi</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>21:107</td>
<td>Mycology</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>21:105</td>
<td>Physiology</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>21:129</td>
<td>Fundamental Genetics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>21:114</td>
<td>Cellular Plant Physiology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>31:129</td>
<td>Plant Biochemistry</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>31:125</td>
<td>Plant Anatomy</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>21:110</td>
<td>Plant Physiology</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>21:111</td>
<td>Plant Physiology</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>21:116</td>
<td>Plant Physiology</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>21:121</td>
<td>Plant Physiology</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>21:131</td>
<td>Plant Physiology</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>21:132</td>
<td>Plant Physiology</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>21:122</td>
<td>Plant Physiology</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>21:126</td>
<td>Plant Physiology</td>
<td>4 s.h.</td>
</tr>
</tbody>
</table>

**Botany Requirement**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>21:101</td>
<td>Plant Diversity</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>21:13</td>
<td>Biology of the Local Flora</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>21:121</td>
<td>Plant Taxonomy</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>21:151</td>
<td>Field Botany</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>21:105</td>
<td>Plant Taxonomy</td>
<td>5 s.h.</td>
</tr>
<tr>
<td>21:109</td>
<td>A Taxonomy Course</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>21:116</td>
<td>Field Botany</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>21:115</td>
<td>The Local Flora</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>37:105</td>
<td>Cell Physiology</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>21:1</td>
<td>Physiology</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>21:2</td>
<td>Ecology</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>21:6</td>
<td>Field Ecology</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>21:131</td>
<td>Special Topics</td>
<td>2 s.h.</td>
</tr>
</tbody>
</table>

**Zoology Requirement**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>37:1</td>
<td>Principles of Zoology</td>
<td>5 s.h.</td>
</tr>
<tr>
<td>41:13</td>
<td>Principles of Chemistry I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>41:14</td>
<td>Principles of Chemistry II</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>41:16</td>
<td>Principles of Chemistry Laboratory</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>41:17</td>
<td>Organic Chemistry I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>41:12</td>
<td>Organic Chemistry II</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>99:120</td>
<td>The Chemistry of Biological Materials</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>41:141</td>
<td>Organic Chemistry Laboratory</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>99:140</td>
<td>Experimental Biochemistry</td>
<td>4 s.h.</td>
</tr>
</tbody>
</table>

**Mathematics Requirement**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>22M:13</td>
<td>Mathematics for the Biological Sciences</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>or</td>
<td>22M:20 Elementary Functions</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>22M:20</td>
<td>Elementary Functions</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>A Statistics course</td>
<td>4 s.h.</td>
<td></td>
</tr>
<tr>
<td>22M:102</td>
<td>Introduction to Statistical Methods</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**Bachelor of Arts**

The B.A. curriculum provides a broad background in botany yet allows more electives than does the B.S. degree. Students majoring in botany are required to take:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>21:101</td>
<td>Plant Diversity</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>37:3</td>
<td>Principles of Animal Biology</td>
<td>5 s.h.</td>
</tr>
<tr>
<td>21:129</td>
<td>Plant Biochemistry</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>37:105</td>
<td>Cell Physiology</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>21:110</td>
<td>Plant Physiology</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>21:111</td>
<td>Plant Physiology</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>21:114</td>
<td>Cellular Plant Physiology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>21:129</td>
<td>Plant Biochemistry</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>37:105</td>
<td>Cell Physiology</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>21:13</td>
<td>Biology of the Local Flora</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>21:120</td>
<td>Paleobotany</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>L:105</td>
<td>Plant Taxonomy</td>
<td>5 s.h.</td>
</tr>
<tr>
<td>21:116</td>
<td>Field Ecology</td>
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<td>21:121</td>
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<td>37:105</td>
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<td>21:110</td>
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<tr>
<td>21:129</td>
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<tr>
<td>37:105</td>
<td>Cell Physiology</td>
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</tr>
<tr>
<td>21:132</td>
<td>Ecology</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>21:131</td>
<td>Evolution</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>21:132</td>
<td>Ecology</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>21:102</td>
<td>Algae and Fungi</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>21:105</td>
<td>Physiology</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>21:110</td>
<td>Plant Physiology</td>
<td>4 s.h.</td>
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<td>21:131</td>
<td>Special Topics</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>99:120</td>
<td>The Chemistry of Biological Materials</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**Minor**

The biology minor requires 16 semester hours of credit in Biology. At least 12 of these semester hours must be earned in courses at the 100 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 biology and botany. 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 design course work necessary to meet their needs.

**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.
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 use that course work beyond the 72 hours to meet specific proficiency requirements (e.g. language, statistics) or to make up for background deficiencies (e.g. chemistry, general botany, course work). 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.

Submit 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.B.). The proposal should outline the specific objectives, significance and methodology of the chosen research project. This proposal should be prepared in writing and presented to the faculty at the 20-hour degree requirement. Additionally, a written acceptance of 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. The proposal will be reviewed and approved at the oral examination conducted. 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 Botany is administered jointly by the botany and biology departments. See "Biology" section of the Catalog.

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 must be from another department. Normally, as a guidance procedure, the program of study should be developed 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 figured 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 20 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, but no more than six may be counted toward the 20-hour degree requirement.

Achieve a grade point average of 3.0 on all courses—other than Research—attempted up to the time of the final examination.

Prepare a thesis on research conducted.

Defend the thesis in an examination during the term in which he or she is to graduate.

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.

The Ph.D. Program:

A grade point average of at least 3.4 on graduate work.

A GRE Aptitude Test score of at least 1200.

Three letters of recommendation.

A master's degree in botany or a degree in biology.

 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 admittance to the master's program in botany must have a bachelor's degree in one of the biological sciences. Students with bachelor's degrees in other areas will need to register as special students (ARS) 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:
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. All fellowships are subject to the availability of funds.

The types of appointments and support are: teaching assistantships and research assistantships (fall-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 during the academic year. The resident tuition rates vary. Teaching 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. Appointees render service to the department equal to that of a full-time teaching and research assistant or associate. The TRF is free of service requirements, permitting a student to devote full 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 graduate courses.

Genetics Research Assistantships are awarded by the Interdepartmental Genetics Program from University funds. All students whose thesis projects are primarily concerned with genetics are eligible to apply. Other sources of support

Summer appointments are few and depend upon the amount of the summer research 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 departmental resources. Graduate College and departmental regulations and standards apply to these appointments.

Grants-in-aid for graduate students: Agencies such as NIH, NSF, and Sigma Xi make grants-in-aid to graduate students. Announcements of 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 research projects requiring the cultivation of plants have access to greenhouses 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, acetylene reduction, plant biochemistry, biochemical systematics, paleobotany, cytogenetics, ecophysiology, plant physiology, polynuclear, morphogenesis, and cell biology. There are two transmission electron microscopes in a special laboratory. Students and staff 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 toxophytes, and a growing repository of fossil pteridophytes. Within a few miles of the campus, a forest preserve is available for field trips and experimental projects. A botanical field station at Iowa Lakeside Laboratory (see Iowa Lakeside Laboratory in this section of the catalog) on West Lake Okoboji in northwestern Iowa affords excellent conditions for summer study in field biology, taxonomy, morphology, and ecology. A new laboratory in paleobotany, physiology, and plant taxonomy. Students frequently participate in field expeditions in Mexico, and Central America. Qualified graduate students may use the Weig Campaign Center in their research projects.

Courses

Primary for Undergraduates

210 Introduction to Botany Biology of plant life emphasizing structure, function, reproduction, source, and distribution. Required for biology and zoology majors and for those preparing to teach science.

130 Introductory Plant Taxonomy 3 a.h. Study of angiosperms and gymnosperms, cuttings, budding and grafting, seeds and flowers, morphology, and taxonomy. Prerequisite: 210 or equivalent.

131 Botany of the Local Flora 3 a.h. Identification, classification, and economic botany of ferns, gymnosperms, and flowering plants occurring in the moist forests and cultivated fields in native woodland and prairie communities when feasible. Prerequisite: 210 or equivalent.

230 Plant Propagation 3 a.h. Study of vegetative and seed propagation techniques, cuttings, budding and grafting, seeds and flowers, and taxonomy of plants. Prerequisite: 210 or equivalent.

340 Plant Morphology and Evolution 3 a.h. Study of plant life emphasizing the structure, reproduction, and evolution of major plant groups. Prerequisite: 210 or equivalent.

For Undergraduates and Graduates

211 Plant Taxonomy 4 a.h. Laboratories and field work in systematic and biological aspects of field biology, lichenology, mycology, and algae. Prerequisite: 210 or equivalent.

425 Advanced Botany Survey of algae, fungi, and mycorrhizae, lichenology with emphasis on morphology and reproductive biology of representatives of major taxonomic groups; lectures and laboratory experience with fungi and lichen, algae, and mycorrhizae. Prerequisites: 211 or 271, 207, or equivalent.

530 Introductory Genetics 4 a.b. Basic principles of genetics including Mendelian, chromosomal, molecular, and evolutionary genetics.

249 Cryptogams 3 b. Structure and function of cryptogams, processes of reproduction, chromosome aberrations, taxonomy of the cryptogams, significance of heterospory, and systematic studies. Prerequisite: 210 or equivalent.

253 Physiology 3 b. Reproduction and development of algae, fresh water and terrestrial, and higher plants. Physiology of reproduction of major groups. Prerequisite: 211 or equivalent.

293 Botany 3 b. A study of plants; their structure, function, and role in natural and human systems. Prerequisite: 210 or equivalent.

517 Mycology 3 b. Morphology, taxonomy, and technology of fungi with special emphasis on the field biology, physiology, and ecology of higher plants, pollination biology, and plant taxonomy. Students frequently participate in field expeditions in Mexico, and Central America. Qualified graduate students may use the Weig Weig Campaign Center in their research projects.
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 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
4:6 Principles of Chemistry Lab I
4:7 Basic Measurements
4:11-12 Analytical Chemistry I-II
4:12-13 Organic Chemistry I-II
4:13-14 Physical Chemistry I-II
4:14 Organic Chemistry Laboratory
4:143 Analytical Measurements
4:144 Physical Measurements
Integral calculus (22M:35-36 Engineering Calculus I-II recommended, 22M:35-36 Calculus I-II accepted)
Introductory physics (29117-18 Introductory Physics I-II recommended; 29115-13 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 secondary school certification. Students in 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 a thesis or non-thesis, 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.

4170 Advanced Inorganic Chemistry
4171 Advanced Analytical Chemistry
4172 Advanced Organic Chemistry
4173 Advanced Physical Chemistry

Enrolling students will be given the opportunity to take examination equivalents to demonstrate competence in the areas listed above.

A minimum grade-point average of 2.5 is requisite to admission for the master's examination.

Doctor of Philosophy

A program of study for the Ph.D. degree in the areas listed for the M.S. degree includes the courses required for the M.S. degree, and courses in major field of interest. The student must present a thesis covering the research.

Students who have demonstrated the required knowledge in the following areas of chemistry and who have maintained a minimum grade-point average of 3.0 are admitted to the Ph.D. program and a candidacy examination. After satisfactory performance on this examination, the student may proceed with dissertation research.

Interdisciplinary Programs

The Department of Chemistry cooperates in interdisciplinary programs in applied mathematical sciences and in chemical physics (see "Graduate College" section in the Catalog). Students with undergraduate degrees in chemistry, physics, mathematics, or engineering 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 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, 9 lecture rooms, 15 undergraduate laboratories, 45 research laboratory rooms, 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

Primarily 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 4.16.

1008 Cooperative Education Internship
1.5 hs.
35 Technology and Society
3.4 hs.
36 Introduction to basic concepts of chemistry for students who plan to take more advanced courses in chemistry. (Prerequisite: 4.7 or higher school chemistry.
36 General Chemistry
1.5 hs.
4 General Chemistry I
1.5 hs.
5 General Chemistry II
1.5 hs.
6 General Chemistry I
1.5 hs.
7 General Chemistry II
1.5 hs.
12 Principles of Chemistry I
1.5 hs.
13 Principles of Chemistry II
1.5 hs.
14 Principles of Chemistry (L)
1.5 hs.
16 Basic Measurements
1.5 hs.
206A Civilization in Its Environment
1.5 hs.
206B Civilization in Its Environment
1.5 hs.
206C Civilization in Its Environment
1.5 hs.
212 Introduction to Electrochemistry
1.5 hs.
213 Introduction to General Chemistry
1.5 hs.
214 Principles of Chemistry
1.5 hs.
215 Principles of Chemistry
1.5 hs.
216A Analytical Chemistry
1.5 hs.
216B Analytical Chemistry
1.5 hs.
221 General Chemistry I
1.5 hs.
221 General Chemistry I
1.5 hs.
222 General Chemistry II
1.5 hs.
222 General Chemistry II
1.5 hs.
223 General Chemistry II
1.5 hs.
224 General Chemistry II
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225 General Chemistry II
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225 General Chemistry II
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226 General Chemistry II
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226 General Chemistry II
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227 General Chemistry II
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228 General Chemistry II
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229 General Chemistry II
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230 General Chemistry II
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231 General Chemistry II
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246 General Chemistry II
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247 General Chemistry II
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248 General Chemistry II
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249 General Chemistry II
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250 General Chemistry II
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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.
20:81 Age of Cicero 3 s.h.
20:82 Age of Augustus 3 s.h.
20:171 Elementary Latin Composition 3 s.h.
20:172 Intermediate Latin Composition 3 s.h.
120-150 Latin 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 35 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 Age of Augustus 3 s.h.
14:171 Elementary Greek Composition 3 s.h.
or
20:171 Elementary Latin Composition 3 s.h.

Major in Ancient Civilization
This major is approved by the School of Art and Art History and the departments of History, Religious Studies 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 (either "Classics in English" courses, or Latin or Greek language courses) 6 s.h.
Classics in the major: 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.

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 14:1-12 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 30 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 the Latin examination at least elementary Greek in their programs.

Doctor of Philosophy
Required Courses
A one-semester course in Greek readings (3 s.h.)
A one-semester 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 palaeography—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-Comprehensive
French Competency
German Competency
Latin Sign (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. Comprehensive (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 fragments in bronze from Mycenae, Pompeii, and Herculaneum.
The University is a supporting institution of the American School of Classical Studies at Athens, the American Academy in Rome, and the Vergilian Society, thereby making its facilities available to its faculty and graduates.

Courses
Greek
For Undergraduates Only
141 Elementary Greek 3 s.h.
Fundamentals of Ancient Greek and basic concepts of Greek civilization
143 Elementary Greek 3 s.h.
Selections from Greek authors. Continuation of 141, which is prerequisite.
145 New Testament Greek 3 s.h.
Reading knowledge of New Testament Greek, prerequisite knowledge of Greek is not expected, class is limited to students with no other language. Offered spring sessions.

For Graduates
144 Elementary Greek 3 s.h.
Continuation of 141, prerequisite knowledge of Greek is not expected, class is limited to students with no other language. Offered spring sessions.
146 Intermediate Greek 3 s.h.
Advanced reading in Greek literature, prerequisite knowledge of Greek is not expected, class is limited to students with no other language. Offered spring sessions.
147 Advanced Greek 3 s.h.
Intermediate to graduate level reading in Greek literature, prerequisite knowledge of Greek is not expected, class is limited to students with no other language. Offered spring sessions.
148 Special Topics 3 s.h.
Course in special topics in Greek literature, prerequisite knowledge of Greek is not expected, class is limited to students with no other language. Offered spring sessions.
The Department of Communication and Theatre Arts is concerned with communication as a medium of personal expression and development, with communication as the major means by which people adjust themselves to their society and their society to themselves, 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 attempts 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 12 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 following 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 Juris Jurisprudentibus)

Departmental requirements for the Educational Specialist degree are:

- A minimum of 80 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; and

Successful completion of such requirements as are specified by the departmental division in which the student’s work is concentrated.

### Doctor of Philosophy

Departmental requirements for the Doctor of Philosophy degree are:

- A minimum of 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 advisor 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

### Communication and Theatre Arts

**Department Chair:** John W. Borowski  
**Faculty:** 
- Professor: John D. Aldrich, Samuel L. Fish, John E. Tinker  
- Associate Professor: Bruce C. Hammond, Robert Holden, Richard D. Mack, Frank Miller, Steven J. Oates, Steven Schomburg, David Soffer

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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 buildings on campus, has been specifically designed to meet both research and technical needs. Included are two television studios, a complete video post-production facility, a film sound stage, a live scene shop, areas for animation and graphics production, a radio studio, and an advanced audio studio that serves the result of courses throughout the program. 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 dedicated 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.

Interdivisional Courses

38130 Cooperative Education Internship 1 s.h.

18 Working in Communication and Theatre Arts 2 s.h.

23030 Analysis of speech, literature, research, communication theory, and related textual areas; purpose is to develop general understanding of communication as a process, and to introduce selected topical areas. Student must be a high school senior to receive credit.

38160 Human Communication 1 s.h.

38163 Human Communication and Theatre Arts 1 s.h.

14.12 Problems in Communication and Theatre Arts 3 s.h.

Forensic content of instruction.

14.161 Discovering Theatre 2 s.h.

An approach to group story telling, including performance, direction, and design, narrows, acting, and critical analysis of children's literature and poetry.

38115 Visual Art and Architectural Design for Professionals 2 s.h.

Intensive, practical program designed for professionals in communication-visual arts; radio-TV reporters, producers, directors, critics, and the like. Emphasis is on basic design principles and tasks involved in the design of visual art and architectural designs, and the students are prepared to complete the course in a shorter period.

14.111 Theatre and Drama 2 s.h.

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12.118 Working in Communication and Theatre Arts 3 s.h.

Methods, materials, preparation and evaluation of teaching, and especially students in courses in speech and drama. Emphasis is on teaching, and especially the development of communication, and practice in teaching theatre, drama and related subjects. Other courses. Same as 70.179.

14.119 Workshop in the Teaching of Acting 1 s.h.

Same as 70.175.

14.119 Workshop in Dramatic Literature and Play Analysis 1 s.h.

Same as 70.180.

14.124 Workshop in Expository Theory and Practice 1 s.h.

Descriptive paper on the teaching of the topic of a group;

governed by Robert's Rules of Order; terms and differences in main, subsidiary, and privileged motions, nominations and elections, and rulings and their strata; parliamentary conduct more legislative process. Same as 70.184.

14.120 Introduction to Research 1 s.h.

Required of all new graduate students in the Department of Communication and Theatre Arts. This course provides an introduction to the methods of research and the development of research projects. Students are familiar with the major techniques and reports of research. Bibliographical tools.

38163 Modern Theatre 3 s.h.

38165 Public Disputation 3 s.h.

Communication Education

Accessed in charge Design Team Degrees offered: B.A. M.A. M.F.A. The communication education major requires a minimum of 36 semester hours of coursework in the Department of Communication and Theatre Arts. Students should include the following in their program: 38163 Voice Improvement, 38164 Oral Interpretation of Literature, and two courses selected from each of the four experimental undergraduate divisions, with approval of a communication education advisor.

In addition to the secondary education Teacher Education Program foundations courses, students seeking teacher certification in communication and theatre arts must also register for:

76.160 Methods: Communication 3 s.h.

14.115 Methods: Communication 3 s.h.

14.121-192 Observation and Learning Practice in the Secondary School 1 s.h.

12.187 Seminar: Curriculum and Student Teaching 1-3 s.h.

To strengthen both their major and their employment opportunities, students are strongly advised to complete a minor certification in English, reading, or other "tangential" fields, 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 course work 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

38167 Dramatic Painting Activities 2 s.h.

Planning, organizing, and evaluating theatrical programs at the secondary level; course, the establishment of objectives, selection of plays and groups, and the evaluation of programs; techniques in the production of plays and programs; and methods of analytical evaluation. Same as 70.190.

14.160 Methods: Communication 2 s.h.

Teaching, learning, and student performance, consideration of various patterns in teaching, curriculum programs, objectives, instructional methods and materials, effects of oral and written print on evaluation, testing and grading, textbook and references, and work in designated areas of participation, and construction of contemporary communication education theory and practice. Prior to 1850.

14.331 Current Issues, Approaches, and Materials in Communication Education 2 s.h.

Development and evaluation of student behavior in non-theatrical contexts. Course theory and practice, and teaching strategies, and various classroom and campus curriculum and instruction topics. Emphasis on classroom instruction and student evaluation. Approaches to student learning in class and student motivation; analysis of the structure, content, and organization of a course, with emphasis on the communication-education research topic of their choice.

Communication Education

Degree offered: B.A.

Within a liberal arts philosophy, communication majors study oral, written, visual, and electronic messages, media, and their environments from theoretical, critical, historical, and social-scientific perspectives. They also take courses in personal communication where, through informal practice, they improve their communication skills. Especially relevant to communication, social sciences, education, public relations, and business administration, this major equips its students for careers in business, not-for-profit organizations, the media, public relations, or education. Others use the major as a professional preparation for advanced study in teaching, law, business, the ministry, and graduate studies.

Majors must meet general departmental requirements, for the 24 semester hours required, a total of 18 must be in the "Division of Communication" (38167) courses, and at least 12 must be in courses numbered 38163 or 14.111, and at least 9 must be in courses numbered 38160 or above (not including 38165). The department and division sponsor an internship program providing for non-classroom work experience, and an active intercollegiate forensics 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 or in another similar activity. Forensics scholarships are available.
the doctorate. Efforts are made to tailor individual programs of study to students' needs and aspirations. Below are the requirements for the M.A. in rhetorical studies:

- 36-48: Introduction to Research; At least 15 semester hours of courses in rhetorical studies, including a seminar; At least six semester hours of courses in other divisions of this or related departments; And A comprehensive examination across three areas of study determined by students and their committees.

**Doctor of Philosophy**

The program leading to the 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 journalism—encompasses rhetorical studies course offerings. Many doctoral students also do extensive work in "Communication Research" and "Broadcasting and Film" to improve their range of teaching opportunities and their research skills. For more information, see the initial sections of this division's description. Teaching and research assignments are available, evaluation of these applications begins about February 15 each year.

Courses

- **Rhetorical Criticism** 3 s.h.
- Survey of approaches and rhetorical analyses of communicative artifacts, acts, and events; introduction to the arts of rhetoric and critical inquiry writing.
- **Greek and Roman Public Address** 3 s.h.
- Historical and critical study of public and written communication from the fifth century B.C. to the third century A.D.; study of relevant social, philosophical, aesthetic, and political issues of each era, and the way each era altered the practice of public speaking. Students majoring in English may substitute Latin for Greek.
- **American Public Address** 3 s.h.
- Historical and critical study of American public discourse in legislation, law courts, public gatherings, parliaments, and newspapers.
- **British Public Address** 3 s.h.
- Historical and critical study of British public discourse in legislation, law courts, public gatherings, parliaments, and newspapers.
- **Social Rhetoric** 3 s.h.
- Theories and philosophies of discourse in the ancient world. Same as AIDS.
- **Rhetoric and Argumentative Style** 3 s.h.
- Exposition, evaluation, and analysis of news opinion, cartoons, politicians, religion, and other discourses, with applications to modern uses of reason and rhetoric. Same as IDS 355B.
- **Contemporary Philosophical Approaches to Argumentation and Symbolic Action** 3 s.h.
Communication and Theatre Arts/LIBERAL ARTS

398E Engaging Mass Communication 3 h.
Trends in major media concerning the functions and impact of mass communication, examination of representative studies which explore these theoretical ideas and experiences in doing such studies.

398W Introduction to Broadcasting and Film 2 h.
Special section of 398E for graduate students who are not majors in communication and theatre arts.

398T Survey of Film 3 h.
Special section of 398E for graduate students who are not majors in communication and theatre arts.

398R Radio Production 2 h.
Principles during the use of contemporary radio programming. Prerequisites: 398E.

398R Radio Workshop 3 h.
Independent creative work for students who have completed 398R. Prerequisite: consent of instructor.

398T Print and Video Message Design 2 h.
Design of selected media on an editorial, corporate, and entertainment basis. Prerequisites: 398R and 498R.

398T Television Production II 2 h.
Covers the larger-scale electronic production. Emphasis on development of a competent production team and an awareness of available production methods and technologies. Prerequisites: 398T and 498T.

398T Television Production Special Topics 2 h.
Course specifically to meet program goals towards an awareness of careers in television, film, or video production. Prerequisite: consent of instructor.

398T Film Production I 3 h.
Beginning level motion picture production. Short feature-length film techniques using video and sound. Prerequisites: 398R and 498R.

398T Film Production II 3 h.
Further training (4-10 feature-screenplays) in narrative, screenwriting, and contemporary motion picture production. Prerequisites: 398R and 498R.

398T Electronic Field Production 3 h.
Single-camera video on location with emphasis on video shooting techniques. Includes set design, story boarding, and television news story format. Prerequisites: 398R and 498R.

398T Advanced Production Workshop 3 h.
For the advanced student with an individual project related to television or radio. Assigned reading and outside study based upon the student's project and previous work. Prerequisites: 398T and 498T. Consent of instructor required.

398T Print/Television in advertising and promotion 3 h.
Prerequisites: 398T and 498T. Consent of instructor required.

398T Print/Television in attractions and theme parks 3 h.
Prerequisites: 398T and 498T. Consent of instructor required.

398T Broadcast Studio 3 h.

398T Documentary and Public Issues 3 h.
Society.

398T Print/Television in radio and television 3 h.
Focus on the history of radio and television in the United States. Study of critical issues and the impact of the medium on society.

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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 may be invited to 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 is accepted into 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 department. 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, E.C. Mapш 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, E.C. Mabш Theatre at 360 and after 5 p.m. and during registration.

Degree Requirements

The following courses comprise the basic experience for all undergraduate theatre majors. Those 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)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>367:1 Art of the Theatre</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>367:11 Theatre History I</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>367:22 Acting I</td>
<td>3 s.h.</td>
<td></td>
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<tr>
<td>367:40 Stagecraft Practice</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>367:41 Costume Practice</td>
<td>3 s.h.</td>
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<tr>
<td>367:80 Playwriting</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>367:50 Freshman Production</td>
<td>1 s.h.</td>
<td></td>
</tr>
<tr>
<td>367:91 Production</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>367:50 Senior Seminar</td>
<td>1 s.h.</td>
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</tbody>
</table>

Special Emphasis Program Requirements:

<table>
<thead>
<tr>
<th>Major Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>367:20 Acting II</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>367:23 Acting III</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>367:24 Acting IV</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>367:125 Voice for the Actor</td>
<td>3 s.h.</td>
<td></td>
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<tr>
<td>367:165 Movement for the Actor</td>
<td>3 s.h.</td>
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</tbody>
</table>

One course from the following: 3 s.h.

- Any advanced Dramatic Literature course
- 367:114 Contemporary Theatre
- 367:178 American Theatre History
- 367:113 Decades of the Twentieth Century

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>367:145 Stage Makeup</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>367:40 Elements of Design</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>367:44 Scene Design I</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>367:50 Costume Design</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>367:46 Lighting Design I</td>
<td>3 s.h.</td>
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</table>

Two courses from Group II:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>367:50 Elements of Design</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>367:145 Stage Makeup</td>
<td>3 s.h.</td>
<td></td>
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</tbody>
</table>

One course from Group III:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>367:50 Elements of Design</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>367:145 Stage Makeup</td>
<td>3 s.h.</td>
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Two courses of the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>367:50 Elements of Design</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>367:145 Stage Makeup</td>
<td>3 s.h.</td>
<td></td>
</tr>
</tbody>
</table>

One course of the following: 3 s.h.

- Any advanced Dramatic Literature course
- 367:114 Contemporary Theatre
- 367:178 American Theatre History
- 367:113 Decades of the Twentieth Century
Courses For Undergraduates and Graduates

397.11 Theatre and Dance 1 4 h.
397.15 Theatre and Society 3 h.
397.17 Modern Drama 3 h.
397.21 Directing 1 4 h.
397.22 Musical Theatre Production 1 4 h.
397.27 Stage Management and Control 1 4 h.
397.54 Poetry Analysis 3 h.
397.61 Advanced Acting 1 4 h.
397.62 Advanced Acting 2 4 h.
397.63 Acting Ensemble 1 4 h.
397.64 Acting Ensemble 2 4 h.
397.65 Advanced Acting 3 4 h.
397.66 Advanced Acting 4 4 h.
397.67 Directorial Workshop 1 4 h.
397.68 Directing Workshop 1 4 h.
397.69 Directing Workshop 2 4 h.
397.70 Directing Workshop 3 4 h.
397.75 Musical Theatre Production 2 4 h.
397.78 Stage Management and Control 2 4 h.
397.81 Modern Drama 3 4 h.
Comparative Literature/LIBERAL ARTS

Comparative Literature

Program Chair: J. Dudley Andrew
Faculty: Professors: J. Dudley Andrew, Osamu Deguchi, H. Kuwahara, W. S. F. Nagel, Associate Professors: Charles P. Allman, Thomas E. Lewis, Hernando Rappaport, William Robertson, Steven Ungar, Geoffrey Valentine, Daniel Welsbann
Faculty assisting in the program: In addition to its own faculty, the program in Comparative Literature calls upon the services of faculty members in various other areas including classics, Asian languages and literature, comparative literature and theatre arts, English, film, French and Italian, German, Hebrew, Spanish and 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 field 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 interdisciplinary approaches to cultural study. In conjunction with an appropriate overall curriculum, the major in comparative literature can offer effective preparation for professional studies in fields such as law and medicine. It offers a suitable basis for preparation for graduate work in the humanities.

The successful pursuit of comparative literature requires that students study one history, philosophy, and literature in historical context. Familiarity with the literatures and cultures of other nations is afforded by course work that develops an awareness concerning 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 areas of study such as history, philosophy, linguistics, anthropology, entology, law, and psychology.

Majors in comparative literature do not proceed through a strictly prescribed common curriculum toward the B.A. degree. Working closely with faculty advisors, 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 at least 36 semester hours in courses distributed as follows:

Comparative Literature

48:40:11 Major Texts in World Literature I 6 s.h.
48:95 Undergraduate Seminar 3 s.h.
48:100 Introduction to Critical Problems 3 s.h.
Two 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 advisors, 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 advisors, 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 48 semester hours of graduate study with a grade-point average of 3.50, and following successful completion of the comprehensive examination.

Doctor of Philosophy

Students seeking the doctorate in comparative literature study at least two foreign literatures, one is studied in historical depth, and the two 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, but a thorough knowledge of at least one foreign language is required for admission to the M.A. course of study. Knowledge of at least two foreign languages is a prerequisite for doctoral study.

For further information, consult the graduate director for graduate students in comparative literature, available by request from the program office.

Courses

4600 Cooperative Education Internship 0 s.h.
4645 Major Texts in World Literature 3 s.h.
Reading and analysis of major literary texts from Homer to the Renaissance. Includes problems on the internationalism of Homer and history. Same as 4643.
4646 Major Texts of World Literature 4 s.h.
Reading and analysis of major literary texts from the Renaissance to 1600. Includes problems on the internationalism of literature and history. Same as 4645.
4650 Narrative Library Traditions 3 s.h.
4651 Introduction to Film Analysis 3 s.h.
4652 Writing and Screenwriting 3 s.h.
4653 European Literature Before 1800 3 s.h.
4654 European Literature Since 1800 3 s.h.
4655 Undergraduate Seminar 3 s.h.
4656 Seminar Seminar 3 s.h.
4658 Seminar Seminar 3 s.h.
4660 Seminar Seminar 3 s.h.
4661 Seminar Seminar 3 s.h.
4662 Seminar Seminar 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 either 6E:1 Principles of Economics and 6E:2 Principles of Microeconomics or evidence of higher standing; 6E:1 and 6E:2 satisfy the general education requirement in social sciences.

Credit earned 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 4 s.h.
- 6E:183 Statistical Methods in Economics 2 s.h.
- Twenty semester hours of 100-level economics courses, including 6E:103 Microeconomics, 6E:105 Microeconomics, and 6E:184 Methods of Quantitative Economics.
- Credit earned in 6E:100 Price, Employment, and Production Theory or 6E:183 Statistical Methods in Economics cannot be counted toward the required 20 semester hours of 100-level course credit.

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 microeconomics, international economics, monetary economics, and 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 of 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 industry, government, and as well as presentations by local area student members of the department.

Courses

Primary 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 science.

Economics

- 6E:1 Principles of Economics 3 s.h.
- 6E:2 Principles of Economics 3 s.h.
- 6E:110 Theory of Interest 4 s.h.
- 6E:112 Principles of Economics 3 s.h.
- 6E:113 Microeconomics 3 s.h.
- 6E:114 Macroeconomics 3 s.h.
- 6E:115 Money and Banking 3 s.h.
- 6E:116 Financial Markets 3 s.h.
051 Seminar in Microeconomics
Prerequisite: consent of instructor.

052 Seminar in Macroeconomics
Prerequisite: consent of instructor.

130 Survey of Microeconomics
Prerequisite: consent of instructor.

131 Workshop in Macroeconomics
Prerequisite: consent of instructor.

132 Workshop in Microeconomics
Prerequisite: consent of instructor.

133 Workshop in Monetary Economics
Prerequisite: consent of instructor.

134 Workshop in Applied Economics and
Statistics
Prerequisite: consent of instructor.

Education
See "College of Education."

English
Department chair: Richard Lordy-Jones
associate professor emeritus: Dorothy T. Miller

Studying English and American literature, a student learns to read a work of literature in relation to the culture of its origins and to interpret its meaning and value for present circumstances.

Study of the English language helps students examine the possible uses and limitations of spoken or written speech both historically and analytically.

Knowing the theory and practicing the craft of writing helps students express their ideas in the public domain precisely and forcibly.

Majoring in English means pursuing these three aspects of the subject. Students who have taken English courses at The University of Iowa are now practicing law, managing businesses, serving as advertising firms, nonprofit organizations, and book publishers, or for large and small federal government. Many others hold responsible positions in business and industry. Others are teaching in colleges as well as primary and secondary schools.

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 dealing 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 elective programs of study designed to satisfy their current interests and achieve their future goals. Normally they begin with courses focusing only on 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 take courses in such diverse subjects as following, literature and film, or printing and type design. They may also study the history and structure of the English language, or they may do advanced work in either imaginative writing poetry, fiction, and drama 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 select elective courses from such disciplines as history, classical or modern foreign languages, literature, speeches, 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 fields of business or law must take 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 Choosing 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 (081 and above). Courses for the Liberal Arts general education requirements to: contribute toward the minor in English.

Honors
The English major with honors is designed to encourage talented students to explore a wide range of literary experience and to achieve a mastery of literary writing. During the junior year, an honors student takes a special honors seminar whose final examination qualifies him for the major; then the student uses the first semester of his or her senior year to complete honors work; either critical or creative, which is advised by any faculty member and evaluated by the honors committee. Honors students in planning in consultation with the chair of the honors in English and members of the honors committee the sequence of courses can be adapted to the student's needs, but students interested in earning honors in English are urged to consult the chair of the honors as soon as possible.

Creative Writing
Many undergraduates come to The University of Iowa because of the experience of its creative writing program. With the consent of his or her advisor, any student may elect the undergraduate courses in this program. These are BW 133 Creative Writing, BW 151 Fiction Writing, and BW 152 Poetry Writing.

Admission to the undergraduate workshop in fiction and poetry (BW 163 Undergraduate Writers Workshop Fiction and BW 166 Undergraduate Writers Workshop Poetry) is by permission of the instructor. Students who wish to take part in these workshops must submit samples of their poetry or fiction to the Writers Workshop no earlier than 4 weeks before registration, and no later than the last day of registration.

English and Education
The department offers a flexible undergraduate program for students planning to teach English in elementary and secondary schools. Students choose English courses that meet the requirements for a general major in English and for teaching certification.

Students who wish to be certified to teach English in Iowa secondary schools should select courses which fulfill the state guidelines for teachers of English in grades seven through twelve.

Literary study for students planning to teach English should emphasize a range of close-reading experiences in different kinds of literature. Literature of the ancient world, Shakespeare, British literature of the nineteenth and twentieth centuries, American literature, literature for adolescents, literature of American expatriates, literature by women, folk literature, as well as a variety of methods for replacing a literary text. Students planning courses which will help them in their teaching experiences should remember that they
will have to work with details of expression in English.

They will need advanced training in writing, including composition, fiction, and poetry, and will be assigned various writing tasks. 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 granting of certification.

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 learning apart from any other coursework.

The department also participates in a joint major in English and elementary education. Those interested in this 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, exclusive of freshman-level 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 and twentieth centuries. In addition, the 26 semester hours of English, the student is required to take 75.115 Methods: English in the College of Education's Division of Secondary Education.

While the 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 works of English and American literary history, as well as a transfer sensitivity to artful language as a medium of expression. Each student will consult with an adviser, will plan a course of study that reflects his or her individual pattern of interests. Depending on the quality of this thesis or comprehensive examination, the program requires either 33 or 36 semester hours of graduate-level credit, 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 under-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 be one of the following:

Satisfactorily complete a 10,000-15,000 word thesis for 3-6 semester hours of credit; as well as pass an oral defense conducted by the thesis committee. The thesis option available only to students who show outstanding promise in their writing and literary studies, is contingent on the approval of a proposal.

- Pass an 8-hour written comprehensive 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 studies.

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. with 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 the University of Iowa, including nine semester hours of work in advanced composition with a grade of B or B+. 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. Students of study may be highly individual, including courses from widely different areas or departments, but must be coherent organized 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. The Thesis will be oral examination covering the project, and the final 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 for the teaching profession. 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 in 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 immersed 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 36 semester hours of graduate credit, earned chiefly in the Writers' Workshop, a book-length collection of poems or a novel, and satisfaction performance on an examination on modern poetry or fiction.
Master of Fine Arts with Emphasis in Translation

The 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 language and cultures. The course also seeks to develop awareness of the traditional integration and the history of translation theory. The program normally requires about 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 proofreading 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:

- Formal admission to candidacy by a vote of the full faculty of the department;
- Demonstration of a high level of competence in two foreign languages or mastery of a single foreign language and its literature;
- Defended dissertation in specified historical areas, two seminars;
- A part-written, part-oral comprehensive examination followed by a dissertation of which must be a historical period of English 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 motion picture and television programs of the College of Liberal Arts. Interested students should write to the department's instructor of financial aids 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 financially.

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 was one of the first institutions of higher education to accept creative dissertations for advanced degree programs. Founded in 1926, the Writers Workshop was 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 compositional writing and rhetorical theory; it is one of the few academic institutions in the nation which offers a full range of graduate course work in this area.

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 Leigh Hunt collection, and its manuscript collections of twentieth-century authors.

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 extramural courses by working with The Iowa Review, Phylon Quarterly, and The Windhover Press.

Students are welcome to participate in the activities of the English Graduate Student Society, the Humanities Society, the knot, and the MidWest Modern Language Association. Visitors and members participate in the camps almost every week, and various conferences and literary "festivals" complement the schedule of class work.

Courses

Individual seminars for some of the English courses listed below are not included because the center and emphasis of many courses vary considerably from semester to semester. 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 Literature

The general education course requirements in the humanities may be satisfied with any listed below.

- Interpretation of Literature, and two other appropriate humanities courses.

- English 1 (or its equivalent by examination or transfer) is a prerequisite for the other courses. (Courses 80 through 80-15, and therefore must be taken first. The pass-fail option is not available to students in Business Administration, Nursing, and Engineering who desire to fulfill the English 1 requirement by examination. Students may not take more than six credits of English courses. Major English majors may not register for English courses to fulfill requirements for the major.

- The Interpretation of Literature

- Interpretation of Poetry, short fiction, and the novel.

- Shakespeare and Tudor English Literature

- Renaissance English Military, the novel.

- Medieval and Renaissance Literature

- Samuel Beck, Francis Bacon, Shakespeare, Malory, and the novel.

- Medieval and Renaissance Literature

- Shakespeare, Milton, and the novel.

- The Role of the English Language

- Major authors of tragic vision of human experience in narrative prose and verse. (Cannot be used in the major.

- Major authors of dramatic vision of human experience in dramatic prose and verse. (Cannot be used in the major.

- Major authors of poetic vision of human experience in poetic prose and verse. (Cannot be used in the major.)
For Undergraduates

Lecture courses are open to all undergraduates who have satisfied the prerequisite requirement.

5004 Cooperative Education Internship 1.0

81 Modern Fiction 3.0

82 Modern Poetry 3.0

83 Modern Drama Same as 2071.0

85J The Short Story 3.0

86 Classical and Biblical Literature 3.0

611 The Renaissance in Europe 3.0

Introductory Close Reading of Texts

The following are limited-enrollment discussion courses in which a small number of students are led to carefully illustrate representative problems in interpreting and evaluating literature.

8207 Critical Approaches to Literary Works 3.0

8351 Reading Poetry 3.0

8406 Major Texts in World Literature I Same as 445.0

8414 Major Texts in World Literature II Same as 446.0

8423 Survey of British Literature I 3.0

8424 Survey of British Literature II 3.0

8456 Works in Exile of English Literature 3.0

851 Major British and American Poets I 3.0

852 Major British and American Poets II 3.0

854 American Library Classes 3.0

856 Selected Works of the Middle Ages 3.0

857 Shakespeare's Contemporaries 3.0

858 Selected Works of the Eighteenth Century 3.0

615 Major Nineteenth-Century British Works 3.0

855 Selected Early Modern Works 3.0

856 Selected Works of the Twentieth-Century I 3.0

857 Metaphysics of the Renaissance I 3.0

858 Selected English Romantic Works 3.0

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 their 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.

8150 Introduction to Critical Practice Same as 445.0

8151 Literature and Culture of the Middle Ages 3.0

8152 Literature and the Culture of the Renaissance Same as 446.0

8153 Literature and the Culture of the Eighteenth-Century England 3.0

8154 Literature and the Culture of the Nineteenth-Century England 3.0

8155 Literature and the Culture of the Twentieth-Century England 3.0

8156 An American Epic: 1900 to Present 3.0

8157 American Literature and Civilization 3.0

8158 European Literature of the Nineteenth Century Same as 446.0

8159 Selected Authors 3.0

8161 American Folk Literature Same as 451.0
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.

OP 200 Advanced Reading Computer Science

OP 300 Special Reading

OP 305 Practical College Vocabulary

OP 405 Special Topics in American Literature

OP 410 Practical Teaching Composition

OP 415 Writing for Professional Communicators

OP 420 Practical Teaching Composition

OP 430 Teaching in Composition

OP 440 Teaching in Composition

OP 450 Colloquium: Teaching Freshman English

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. They are open to various elements of composition and various kinds of informative, persuasive, and expressive writing.

WR 100 Expository Writing

WR 101 Technical and Scientific Writing

WR 102 Greek and Latin for Vocabulary Development

WR 103 Grammar and Syntax

WR 104 Popular Writing

WR 105 Writing for Personal and Public Purposes

WR 106 Expository Writing

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.

WR 111 Writing for Humanities

WR 112 Writing for the Sciences

WR 113 Writing for Business and Industry

WR 114 Writing for the Social Sciences

WR 115 Writing for the Arts

WR 136 Extended Topics in Professional Writing

WR 131 Forms of Writing

WR 150 Free-Lance Writing

WR 150 Free-Lance Workshop

English/LIBERAL ARTS 93
**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 does a grade of D in any required French course.

**Literature Track**

Designed for students who are interested in French literature or in studying the French literature with a major in another area, such as English, comparative literature, cinema, or fine arts, the literature track requires a total of 36 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.
- 9:126 French Conversation: Third Level 2 s.h.
- 9:136 French Conversation: Fourth Level 2 s.h.
- 9:175 Advanced French Pronunciation 2 s.h.
- or
- 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, culture, and recommended for students wishing to combine a studies 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 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**

The 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.
- 9:136 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 tourism, 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.
- 9:197 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 literary 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 Literature 6 s.h.
- 18:119-120 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:

- 9:198 Honors Readings 3 s.h.
- 9:199 Honors Seminar 3 s.h.

A course in an area of French literature, language, 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
not require that the student be a French major.
Centered in Lyon and Paris, the program combines formal class work in language skills with an integrated course in the culture and civilization of France, including visits to points of cultural and historical interest. Students may earn eight or nine semester hours of credit in the program.

Summer Program in Quebec
The department participates in the CIC Summer French Program in Quebec at the University of Western. The Committee on Institutional Cooperation (CIC) is a nonprofit organization whose purpose is to foster cooperative educational opportunities among the Big Ten universities and the University of Chicago. Affiliated with the Cours d'Eté pour non-francophones of the Universite Laval, the program is designed to offer qualified students the opportunity to increase their command of French in a French-speaking environment led to introduce them to the heritage and cultural traditions of a unique and vital segment of North American culture.

Language House
The French and Italian department maintains close connections with the Maison Francaise in the Foreign Language House at Westwood Residence Hall. Residents initiate cultural and educational programs with the participation of students and other students, providing a unique opportunity to combine living with language learning.

Graduate Programs
Master of Arts in French without Thesis
The candidate must earn a minimum of 30 semester hours of graduate credit and pass a written examination. The program must include 9:175 Advanced French, 9:209 Advanced Grammar and Lexicology, and 9:210 Comparative Stylistics. At least four graduate-level (200 and above) literature courses. With the permission of the department chair, the candidate may take up to 6 of the required 30 semester hours outside the department.

Master of Arts in French with Thesis
The requirements for the thesis program are the same as for the M.A. without thesis, except that in the thesis program the candidate may earn up to six semester hours of credit for his or her thesis work. The candidate must defend the thesis at the time of the comprehensive examination.

Master of Arts in French Education
This program is intended primarily for prospective secondary school and junior college teachers. Requirements include a total of 38 semester hours of graduate credit. Of this total, eight must be in education or related fields, and at least nine must be in graduate (200 level) courses in French literature. The following courses are also suggested:
9:153 Stylistics: Analysis and Application
9:154 Textual Analysis
9:209 Advanced Grammar and Lexicology
9:210 Comparative Stylistics
9:113-114 French Civilization
9:150 Methods: Foreign Language
9:151 Language Laboratory Equipment Procedures
9:162 Contemporary France
9:175 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 9:251 Introduction to French Grammar and four semesters of college study or equivalent proficiency in a foreign 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 9:277 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 admission to the Ph.D. program in French. Successful completion of the M.A. program, however, does not necessarily qualify a student for doctoral studies.

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 students 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 (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 otherwise 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 and are directed toward the major requirements in French, but may be taken as electives; consultation with the advisor 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 enrolling 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.

Primarily for Undergraduates
550 Cooperative Education Internship
551 Elementary French
552 Elementary French
553 Elementary French
554 Elementary French
555 Elementary French
556 Elementary French
557 French for Teachers
558 Seminar: Contemporary French forIntermediate Students
559 Seminar: Saturday Morning Class Program
Italian Courses

Primarily for Undergraduates

19.11 Intermediate Italian
Prerequisite: 19.10 or equivalent.

19.12 Intermediate Italian
Prerequisite: 19.11.

19.13 Conversational Italian
Prerequisite: 19.12 or 19.12B.

19.14 Conversational Italian B

19.15 Special Work

For Undergraduates and Graduates

19.16 Literature of the Middle Century
May be given in English for non-majors.

19.17 Italian Literature: Roman
Open to undergraduates with a minimum of two years of another foreign language, and to graduate students.

19.18 Introduction to Italian Literature
From the earliest writing to the end of the sixteenth century. May be given in English for non-majors. Prerequisite: 19.12 or equivalent.

19.19 Introduction to Italian Literature From seventeenth century to present. May be given in English for non-majors. Combination of 19.10 to 19.11, but may be taken as an independent unit. Prerequisite: 19.12 or equivalent.

19.11 Advanced Composition and Conversation
Prerequisite: 19.12 or equivalent.

19.12 Advanced Composition and Conversation
Prerequisite: 19.11.

19.19 Dante and His Times
May be given in English for non-majors.

19.28 Dante and His Times
May be given in English for non-majors.

19.10 The Italian American Heritage
Survey Italian literature from the Renaissance to the present. Emphasis will be on the role of Italy in its sanguine success in immigration to the United States, the immigration's diverse origins, problems or accomplishments, and the role of minority centers. 3 credits. Only one of 19.10 or 19.12 may be counted toward graduation. 3 credits.

Primarily for Graduates

19.290 Modern Italian Lp.: Low, Vitalia, Forza
Given in Italian.

19.291 Petrolo and Early Italian Lyric
Given in English.

19.292 The Italian Renaissance
Given in English.

19.293 Italian Drama of the Seventeenth Century
Given in English.

19.294 Dante's Divine Comedy
Given in Italian.

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 them up 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:

Admission is necessarily selective. Although almost all students currently working toward the Ph.D. in genetics at The University of Iowa have undergraduate grade-point averages greater than 3.2 and GRE totals (verbal plus quantitative) exceeding 1250, students with lower grade-point averages or GRE scores may be admitted, depending on other indicators of academic potential. The program accepts applications at any time.

Financial Aid

All graduate students receive a financial stipend that is in the range of $7,500 (plus tuition) per year or higher depending on the source of the support. Most of the financial support comes from teaching assistantships, graduate teaching assistantships, fellowships, individual research grants, and fellowships in teaching assistantships. All students are encouraged to do some teaching as part of their development as scientists and teachers.

Medical Scientist Training Program

Students may combine study toward an M.D. and a Ph.D. in genetics. Further information about this program can be obtained from the director of the Medical Scientist Training Program in the College of Medicine.

Departmental Ph.D. Programs

The departments of Biochemistry, Botany, Microbiology, and Zoology offer degree programs in which 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.
- 98:126 The Chemistry of Biological Materials 3 s.h.
- 98:130 Metabolism 3 s.h.
- 98:150 Chemistry of Informational Macromolecules 3 s.h.
- 99:220 Topics in Molecular Biology 1-2 s.h.
- 2:104 Cytochemistry 3 s.h.
- 2:160 Genetics and Biogenesis of Cell Organelles 0-2 s.h.
- 61:176 Microbial Genetics Laboratory 1 s.h.
- 61:179 Comparative Microbial Genetics and Physiology 3 s.h.
- 61:270 Topics in Molecular Biology 4 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 Genetics 3 s.h.
- 37:171 Molecular Genetics 4 s.h.
- 37:175 Topics in Molecular Genetics 2 s.h.
- 37:176 Topics in Evolutionary Genetics 1-2 s.h.
- 37:177 Advanced Topics in Molecular Genetics 2 s.h.
- 37:260 Developmental Genetics 2 s.h.

Geography
Department Head: David R. Nafziger
Faculty Professors: John W. Fuller, Andrew M. Johnson, Robert D. W. Underberg, Michael W. McIlvay, David P. Reynolds, Daniel Beaman
Associate Professors: Donald H. Calhoun, Karen M. McClare
Assistant Professor: Robert N. Larson, H. W. Rogers, M. L. Buescher, C. A. Nafziger

Geography seeks to explain spatial organization and real differentiation through the study of significant patterns and processes. The discipline is concerned with the ways in which environment and ongoing forces which promote change interact between and within human and physical systems. Geography is a composite science, in that a broad base of knowledge from many related disciplines is required, as well as a specialized scientific technique that 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 different societies. For instance, the distribution and consumption of natural resources, air and water pollution, urban development, and growth, social development of urban areas, increasing populations, 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 towards understanding the behavior of individuals, or societies, and to 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, market area analysis, and other problems related to the distribution and spatial interaction of physical, economic, social, and political phenomena.

Courses in geography are commonly required of students preparing to enter the teaching profession at the elementary and secondary school levels, of students who wish 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 non-major interested in an elective or more elective courses as they relate to a liberal education; or for students interested in electing a cluster of courses in conjunction with another discipline or for the B.G.S. degree; and for students interested in acquiring a major in geography. The department also plans in significant interdepartmental programs involving global, urban, and environmental concerns.

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 300 level. Students should consult with the department chair prior to registering for 300-level courses. All geography majors must complete:

44:110 Spatial Organization
44:150 Undergraduate Seminar for Geography Majors
and one of the following statistical courses:

22S:127 Applied Statistical Methods and Computations
22S:26 Elementary Statistics and Inference
22S:101 Biomathematics
22S: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:10 Fundamental Concepts of College Mathematics I, or
22M:15 Mathematics for the Biological Sciences

and one of the following courses:

22M:26 Elementary Functions
22M:16 Calculus for the Physical Sciences
22M:15 Calculus I, or
22M:15 Engineering Calculus I and
a computer science requirement consisting of:

22C:7 Introduction to Computing with Fortran;
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 44:3 Introduction to Physical Geography during their freshman or sophomore year.

Take first 44:110 Spatial Organization
International Development Studies

The concentration in international development studies is designed for students interested in international affairs, in the economic, social, and political development of new and old nations; in the solution of regional problems that have global implications; and in cross-cultural comparisons. This concentration aims to give students a deeper understanding of the world in which they will live and work by emphasizing the variety of cultures and societies which exist outside the United States and to which our country must relate.

Students concentrating in international development studies are advised to select courses (at least 21 semester hours) from among the following:

- 44:11 Introduction to Human Geography
- 44:15 Introduction to Physical Geography
- 44:11 Introduction to Social Geography
- 44:15 Introduction to Political Geography
- 44:30 Introduction to Economic Geography
- 44:35 World Crises
- 44:15 Local/Global Conflict
- 44:14 Introduction to Global Environment
- 44:15 Third World Development Support
- 44:16 African Development
- 44:16 The Changing World
- 44:19 Contemporary Europe: Interaction and Change
- 44:14 Foreign Policy in Contemporary Society

Under the direction of an advisor, students should select courses in related disciplines from among the following:

- 30:60 Introduction to World Politics
- 32:127 Policy Problems in Industrial Societies
- 30:150 The Political Economy of the Third World
- 30:160 International Politics
- 30:165 Politics of War and Peace
- 66:123 Political Economy of the Military-Industrial Complex
- 66:129 Economic Development of Underdeveloped Areas
- 16:89 Introduction to Colonial Latin, American History
- 16:90 Introduction to Modern Latin America
- 16:170 Modern African History
- 16:196 China: Opium War to Map Agreement

Appropriate foreign language training might also be a part of the student's development program.

The department cooperates in the interdisciplinary Global Studies Program.

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 at least 25 semester hours of geography, at least 15 of which must be at the 400 level. They also must include the following courses:

- 44:110 Spatial Organization
- 44:150 Undergraduate Seminar in Geography
- and one of the following statistics courses:
  - 225:127 Applied Statistical Methods and Computational
  - 225:25 Elementary Statistics and
  - 225:101 Biostatistics
  - 225:102 Introduction to Statistical

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 research 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 accomplishment 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 business and government.

The department offers specialized instruction in the teaching of geography at the college level for those interested in academic careers. Opportunities exist for qualified students to graduate work, of which 21 semester hours must be 200- level courses. The minimum requirements for the degree are: At least four semester hours chosen from among the mini-courses 44.201-202

Geographical Analysis. 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 addition 12 semester hours in geography.

Additional courses in geography or related fields complete the student's program.

Students who wish to pursue a Bachelor of Arts degree with a major in geography must have a minimum of 36 semester hours in geography and a grade point average of at least 2.0 in geography courses.

Students who wish to pursue a Bachelor of Arts degree with a major in geography must have a minimum of 36 semester hours in geography and a grade point average of at least 2.0 in geography courses.
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, macroeconomy 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 doctorate 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 analysts. The transportation specialty draws on the resources of the school of engineering and the departments of economics and urban and regional planning as well as those of the geography department. The 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 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 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 cannot complete the program in four semesters. Students who have not studied statistics as undergraduates or who have research or teaching assistantships may require an additional one-two semesters to complete the program. Upon completion of the M.A. program with specialization in transportation, students receive a transportation certificate in addition to their graduate degree.
The Map Library contains more than
75,000 maps, a total of 2,020 atlases and
reference works, and about 80,000
aerial photographs, primarily of Iowa.
The library is a repository for maps of the
U.S. Army Topographic Command,
formerly Army Map Service.
The Map Library contains
approximately 50,000 maps, including
both geologic maps and U.S. Geological
Survey topographic maps. The
Department of Geology and Geophysical
Sciences maintains its own
collection of topographic maps, maps of
large urban centers, and aerial
photographs for use by students in
laboratory exercises.

Courses
Most courses open to undergraduate
students may be taken in any order or
simultaneously. It is recommended, however,
that majors take 44:110 and 44:150 in that sequence. All courses below the 100-level are open
to freshmen; 44: 1, 44: 1c, 44: 11, 44: 19, and
44: 30 are available for credit for the
general education requirement in social
sciences.

Primarily for Undergraduates

44:800 Cooperative Education Training Program 1 a.h.

44:801 Introduction to Human Geography 1 a.h.
Application of geographic principles to contemporary social, economic, and political problems, urban growth, problems of the globe, diffusion of innovations, and urban centers.

44:802 Introduction to Physical Geography 1 a.h.
Geographic principles as they apply to atmospheric, oceanic, geographic, and geologic forces, and landforms. Selected topics include: geographic exploration of physical environment, with emphasis applied to the human system, environmental pollution and natural hazards.

44:803 Spatial Considerations of Population Growth and Development 1 a.h.
Introduction to the complex systems of housing, social organization and disregulation, social systems including education, health, medical and social services, distribution of ideas and values over space, and the political and economic processes of society.

44:805 Industrial Location 1 a.h.
Geographic principles applied to industrial and economic problems at international, national, and local levels. Topics include regional disparities in social well-being, urban service supply of government, political dimensions of urban systems, spatial organization of political systems, and urban systems.

44:806 Contemporary Environmental Issues 1 a.h.
Problems associated with industrial growth; urbanization and airport location; competition for water; deforestation; water pollution; energy and environment; alternative energy sources; and the environmental problems of Third World countries; real-world case studies.

44:819 Environmental Management 1 a.h.
Introduction to environmental management issues, interaction of the natural environment and the human use system from a physical geography perspective, culminating in studies of current problems facing societies, topics ranging from consideration of physical processes to management of environmental policy in the format and designed for those in the honors program.

44:821 Women in Geographic Settings 1 a.h.
Location and spatial organization of women's maps, topics include economic, political, and social analyses, manufacturing, transportation, trade and service centers.

44:931 World Cities 1 h.
Introductory course on urban geography exploring urbanization as a process through analysis of films, slides, and textbooks; methods of urban geography through selected case studies; primary and secondary urban centers. Offered spring semesters.

44:975 Teaching in Geography 1 a.h.
Supervised seminar in geography. Prerequisite: consent of instructor.

For Undergraduates and
Graduates

44:970 Weather and Climate 1 a.h.
Special distribution of weather elements and analysis of atmosphere, wind circulations, all mass movements, storm activity and climate change.

44:973 Maps and Mapping 1 h.
Introduction to the study of maps and cartography. Selected topics include: map projections, map geography, and cartography; principles of constructive maps; methods of constructing maps; and procedures for the completion of maps and physical laboratories in mapping.

44:97 Wellness and Geography 1 a.h.
Experiential course in Geographic Analysis: Women and Health, including health education, sexual hygiene, nutrition, and stress management.

44:980 Seminar in Geographic Analysis 1 a.h.
Seminar focusing on current topics in geography. Prerequisite: consent of instructor.

44:100 Spatial Organization 1 a.h.
Introduction to spatial analysis of human activity and resource networks. Offered fall semesters.

44:100 Cultural 1 a.h.
Behavioral and institutional bases of cultural interaction, with emphasis on microeconomic, public choice, and social policy perspectives, political responses to social problems; cultural diffusion; service provision/obstruction. Prerequisite: 44:51 or consent of instructor.

44:110 Urban Political Geography 1 a.h.
Relationship between natural political behavior and the functional and geographic organization of urban political systems. Topics include: U.S., city planning; urban areas; and the evaluation of city policies for public goods and services.

44:120 Natural Hazards 1 a.h.
Introduction to natural hazards management and natural hazards, such as earthquakes, tsunamis, hurricanes, floods and droughts, human interactions and responses to these events. Preparation: 44:11 or 44:21 or 44:975 or consent of instructor.

44:121 Environmental Conservation in the United States 1 a.h.
The natural environments of the United States, urbanization and conservation of public space, public policy, forests, wild lands, national parks, and wilderness preservation and endangered species. Prerequisite: 44:51 or 44:100 or 44:975 or consent of instructor.

44:123 Geopolitics of Natural Resources 1 a.h.
Nature and patterns of international differences in the natural resource base for agriculture and industry; environmental problems and rationalization of resource development.

44:125 Introduction to Global Environment 1 a.h.
Survey of the major global ecosystems, the physical and biological processes which create these ecosystems and problems resulting from the impact of human activities on them. Prerequisite: 44:11 or consent of instructor.

44:129 Environmental Impact Analysis 1 a.h.
Environmental impact assessment methodologies; emphasis on case studies and analysis of land use, hydrologic and geomorphic techniques, optimal resource uses, and system simulation. Field trips to existing (or potential) environmental impacts; analysis of simulation and impact assessment; seminar-style class or consent of instructor.

44:131 Integrated Studies in Resource Management 1 a.h.
Ecological, economic, and institutional systems for management of natural resources, cross-national (U.S., and total analysis of management issues through case studies in animal, water, forest, cost, transportation, and human resources development). Prerequisite: 44:15 of consent of instructor.

44:132 Tourism Development and Process 1 a.h.
Hydrological processes, stream channel processes and human interaction with such systems; spatial and temporal variations in water distribution, problems in hydrologic data, flow paths and transport processes, and natural and human stresses, and methods of construction and modeling. Prerequisites: 44:51 and consent of instructor.

44:133 Water Resource Management 1 a.h.
Measurement and distribution of water resources management, aspects of water quantity and quality, hydrologic assessment, water resource development, political and administrative issues, and management problems; forestry, agriculture, urbanization, and tourism. Prerequisites: 44:51 or consent of instructor.

44:134 Urban Analysis 1 a.h.
Special topics in urban analysis that deal with special choices between service areas; spatial interactions of alternative behavioral strategies for geographic service systems; location-allocation algorithms and real use in planning and evaluating the urban delivery of social and economic services.

44:151 Medical Geography, Health Services 1 a.h.
Geographic distribution of health resources and services, defining health storage areas, location decision-making by providers of health services, optimal location of health services.

44:160 Industrial Location 1 a.h.
Theories and practices of manufacturing location and its application to different industries and types of economic investigations of selected cases studies.

44:161 Introduction to Transportation 1 a.h.
Overview of transportation systems, networks, rail and road; transportation models; network models, highways, air traffic, and waterways; and discussion of regulation, finance and physical planning.

44:163 Methods of Transportation Analysis 1 a.h.
Introduction to models for predicting effects of transportation policy measures on traffic flows and functions, urban and planning models, system modeling of transport systems, system performance modeling, network analysis, and transportation planning.

44:166 Urban Geography 1 a.h.
Geographic principles of urban form, spatial patterns of mixed activities; processes that generate urban forms; urban organization.

44:167 The Inner City 1 a.h.
Nature and patterns of population, spectral structure of geographically oriented, urban inequality of community structure; social and economic life. Prerequisites: 44:15 or consent of instructor.

44:181 Urban Problems 1 a.h.
Geographic perspective on problems of urbanism; diversity of urban issues, distribution of urban topics as open, weaving, segmentation, segregation, transportation, trade and service centers.

44:182 Urban Problems Seminar for Geography 1 a.h.
Preparation for term project and presentation of a document report. Offered spring semester only. Prerequisites: 44:161, completion of departmental transfer requirement, or consent of instructor.

44:183 Urban Problems Seminar for Third World Development 1 a.h.
Patterns and processes of Third World Development; special issues and opportunities and spatial issues in Third World development in support of development projects. Same as 183:157.

44:185 African Development 1 a.h.
Problems of economic, political, and social integration in Africa, patterns and processes of economic development and reorganization. Same as 34:157.
Liberal Arts/Geology

Resources and 12.24 Introduction to Environmental Geology, a team-taught, laboratory-focused course designed to fulfill the College of Liberal Arts general education requirement for natural science studies. Other offerings for majors include a lecture sequence for persons interested in a general survey of geology, and several advanced courses with few prerequisites—petrology, 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 Petrology 4 s.h.
12.52 Structural Geology 5 s.h.
12.53 Geologic Field Methods 3 s.h.
12.51 Summer Field Course 6 s.h.
12.51 Principles of Paleontology 3 s.h.
At least two elective geology courses 9 s.h.

Total: At least 39 s.h.
(Note: 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 22M:26 Calculus II or 22H:38 Engineering Calculus II. Computer science or statistics courses may be counted toward the two-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 Petrology 4 s.h.
12.52 Principles of Paleontology 3 s.h.
At least one course (12.2 or 12.5) 4 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 departmental laboratory, and library investigation. Independent study is a prerequisite. 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 advisor. 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 advisor 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 for departmental approval.

The degree requires at least 30 semester hours of credit in graduate level course work, including at least eight semester hours of thesis and research credit, 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 examinations at graduation status, the student must have at least a 3.0 grade-point average of all graduate-level 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, and also some 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 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, geography, 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 credit 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 Geophysics
- Mine Economics
- Mineralogy
- Crystallography
- Determinative Mineralogy
- Crystal Chemistry and Mineral Chemistry
- Igneous and Metamorphic Petrology
- Igneous Petrology
- Metamorphic Petrology
- Aquatic Geochemistry and Thermodynamics
- Structural Geology
- Geoecology
- Structural Analysis
- Remote Sensing
- Geophysics
- Exploration Geophysics
- Solid-Earth Geophysics
- Rock Properties
- Stratigraphy
- Physical Stratigraphy
- Biostraligraphy
- Depositional Environments
- Sedimentary Petrology
- Stratigraphy
- Sandstone and Carbonate Petrology
- Physical Stratigraphy
- 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, overlying a Precambrian crystalline basement. Marine and terrestrial fossil assemblages, extensive reefs, and unique geode sites are available within a few hours' drive. All four Paleozoic gysers are represented in Iowa and each offers distinctive seashells and fossil assemblages.

Spring breaks 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
Primarily for Undergraduates

102H Cooperative Learning in Geology

121 Lectures in Earth History and Resources

122 Principles of Physical Geology

123 Introduction to Geology

1247 Environmental Pathways

125 Introduction to Oceanography

126 Principles of Economic Geology

127 Introduction to Petrology

129 Principles of Physical Geology

131 Physical Geology

132 Introduction to Geology

For Undergraduates and Graduates

1306 Geology, Geosciences, and Environmental Science

1306C Physical Geology

1326 Principles of Geology

1326E Earth History and Resources

1326F Geophysical Methods

1327 Introduction to Geology

1327 Physical Geology

1327E Earth History and Resources

1327F Geophysical Methods

1327G Geology, Geosciences, and Environmental Science

1327H Geology, Geosciences, and Environmental Science

1327I Geology, Geosciences, and Environmental Science

1327J Geology, Geosciences, and Environmental Science

1327K Geology, Geosciences, and Environmental Science

1327L Geology, Geosciences, and Environmental Science

1327M Geology, Geosciences, and Environmental Science

1327N Geology, Geosciences, and Environmental Science

1327O Geology, Geosciences, and Environmental Science

1327P Geology, Geosciences, and Environmental Science

1327Q Geology, Geosciences, and Environmental Science

1327R Geology, Geosciences, and Environmental Science

1327S Geology, Geosciences, and Environmental Science

1327T Geology, Geosciences, and Environmental Science

1327U Geology, Geosciences, and Environmental Science

1327V Geology, Geosciences, and Environmental Science

1327W Geology, Geosciences, and Environmental Science

1327X Geology, Geosciences, and Environmental Science

1327Y Geology, Geosciences, and Environmental Science

1327Z Geology, Geosciences, and Environmental Science

1328 Principles of Geology

1328E Earth History and Resources

1328F Geophysical Methods

1328G Geology, Geosciences, and Environmental Science

1328H Geology, Geosciences, and Environmental Science

1328I Geology, Geosciences, and Environmental Science

1328J Geology, Geosciences, and Environmental Science

1328K Geology, Geosciences, and Environmental Science

1328L Geology, Geosciences, and Environmental Science

1328M Geology, Geosciences, and Environmental Science

1328N Geology, Geosciences, and Environmental Science

1328O Geology, Geosciences, and Environmental Science

1328P Geology, Geosciences, and Environmental Science

1328Q Geology, Geosciences, and Environmental Science

1328R Geology, Geosciences, and Environmental Science

1328S Geology, Geosciences, and Environmental Science

1328T Geology, Geosciences, and Environmental Science

1328U Geology, Geosciences, and Environmental Science

1328V Geology, Geosciences, and Environmental Science

1328W Geology, Geosciences, and Environmental Science

1328X Geology, Geosciences, and Environmental Science

1328Y Geology, Geosciences, and Environmental Science

1328Z Geology, Geosciences, and Environmental Science

Cooperative Activities
The department has collaborative work with the Iowa Geological Survey and geology students sometimes work on projects for the Survey. The departments of Geology, Geography, Anthropology, Chemistry, Botany, and Zoology cooperate in sharing services, expertise, joint instruction, and equipment.
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 German Composition and 3 s.h.
Reading
13:32 Intermediate German 3 s.h.
Elementary Composition and
Conversation
13:33 Humanities Track 3 s.h.
Third Year
13:101 Introduction to Modern 3 s.h.
German Literature I
13:102 Introduction to Modern 3 s.h.
German Literature II
13:103 Intermediate Composition 3 s.h.
and Conversation
13:104 Advanced Composition 3 s.h.
and Conversation
13:105 German Cultural History 3 s.h.
13:111 Survey of German 3 s.h.
Language
13:112 Survey of German 3 s.h.
Literature
13:116 Advanced Composition 3 s.h.
and Conversation
Students who intend to go on for an advanced degree are encouraged to add 3 s.h. to the above.
13:117 German Phonology (3 semester 3 s.h. to the above).
hours) to the above.
Applied German Track
Third Year
13:103 Intermediate Composition 3 s.h.
and Conversation
13:104 Intermediate Composition 3 s.h.
and Conversation
13:106 Principles and 3 s.h.
Techniques of Translation
13:107 Translation: Projects 2-4 s.h.
and Vocabulary
13:114 Business German 3 s.h.
or
13:115 Contemporary German 3 s.h.
Civilization
Fourth Year
13:103 Language Composition 3 s.h.
and Conversation
13:114 Business German 3 s.h.
or
13:115 Contemporary German 3 s.h.
Civilization
The student in applied German must also complete at least one additional German literature or culture course at the 100- level or above.
1 Certification for Teaching 4 s.h.
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:
13:101 Introduction to Modern 3 s.h.
German Literature I
13:106 Introduction to Modern 3 s.h.
German Literature II
13:103 Intermediate Composition 3 s.h.
and Conversation
13:104 Intermediate Composition 3 s.h.
and Conversation
13:116 Advanced Composition 3 s.h.
and Conversation
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 honor 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.
An extensive collection of works and 3 s.h.
periodicals in the Library Library
facilitates research in the major areas of
German literature and Germanic Languages at all levels of study.

The Foreign Language House in Westtown 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 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 department 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 to 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 coursework, or has deficiencies, in the department's undergraduate program, he or she may elect to continue with 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 other than German, 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.
Ill. 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:
- 419 Contemporary Environmental Issues
- 4124 Introduction to Global Environment

Students who elect to take three courses in this area would, in addition, take any two of the following courses:
- 419 Contemporary Environmental Issues
- 4125 Geography of Natural Resources
- 4124 Introduction to Global Environment
- 4191 Energy in Contemporary Society
- 3725 A Planet in Crisis
(same as 125)
347 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 arriving at possible solutions to global problems, and that it is risky to accept as absolutes, 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 a cross-cultural understanding and sensibilities 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:
- 1135 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:
- 4215 World Futures
- 3615 Human Rights
- 8197 Human Rights in the World Community: Problems of Law and Policy
(establishes emphasis for:

6E-166 The Political Economy of Scotsman
19-156 Comparative Communication Systems
16-151 Contemporary Asia: News and Current Events
(same as 30-150)
42-180 Comparative Social Policy
47-7 Contemporary Africa
1133 Introduction to the Study of Anthropology
113-10 Anthropology and Contemporary World Problems
113-14 Language and Human Behavior
113-15 Women's Roles: A Cross-Cultural Perspective
113-17 Language and Culture
113-18 Race, Ethnicity, and International Relations
(same as 45-110)

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

- 471 Global Interdependence and Human Survival 3 s.h.
  Introduction to the four major problem areas of the Global Studies Program: basic information relative to each of the problem areas, examination of the general statements and interpretation of current efforts to deal with them.

- 472 Contemporary Asia 3 s.h.
  Interdisciplinary survey of the political, economic, and social developments of Asia.

- 470 Freshmen Orientation Seminar 1 s.h.
  Orientation to the concept of global studies.

- 475 Problems in Global Studies 3 s.h.
  Determined by the subject matter of a particular semester, it could substitute for one of the required areas among the four divisions of the Global Studies. May be repeated with consent of instructor.

- 476 Contemporary Africa 3 s.h.
  Interdisciplinary survey of the political, economic, and social developments of Africa.

- 478 African History Seminar 1 s.h.
  Cross-disciplinary seminar on African history, using foreign language, periodicals, and periodical.

- 479 Global Studies Seminar 1 s.h.
  In-depth exploration of a particular global problem in a geographically specific group organized by the students, with the topic chosen in consultation with the course director. May be repeated with consent of the Global Studies Committee.

Greek

See "Classics."

112 LIBERAL ARTS/Global Studies
History
Department Chair: Margaret J. Hingley
Faculty: Associate Professor Lawrence C. Gelfon, Ralph E. Reesey, Joseph A. Gottfried, Charles A. Holy, Ellis W. Howley, John B. Harmon, Henry D. Hathcote, Stephen V. Jones, Linda K. Nettie, Lawrence Latima, Donald McDonald, Jerodina Pecora, Matthew J. Rehnberg, David Nuberg, Anil B. Satter, Donald Sultzer
Professor emeritus: William S. Aylward, Sidney Mudd, Elow Peterson
Stronger: Jonathan Walker
Degree Offered: B.A. (1926)
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 the 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 a 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, public service, or journalism. Many plan further training in history, law, religion, library science, or business.
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 information 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 taken in courses numbered 16:50 or higher.
A minimum of three semester hours in courses numbered 16:50 or higher in fields other than those specified above.
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 the three hours of colloquium must be taken in residence at the University of Iowa.
A minimum of 18 to 19 semester hours of course work in related areas, such as anthropology, economics, fine arts (excluding studio courses), geography, literature (excluding workshop courses), philosophy, political science, psychology, religion, and sociology, or a similar major in one of these areas. Courses 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 16:3-8 Civilizations of Asia. Nor may any of these courses be included in the 24 semester hours of history required for the major.
Teacher Certification
Students majoring in history who wish to qualify for a teaching certificate must choose an area of concentration in history and complete the requirements in that area of specialization. They may not receive credit towards their certification by taking any of the courses above.
American History Concentration Courses in U.S. History 30 s.h.
In addition to 16:51 Colloquium for History Majors Courses in related areas 24 s.h.
Students must complete a minimum of twelve hours of course work in each of two related areas chosen from among the following five: economics, geography, world history (non-U.S.), political science, 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 be taken to fulfill the related area requirement in world history if that is one of the two areas chosen.
Courses in economics, geography, political science, or sociology which 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.
World History Concentration Courses in non-U.S. History 30 s.h.
In addition to 16:51 Colloquium for History Majors and one of 16:1, 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. Courses in economics, geography, political science, or sociology which 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. Many of the honors majors lead 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 courses numbered 16:50 or higher in related areas (See General Major in History); at least nine semester-hours in the department's honors offerings, which may include up to six semester hours of honors essay credit.  
Submission of defense of an honors essay.  
Honor credits may be obtained in honors seminar—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 paper based on some research in primary sources. A committee of three faculty members will hear a defense of the essay at the 12th 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 professional school of law and medicine, and others obtain advanced 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 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 done 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 24 must be taken in one division, and must include at least one reading or seminar course. The program must also include at least six semester hours in each of two other divisions of history, or six hours in one other division in history and 6 hours in a related department. These hours must include at least one readings 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 submit a specimen of their writing, such as a seminar paper or an M.A. thesis. They must take a research seminar during their first two semesters in residence at Iowa. The candidate must earn at least 72 semester hours of credit, including credit for work done toward the master's degree. The 72 semester hours must include at least 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 a 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 examination until these requirements have been met. The comprehensive examination (Ph.D. candidate) will cover four distinct fields, at least three of which are the 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, 1815 to present, Russia 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 set, separately for each field, the character of the written portion of the comprehensive examination, which may take the form of a syllabus, a critical bibliography, a topical paper, or any other form or combination of 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 term paper, a master's thesis, or a Ph.D. dissertation—in the history department. All applications for graduate study are due February 10 for the succeeding year. Applications for admission are due April 10 and November 10 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 offered in the following year, and the research interests of the members of the faculty, as well as details regarding course work required for 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 Henry A. Wallace papers and related collections are several other unique materials. In European history, 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 161 through 169 are offered only by the freshmen to satisfy the General Education Requirements in Historical Perspectives. 166.5, 167, 167.5, and 169 are open to freshmen. 165.5 and 169.5 are open to freshmen. Other courses numbered below 200 are open to freshmen only if they have already satisfied the general education requirements in historical perspectives. Most courses numbered below 200 are offered as occasion demands. Courses numbered 200 and above are offered on a regular basis.

161 Western Civilization to 1750 3 s.h.
4:10-14 Principles of Chemistry I-III
6 s.h.
4:16 Principles of Chemistry Laboratory 2 s.h.
4:121 Organic Chemistry I 3 s.h.
4:141 Organic Chemistry Laboratory 3 s.h.
61:157 General Microbiology 4 s.h.
72:120 Human Physiology 4 s.h.
99:110 Biochemistry 3 s.h.
Electives should be selected from home economics and the natural sciences.
A concentration in nutrition with emphasis in dietetics and nutrition requires:
17:101 Food Study 2 s.h.
17:102 Food Service Management Laboratory 2 s.h.
17:133 Meal 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-III 6 s.h.
4:16 Principles of Chemistry Laboratory 2 s.h.
4:121 Organic Chemistry I 3 s.h.
59:110 Biochemistry 3 s.h.
6:1 Principles of Economics 4 s.h.
6L:158 Personnel Management 3 s.h.
7:75 Educational Psychology and Measurement 3 s.h.
or
7P:131 Educational Psychology 3-4 s.h.
3:41 Introduction to Sociology: Principles 3-4 s.h.
or
3:11 Elementary Psychology 3-4 s.h.
61:157 General Psychology 4 s.h.
72:130 Human Physiology 4 s.h.
11:103 Introduction to the Study of Culture and Society 3 s.h.
Electives should be selected, according to the student's professional objectives, from the natural sciences, business administration, psychology, computer sciences, 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 programs centered 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 commercial secondary schools, for working as educators with organizations, business, industry, the home economics extension service, and other agencies, for teaching in nonschool settings, and for graduate study. Required courses for this concentration are:
17:31 Introductory Food Study 2 s.h.
or
17:131-132 Food Study, Food Study Laboratory 4 s.h.
17:112 Personal Financial Management 3 s.h.
17:113 Marriage and Family Interaction 3 s.h.
or
17:114 Parent-Child Relationships 3 s.h.
17:121 Curriculum: Home Economics 3 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.
or
18:1 Elements of Art 2-3 s.h.
or
18:2 Elements of Art 2-3 s.h.
or
6:1 Principles of Economics 4 s.h.
or
6:1 Principles of Economics 4 s.h.
or
31:1 Elementary Psychology 3-4 s.h.
3:41 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 7:8-125 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 2.5 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 "Extraordinary 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:
17:15 Interior Design Presentation 2 s.h.
17:53 Design Drawing 2 s.h.
17:54 Interior Design: Principles and Practices I 3 s.h.
17:155 Survey of Historic Interiors 4 s.h.
17:160 Textile Design: Printing and Dyeing 2 s.h.
17:165 Housing: Planning and Structural Aspects 3 s.h.
Two of the following:
17:1 Understanding the Visual Arts 3 s.h.
17:5 Western Art and Culture before 1400 3 s.h.
17:6 Western Art and Culture after 1400 3 s.h.
17:116 Introduction to Asian Art 3 s.h.
or
18:1 Elements of Art 2-3 s.h.
or
18:2 Elements of Art 2-3 s.h.
An approved two-dimensional studio art course 1A:4 Basic Design 2 s.h.
or
An approved three-dimensional studio art course
6:1 Principles of Economics 4 s.h.
or
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.
or
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 (selected according to program emphasis) 2-3 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.

or

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.
- 6:7-8 General Chemistry-I, II 6 s.h.
- A natural science-laboratory course 2-4 s.h.
- 6A:8 Introduction to Financial Accounting 3 s.h.
- 6E:1 Principles of Economics 4 s.h.
- 6E:2 Principles of Economics 4 s.h.
- BM:100 Introduction to Marketing 3 s.h.
- 6L:100 Administrative Management 3 s.h.
- BM:120 Consumer Behavior 3 s.h.

A course in computer science

Courses in business administration, computer science, journalism and mass communication, communication and theatre 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.
- 6:7-8 General Chemistry-I, II 6 s.h.

A natural science-laboratory course 2-4 s.h.
- 6E:1 Principles of Economics 4 s.h.
- 6E:2 Principles of Economics 4 s.h.
- BM:100 Introduction to Marketing 3 s.h.
- 6L:100 Administrative Management 3 s.h.
- BM:120 Consumer Behavior 3 s.h.

or

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 recommended for students who want greater depth or breadth in the natural sciences, and for those interested in entering careers in teaching, 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 in food or nutrition, the B.S. degree requires the following courses:

- 22M:3-3 Mathematical Techniques-I, II 5 s.h.
- 22M:20 Elementary Functions 3 s.h.
- 22M:25 Calculus-I 4 s.h.
- 29-11-12 College Physics 5 s.h.
- 4:130 Physical Chemistry for the Life Sciences 3 s.h.
- 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, II 6 s.h.
- A course in statistics 3 s.h.
- Two courses from the natural sciences 5-6 s.h.

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 required 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, II 6 s.h.
- 22M:25 Calculus-I 4 s.h.
- 22M:26 Calculus-II 4 s.h.
- 29-11-12 College Physics 5 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 relevant to their professional goals and academic programs. May not meet the requirements for the department's cooperative education program. Students register for 17:003 Cooperative Education Internship at the time of their work experience for 17:190 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 graduate may qualify for positions in colleges, secondary schools, business industry, and government.

The graduate programs enable students to obtain in-depth specialization in one of the five subject areas: family development and nutrition: home economics education; interior design, textiles, 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 intensive 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 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 36 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 required background courses will be required to complete these 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 17,231 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 work with agencies concerned with the family or prepare for college and university teaching. Required courses in family development concentration are:

- 17,211 Individual and Family Development 3 s.h.
- 17,212 Theory and Research in Family Life 3 s.h.
- 17,219 Research Problems in Family Life 3 s.h.
- 17,290 Seminar: Home Economics Research 2 s.h.

A course from at least two of the following concentration 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, dietetics service manager, specialist, test kitchen home economist, 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 3 s.h.
17,259 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.
17,290 Seminar: Home Economics Research 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.
99,120 The Chemistry of Biological Materials 3 s.h.
99,130 Biochemistry 3 s.h.
81,157 General Microbiology 3 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.
17,145 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.
99,120 The Chemistry of Biological Materials 3 s.h.
99,130 Biochemistry 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.
A course in statistics 3 s.h.

Home Economics Education

The graduate student's program in Home economics education may be planned 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 teacher'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

17,253 Seminar: Readings in Home Economics Education 2 s.h.
17,278 Research Problems: Home Economics Education 2-4 s.h.
17,290 Seminar: Home Economics Research 2 s.h.
A course in statistics 3 s.h.
Another 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 specialization 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 career 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 course work) are:

17,250 Seminar: Design and Housing 3 s.h.
17,290 Seminar: Home Economics Research 2 s.h.
Courses for interior design specialization:

17,153 Interior Design: Principles and Practices I 3 s.h.
17,154 Interior Design: Principles and Practices II 3 s.h.
17,155 Survey of Historic Interiors 4 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 housing 3 s.h.
One course in studio art 3 s.h.
Three courses in textile design 3 s.h.
Courses for textile design specialization:

17,157 Survey of Modern Interiors 2 s.h.
or
17,158 Historic Textiles and Apparel 3 s.h.
17,160 Textiles Design: Printing and Dyeing 3 s.h.
17,162 Textiles Design: Weaving 3 s.h.
17,164 Textiles Design: Forms and Places 3 s.h.
17,181 Textile Finishing, Dyeing and Detergency 1 s.h.
17,269 Advanced Studio Problems in Textile Design 2 s.h.
Another course in textile design 3 s.h.
Two art history courses 6 s.h.
Two studio art courses 6 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
Introduction to and an underscoring of theoretical concepts. All courses are for an integration of practice and theory. The course offers a wide variety of courses.

To prepare a high-quality program the School has a selective admissions program. Fresh students, with a declared interest in journalism are classified as "pre-majors." 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 compiled these requirements and have at least 55 semester hours (or will 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 Iow and work transferred to Iowa. Other criteria considered for the undergradute admissions committee are performance in the required pre-major courses, a statement of purpose in journalism, and a student, and a statement on any extraordinary circumstances. The goal of the 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 residencies. A grade of D in journalism courses is also taken into account toward fulfilling graduation requirements. To ensure that students have a strong liberal arts background to go with their professional preparation, the School requires students to complete 30 semester hours in the School of Journalism and Mass Communication. Students are expected to take coursework 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 added in consultation with the journalism major. This work will also increase student's skills in consultation with an advisor.

The Iowa program offers undergraduate programs in both journalism and mass communication. 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.
19 102 Legal and Ethical Issues in Communication 7 s.h.
19 150 Contemporary Issues 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 spot 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 skills, the student is introduced to analytical-critical concepts of the principles of content of the news profession through discussion and critiques of student work. The advanced reporting and editing course in some semesters may focus on such topics as public relations, news, economics, business, public relations, 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)

School Required Courses
19 100, 19 102, and 19 199 7 s.h.
19 101 Introduction to Visual Communication 3 s.h.
19 120 News Writing 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 and proficiency as professional communicators who can identify and analyze problems that need communication strategies and media products for solutions. The sequence is designed to show that students can combine writing, reporting, production, and conceptual classes 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 wide 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 (19 100, 19 102, and 19 199) 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 Communication 3 s.h.
One production course, selected from:
19 122 Broadcast Journalism Workshop 3 s.h.
19 131 Photocommunication 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.
Journalism electives 5 s.h.
Total required 30 s.h.

Mass Communication Inquiry Sequence
This sequence emphasizes the acquisition of knowledge about communication and concentrates on the study of communication as a way of comprehending social 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 with 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.
19 155 Mass Media and Society 3 s.h.
19 172 Special Topics in Communication 1 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; Fulfillment of the School's second area of concentration requirement in one of two ways:
A full B.A. major in another discipline.
A 24 semester hour concentration beyond the general education level. This concentration should be designed by the student and the student's advisor.

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 advisor.

Honors
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.
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.
19-123 News Reporting and Editing 3 s.h.
(Does not count toward M.A. degree)
19-232 News Principles and Practice 4 s.h.
19-230 Specialized Reporting or Editing 3 s.h.
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 6 s.h.)
Electives in other departments 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 (19-299) 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 advisor.

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 2 s.h.)
19-221 Approaches to the Study of Communication: Issues and Concepts 3 s.h.
19-240 Communication Research: Historical Anomalies 3 s.h.
19-241 Communication Research: Behavioral Approaches 3 s.h.
Electives in communication and mass communication in and other departments 19 s.h.
19-226 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 advisor.

Development Support Communication Emphasis

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 support and to match the professional skills to design and test appropriate project communication strategies. 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 an M.A./Ph.D. program upon completion of the 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:
Doctor of Philosophy

The Ph.D. program emphasizes interdisciplinary inquiry into mass communication phenomena within cultural and historical perspectives. Such perspectives inform our understanding of these phenomena cannot arise solely out of narrowly focused analyses of present conditions. Rather, the approaches emphasize philosophical, evaluative, and critical inquiry into relationships between mass media and society across time and culture. The program's substantive nature is defined by the scholarly interests of its faculty, who turn most frequently to investigating areas of historical, legal, social, and cross-cultural aspects of communication, both verbal and visual, and is organized in a series of courses and individualized studies. The Ph.D. program is highly individualized. Drawing on the School of Journalism and Mass Communication and other academic units, each student develops a specific course of study that reflects his or her academic background, experience, professional goals, and intellectual preferences. Applicants should be interested in the opportunity to join a small group of faculty and students working to understand mass communication in its cultural contexts. A more complete description of the graduate program is available from the School of Journalism and Mass Communication. Ask for the Graduate Studies Handbook.

Facilities

The School of Journalism and Mass Communication is housed in the three-story Communications Center. The School has special laboratories for photography, typography, audio, video, 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 Iowan housed in the Communications Center. Special facilities within the Communications Center include the Leslie G. Moeller Seminar Room and the Merritt Special Presentation Room. The School has its own Resource Center and provides accommodations for the Iowa High School Press Association and the Quill 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 supports the biannual 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 $50,000 in scholarship and financial aid is available for both undergraduate and graduate students. The School also has a program offering modest financial aid to both returning and first-time students. Research projects. To determine eligibility, write for more information.

Internships/Cooperative Education/Professional Experience

The School has a strong commitment to helping students find learning opportunities outside the classroom. Internships in journalism and public relations are available to students through the University's Cooperative Education Program. These experiences are selected and monitored to aid the student's professional growth. The School also works with the University Careers Office. In addition to internships, student-operated and locally owned media provide opportunities for professional experience.

Special Activities

The School engages in a variety of special activities for the enrichment of students, faculty, and the entire campus. Many speakers visit campus each year as part of John F. Murray Lectureship and the Leslie G. Moeller Lectureship 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-SDI), 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 specially reporting and the history of the British media available from the City University. In addition, internships are arranged with London news media.

Courses

All courses listed as 100 level or above require at least junior standing or major status and/or consent of instructor. 100

Cooperative Education Internship 1-9 h.

Internship in Cooperative Education, offered on a competitive basis by eligible students. Prerequisites: permission of professor, minimum grade of C in 100 level course. Students must complete 100 level course and become a member of the journalism program's graduate student.

15.02 Introduction to Broadcasting and Film Production 3 h.

A practical course that provides experience in broadcast production, with short video projects. Two short Super 8 films, and two audio productions required, emphasis on journalistic principles and effectiveness of communication equipment and training provided. Same as 250-25.

15.03 Introduction to Communication Skills 4-1 h.

Series of short courses stressing development of a variety of skills in communication skill: for example, video, audio, graphic, photography, advertising, group decision making, and research methods. Each section limited to 10 students. Fall semester of even years. Maximum of 16 semester hours. May be repeated to maximum of 8 semester credit hours. Open to freshmen.

15.05 Marketing and Editing for a Community Newspaper 3 h.

15.10 Social Scientific Foundations of Communication 3 h.

Deals with the purposes and processes of communication within and between social systems, considerable is given to understanding a social system. Advanced work in the scientific study of the communication process.

15.12 Urban Media and the Consumer 3 h.

Examination of the development of the communication process, individual, group, social, and community questions. Application of the communication process in an urban context.

15.24 Rural Media and the Consumer 3 h.

Examination of the development of the communication process, individual, group, social, and community questions. Application of the communication process in a rural context.
19.208 Comparative Communication Systems
Introduction to demographic, commercial, and legal approaches to mass communication. Students learn content analysis and macro-level communication patterns in selected countries. For graduate students.

19.207 Third World Development Project: Patterns and processes of their development; special implications of regional growth and special diffusion, critical analysis of communication strategies or support of development projects. For graduate students.

19.206 News Editorial Problems
Trends vary, emphasize on design and responsibilities of mass media in contemporary society. For graduate students.

19.205 Electoral Politics and the Mass Media
This course analyzes the symbiotic relationships between political campaigns and mass media. The role of truth and lies, propaganda and the rise of modern mass communication are treated. Social impact of printing. Class time: 212, 213.

19.202 Master's in Seminar
Sections for students in A.M. professional, thesis and development support communication programs. Professional students investigate journalism in a mode of inquiry; critical approaches, professional and institutional problems in mass communication. Thesis program selects seminar topics in communication theory, media and visual analysis. See W924 Seminar.

19.241 Approaches to the Study of Communication: Issues and Concepts
Introduction to major communication and mass communication concepts, and their use and development.

19.240 Specialized Reporting in Editing
Sections vary focusing on such subjects as private affairs, public affairs, political, economic, business, publishing design, and editing. Students may select from four seminar courses: W925-26, W930-31, W932, W933, W935 or W938 for instructor. For graduate students. See W925 Seminar.

19.231 Mass Communication Laboratory
Students make sound technical problems or solve problems in mass communication, mainly in reading, writing and editing in a journal of film, dramatic plays. Laboratory work.

19.224 News Principles and Practice
Practicum in mass communication, providing opportunity to plan, organize, direct and control the activities of a student news organization. For graduate students.

19.223 Introduction to Typography
Characteristics, qualities, history of newspaper, letterpress, design, production, publishing, editing, and use of print in communication design. Typography and graphic design. Lab work. For graduate students.

19.222 Mass Communication Research: Methods
Design and production of publications. Understanding and organizing for media, conventions, contemporary practices, design general assignments. For graduate students.

19.221 Mass Communication Research: History
Historical methods in communication research and analysis. Conceptualization and organization of research topics. For graduate students. See W928 Seminar for students in communication research history.

19.211 Communication Research: Behavioral
Behavioral communication research, mass communication, psychology, development, social psychology, social networks, environmental, field and interpersonal. Research topics include, but are not limited to, language, personality, and psychology. Methods are emphasized in order to study how people interpret and comprehend their worlds.

19.210 Communication Research: Phenomenological
Research methods course examines how people construct and carry out communication. Interaction, ethnography, ethnomethodology, phenomenology, and symbolic interactionism, field methods, and experimental methods. Research topics include, but are not limited to, language, personality, and psychology. Methods are emphasized in order to study how people interpret and comprehend their worlds.

19.240 Communication Research: Legal Issues
Introduction to legal research methods and materials for the study of communication law, including preparation of research papers for publication or presentation of research projects for theses or dissertation. Credit not given for both W926 and W927.

19.193 Seminar in Visual Communication
Conceptual and theoretical approaches for analysing photographic media, design and developed in connection with the production of mass communication. Prerequisite: consent of instructor.

19.190 History of the Book
History of the printed book from I to 1450; the printing press, the first printed books; the dissemination of Renaissance learning; the hand-printing press; the development of printing; the impact of printing. Class time: 313, 315.

19.180 Social Studies of Media
Examination of the ways in which the concept of news has been studied, chiefly through social science.

19.160 Economic, Technology, and American Mass Media
The economic conditions of the American mass media, examining the role of the mass media in society, paying particular attention to how economics and technology affect mass media. Issues covered include newspapers, broadcasting, cable television, and telecommunication.

19.140 Communication and Change
Theory, research, methodological problems of studying change topics: influence, innovations, media and change, net organizations, revolutionary organizations, and evolutionary organizations.

19.142 Problems in International Communication
Soviet trade, media, cultural, social conditions of the West, the role of the West in mass communication. For graduate students.

19.141 Contemporary Communication Theory
Focuses on trends in communication theory as they bear on the future of mass communication. Emphasizes strategic approaches to the study of communication. See W130 Seminar.

19.130 Communication and Social Theory
Research on the social function of the media, focus on the relationship between social and communication research.

19.120 Mass Communication in Modern Society
Current mass communications and political representation and influence in society. For graduate students.

19.110 Theory of Popular Culture
Analysis of the mass communication interface with American society. Emphasis on visual images and cultural symbols. For graduate students.

19.101 Master's Tutorial
Directed reading in special topics in communication and mass communication. Prerequisite: consent of instructor.

19.100 Master's Practice
Special topics in communication and mass communication. Prerequisite: consent of instructor.

19.999 Research Proposal
Directed research, including projects and supervision of research projects. Prerequisite: consent of instructor.

19.998 Dissertation
Directed research, including projects and supervision of research projects. Prerequisite: consent of instructor.

Iowa Lakeside Laboratory
Director: Richard V. Bondar
Faculty: Professor Robert V. Bondar (Biology, University of Iowa), Robert W. Dudley (Biology, University of Illinois), Lawrence J. Silver (Biology, University of Iowa), Richard K. Eubanks (Biology, Iowa State University), Lawrence L. Aked (Biology, Iowa State University), Larry H. Thiele (Biology, University of Iowa), Peter E. Lawlor (Biology, University of Iowa), Myra M. Demmer (Iowa State University), and assistant professors William J. Plant (Assistant Professor of Biology, University of Wisconsin, Madison), Walter D. Stimpson (Assistant Professor of Biology, University of Wisconsin, Madison), and assistant professor William C. Armstrong (Botany, University of Iowa). The laboratory was established in 1909 under the leadership of Thomas H. Macfie, who conceived it as a University of Iowa botanist and geologist from 1904 to 1914. It has been recognized in the University of Iowa as a site for the study of the flora and fauna of the northern Iowa lake and prairie regions.
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 Laboratories tuition fees. Scholarship applications close April 1.

Registration

Current or former students of The University of Iowa, or the University of Nebraska, and Iowa State University should ask their registrars for particulars. Students who are not currently students must apply for admission to one of the three cooperating universities; each has a provision 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.

Lifl Field Biology 5 cr.

Lifl Field Bore 1 cr.

Lifl Introduction to field natural history of local plants, emphasizing the ecology of distribution, dispersal, breeding systems, alternation of generations, seed production, leaf and flower anatomy, field and laboratory work, natural history and discussion. For students with at least one course in biology and interest in field experience.

Lifl Aquatic Ecology 4 cr.

Lifl Aquatic plants and animals, including analyses of interrelations of these groups and their environments. Emphasis on field studies of local species and fauna. Results of course are a report and technical summary, intended for students with basic biological background including some ecology, chemistry, and physics.

Lifl Aquatic Ecosystem Projects 4 cr.

Lifl individual project work.

Lifl Plant Taxonomy 4 cr.

Basic principles of classification and of nomenclature in plant biology, with emphasis on flowering plants of the report, field observations and measurements, applaudatory discussions and detailed student project work. For students with at least one course in biology, and comprehension interested in biology.

Lifl Field Ornithology 4 cr.

Structure, life cycles, and reproduction of birds in the region, emphasis on knowledge of nomenclature and recognition of the region's individuals or groups. Projects. For students with at least one course in biology.

Lifl Research 1-4 cr.

Lifl Research 1-4 cr.

Lifl Independent Study 1-4 cr.

Lifl Field Mycology 4 cr.

Identification, classification, and taxonomy of the region's fungous species. Techniques for identification, propagation and culture will be practiced with mycelial of various genera, with a survey of the region's fungi.

Lifl Field Entomology 4 cr.

Identification, classification, and taxonomy of the region's insect populations, emphasis on 10 field and laboratory studies of living organisms. Laboratory survey of the region's insect population and identification of the region's insect species. Projects. Field trips. For students with at least one course in biology. 1-4 students. Enrolled for 1 to 4 credit hours.

Lifl Ecology and Systematics 4 cr.

Field and laboratory experience in the study of freshwater ecosystems to gain familiarity with most of the genera and some of the species, both living and fossil. Emphasis on the examination of populations and habitats of local species. For students with at least one course in biology. 1-4 students. Enrolled for 1 to 4 credit hours.

Lifl Insect Ecology and Behavior 4 cr.

Patterns and principles of insect ecology and behavior using the morphology, physiology, embryology, and systematics of selected species, with emphasis on field observations. For students with at least one course in biology. 1-4 students. Enrolled for 1 to 4 credit hours.

Lifl Field Course of Biogeography and Paleontology 5 cr.

Fieldwork connotes with the identification and collection of species, analysis of their habitats. For graduate and advanced undergraduate students with knowledge of botany.

Lifl Fossil Ecolgy 5 cr.

Study of the basic patterns and underlying phenomena, and broad strokes of regional and local distributions of plants and animals of North American faunas. Field and laboratory-sponsored projects, projects intended for students with basic principles in modern ecology, and/or paleontology.

Lifl Aquatic Botany 4 cr.

Introduction to aquatic plants and their role in freshwater communities. Experience in gathering and analyzing quantitative data, and participation in field trips to wetlands and lakes with emphasis on ecological relationships of selected plants. Field trips are required.

Lifl Field Entomology 4 cr.

Field trips to different regions of the region, emphasis on their entomological and biological characteristics. Students involved in the field can learn from the instructors and from the students enrolled in the field program.

Lifl Field Taxonomy 4 cr.

Field and laboratory study of representative vertebrates, their roles in regional ecosystems, and their relationships with other life forms. For students with at least one course in biology. 1-4 students. Enrolled for 1 to 4 credit hours.

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. For the Certificate, a student must complete a minimum of 15 semester hours of coursework.

Senior Seminar
Seniors in the program enroll in Latin American Studies Seminar (35.119, 38.158, or 113.120, a three-semester-hour interdisciplinary 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 coursework, students majoring in any of the program's four participating departments may be able to count a significant number of the courses required for their majors toward the Certificate in Latin American Studies, and students majoring 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 at a rate of 12-18 semester hours per year, beginning after the sophomore year. To preserve the interdisciplinary character of the Latin American Studies minor, students majoring 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.
113.121 Latin American Economy and Society 3 s.h.
113.122 Latin American Studies Seminar 3 s.h.
113.166 Ethnology of Mesoamerica 3 s.h.

Art
11H.105 Art of Pre-Columbian America 3 s.h.

History
16.99 Introduction to Colonial Latin America 3 s.h.
16.102 Introduction to Modern Latin America 3 s.h.
16.103 Two Mexican Revolutions 3 s.h.

Political Science
31.144 Latin American Government 3 s.h.
31.145 Major States of Latin America 3 s.h.
31.163 Inter-American Relations 2-3 s.h.

Portuguese
31.103 Modern Brazilian Fiction I: Short Story 2 s.h.
31.104 Modern Brazilian Fiction II: Novel 2 s.h.
31.105 Brazilian Literature I 3 s.h.
31.106 Brazilian Literature II 3 s.h.
31.109 Nineteenth-Century Brazilian Fiction 3 s.h.
31.114 Culture and Civilization of the Portuguese-Speaking World 3 s.h.
31.189 Latin American Studies Seminar 3 s.h.

Spanish
35.1 Contemporary Latin American Narrative 3 s.h.
35.110 Readings in Hispanic Literature 3 s.h.
35.103 Contemporary Spanish American Fiction 3 s.h.
35.104 Spanish American Poetry 3 s.h.
35.107 Spanish American Drama 3 s.h.
35.108 Short Story of Spanish America 3 s.h.
35.107 Spanish American Literature of Fantasy 3 s.h.
35.110 Survey of Pre-Twentieth Century Spanish American Literature 3 s.h.
35.111 Literature of the Discovery and Conquest of Spanish America 3 s.h.
35.112 Contemporary Latin American Novel and Short Story 3 s.h.
35.115 Spanish American Civilization 3 s.h.
35.159 Latin American Studies Seminar 3 s.h.

Library and Information Science

The School of Library and Information Science offers a program of professional preparation for careers in all types of libraries and information centers—public, school, academic, and special. It seeks to recruit and prepare librarians and information professionals, to contribute to the advance of librarianship through research, and to provide public service. The program is accredited by the American Library Association.

Program Goals and Objectives
The goals of the School of Library and Information Science are:

1. To offer a graduate program of basic professional preparation in library and information science which reflects the variety and growth of information needs felt by society and individuals.
2. To engage in research that increases understanding of the variety of information needs and of the actions that can be taken to provide for those needs.
3. To provide public service through continuing education and consulting, and through association and other professional service so that growth is fostered beyond the student's basic professional program, and so that people may have the information service they need.

Instructional Objectives
Upon completion of the program, the student will be able to:

1. Demonstrate an understanding of the history and theory of librarianship sufficient to recognize their relationship to the role of the library in today's society, and the library's importance in the communication process.
2. Acquire 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.
3. Demonstrate mastery of the techniques and procedures of effective information service (that is, the selection, acquisition, organization, storage, retrieval, and dissemination of information).
4. Demonstrate an appreciation for the contribution that reading, information, libraries, and lifelong learning can make.

Advisors
George Brand, Associate Professor of Information Science
Elizabeth Brown, Assistant Professor of Information Science
Steven C. Doan, Assistant Professor of Information Science
Susan E. Gaither, Assistant Professor of Information Science
Scott A. Grifn, Assistant Professor of Information Science
David W. Jones, Assistant Professor of Information Science
Kenneth D. Keene, Assistant Professor of Information Science
John W. Leach, Assistant Professor of Information Science
Judy L. McFarland, Assistant Professor of Information Science
John W. Newcomb, Assistant Professor of Information Science
Richard E. P. O'Brien, Assistant Professor of Information Science
Michael J. Peterson, Assistant Professor of Information Science
Susan E. Price, Assistant Professor of Information Science
David W. Smith, Assistant Professor of Information Science
Richard E. Thies, Assistant Professor of Information Science

Instructor
Instructor Kathleen Cahill

Advisor
Advisor

Department of Information Science

University of Illinois at Urbana-Champaign
to the richness of life, and the ability to convey that appreciation to others.

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 allowed, 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. This applies to 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.

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 to, 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 advisor.

Core courses (required of all M.A. candidates) 12 s.h.

21:151 Reference
21:152 Cataloging and Classification
21:153 Selection of Library Materials
21:201 Management of Libraries and Information Centers

Type-of-library course (one required) 3 s.h.

21:200 Special Libraries
21:231 The Public Library
21:252 The College and University Library

21:233 School Library Media Center Administration

Electives 18 s.h.

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 allow the student to expand on the subject matter of courses taken at the graduate level. This is in order to provide any of independent research to a student with extensive preparation in library and information science.

A maximum of nine semester hours of graduate credit may be accepted in a student's plan of study. The maximum is applicable to the master's degree in library and information science at The University of Iowa provided:

The work was done at the graduate level in an ALA-accredited program, and is not applied toward a previous degree;

The grade received was A or B;

The instructor evaluates the elapsed time since the 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 students already employed, a minimum of four summer sessions. Maximum graduate course load is 15 semester hours in regular semesters, 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 librarians 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 this 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.
21:123 Literature for Children I 3 s.h.
21:124 History of Books for Young People 3 s.h.
21:251 Special Libraries 3 s.h.
21:252 Advanced Cataloging and Classification 3 s.h.
21:254 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 research 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 12 s.h.
21:323 The College and University Library 3 s.h.
Suggested Electives 18 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.
21:256 Medical Bibliographies and Research Techniques 3 s.h.
21:282 Practicum in Libraries 3 s.h.
Bibliography courses

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.
21:236 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.
21:256 Medical Bibliographies 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 guidance, 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 on working in Iowa are encouraged to follow the program hinted 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.
21:222 Multi-Media Concepts in Libraries 3 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.
21:124 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.

Iowa School Library Media Certification, K-12
The school offers approved programs for state certification in these areas: school librarian 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 administrator. Twenty of these hours must be earned here. Included in the 30 semester hours must be 21:151-152, 21:202, 21:233, and 21:262 or their equivalents as determined by the instructors teaching the courses. In order to pursue such a non-degree program, however, a student must have been accepted for admission to the School of Library and Information Science.
Iowa Community College Certification

The school offers an approved program for the Bachelor of Science in an area vocational school or community college (Iowa endorsement). Students receive this endorsement upon completion of the M.A. degree with the program label under "College and University Library Work" and 7TH-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 for negotiation. For instance, a student who seeks a career in a law or business library would require a different sequence of courses from one attempting to study the legal basis of librarianship or the management of the library as a complex organization. Yet another student 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 for the J.D. in library and information science and up to nine toward the M.J.A. or twelve hours to the J.D.

In no case can a student receive two degrees with fewer than 60 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 film-making, filmstrip production, 16mm film photography, and simple film editing. A darkroom includes equipment for film developing, enlarging, and film-drying.

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 OCLC. In various courses, students learn to write programs, design information systems, conduct database searches, and recall and manipulate bibliographic records in the OCLC database.

Statewide Reference Service

The school serves as one unit 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 science. This collection contains 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 17 departmental branches. An average of 50,000 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 room, 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 other personnel: the State Historical Library in Iowa City; the Iowa State Law School library; the Western Reserve Public and school libraries; the DOE, Cornell, and Orient 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 exemplary 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, Assistant Librarian's Office, and the Curriculum Resources Lab. The collection contains an extensive book collection, and non-fiction materials are 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, computer-related research, thesis preparation, and instruction. Each graduate student is provided with a sponsored account by the Graduate College.

Faculty Advising

The School of Library and Information Science has a low student-faculty ratio, a friendly and innovative faculty, and an atmosphere of heavy student-faculty interaction. Advisor 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.

Library and Information Science/LIBERAL ARTS
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 internships 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 (JSSO) 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, resume-writing and interviewing, and on-campus counseling. The University's Career Placement Office is 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 30 percent, school libraries 37 percent, academic libraries 21 percent, and special libraries 12 percent. Iowa graduates have found employment in public libraries in all 95 counties. Strong personal and written communication skills and geographic mobility 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 960 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 nearer the applicant's home. The school does not accept every applicant who meets the minimum admission requirements, admission committees select 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 prior admission 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 cited below. The applicant needs to allow time for the TOEFL exam. The student 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-ship scholarships, as well as a limited number of 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 after completing 12 semester hours of graduate work with a 3.0 grade-point average. Proactive students are urged to apply for these awards before March 1. Information about the scholarships and work-study eligibility, or other financial assistance, contact the Office of Student Financial Aid, Coulter Hall.

Students interested in part-time employment should contact the libraries in the Iowa City area. Positions are usually available in the University Libraries.

Courses

210 Information Seeking 3 s.h.
210 Introduction to Library Research in Urban Education 3 s.h.
211 Library and Information Science 3 s.h.
213 Library and Information Science 3 s.h.
214 Library and Information Science 3 s.h.
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268 Library and Information Science 3 s.h.
21:332 Bibliography of the Sciences 3 h.s.
Science: the work of scientists, and the role of library and science in the course of information within the fields of science and to the public; the print and non-print information sources and documentation tools; methods of inquiry, patents. Offered alternate terms. Prerequisites: 21:151.

21:344 Meterology, Library Science for Children, and Young Adults 3 h.s.
Examination of the literature and information service needs of children and young youth; public librarians and selection aids for juvenile fiction, juvenile, and juvenile materials in print and audiovisual formats; pedagogic literature and monographs relating to the teaching of literature for young people. Offered once a year.

21:345 Introduction to Information Science 3 h.s.
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 3 h.s.
Examination of the theory, techniques, and procedures used to create, maintain, and evaluate information retrieval systems. Special emphasis on online databases, and database management systems in libraries. Offered alternate terms. Prerequisites: 21:345.

21:349 Research Methods 3 h.s.
Concepts and techniques of research in library and information science; emphasis on conducting and analyzing research projects. Offered alternate terms. Prerequisites: 21:347.

21:351 Advanced Reference 3 h.s.

21:352 Advanced Cataloging and Description 3 h.s.
Special problems and skills in the description of print, non-print, music, and audiovisual materials; cataloging principles; cooperative cataloging and union, bibliographic standards, indexing, administration of bibliographic control services. Offered alternate terms. Prerequisite: 21:152.

21:355 Government Publications 3 h.s.
Federal and state publications, publications in the field of 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 Center Practice 3 h.s.
Supervision and organization of the media center at both elementary and secondary school levels; approaches to program evaluation. Open only to graduate students majoring in library and information science. Offered in the fall of odd numbered years. Also offered by special arrangement.

21:357 Medical Literature and Bibliography 3 h.s.
Types of literature in medicine, including the principles of medical research, organization and evaluation of medical literature, bibliographic tools, current awareness services. Offered during summers. Prerequisites: 21:151 and 21:201, or consent of instructor.

21:358 Law Library, Bibliography, and Research Techniques 3 h.s.
The legal library: characteristics of legal literature, selection and organization of legal materials, methods of evaluation and use of legal information and bibliographic tools; current awareness services. Offered during summers. Prerequisites: 21:151 and 21:201, or consent of instructor.

21:372 Current Topics in Librarianship 3 h.s.
Investigation and analysis of contemporary issues and problems in library and information services. Offered in the spring of odd-numbered years.

21:378 Marketing in Library Science 3 h.s.
Effect of library service on service selection and problem.
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. 

Prerequisites: permission of department.

103.1 Iowa Intensive English Communication Skills 5 a.h.

103.2 Iowa Intensive English Listening Comprehension 5 a.h.

103.3 Iowa Intensive English Reading 5 a.h.

103.4 Iowa Intensive English Grammar 5 a.h.

103.5 Iowa Intensive English Writing 5 a.h.

Prerequisite: permission of department.

103.6 Conversations Skills for Foreign Students 3 a.h.

Practice in conversation, with the goal of communicative competence basic proficiency, with vocabulary.

103.9 Pronunciation and Oral Fluency for Foreign Students 3 a.h.

Focus on the oral fluency and pronunciation of key words and the correct use of stress and intonation. Practice in oral speaking.

103.10 Grammar for Foreign Students 3 a.h.

Practice in the principles of English sentence structure.

103.11 Written English for Foreign Students 3 a.h.

Focus on the written form of written English, grammatical structures, and (non-native) vocabulary in written English with a focus on the use of good English in writing.

103.12 Composition of English Essay for Foreign Students 3 a.h.

Focus on understanding written text and the written form of English, written communication. Practice in written composition.

103.13 Special Instruction in ESL for Foreign Teaching Assistants 3 a.h.

Instruction and practice in English skills, cross-cultural differences in educational systems, and the role of the teaching assistant in the educational process. Practice in simulated teaching situations.

103.14 Special Instruction in ESL for Foreign Students 3 a.h.

Instruction and practice in English skills, cross-cultural differences in educational systems, and the role of the teaching assistant in the educational process. Practice in simulated teaching situations.

For Undergraduates and Graduates

103.16 Introduction to Linguistics 3 a.h.

103.17 Language, Society, and Education 3 a.h.

110.20 English Language and Culture 3 a.h.

110.21 Psycholinguistics 3 a.h.

111.16 Introduction to Semantics 3 a.h.

111.24 Introduction to Semantics 3 a.h.

111.25 Psycholinguistics 3 a.h.

112.07 Introduction to Bilingualism 3 a.h.

112.20 World of the English Language 3 a.h.

120.25 World of the English Language 3 a.h.
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:16 Introduction to 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 examinations and textbooks prepared by the professional actuarial organizations.

Following a sequence in calculus and linear algebra (22M:25-26 Calculus II or III or 22M:45-46 Accelerated Calculus II or III), 22M:27 Introduction to Linear Algebra, and 22M:28 Calculus III, or 22M:35-36 Elements of Group Theory, 22M:35 Fundamental Properties of Spaces and Functions, or 22M:103 Foundations of Set Theory, and it should include at least one 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 concentrating in 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.

Applied Mathematics

All students interested in applied mathematics should complete the sequences 22M:25-26 Calculus II or III or 22M:45-46 Accelerated Calculus II, 22M:27 Introduction to Linear Algebra, and 22M:28 Calculus III of the sequence


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, but these courses are not required and C:153 Introduction to Probability and 22S:154 Introduction to Mathematical Statistics or 22S:159 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 outside the Division of Mathematical Sciences and, in particular, the student should plan to do graduate work in applied mathematics. The Calculus sequence should include 22M:1, 22S:201 Introduction to Analysis I and 22S:116 Introduction to Analysis II.

Mathematics Education

Mathematics courses required for students in mathematics education are 22M:25-26 Calculus II or III or 22M:45-46 Accelerated Calculus II, 22M:27 Introduction to Linear Algebra, 22M:50 Elements of Group Theory, 22M:55 Fundamental Properties of Spaces and Functions, and 22M:100 Foundations of Geometry. The student may substitute for any of these courses a 100-level course in the same subject area. This requirement (equivalent to 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:120-121 Abstract Algebra I-II, 22S:120 Probability and 22S:116-150 Mathematical Models and Statistical Inference, and the Introduction to Probability and Statistics 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 II or III or 22M:45-46 Accelerated Calculus II or III, 22M:27 Introduction to Linear Algebra, or 22M:28 Calculus III. Engineering Calculus II, 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:100 Analysis for Applications, and 22M:115 Introduction to Analysis I. Substantial work in one of the following areas, physics or engineering sciences is also highly recommended.
Further courses in probability and statistics may be selected from courses in the Department of Statistics numbered 105 and above, excluding 223:101, 223:105, 223:106.


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 a Division of Mathematical Sciences course numbered 223:50 or above (excluding 223:80:R1 and including at least one course numbered 223:105 or above).
- At least three additional quantitative courses taken from two clearly defined 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 advisers.

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 223:16, Introduction to Programming with Pascal.

Minor

All students are required to take a year of calculus. The courses designated as upper level for the purpose 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 M. of Business Administration degree in one year of graduate study should consult with his or her advisor and with the associate dean of the College of Business Administration prior to the junior year concerning business courses which should be included in the undergraduate program.

Applied Mathematical Sciences

Program Chair: Herbert W. Hethcote
Faculty: Arnold E. Aderson (systematics), Davis L. Birge (Structural Engineering), Cong J. Chen (Energy), Feeney, John A. (Mathematics), Enmanuel, Enmanuel J. (Computer Science), Johnson, Philip H. (Operations Research), Malan, Stephen P. (Robotics), Tiedens (Economics), Williams (Physics), Gero K. Eken (Physics), Hart E. Lohne (Physics), Johnson (Economics), Vagners (Chemistry), Mathew (Chemical Engineering), Roger R. Schultz (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; 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 of at least one science (behavioral, biological, measuring, medical, physical, 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 discipline. Students may enter with either a bachelor's or master's degree.

The faculty members associated with the program assist each student in planning a course of study which is consistent with the student's background, interests, and goals. They also assist the student in finding a suitable thesis problem and in supervision of the research chosen by the student.

The student's program is designed to develop expertise in methods of application of a mathematical science to build a good foundation in related topics of theoretical mathematics, statistics, or computer science, and to provide sufficient knowledge in a particular science so that the student can use mathematical science techniques in that science. 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 to 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, and interpretation of the results.

Research and teaching assistantships are available to qualified applicants. Support for students as research assistants is available during the summers. Applications for fall semester admission and for financial support should be made by March 15. For application forms and further information about the academic program, write to the Chair, Program in Kipfle Mathematical Sciences, The University of Iowa, Iowa City, Iowa 52242.

Courses

125:297 Seminar in Applied Mathematical Sciences
Prerequisite: consent of instructor
125:298 Reading and Research
Prerequisite: consent of instructor

Computer Science

Department chair: Arthur C. Frick
Faculty: professors Donald A. Atan, Donald L. Eaker, Arthur C. Frick, Associate professors Robert J. Egin, Robert E. V. Biss, Joseph Khani, Tovian F. Pius

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Bacheler 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

22C:35 Elementary Numerical Analysis
22C:96 Topics in Computer Science
22C:115 Software Engineering
22C:116 Operating Systems and Concurrent Programming
22C:147 Advanced Computer Organization and Architecture
22C:123 Programming Language Foundations
22C:125 Data Abstractions, Types, and Structures
22C:127 Compiler Construction
22C:130 Introduction to Compuation Theory
22C:146 Design of Information Systems
22C:145 Artificial Intelligence
22C:146 Computer Vision and Robotics
22C:153 Design and Analysis of Algorithms
22C:167 Theory of Graphs
22C:176 Computer Communications
22C:178 Individual Programming Projects

Mathematics courses

22M:50 Elements of Group Theory
22M:55 Fundamental Properties of Spaces and Functions
22M:70 Foundations of Plane Geometry any 100-level course except 22M:102

Statistics courses

22S:199 Probability and Statistics for the Engineering and Physical Sciences
22S:120 Probability and Statistics
22S:153 Introduction to Probability any course numbered above 225:153

These courses cannot be taken pass-fail. Students with certain special circumstances may petition for additional courses to be accepted for this requirement.

Electives

For the B.A. or B.S. degree, the student must take 12 to 20 semester hours of electives in a coherent manner in at least two 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. These courses must be approved by the student's advisor before and cannot be taken pass-fail. They may also be used to satisfy the college elective requirement.

Minor

For a minor in computer science, a student must complete: 22C:16 Introduction to Programming with Pascal

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, the common science core courses are required:

22M:25 Calculus I 4.0
22M:26 Calculus II 4.0
22M:27 Introduction to Linear Algebra 4.0

22C:16 Introduction to Programming with Pascal

22C:17 Programming Techniques and Data Structures

22C:18 Computer Organization and Assembly Language Programming

22C:19 Data Structures

22C:21 Computer Programming Concepts

22C:31 Digital Systems and Computers

22C:32 Introduction to Systems Software

Total 38
Doctor of Philosophy

Doctoral students are expected to complete 80 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 doctoral include:

22C:116 Operating Systems and Concurrent Programming 3 s.h.
22C:122 Advanced Computer Organization and Architecture 3 s.h.
22C:123 Programming Language Foundations 3 s.h.
22C:133 Data Abstractions, Types, and Structures 3 s.h.
22C:127 Compiler Construction 3 s.h.
22C:135 Introduction to Computation Theory 3 s.h.
22C:144 Design of Information Systems 3 s.h.
22C:145 Artificial Intelligence 3 s.h.
22C:153 Design and Analysis of Algorithms I 3 s.h.

The student must also complete at least 18 semester hours of 200-level computer science course work in addition to 232:599 Research for Dissertation.

In addition to the course work in computer science, the student must complete at least three courses, with grades of B or better, in one of the outside areas:

Algebra
Analysis
Logic and set theory

Operations research
Numerical analysis

At least one course in the outside area must be at the 400-level (advanced), except in statistics and probability, where the advanced course may be at the 200-level.

After the student passes the qualifying examination, the student selects a faculty advisor to direct his/her research, and the student and advisor select 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 specialty examination which will serve as its or her Ph.D. comprehensive examination. The dissertation committee administers the specialty examination after the student has substantially completed the required course work.

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:106 Intro to FORTRAN Programming with PASCAL and 22C:107 Programming Techniques and Data Structures is recommended. Students in fields in which other programming languages are heavily used may find 22C:105 introduction to Computing with FORTRAN or 22C:106 Programming with FORTRAN more appropriate.

Courses Primarily for Undergraduates

22C:999 Cooperative Education Training Assignment 0 s.h.
22C:1 Survey of Computing 3 s.h.
22C:2 Introduction to Computers and Computing 3 s.h., 22C:2 Introduction to Computing with FORTRAN 3 s.h.
22C:9 Programming with COBOL 3 s.h.
22C:16 Introduction to Programming with Pascal 3 s.h.
22C:18 Programming and Program Design Techniques using PASCAL 3 s.h.
22C:20 Computer Organization and Assembly Language Programming 3 s.h.
22C:21 Computer Organization and Assembly Language Programming 3 s.h.
22C:22 Operating Systems and Concurrent Programming 3 s.h.
22C:23 Programming Language Concepts 3 s.h.
22C:24 Digital Systems and Computers 3 s.h.
22C:25 Electronic Computers and Digital Equipment 3 s.h.
22C:26 Elementary Numerical Analysis 3 s.h.
22C:28 Topics in Computer Science 3 s.h.
22C:29 Introduction to Computing for Computer Science 3 s.h.
22C:31 Introduction to Computing for Computer Science 3 s.h.

Graduate Service Courses

22C:100 Introduction to Computing with FORTRAN 3 s.h.
22C:101 Programming and program design using FORTRAN 3 s.h.
22C:102 Programming and Program Design Techniques using FORTRAN 3 s.h.
22C:103 Programming and Program Design Techniques using FORTRAN 3 s.h.
22C:104 Programming and Program Design Techniques using FORTRAN 3 s.h.
22C:105 Introduction to Computing with FORTRAN 3 s.h.
22C:106 Programming and Program Design Techniques using FORTRAN 3 s.h.
22C:107 Programming and Program Design Techniques using FORTRAN 3 s.h.
22C:108 Programming and Program Design Techniques using FORTRAN 3 s.h.
22C:109 Programming and Program Design Techniques using FORTRAN 3 s.h.
22C:110 Programming and Program Design Techniques using FORTRAN 3 s.h.
22C:111 Programming and Program Design Techniques using FORTRAN 3 s.h.
22C:112 Programming and Program Design Techniques using FORTRAN 3 s.h.
22C:113 Programming and Program Design Techniques using FORTRAN 3 s.h.
22C:114 Programming and Program Design Techniques using FORTRAN 3 s.h.
22C:115 Programming and Program Design Techniques using FORTRAN 3 s.h.
22C:116 Programming and Program Design Techniques using FORTRAN 3 s.h.
22C:117 Programming and Program Design Techniques using FORTRAN 3 s.h.
22C:118 Programming and Program Design Techniques using FORTRAN 3 s.h.
22C:119 Programming and Program Design Techniques using FORTRAN 3 s.h.
22C:120 Programming and Program Design Techniques using FORTRAN 3 s.h.
22C:121 Programming and Program Design Techniques using FORTRAN 3 s.h.
22C:122 Programming and Program Design Techniques using FORTRAN 3 s.h.
22C:123 Programming and Program Design Techniques using FORTRAN 3 s.h.
22C:124 Programming and Program Design Techniques using FORTRAN 3 s.h.
22C:125 Programming and Program Design Techniques using FORTRAN 3 s.h.
22C:126 Programming and Program Design Techniques using FORTRAN 3 s.h.
22C:127 Programming and Program Design Techniques using FORTRAN 3 s.h.
22C:128 Programming and Program Design Techniques using FORTRAN 3 s.h.
22C:129 Programming and Program Design Techniques using FORTRAN 3 s.h.
22C:130 Programming and Program Design Techniques using FORTRAN 3 s.h.
22C:131 Programming and Program Design Techniques using FORTRAN 3 s.h.
22C:132 Programming and Program Design Techniques using FORTRAN 3 s.h.
22C:133 Programming and Program Design Techniques using FORTRAN 3 s.h.
22C:134 Programming and Program Design Techniques using FORTRAN 3 s.h.
22C:135 Programming and Program Design Techniques using FORTRAN 3 s.h.
22C:136 Programming and Program Design Techniques using FORTRAN 3 s.h.
22C:137 Programming and Program Design Techniques using FORTRAN 3 s.h.
22C:138 Programming and Program Design Techniques using FORTRAN 3 s.h.
22C:139 Programming and Program Design Techniques using FORTRAN 3 s.h.
22C:140 Programming and Program Design Techniques using FORTRAN 3 s.h.
22C:141 Programming and Program Design Techniques using FORTRAN 3 s.h.
22C:142 Programming and Program Design Techniques using FORTRAN 3 s.h.
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22C:148 Programming and Program Design Techniques using FORTRAN 3 s.h.
22C:149 Programming and Program Design Techniques using FORTRAN 3 s.h.
22C:150 Programming and Program Design Techniques using FORTRAN 3 s.h.
Students are required to take two comprehensive examinations: one covering the content of 22M.179, 22M.171, and 22M.135; the other covering the content of 22M.101, 22M.102, and 22M.109.

Two of the following:
22M.118 Complex Variables
22M.150 Matrix Theory
22M.151 Discrete Mathematical Models
22M.152 Theory of Graphs
22M.116 Operating Systems and Concurrent Programming

Program IV
22S.153 Design and Analysis of Algorithms II
22S.155 Introduction to Probability
22S.154 Introduction to Mathematical Statistics
22S.167 Introduction to Stochastic Processes

A student in program IV is assigned a mathematics adviser who will work with the student and the student’s major adviser to plan an appropriate curriculum for the master’s degree in mathematics.

Admission
To be admitted to an M.S. degree program in mathematics, a student must have completed work in an undergraduate mathematics program equivalent to the one offered by the Division of Mathematical Sciences. A student whose preparation does not meet this requirement may be required to take certain additional courses to correct the deficiency.

Doctor of Philosophy
Most of the recent graduates of the Ph.D. program have found positions teaching in universities or colleges.

There is ample opportunity for Ph.D. candidates to take courses in applicable mathematics, both in the mathematics department and in other departments in the division. There is no formal departmental policy distinguishing between pure and applied mathematics.

The requirements for the Ph.D. in mathematics include 72 semester hours of graduate credit; at least three years of graduate residence, including at least 38 hours at The University of Iowa. Each graduate student is expected to gain experience, while at the University, in the oral communication of mathematics; this requirement is usually fulfilled by “narrow classroom teaching or seminar lecturing.”

The comprehensive qualifying examination for the Ph.D. in mathematics covers three of these areas: algebra, analysis, logic and applications, and topology. The student selects the three areas in which he or she wishes to be examined.

The candidate must also write a thesis and pass a final examination.

The candidate will be required to demonstrate reading proficiency in either French, German, or Russian by passing a language test administered by the appropriate foreign language department or earning a grade of 80 or better in the second semester of a sequence offered by the appropriate foreign language department. This demonstration must take place after the student has enrolled in graduate school.

For information about the Ph.D. degree in mathematics education, consult the brochure, Advanced Studies in Education, available from the College of Education.

The Department of Mathematics also cooperates in interdisciplinary doctoral programs with the Program in Applied Mathematical Sciences.

Courses
Undergraduate: Lower Division
These courses are not open to graduate students or to upper classmen except with the chair of the department.

22M.1 Basic Mathematical Techniques 3 s.h.

Programs, sets, and number systems, space and measurements, simple products, linear and quadratic equations, simultaneous equations, exponents, and factoring, trigonometry, numerical data and graphs, and elementary geometry. Prerequisites: 22M.15, or one or two years of high school algebra and one year of high school geometry.

22M.2 Mathematical Techniques I 3 s.h.

Elementary techniques, equations and inequalities, functions and graphs, coordinate geometry, and numerical data and graphs. Prerequisites: 22M.15, or one year of high school algebra and one year of high school geometry.

22M.3 Mathematical Techniques II 3 s.h.

Equation solving, systems of linear equations, applications of linear equations, graphs, series, permutations, and combinations. Prerequisites: 22M.2, or two years of high school algebra and one year of high school geometry.

22M.4 Quantitative Methods 4 s.h.

Techniques for analyzing behavioral phenomena. The emphasis is on management and economic and social science models and related areas: introduction to differential and integral calculus, systems of linear equations, matrix algebra. Prerequisites: 22M.2 or 22M.3 and 22M.4 are satisfied by credit in the
Statistics and Actuarial Science

Department chair: John B. McKeon
Faculty: associate professor Richard L. Dykstra, Robert V. Holt, John B. McKeon, associate professor of practice James D. Arthur, Thomas J. Brown, John C. Giannaros, and Jakob Lodwick

Statistics and actuarial science is the study of mathematical models for processes that involve randomness, so that they may be understood and controlled. This includes the design and analysis of experiments and data collection for industry, research, and government. Actuaries work in the insurance industry or as consultants dealing with the risk and uncertainty of financial losses. Statistics and actuarial science is used in academic institutions, not only in statistical teaching and research, but also 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 16 semester hours in statistics courses and 12 additional hours in courses numbered 225-105 and above.

The Bachelor of Science degree can be earned by satisfying one of the following programs.

Actuarial Science

This program is designed to prepare students to enter the actuarial profession. The requirements are mainly for 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:

22C:7 Introduction to Computing with FORTRAN
or
22C:16 Introduction to Programming with Pascal
22M:25-26 Calculus I-II
22M:35-36 Engineering Calculus I-II
or
22M:45-46 Accelerated Calculus I-II
22M:27 Introduction toLinear Algebra
22M:28 Engineering Calculus III
22M:37 Engineering Calculus III
22M:39 Fundamental Properties of Spaces and Functions
22S:193 Introduction to Probability
22S:154 Introduction to Mathematical Statistics
22S:150 Methods of Statistical Inference
22S:125 Actuarial Principles of Life Insurance
22S:177 Numerical Analysis for Actuaries
22S:180-182 Actuarial Theory I-III
66:1-2 Principles of Economics

At least two from the following:
6A:1 Introduction to Financial Accounting
6F:100 Introductory Financial Management
6F:102 General Insurance
6M:100 Introduction to Marketing
6L:47 Introduction to Law
6L:100 Administrative Management
Suggested additional courses:
22S:25 Elementary Statistics and Inference
(Must be taken prior to 22S:153 Introduction to Probability)
22S:183 Demography and Life Table Construction
22S:184 Risk Theory
22S:189 Theory of Pension Funding
6F:121 Property and Liability Insurance
6F:122 Life and Health Insurance
6K:278 Operations Research M.B.A.
56:170 Deterministic Operations Research
56:175 Stochastic Operations Research

Applied Statistics

The 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:

22C:7 Introduction to Computing with FORTRAN
or
22C:16 Introduction to Programming with Pascal
22M:25-26 Calculus I-II
or
22M:35-36 Engineering Calculus I-II
22M:45-46 Accelerated Calculus I-II
22S:27 Introduction to Linear Algebra
22S:38 Calculus III
22S:150 Methods of Statistical Inference
22S:154 Introduction to Mathematical Statistics
22S:180-182 Actuarial Theory I-III
66:1 Principles of Economics
22M:55 Fundamental Properties of Spaces and Functions
92M:28 Sophomore Calculus
22S:27 Introduction to Linear Algebra
6S:1 Principles of Economics
22M:55 Fundamental Properties of Spaces and Functions

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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 Calculated Calculus I-II
22M:57 Introduction to Linear Algebra
22M:58-59 Mathematical Statistics
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:

22M:152 Regression Analysis
22S:158 Applied Time Series Analysis
22S:156 Analysis and Design of Experiments I
22M:164 Introduction to Discrete Probability Models
22M: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 topic 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 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:186 Theory of Reinsurance
An approved course in operations research
Students who have had the equivalent of 22S:153-154 at another institution may waive the requirement only if they have passed Part Two 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:164 Introduction to Stochastic Processes
22S:201 Theory of Statistics I
At least two of these:
22S:164 Introduction to Discrete Probability Models
22S:212 Topics in Statistics
22S:220 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 I-II

Applied Statistics
(without thesis)
22S:153 Introduction to Probability
22S:154 Introduction to Mathematical Statistics
22S:158 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 Multivariate Statistical Techniques
22S:186 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 is in particular applications area is strong, a program in another department may be more appropriate, for example, educational measurement and statistics (education), operations research (industrial and management engineering), and social statistics (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:158 Applied Time Series Analysis
22S:158 Analysis and Design of Experiments I
22S:181 Application of Multivariate Statistical Techniques
22S:168 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:21: Analysis I
22M:164: Analysis II
22S:158: Analysis and Design of Experiments I
22S:201: Theory of Probability I
22S:173: Statistical Computation and Consulting
22S:201: Theory of Probability II
22S:202: Theory of Probability III
22S:253: Advanced Inference I
22S:254: Advanced Inference II
22S:256: Theory of Probability
22S:264: Theory of Probability

At least two semester hours of any combination of the following:
22S:201: Seminar: Mathematical Statistics
22S:203: Seminar: Probability
At least one of the following:
22S:156: Applied Time Series Analysis
225:161 Application of Multivariate Statistical Techniques 3.0
225:168 Analysis and Design of Experiments II 3.0
At least one of the following:
225:250 Analysis of Categorical Data 2.0
225:252 Introduction to the Theory of Nonparametric Statistics 4.0
And at least two of the following:
225:256 Advanced Analysis II 3.0
225:257 Multivariate Analysis 3.0
225:260 Theory of Probability II 3.0
A well-prepared student entering with a B.S. degree would require three years of coursework to complete the program and would take 225:201, 225:202, and 225:211 in the first year. A less well-prepared student would need to take 225:153, 225:154, 225:115, and 225:116 in the first year, adding an extra year to the program. Examples of complete programs are available from the departmental secretary.

In addition, each semester a graduate student is registered for six or more semester hours, the student’s registration must include at least one course of at least two semester hours offered by the Department of Statistics and Actuarial Science, other than 225:191 Individual Study, 225:197 Readings in Statistics and/or Actuarial Science, or 225:199 Reading Research.

During the graduate program, students may wish to take course work or seminars in other departments for the achievement of certain auxiliary goals of the doctoral degree in statistics—such as relating the area of specialization to other fields, to develop the ability to use electronic digital computing equipment, or to learn the various skills needed to read foreign scientific journals and be able to respond in professional contacts with foreign statisticians.

Each student is required to include in his or her program a component which involves experience in either teaching or statistical consulting.

Students expecting to request financial assistance for the third year must have taken 225:251, 225:252, or 225:201; study guides are available from the departmental secretary. Students who are unsuccessful in their first attempt may repeat the qualifying examination one time.

The student takes a comprehensive examination given at the end of the course work in the his or her approved plan of study during the third year.

The comprehensive examination consists of a written core examination on statistical inference, linear models, and probability. These topics are generally covered in 225:201-202, 225:250-255, 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 individualized examination 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.

The student must achieve at least a 3.40 grade-point average on completed courses in the plan of study.

A program which does not conform to the prescribed requirements, but which is of high excellence, may be approved by the department chair.

Special Features
Because statisticians are often teamed with other scientists 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 department houses the Statistical Consulting Center, which offers assistance to members of the University community in planning experiments and carrying out the analysis of experimental data. Under faculty supervision, graduate students participate in these activities as part of their training.

Although a majority of the Statistical Consulting Center’s projects involve statistical problems arising in these activities is conducted by students in other departments, the center also seeks involvement in larger research projects and in the writing of proposals.

Courses Primarily for Undergraduates
No student may receive credit for a course in the Department of Statistics and Actuarial Science course number below 100 after receiving credit for a Department of Statistics and Actuarial Science course numbered above 100. A student may receive credit in only one of the following courses: 225:202, 225:203, 225:210, 225:212.

225:201 Student Activities and Finance 1.0
Statistical ideas and their applications in public policy, business, and the social, health, and physical sciences. This course is open to undergraduate and graduate students.

225:210 Statistical Methods for Business 2.0
Statistical methods used in the social sciences, business, and engineering. Topics include descriptive statistics and introduction to statistical decision theory.

225:211 Applied Statistical Methods II 3.0
Statistical methods used in the natural sciences, business, and engineering. Topics include inferential statistics and analysis of variance.

225:212 Introduction to Statistical Methods 3.0
For undergraduates who are not statistics majors. Same as 225:110.

225:215 Probability and Statistics 2.0
Finite and non-probability samples, random variables, functions of random variables, expectation, and continuous distributions. Emphasis on estimation and hypothesis testing. Prerequisite: 225:203 or 225:204.

225:217 Applied Statistical Methods with Applications 3.0
Prerequisite: Introduction to sampling, statistical analysis, and regression analysis. Topics in statistical decision theory, analysis of categorical data, and application of computer packages. Prerequisite: 225:170 or equivalent.

225:219 Quality Control and Engineering Statistics 2.0
Quality control in both product and service, process, and market. Emphasis on statistical decision theory, analysis of categorical data, and application of computer packages. Prerequisite: 225:170 or equivalent. Same as 219:148.

225:221 Introduction to Bayesian Statistics 2.0
Bayesian methods are used in areas of practice, including scientific research, business, and engineering. Emphasis on estimation, hypothesis testing, and decision theory. Prerequisite: 225:210 or equivalent.

225:314 Environmental Science 2.0
A survey of environmental science and management. Same as 225:120.

225:321 Introduction to Probability 2.0
Introduction to probability and application of probability concepts in stochastic (random) experiments, random phenomena, and statistical theory. Prerequisites: 225:105 or equivalent.

225:322 Analysis of Variance 2.0
Analysis of variance, regression, and correlation. Emphasis on statistical decision theory, analysis of categorical data, and application of computer packages. Prerequisite: 225:321 or equivalent.

225:345 Introduction to Probability 2.0
Introduction to probability and application of probability concepts in stochastic (random) experiments, random phenomena, and statistical theory. Prerequisites: 225:105 or equivalent.

225:361 Introduction to Mathematical Statistics 2.0
Introduction to probability theory, point estimation, interval estimation, statistical hypotheses, hypothesis testing, and linear regression analysis. Prerequisite: 225:345 or equivalent. Same as 225:361.

225:380 Data Analysis 2.0
Introduction to data analysis, exploratory data analysis, and univariate and multivariate statistical methods. Prerequisites: 225:105 or equivalent. Same as 225:380.

225:381 Applied Time Series Analysis 2.0
Generalization and extension of periodic functions, autocorrelation and autocovariance functions,
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 the baccalaureate 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 1964 must complete a minimum of 14 semester hours in microbiology to obtain a B.S. degree. Students who become microbiology majors after spring 1964 must complete a minimum of 16 semester hours in microbiology to obtain a B.S. degree. In both cases, no more than two semester hours of 61:161 Problems in Microbiology and one semester hour of 51:163 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, 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 61:161-General Microbiology if they receive a C or above in 61:157 Mathematics and science courses required by the department for the B.S. degree must be taken for letter grades. Required courses other than microbiology courses for students who become microbiology majors prior to summer 1964 include the following:

- 4:121 Organic Chemistry I 3 s.h.
- 4:122 Organic Chemistry II 3 s.h.
- 4:141 Organic Chemistry Laboratory 3 s.h.
- 59:120 The Chemistry of Biological Materials 3 s.h.
- 99:130 Metabolism 3 s.h.
- 22M-15 Mathematics for the Biological Sciences 4 s.h.

The course requirements for students who become microbiology majors after spring 1964 are the same as above, except that one semester of calculus (22M-16, 22M-25, or 22M-35) must be taken rather than 22M-15 or 22M-20.

Courses mat are recommended include the following:

- 6W-10 Expository Writing 3 s.h.
- 6W-112 Writing for the Sciences 3 s.h.
- 26:22 Introduction to Computing with FORTRAN 3 s.h.
- 26:22 Introduction to Programming with Pascal 3 s.h.
- 26:27 Programming Techniques and Data Structures 3 s.h.

**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 61:171-172 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 receives the B.S. degree with honors.

**Graduate Study, Faculty Roster, Courses**

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

**Military Science (Army ROTC)**

Department head: Lieutenant Colonel Roger A. Lander.

Professor: Roger A. Lander (Lieutenant Colonel).

Instructor: Dr. J. J. Weaver (Major), Bruce J. Desai (Captain), Michael J. W. Colles (Captain), Barney C. Carpenter (Captain)

Instructor: William A. Bailey (Major), Richard A. Carney (SGW)

The Department of Military Science is the academic unit authorizing the Army Reserve Officer Training Corp (ROTC) program at The University of Iowa.

The ROTC Basic Course for freshmen and sophomores provides academic instruction in the fundamentals of leadership and management plus an introduction to the student. Students, 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 Officers Training Corps under the National Guard or U.S. Army Reserve may transfer in the program as a voluntary duty time of at least three years.

Students who have not taken the basic course may qualify for the advanced course by attending a basic camp during summer, at expenses paid, or by participating in an on-campus summer training program. Students who qualify may be admitted to the advanced course by taking 23:99 Fundamentals of Management 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 full Army ROTC program normally spans four years, it can be completed in two, three, or four semesters, with departmental approval.

**Graduate School**

Students admitted as lieutenants upon graduation from The University of Iowa only apply for a delay of entry at an ROTC duty to attend graduate school, No
Special Programs
The Black Berets is a fraternal organization, engaging in inter collegiate military activities to prepare and equip for individual local and national service. In recognition of the American football season, the Black Berets compete and receive awards, such as the annual football game. The organization also provides an introduction to leadership and management skills in various courses.

Special Facilities
The department uses several areas around Iowa City for practical field work. These areas include campus and local military fields, and possesses many laboratory and classroom facilities. The department provides opportunities for students to engage in practical experiences, such as planning and implementing military events and activities.

Financial Aid
Reserve Officers Training Corps (ROTC) 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 $500-per-month tax-free subsistence allowance. Cadets attending summer camp in the advanced course are paid a $100-per-month tax-free subsistence allowance. 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 Simulated Membership Program (SMP) with the U.S. Army Reserve or National Guard. SMP cadets earn approximately $5,000 per year and serve as first-year students in the United States Army Reserve and teach in the local area while attending the University.

Courses
201 1 Introduction to the Military 3 h.

The University of Iowa is the oldest of more than 75 university- and college-based curriculums in the United States. The museum field is expanding, and the graduate student occupies 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. These elective college courses are open to credit toward the B.A. or B.S. degree.

For graduate work, courses may be credited as a formal museum studies minor concentration or 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
210 1 Museum Technique 1 h.

211 1 Museum Accessory Work 1 h.

214 1 Techniques of Museum Conservation and Management 1 h.

215 1 The Museum and the Public 1 h.

216 1 Introduction to Museum Management 1 h.

217 1 Museum Education 1 h.

218 1 The Natural History of Museums 1 h.

219 1 The Museum and the Professional 1 h.

220 1 The Museum and the Community 1 h.

221 1 The Museum and the Scholar 1 h.

222 1 The Museum and the Student 1 h.

223 1 The Museum and the Educator 1 h.

224 1 The Museum and the Visitor 1 h.

225 1 The Museum and the Future 1 h.

226 1 The Museum and the Ethnography 1 h.

227 1 The Museum and the Science 1 h.

228 1 The Museum and the History 1 h.

229 1 The Museum and the Art 1 h.

230 1 The Museum and the Law 1 h.

231 1 The Museum and the Archival 1 h.

232 1 The Museum and the Library 1 h.

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Music

School director: Marilyn Sonnedecker

Undergraduate Programs

The school offers the Bachelor of Arts and the Bachelor of Music. C418Music 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 courses 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, where the performance requirement for the B.A. is two years. Areas of concentration offered in both programs include performance, music education, music therapy, composition theory, and music history.

General Requirements

All undergraduate enrollees 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 also appear for the advisory examination in music theory (see 'Graduate Programs' below). Students with deficiencies in theory must register for Theory 211. Before registration, all undergraduate students in music must satisfy all College of Liberal Arts general requirements except the historical perspective requirement (see the College of Liberal Arts section of the Catalog for the College for these requirements). Following are the course requirements of the School of Music.

21-1.2 Literature and Theory I 6.0
21-3.4 Aural Skills II 2.0
21-5.6 Literature and Theory III
21-7.4 Aural (MUS 1114) 6.0
21-5.0 History of Music II 6.0
21-7.1-2 Vocalization in
21-2.0 or the successful completion of
21-4.4 Recital Attendance required of wind, percussion, string, and vocal majors for seven semesters.
25-1.14 Senior Recital

Music History Major

In addition to the general requirements for the B.M. degree, a list of course requirements for the music history major is available in the music office.

Music Education

Areas of concentration in music education are experimental music, vocal music, and music therapy. In addition to
the B.M. or B.M. requirements in music and liberal arts, certification to teach music in Iowa schools requires satisfactory completion of several requirements in the area of concentration. Requirements in the instrumental and voice areas are listed below.

**String Majors**
Instruction in performance 2 s.h.
(Violin and viola majors take one year of 25:23 Cello, and cello majors take one year of 25:21 Violin)
25:100 Cello Strings 1 s.h.
(Violinsts take viola and bass; violists take violin and bass; cellists take viola and bass; pianists take violin and cello.)
75:143 Instrumental Techniques 2 s.h.
(occasional clarinet or cornet)
25:107 Instrumental Conducting 2 s.h.
25:108 Instrumental Conducting II 1 s.h.

**JS-50 String Methods and Materials**
4 s.h.
7E:144 Methods and Materials: Elementary School Instrumental Music 2 s.h.
7S:191 Observation and Laboratory Practice in the Secondary School 6 s.h.
7E:192 Laboratory Practice in the Elementary School 5 s.h.
7S:187 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 band for two fall semesters during the first two years of residence at the University. Students may substitute marching band program techniques for marching band, with permission of their advisor and the Director of Bands. Courses:
7S:143 Instrumental Techniques 8 s.h.
25:179-180 Instrumental Methods 3 s.h.
7E:144 Methods and Materials: Elementary School Instrumental Music 2 s.h.
7S:136 Practice Band Instrument Care and Repair 1 s.h.
7S:140 Band Methods and Materials 3 s.h.
7S:191 Observation and Laboratory Practice in the Secondary School 6 s.h.
7E:192 Laboratory Practice in the Elementary School 6 s.h.
7S:187 Seminar: Curriculum and Student Teaching 1 s.h.

**Vocal and Keyboard Majors**
7S:136 Choral Methods and Conducting 3 s.h.
7S:187 Seminar: Curriculum and Conducting 3 s.h.
25:115-116 Dixon for Singers I–II 4 s.h.
7E:145 Methods and Materials: Elementary School General Music 3 s.h.

7S:142 Methods and Materials: Secondary School General Music 3 s.h.
7S:191 Observation and Laboratory Practice in the Secondary School 6 s.h.
7E:192 Laboratory Practice in the Elementary School 6 s.h.
7S:187 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 II. Keyboard majors lacking satisfactory competence in voice also must pass for 25:17 Voice I or two semesters.

**Keyboard Majors (Vocalists)**
Keyboard majors who elect to perform 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 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:
25:119 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.
Two of the following:
25:1 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 advisor's approval.

**Music Therapy**
Admission to the program in music therapy is based on demonstration of basic 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 in other disciplines are required in biology, sociology, abnormal psychology, and social psychology.
A six-month internship in 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 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 1-3 s.h.
25:95 Recreational Music Techniques, approved by the department 2 s.h.
25:114 Orientation to Music Therapy 2 s.h.
7E:144 Psychology of Music 2 s.h.
7S:149 Behavioral Research in Music Therapy 2 s.h.
25:138 Music Therapy Techniques: Adolescent Children 3 s.h.
25:139 Music Therapy Techniques: Adults 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 advisor, 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 in 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 all music majors, and consists of one or more original compositions. The student must complete the 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, this major must take private lessons in voice or on his or her major instrument. Following admission, the student undertakes applied music study recommended by the advisor.
Ensemble participation is required of the B.M. candidate.

**Honor**
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 provide 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 2.0 average qualifies for graduation "with honors" by completing satisfactorily from six to eight semester courses in 25:97.
Honors in Music. Types of honors projects for which credit is given are 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 conflict with 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 course 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 advisor 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, forms, and counterpoint), and music literature, before his or her first registration. The advisory examination is given each semester on the two days (excluding Sunday) before registration. A leaflet describing the general content of these tests may be obtained at the registrar's office, School of Music. For general graduate study, degrees, and examination requirements, see the "Graduate College" section of this Catalog.

Theory Minor
Candidates for graduate degrees in music may elect a minor in music theory. They may complete the following courses:

25:145 Contrapuntal Form 3 s.h.
25:147 Tonal Form (unless excused by advisor's exam) 3 s.h.
25:234 Observation and Practice Teaching in Theory 1-2 s.h.
25:238 Methods and Techniques of Teacher's Basic Training 3 s.h.

plus two courses from the following:

25:148 Analysis of Music Literature 1600-1750
25:149 Analysis of Music Literature 1750-1825
25:150 Analysis of Music Literature 1825-1900
25:151 Analysis of Music Literature 1900-present
25:152 Analysis of Music Literature Special Topics

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 ensembles 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 curricula must include the requirements listed below:

General

25:311 Introduction to Graduate Study in Music

Music Theory

25:240 Introduction to Contempory Analysis and Theory

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.

If excused from 25:301 and/or 25:302 as a result of the advisory examination, the student will select another course from the music history sequences 25:201, 25:313-314, 25:316-317, 25:323-324, 25:200-201, and may elect other musicology courses.

Ensemble Participation

Students shall participate in a major ensemble each semester of residence (see previous list of the major ensembles). During the summer term, students shall be available for ensemble participation as needed. Ensemble assignments are made at the discretion of the major teacher and the ensemble director. Keyboard majors may substitute accompaniment for participation in a major ensemble, at the advisor's discretion. Theory, composition, musicology, and music education majors may, with their advisor's permission, substitute other ensembles. Any requests for adjustment of requirement must be submitted in writing to a reviewing committee consisting of the ensemble directors involved, the advisor, the major teacher, and a representative from the Dean's Office. The committee will meet regularly at the end of each regular registration 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 areas of composition, instrumental or 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 (25:402 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 final examinations, 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 sequences 25:148-152 or equivalent;

One or more additional courses in the history of music chosen from those listed in the master's degree requirement, 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 the course 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 advisors (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. include 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

Theorizations or research papers

Music education—research papers

Music literature—research papers and audition

Performance (including conducting)—audition

Music history and musicology—research papers, thesis

Graduate Awards

Qualified graduate students are invited to apply for teaching and research assistantships. Inquiries should be directed to the School of Music.

Music for Nonmajors

Courses particularly recommended for students who are not majoring in music but have an interest in it include 25:13-14 Masterpieces of Music; 25:154 Fundamentals of Music; 25:154 Beginning Guitar is available for nonmajors who wish to develop elementary performance skills for personal musical growth and enjoyment. Participation in School of Music classes is open to all undergraduates and graduate students with the ensemble director's approval (see previous list of major ensembles). Nonmajors interested in performance should consult music advisors regarding appropriate courses in applied music.

Special Programs

The Center for New Music provides an environment for innovative composition and vehicle for the performance of new works. Its repertoire includes the works of established composers and uses electronically produced sounds, as well as compositions by noteworthy contemporary composers. The Center for the New Performing Arts is an interdisciplinary and linking the University's schools of Music and Art and the film, dance, theater, and creative writing areas. The center's basic purpose is to encourage talented young artists to develop their creative skills through multimedia and interdisciplinary classes, projects, and performances.

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 14 studio and seminar rooms, the Music Building includes 116 teaching studios, 73 practice rooms, a large library, two electronic music laboratories, ear training and listening facilities with 502 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 robotic organs, and the 720-seat Clapp Recital Hall. Harbison Auditorium seats 2,868 people for concerts, 2,400 for operas and other stage productions. Library resources include more than 55,000 volumes of music and books, more than 2,200 reels of microfilm, a microcard file of approximately 200 titles, nearly 10,000 LP records, and 200 periodicals in several languages. The acquisition program gives particular attention to a strong reference collection, emphasizing resources for musical research and performance. The library's quarter in the Music Building includes 24 studios, a music reference room, a typing room, a seminar and small books room, a large reading area, and a separate area for the Ortonian Band Library, one of the world's most famous collections of band music.

Courses General

25:15 Masterpieces of Music 3-4 s.h.

25:154 Masterpieces of Music 3-4 s.h.

Theo and Composition

25:1 Literature and Theory I 3 s.h.

Lecture, working, and final oral and written examinations of music and fundamentals of formality. Corequisites: 25:3.

25:2 Literature and Theory II 3 s.h.


25:3 Aural Skills 1 s.h.

25:4 Aural Skills II 1 s.h.

26:1 Literature and Theory III 3 s.h.

Topics continue, and formal purposes for centuries are presented. Prerequisites: 25:26 and 25:26-1.

26:4 Literature and Theory IV 3 s.h.


26:5 Aural Skills I 1 s.h.

26:6 Aural Skills II 1 s.h.

26:7 Fundamentals of Music 3 s.h.

Musical notation, elementary melodic, rhythmic, and harmonic theory and musical notation for students with no music background. Not open to music majors.

25:11 Review Theory 1 s.h.

25:21 Fundamentals of Music 3 s.h.

25:31 Undergraduate Composition Prerequisite: 25:11.

25:32 Contemporary Forms Writing and analysis. Prerequisite: 25:2, 25:11, or permission.

3547 Total Forms Prerequisite: 25:2, 25:3, or equivalent.

25:45 Analysis of Music Literature, 1600-1750 3 s.h.

May be repeated. Open only to majors. Prerequisites: 25:21 or equivalent.

25:46 Analysis of Music Literature, 1750-1925 3 s.h.

May be repeated. Offered fall semester. Prerequisites: 25:21 or equivalent, and 25:26 or equivalent.

25:55 Analysis of Music Literature, 1925-1980 3 s.h.

May be repeated. Offered fall semester. Prerequisites: 25:21 or equivalent, and 25:26 or equivalent.

25:55 Analysis of Music Literature, 1985-Present 3 s.h.

May be repeated. Prerequisites: 25:21 or equivalent and 25:26 or equivalent. Prerequisite: 25:21.

Optional Special Topics Scope and content chosen by instructor.


25:92 Preparatory Prerequisite: 25:3.

25:99 Advanced Conducting Prerequisite: 25:3.

25:100 Orchestration Prerequisite: 25:25.


25:103 Ear Training Writing and analysis. Prerequisite: ability to read music and completion of course work in counterpoint and harmony.

25:205 World Music Writing and analysis. Prerequisite: completion of course work in counterpoint and harmony.

25:212 Advanced Composition May be repeated. Prerequisite: 25:11 or consent of instructor. Corequisite: 25:118.
Music Education

Other music education courses are offered by the divisions of Elementary Education and Secondary Education in the College of Education. See these sections of the Catalog for listings and descriptions. Where credit hours are indicated, students preparing for music teaching certification should register under the education number.

23.178 Group Instruction in Piano

1 h.
Beginnig instruction for music majors whose principal performance medium is voice or an orchestral or band instrument. Study includes development of skills in sight-reading, technical technique, improvisation, transcription, and simple artistry.

23.179 Group Instruction in Piano II

1 h.
Elementary to early intermediate instruction for music majors whose principal performance medium is voice or an orchestral or band instrument. Study includes development of skills in sight-reading, technique, transcription, improvisation, and artistry.

23.180 Intermediate Orchestra

1 h.
Intermediate instruction for music majors whose principal performance medium is voice or an orchestral or band instrument. Study includes development of skills in sight-reading, technique, improvisation, and artistry.

23.181 Advanced Orchestra

1 h.
Advanced instruction for music majors whose principal performance medium is voice or an orchestral or band instrument. Study includes development of skills in sight-reading, technique, improvisation, and artistry.

23.182 Music Therapy Practicum

1-3 h.
Uses of music in group or individual treatment activities with emphasis on muscular development and relationship techniques. Required of music therapy students. 

23.204 Advanced Choral Conducting I

3 h.
Choral music from Gregorian chant through Bach. 

23.205 Advanced Choral Conducting II

3 h.
Choral music from Russia through contemporary.

23.291 Orchestral Literature

3 h.

23.292 String Instrument Literature

3 h.

23.293 Wind Instrument Literature

3 h.

23.295 Piano Literature I

3 h.

23.297 Piano Literature II

3 h.

23.335 Seminar in Woodwind Instrument Performance

3 h.
23.339 Seminar: Operatic Literature

3 h.
A study of selected unusual operatic scores from the standpoint of performer and director: production problems.

23.340 Seminar: Brass Instrument Performance

3 h.
23.341 Seminar: Choral Literature and Analysis I

3 h.
Choral works from the Renaissance.

23.341 Seminar: Choral Literature and Analysis II

3 h.
Choral works of the Baroque.

23.343 Seminar: Choral Literature and Analysis III

3 h.
Choral works of the Classical-Romantic periods.

23.344 Seminar: Choral Literature and Analysis IV

3 h.
Contemporary choral works.

23.388 Perspectives in Music Theory

3 h.

23.391 Teaching in Music Theory

3 h.

23.398 M.A. Performance Project

6 h.

23.400 M.A. Thesis

6 h.

23.401 M.A. Thesis

6 h.

23.500 S.M.A. Thesis

6 h.

23.502 S.M.A. Essay

6 h.

23.503 S.M.A. Finals

6 h.
### Philosophy/LIBERAL ARTS

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</tbody>
</table>

### Nuclear Medicine Technology

See "Division of Associated Medical Sciences" in the "College of Medicine" section of the Catalog.

### Philosophy

**Department chair:** LaDell Addo

**Faculty:** professors Laura Addo, Phyllis Bachman, Philip Gansso, Robert Grace, professor emeritus Donald Bergman, associate professors James Ortlund, Gershon Fles, and Robert D. Manley, and visiting assistant professor Phyllis Moore.

**Degrees offered:** B.A., M.A., Ph.D.

### Undergraduate Program

The undergraduate program in philosophy is designed to impart knowledge of the fundamental issues and the main developments in Western philosophy while strengthening the logical and analytical skills of the student. A major in philosophy is valuable preparation for graduate or professional study in many fields (philosophy and law, for example), and for any position in government, education, or business that requires a general education and a capacity for clear and systematic thinking. Advanced degree work is necessary for a college teaching position in philosophy.

### Bachelor of Arts

The Bachelor of Arts degree requires a minimum of 27 semester hours of credit in courses numbered from 26.102 to 26.199, and must include:

- 26.153 Introduction to Symbolic Logic
- 26.115 Ancient Philosophy
- 26.115 Seventeenth-Century Philosophy or 26.116 Eighteenth-Century Philosophy

At least the final 12 semester hours of philosophy courses that are used to complete these departmental requirements must be taken at The University of Iowa. An undergraduate major in philosophy is excluded from 4 semester hours of the Liberal Arts general education requirement in Historical Perspectives.
Physical Education

Department chair: Dana M. Aspay

Physical education professors: Dana M. Aspay, Rand R. Cassidy, Carl H. Guald, Joseph J. May, Jerry A. Navarre, Charles W. Yohe


Degrees offered: B.S., M.A., Ph.D.

Undergraduate Programs

Programs for the Bachelor of Science degree prepare students for advanced study in physical education, teaching athletic teams, and careers in business and physical education. 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:

PHYS 111 Orientation to Physical Education

PHYS 111 Orientation to Physical Education 2 s.h.

PHYS 115 Physical Education for Special Students 3 s.h.

PHYS 117 Fundamentals of Motor Skills 3 s.h.

PHYS 119 Psychology and Social Dynamics 2 s.h.

PHYS 123 Growth and Development 2 s.h.

PHYS 127 Human Physiology 3 s.h.

PHYS 218 Contemporary Issues of Health Education 3 s.h.

PHYS 226 Skilled Component in Physical Education I 2 s.h.

PHYS 227 Skilled Component in Physical Education II 2 s.h.

PHYS 233 Skill Component in Physical Education III 4 s.h.

Bachelor of Science in Teaching

Program requirements include:

PHYS 172 Methods and Materials in Elementary School Physical Education 2 s.h.

PHYS 173 Educational Psychology and Measurement 3 s.h.

PHYS 174 Introduction to Teaching 1-2 s.h.

PHYS 175 Introduction to Micro-Computing for Teachers 1 s.h.

PHYS 176 Methods of Secondary Physical Education 3 s.h.

PHYS 177 Human Relations for the Classroom Teacher 3 s.h.

PHYS 178 Seminar: Curriculum and Student Teaching 1-3 s.h.

PHYS 181 Observation and Laboratory Practice in the Secondary School 1 s.h.

PHYS 192 Laboratory and Practice in Elementary School 1 s.h.

Bachelor of Science in Physical Education (Alternative Careers)

Program requirements include:

PHYS 211 Orientation to Physical Education 2 s.h.

PHYS 221, 222 Skilled Component in Physical Education I, II 3 s.h.

PHYS 223 Human Anatomy 2-3 s.h.

PHYS 236 First Aid or Red Cross Standard First Aid Card Certification in Cardiopulmonary Resuscitation 2 s.h.

PHYS 237 Introduction to Athletic Training 3 s.h.

PHYS 245 Special Projects 3 s.h.

PHYS 278 Biomechanics of Physical Education 3 s.h.

PHYS 279 Teaching Motor Skills 3 s.h.

PHYS 280 Growth and Development 3 s.h.

PHYS 281 Physical Activity and Aging (or equivalent) 3 s.h.

PHYS 284 Exercise Physiology 2 s.h.

PHYS 285 College of Business Administration General Education Elective 3 s.h.

PHYS 286 Nutrition, and You 2 s.h.

PHYS 287 Human Physiology 4 s.h.

PHYS 288 Fitness and Weight Training 2 s.h.

PHYS 289 Biomechanics of Physical Education 3 s.h.

PHYS 290 Nutrition and You 3 s.h.

PHYS 291 Human Physiology 4 s.h.

PHYS 292 Fitness and Weight Training 2 s.h.

PHYS 293 Biomechanics of Physical Education 3 s.h.

PHYS 294 Human Physiology 4 s.h.

PHYS 295 Nutrition and You 3 s.h.

PHYS 296 Human Physiology 4 s.h.

PHYS 297 Biomechanics of Physical Education 3 s.h.
Encouragement for Coaching

The Iowa Department of Public Instruction has provided for the encouragement of certified teachers for the coaching of athletic teams in schools. This encouragement is intended for teachers who have major in subjects other than physical education but who wish to coach interscholastic athletic teams. The purpose is to encourage 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 2 s.h.
- 27:56 First Aid 0 s.h.
- 27:57 Introduction to Athletic Training 2 s.h.
- Coaching of sport of interest 2 s.h.
- 27:107 Biomechanics of Physical Education 3 s.h.
- 27:108 Teaching Motor Skills 3 s.h.
- 27:137 Administration of Athletics 2 s.h.
- 27:141 Intramural Exercise Education 2 s.h.
- 75:192 Observation and Personal Practice in the Secondary School 2 s.h.

"Each 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 part of their regular teaching duties, or at the college and university levels. The requirements designed to meet the standards for certification set by the National Athletic Trainers Association include:

- 17:41 Food, Nutrition, and Youth 3 s.h.
- 31:11 Student Educational Psychology 4 s.h.
- 72:120 Human Physiology 4 s.h.
- 28:142 Cardiopulmonary Resuscitation Certification 0 s.h.
- 27:57 Introduction to Athletic Training 3 s.h.
- 27:105 Physical Education for Special Students 3 s.h.
- 27:107 Biomechanics of Physical Education 3 s.h.
- 27:108 Teaching Motor Skills 3 s.h.
- 27:137 Administration of Athletics 2 s.h.

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 intend 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 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 the major 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, physics, zoology, psychology, or psychology 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 head of the department.

Candidates who intend to terminate their graduate study with the M.A. degree with thesis should plan to undertake a major in physical education.

Special courses are required for the M.A. degree with thesis:

- Two courses outside the area of specialization, from the following:
  - 27:153 Advanced Anatomy and Physiology
  - 27:205 Exercise Physiology Laboratory
  - 27:206 Adapted Physical Education: Special Topics and Research
  - 27:242 Supervision of Physical Education
  - 27:257 Biomechanics of Human Motion
  - 27:258 Advanced Measurement and Evaluation in Physical Education
  - 27:308 Human kinesiology
Therapeutics
All Students
101:214 Advanced Seminar in Physical Therapy
arr.
101:525 Analyses of Scientific Literature
2 s.h.
101:507 Research in Therapeutics
3 s.h.
101:280 Teaching Practicum or 101:282 Clinical Educational Practicum
arr.
101:284 Practicum in Research
arr.
7/26/262 Facilitating Learning in Health Sciences Education
3 s.h.
101:214 Advanced Seminar in Physical Therapy
3 s.h.
101:277 Research in Therapeutics
3 s.h.
101:326 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
7/26/262 Facilitating Learning in Health Sciences Education
3 s.h.
Cardiopulmonary Emphasis
7/2:217 Medical Physiology
8 s.h.
7/2:274 Exercise Physiology Seminar
2 s.h.
7/2:290 Special Topics
arr.
99:130 Metabolism
3 s.h.
and
99:120 The Chemistry of Medical Students
3 s.h.
or
99:152 Biochemistry for Medical Students
6 s.h.
Musculoskeletal Emphasis
37:181 Neurophysiology
3 s.h.
7/2:281 Physiology of Muscle
2 s.h.
110:255 Electromyography in Kinesiology and Biomechanics
3 s.h.
60:205 General Histology for Students
5 s.h.
or
52:150 Research in Civil and Environmental Engineering
5 s.h.
Neuromuscular Emphasis
50:110 Medical Neuroanatomy
3 s.h.
7/2:22 Central Nervous System Physiology
2 s.h.
110:255 Electromyography in Kinesiology and Biomechanics
3 s.h.
37:150 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, muscle behavior, and biomechanics are located in the Field House and provide excellent facilities for instruction and research in 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

For Undergraduates and Graduates
211 Elective Physical Education 0 s.h.
111 Elective Physical Education 0 s.h.
216 Elective Physical Education 1 s.h.
218 Elective Physical Education 6 s.h.
21111 Elective Physical Education
21112 Elective Physical Education
9 s.h.
21113 Elective Physical Education
21114 Elective Physical Education
9 s.h.
21115 Elective Physical Education
21116 Elective Physical Education
8 s.h.
21117 Elective Physical Education
21118 Elective Physical Education
4 s.h.
21119 Elective Physical Education
21120 Elective Physical Education
3 s.h.
21121 Elective Physical Education
21122 Elective Physical Education
3 s.h.
21123 Elective Physical Education
21124 Elective Physical Education
3 s.h.
21125 Elective Physical Education
21126 Elective Physical Education
3 s.h.
21127 Elective Physical Education
21128 Elective Physical Education
3 s.h.
21129 Elective Physical Education
21130 Elective Physical Education
3 s.h.
21131 Elective Physical Education
21132 Elective Physical Education
3 s.h.
21133 Elective Physical Education
21134 Elective Physical Education
3 s.h.
21135 Elective Physical Education
21136 Elective Physical Education
3 s.h.
21137 Elective Physical Education
21138 Elective Physical Education
3 s.h.
21139 Elective Physical Education
21140 Elective Physical Education
3 s.h.
21141 Elective Physical Education
21142 Elective Physical Education
3 s.h.
21143 Elective Physical Education
21144 Elective Physical Education
3 s.h.
21145 Elective Physical Education
21146 Elective Physical Education
3 s.h.
21147 Elective Physical Education
21148 Elective Physical Education
3 s.h.
21149 Elective Physical Education
21150 Elective Physical Education
3 s.h.
21151 Elective Physical Education
21152 Elective Physical Education
3 s.h.
21153 Elective Physical Education
21154 Elective Physical Education
3 s.h.
21155 Elective Physical Education
21156 Elective Physical Education
3 s.h.
21157 Elective Physical Education
21158 Elective Physical Education
3 s.h.
21159 Elective Physical Education
21160 Elective Physical Education
3 s.h.
21161 Elective Physical Education
21162 Elective Physical Education
3 s.h.
21163 Elective Physical Education
21164 Elective Physical Education
3 s.h.
21165 Elective Physical Education
21166 Elective Physical Education
3 s.h.
21167 Elective Physical Education
21168 Elective Physical Education
3 s.h.
21169 Elective Physical Education
21170 Elective Physical Education
3 s.h.
21171 Elective Physical Education
21172 Elective Physical Education
3 s.h.
21173 Elective Physical Education
21174 Elective Physical Education
3 s.h.
21175 Elective Physical Education
21176 Elective Physical Education
3 s.h.
21177 Elective Physical Education
21178 Elective Physical Education
3 s.h.
21179 Elective Physical Education
21180 Elective Physical Education
3 s.h.
21181 Elective Physical Education
21182 Elective Physical Education
3 s.h.
21183 Elective Physical Education
21184 Elective Physical Education
3 s.h.
21185 Elective Physical Education
21186 Elective Physical Education
3 s.h.
21187 Elective Physical Education
21188 Elective Physical Education
3 s.h.
21189 Elective Physical Education
21190 Elective Physical Education
3 s.h.
21191 Elective Physical Education
21192 Elective Physical Education
3 s.h.
21193 Elective Physical Education
21194 Elective Physical Education
3 s.h.
21195 Elective Physical Education
21196 Elective Physical Education
3 s.h.
21197 Elective Physical Education
21198 Elective Physical Education
3 s.h.
21199 Elective Physical Education
21200 Elective Physical Education
3 s.h.
21201 Elective Physical Education
21202 Elective Physical Education
3 s.h.
21203 Elective Physical Education
21204 Elective Physical Education
3 s.h.
21205 Elective Physical Education
21206 Elective Physical Education
3 s.h.
21207 Elective Physical Education
21208 Elective Physical Education
3 s.h.
Physical Education and Dance/LIBERAL ARTS

27:137 Administration of Athletics 2 s.h.
Offered spring semester.
27:141 Elementary Exercise Physiology 2 s.h.
Offered fall semester. Prerequisite: 72:130.
27:147 Knowledge and Performance Tests in Physical Education 2 s.h.
Offered fall semester.
27:148 Psychology of Sport 3 s.h.
Psychological principles and mental applications to sport. Offered summer session.
27:152 Advanced Anatomy and Kinesiology 2 s.h.
Enrollment advised for students majoring in physical education and kinesiology at the undergraduate level. Offered spring semester. Prerequisite: 27:148.
27:158 Sports and Movement for Driving 1 s.h.
May be retaken.
27:159 The Qualitative Analysis of Human Motion 3 s.h.
Prerequisite: 27:157. Offered summer sessions.
27:166 Physical Education for Elementary School 3 s.h.
Offers fall semester. Same as 72:140.
27:167 Measurement and Evaluation in Physical Education 3 s.h.
Offered spring semester. Prerequisite: 27:147.
27:231 Medical Supervision of Athletics 3 s.h.
Offered spring semester.
27:168 Clinical Sciences in Athletic Training I 3 s.h.
Offered fall semester. Prerequisite: 27:157.
27:169 Clinical Sciences in Athletic Training II 3 s.h.
Offered spring semester. Prerequisite: 27:168.
27:185 Seminar in Athletic Training 1 s.h.
Enrollment advisor.

Primarily for Graduates
27:250 Problems 1 s.h.

27:256 Research 1-3 s.h.
Consult full statement; head before registering.
27:257 Practicum in College Teaching 1 s.h.

27:263 Adapted Physical Education Special 3 s.h.

27:266 Training the Pioneers on the Mind 3 s.h.
Experimental therapy and evaluation programs for training leaders through a series of pilot training sessions.
27:267 Advanced Administration of Physical Education 3 s.h.
Offered fall semester.
27:268 Advanced Administration of Athletics 3 s.h.
Offered fall semester.
27:272 Principles of Physical Education 3 s.h.
Offered spring semester. Same as 72:227, 72:240.
27:274 Professional Preparation in Physical Education 3 s.h.

27:276 Scientific Principles of Physical Conditioning 1-3 s.h.
Offered summer sessions. Prerequisite: 72:133 or 27:141.
27:242 Supervision of Physical Education 3 s.h.
Offered fall semester. Same as 72:242, 72:245.
27:293 Laboratory in Advanced Anatomy 6 s.h.
27:302 Biomechanics of Human Motion 4 s.h.
Offered spring semester. Prerequisite: 27:168.
27:344 Seminar: Current Developments I 3 s.h.
27:357 Advanced Measurement and Evaluation in Physical Education 3 s.h.
Offered spring semester.
27:358 Electromyography in Kinetics and Biomechanics 3 s.h.
**Introduction to electromyographic techniques for the study of muscle activity in human motion. Offered spring semester. Same as 101:295.
27:370 Exercise Science for Rehabilitation 3 s.h.
Required for candidates for M.A. without thesis. Offered spring semester.
27:382 Physiology of Exercise Laboratory 1 s.h.
27:383 Exercise Physiology Laboratory 1 s.h.
27:385 Advanced Exercise Physiology Laboratory 3 s.h.
Offered spring semester.
27:388 Human Perceptual-Motor Performance 3-4 s.h.
Motor learning principles and practical implications for teaching. Offered to seniors.
27:314 Education in Geriatric Study 3 s.h.
Offered fall semester.
27:315 Selected Topics in Human Performance and in Motor Control 3 s.h.
Evaluation of research literature in motor training and performance. Offered spring semester. Prerequisite: 27:508.
27:316 Seminar in Motor Behavior Research 1 s.h.
Offered spring semester.
27:317 Seminar in Research in Physical Education Curriculum 3 s.h.
Students who have not completed 27:307 or equivalent must enroll 27:307. Offered fall semester.
27:318 Student Models and Theory in Curriculum 1 s.h.
27:337 Research Techniques in Biometrics 4 s.h.
Offered spring semester.
27:357 Seminar: Research in Measurement and Evaluation in Physical Education 1 s.h.
27:441 Seminar in Scientific Writing 1 s.h.
Offered fall semester.
27:452 Research Methods in Physical Education 2 s.h.
27:403 Thesis B.A. 0-12 s.h.
27:404 Thesis M.A. Not to exceed 12 semester hours.

Physical Education and Dance

Chair: N. Peggy Burke
Full professor, department
Chairmen: Alice Ann Morgan, Margaret S. Fox, M. Gladys Scott
Members: Judith N. Aden, Susan Strel, Alice A. Brown, N. Peggy Burke, Claire G. Lyons, Christine M. Starke, Jonna L. Sokol, Yvonne L. Statt

The Department of Physical Education and Dance offers baccalaureate degrees in physical education (teaching and non-teaching majors), the coaching of sports, the teaching of dance, dance performance, and sports communications.

It offers graduate programs leading to the Master of Arts in Dance and the Doctor of Philosophy degrees in physical education:

Physical Education Undergraduate Programs

Each undergraduate student in physical education elects a wide variety of courses and activities in preparation for careers in business and industry, sports journalism and broadcasting, fitness and health clubs, sport specialty and sports management, professional dance and theater, and public school teaching and coaching.

The student acquires theoretical background through anatomy, kinesiology, physiology, and health courses, with implications for the performance and teaching of movement skills.

The undergraduate programs are also designed to prepare the student for graduate 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 28:1 Orientation to Physical Education 0-1 s.h.
27:111 Orientation to Physical Education 0-1 s.h.
27:337 Advanced First Aid and CPR (or Red Cross) 2 s.h.
28:00 Anatomy 3 s.h.
27:33 Human Anatomy 3 s.h.
28:01 Kinesiology 3 s.h.

27:107 Biomechanics of Physical Education 3 s.h.
27:32 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.
27:141 Elementary Exercise Physiology: Exercise Physiology 3 s.h.
<table>
<thead>
<tr>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>28:107 Physical Education for the Handicapped</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>27:105 Physical Education for Special Students</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>28:120 Administration of Physical Education and Athletics</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>27:103 Administration and Curriculum in PE</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>28:142 Contemporary Issues of Health Education</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>Skill Techniques Requirements, Physical Education Majors must complete a minimum of one aquatic, one team, two individual sports, two rhythmic and one fitness activity at one semester hour each.</td>
<td></td>
</tr>
<tr>
<td>Aquatics (one semester hour): Swimming, Life Saving, W.S.I., Diving</td>
<td></td>
</tr>
<tr>
<td>Fitness Activities (one semester hour): Aerobic Dance, Fitness Conditioning, Jogging, Weight Training</td>
<td></td>
</tr>
<tr>
<td>Individual/Dual (two semester hours): Archery, Badminton, Bowling, Gymnastics, Racquetball, Recreational Sports, Tennis, Track and Field</td>
<td></td>
</tr>
<tr>
<td>Rhythms (two semester hours): Ballroom Dance, Folk and Square, Jazz, Modern Dance</td>
<td></td>
</tr>
<tr>
<td>Team (two semester hours): Basketball, Field Hockey, Field Sports, Softball, Volleyball</td>
<td></td>
</tr>
<tr>
<td>Recommended Electives: Fencing, Outdoor Education, Self-defense, Wrestling</td>
<td></td>
</tr>
<tr>
<td>&quot;Therapeutic&quot;</td>
<td></td>
</tr>
<tr>
<td>72:130 Human Physiology</td>
<td>4 s.h.</td>
</tr>
</tbody>
</table>

**Students must complete all courses in option A or B**

<table>
<thead>
<tr>
<th>Option A: Physical Education and Athletic Emphasis</th>
</tr>
</thead>
<tbody>
<tr>
<td>28:27 Teaching of Dance</td>
</tr>
<tr>
<td>28:57 Teaching and Apparatus</td>
</tr>
<tr>
<td>28:83 Phys-Soc-Social Dimensions of Sport</td>
</tr>
<tr>
<td>28:41 Independent Study</td>
</tr>
<tr>
<td>28:121 History and Philosophy of Physical Education</td>
</tr>
<tr>
<td>28:122 Advanced Level Skills</td>
</tr>
<tr>
<td>28:114 Dance History: Primitive Nineteenth Century</td>
</tr>
<tr>
<td>28:115 Twentieth Century Dance</td>
</tr>
<tr>
<td>28:70 Composition I</td>
</tr>
<tr>
<td>28:71 Composition II</td>
</tr>
<tr>
<td>28:25 Rhythmic Analysis of Dance</td>
</tr>
<tr>
<td>28:20 Dance Production</td>
</tr>
<tr>
<td>7E:125 Methods and Materials of Teaching Children's Dance</td>
</tr>
<tr>
<td>Advanced Dance Technique</td>
</tr>
</tbody>
</table>

**Professional Education Requirements**

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>7W:32 Introduction to Microcomputing for Teachers</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>7E:72 Methods and Materials in Elementary Physical Education</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7P:73 Educational Psychology and Measurement</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>27:91 Introduction to Teaching</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>7E:100 Issues in Education</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>7E:148 Methods of Secondary Physical Education</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>28:125 Human Relations for the Classroom Teacher</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>28:187 Seminar: Curriculum Student Teaching</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>28:192 Lab Practice in Elementary School</td>
<td>6 s.h.</td>
</tr>
<tr>
<td>28:198 Coaching Practicum</td>
<td>2 s.h.</td>
</tr>
</tbody>
</table>

**Physical Education and Sport (Montechnic)**

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>28:19 Orientation to Physical Education or Dance</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>28:80 Anatomy</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>28:81 Kinesiology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>28:106 Physiological Implications for Teaching Physical Education</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>28:06 Measurement</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>28:09 Motoric Secondary Physical Education</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>28:03 Administration of Physical Education</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>28:121 History and Philosophy of Physical Education</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>28:23 Psycho-Social Characteristics of Sport</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

| Not required for dance majors |

**Sport and Dance Activity Requirements**

Seven beginning level skills and three intermediate or advanced level skills.

**Fitness Specialist**

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>28:06 Fitness and Weight Training</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>28:77 Advanced First Aid and CPR</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>28:105 Care of Athletic Injuries</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>28:119 Methods of Secondary Physical Education</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>17:41 Food, Nutrition, and You</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>28:142 Contemporary Issues of Health Education</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>28:71 Growth and Motor Development</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>28:120 Administration of Physical Education and Athletics</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>28:32 Physical Education Skills (Aerobic Dance)</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>28:1 Survey of Computing</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**Sport Specialist/Sports Administration**

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>28:119 Methods of Secondary Physical Education</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>28:86 Fitness and Weight Training</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>28:107 Physical Education for the Handicapped</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>28:37 Advanced First Aid and CPR</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>28:105 Care of Athletic Injuries</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>28:210 Theory of Coaching</td>
<td>2 s.h.</td>
</tr>
</tbody>
</table>

**28:71 Growth and Motor Development**

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>28:1 Survey of Computing</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**Sports Marketing**

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>28:181 Sports Information</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>17:85 Textiles for Consumers</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>28:1 Survey of Computing</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**Professional Development**

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>17:90 Design and Production of Media for Instruction</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**Program Leading to Endorsement For Coaching**

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>28:14 Theory of Coaching</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>28:19 Advanced Coaching</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>28:105 Growth and Motor Development</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>28:210 Growth and Motor Development</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>27:90 Development of the Young Child</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>28:05 Child Development</td>
<td>1-3 s.h.</td>
</tr>
<tr>
<td>28:03 Exercise Physiology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>28:141 Elementary Exercise Physiology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>28:095 Advanced First Aid/CPR</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>28:06 First Aid</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>28:05 CPR</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>28:05 Red Cross Certification</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>28:105 Care of Athletic Injuries</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>28:02 Administration of Physical Education and Athletics</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>28:120 Administration of Physical Education and Athletics</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>28:105 Coaching Practicum</td>
<td>1-3 s.h.</td>
</tr>
</tbody>
</table>

**28:198 Coaching Practicum**

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>28:198 Coaching Practicum</td>
<td>1-3 s.h.</td>
</tr>
<tr>
<td>28:198 Supervised experience in coaching interscholastic teams under direction of certified secondary school coaches. Open only to students completing coaching certification programs. Prerequisite: consent of instructor.</td>
<td></td>
</tr>
<tr>
<td>28:198 Open only to graduate students.</td>
<td></td>
</tr>
</tbody>
</table>

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**Library Arts/Physical Education and Dance**

[Image of page]
Health Education Endorsement Program

The following sequence of courses meets the requirements for Iowa approved Area 102 for both the Elementary Endorsement 10 and the secondary Endorsement 50. Students must complete a minimum of 20 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
28:17:24 Red Cross Certifications in First Aid and CPR 3 s.h.
17:41 Food, Nutrition, and You 3 s.h.
7E:71 Growth and Motor Development 3 s.h.
or
17:10 Growth and Development of the Young Child 3 s.h.
or 7P:107 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 3 s.h.
72:130 Human Psychology 4 s.h.
or 28:198 Physiological Implications for Teaching Physical Education 3 s.h.
28:142 Contemporary Issues of Physical Education 3 s.h.
7S:156 Methods and Administration of School Health Programs 3 s.h.
Pre-requisite: 28:142 3 s.h.

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 28:93:94 Honors Readings, completes a research 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 degree 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 curriculum assumes 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 sport communications. Internships are available in many areas and are strongly encouraged for specialization areas. The areas of administration, supervision, coaching, and communication are the most popular. The graduate student group is cosmopolitan and international in nature.

A research laboratory equipped for cardiovascular, arterial 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 to faculty research.

Master of Arts

The M.A. degree is awarded on completion of at least 30 semester hours of graduate work including thesis, or 35 hours of course work without thesis. The curriculum may include research, administration, supervision in the schools, coaches 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 in 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 physical education, coaching, dance, measurement and evaluation, philosophy and supervision 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 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 are required to complete a minimum of 72 semester hours of graduate course work and to pass examinations for the master's degree and to pass the dissertation examination. The dissertation must be submitted to the Graduate College for approval. The dissertation must be read and approved by the dissertation committee. The dissertation must be approved by the student's advisor and the dissertation committee. The dissertation must be approved by the dissertation committee.

A computer terminal is available to all doctoral students for the preparation of doctoral theses. The terminal is located in the departmental office, and all doctoral students are encouraged to use the terminal for the preparation of their theses.

Tools of Research

All doctoral students are required to take a minimum of 72 semester hours of graduate course work and to pass examinations for the master's degree and to pass the dissertation examination. The dissertation must be submitted to the Graduate College for approval. The dissertation must be read and approved by the dissertation committee. The dissertation must be approved by the student's advisor and the dissertation committee. The dissertation must be approved by the dissertation committee.

Required Courses
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 36 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 select 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 set 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-35 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 History 3 s.h.
28D-173 Composition III 2 s.h.
28D-174 Composition IV 2 s.h.
28D-177 Beginning Laboratory 3 s.h.
25:165 Opera Dance Theatre Production 6 s.h.

Electives
Twelve semester hours from the following:
28D-91 Independent Study arr.
28D-111 Methods and Materials of Teaching Children's Dance (Same as TE-123) 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-138 Teaching of Modern Dance 2 s.h.
28D-170 Readings in Dance arr.
28D-175 Dance Theory 3 s.h.
28D-176 Critique 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 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-5 Tap 1-2 s.h.
28D-5 Modern Dance 1-2 s.h.
28D-5 Major Modern Dance I 2 s.h.
28D-9 Jazz 1-2 s.h.
28D-10 Ballet 1-2 s.h.
28D-11 Major Ballet I 2 s.h.
28D-14 intensive training for the Male Dancer 1-2 s.h.
28D-107 Major Modern Dance II 1-3 s.h.
28D-108 Major Modern Dance III 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 U.S. in physical education (dance specialization) program.

Master of Arts (Dance Specialization)

The M.A. degree in physical education (dance specialization) is awarded upon 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
Auction
28D-73-74 Composition III-IV 4 s.h.
28D-80 Anatomy 3 s.h.
28D-81 Kinesiology 3 s.h.
28D-29 Rhythmic Analysis of Dance 2 s.h.
28D-26 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 Laboratory 3 s.h.
28D-115 Twentieth Century Dance 0 s.h.
28D-175 Dance Theory 0 s.h.
28D-176 Critique of Dance 3 s.h.
28D-204 Seminar Dance II 2 s.h.
28:302 Seminar: Perspectives of Human Movement 2 s.h.
28D-401 Thesis 3-4 s.h.
28D-107 Major Modern Dance II 2 s.h.
28D-108 Major Modern Dance III 2 s.h.
28D-109 Major Ballet I 2 s.h.
28D-110 Major Ballet II 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.

Facility
The facility represents diversified 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 Harper Gymnasium, North Hall, the Field House, the Recreation Building, and the Recreation Center at the Memorial Union. A field for outdoor sports is near Halsey 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

Physically Undergraduate
28:191 Exercise Physical Education 1 s.h.
28:192 Exercise Physical Education 1A
Back-up, open to those who have completed requirements in physical education units. May be repeated.
28:193 Theory of Teaching 2 s.h.
Value and nature of all those structuring the program.
Physiology and Astronomy

Department head: James A. Van Allen

Graduate program: preparation for study in physics and related sciences or for employment in related laboratories. The Bachelor of Arts program is designed for students who wish to gain a considerable knowledge of physics but do not plan a research-oriented career in physics. This degree program is appropriate for those planning careers in medicine, law, science-related administration, business, technical writing, or secondary-school science teaching. The B.A. program requires fewer courses in physics 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-III 7 s.h.
- 22M:38 Difference and Equations for Engineers 4 s.h.

Undergraduate Major in Astronomy

A balanced and integrated program of physics, mathematics, and physics courses is required for the Bachelor of Science degree in astronomy. The

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:35-37 Engineering Calculus I-III 7 s.h.
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-III 8 s.h.
22M-27 Introduction to Linear Algebra 4 s.h.
22M-28 Calculus III 4 s.h.
or
22M-35-37 Engineering Calculus I-III 12 s.h.
and
22M-38 Differential Equations for Engineers 4 s.h.
29-17-19 Introductory Physics I-II 12 s.h.
29-61-62 General Astronomy 8 s.h.
29-115 Intermediate Mechanics 3 s.h.
29-116 Introductory Quantum Mechanics 3 s.h.
or
29-119-120 Introduction to Astrophysics I-II 6 s.h.
29-124 Electrical 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.
29-177-178 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-III and 8 s.h.
22M-27 Introduction to Linear Algebra 4 s.h.
or
22M-35-37 Engineering Calculus I-III 12 s.h.
26-17-19 Introductory Physics I-II 12 s.h.
or
29-112 College Physics 8 s.h.
29-61-62 General Astronomy 8 s.h.
29-115 Intermediate Mechanics 3 s.h.
29-117 Optics 3 s.h.
or
29-118 Statistical Physics 3 s.h.
29-119-120 Introduction to Astrophysics I-II 6 s.h.
29-126 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 must include six semester hours selected from the following list of courses:
29-119-121 Introduction to Astrophysics I-II
29-137 Astronomical Laboratory
and an additional six semester hours of these 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 and who consult with their advisors 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 full-time 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 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 thesis requires one semester hour of graduate work and a thesis based on an original experimental or theoretical investigation by the candidate. No more than 24 semester hours may be for research (29-261 Research Thesis).

The program for the M.S. degree with a critical essay requires 33 semester hours of graduate work, an independent study of the literature of a chosen topic, and the preparation of a critical essay on that topic. No more than four of the minimal 30 semester hours may be for the critical essay (29-220 Individual Critical Study).

Up to one-third of the graduate program may be in related scientific fields other than physics and mathematics—for example, chemistry, astronomy, geology, 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 Introductory Quantum Mechanics 3 s.h.
29-117 Optics 3 s.h.
29:118 Statistical Physics 3 s.h.
29:129-130 Electricity and Magnetism 6 s.h.
29:133 Advanced Laboratory 4 s.h.
29:171-172 Mathematical Methods I, II 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
attitude and previous introduction permit.

Master of Science in Astronomy

The M.S. degree in astronomy is offered
with thesis or with a critical essay. The
general requirements are the same as for
the M.S. in physics (see above). Course
requirements or their equivalents
as an undergraduate or a graduate are:
29:115 Intermediate Mechanics 3 s.h.
29:116 Introductory Quantum Mechanics 3 s.h.
29:117 Oscill 3 s.h.
29:118 Statistical Physics 3 s.h.
29:119-121 Introduction to Astrophysics I, II, III 9 s.h.
29:125-126 Electricity and Magnatism 6 s.h.
29:132 Advanced Laboratory 2 s.h.
29:137 Astronomical Laboratory 2 s.h.
29:147-149 Astronomical Methods or Physics 6 s.h.
29:161 Atomic Physics 3 s.h.
29:174 Plasma Physics 3 s.h.

A student who intends to continue for a
Ph.D. in physics with an astrophysics specialization should take the following
courses as early in his or her master's program as possible:
29:165 Plasma Physics 3 s.h.
29:232-233 Theoretical Astrophysics I, II 6 s.h.
29:234 Stellar Structure and Evolution 3 s.h.
29:235 Special Topics in Astrophysics 2 s.h.

Doctor of Philosophy in Physics

The program of study for the Ph.D.
degree with a major in physics includes:
Thorough course work in both classical
and modern theoretical physics for all
candidates, whether their specialized
research is to be in an experimental or
theoretical area;

Comprehensive examinations;
Participation in advanced seminars;
Original research in experimental

physics, theoretical physics, or
astrophysics;
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
The following minimum program is
recommended as preparation for the
comprehensive examinations:
29:192 Atomic Physics 3 s.h.
29:192 Elementary Particles and Nuclear Physics 3 s.h.
29:193 Introductory Solid State Physics 3 s.h.
29:194 Plasma Physics 3 s.h.
29:206 Classical Mechanics I 3 s.h.
29:212 Statistical Mechanics I 3 s.h.
29:213-214 Classical Electrodynamics 6 s.h.
29:245-246 Quantum Mechanics I, II 6 s.h.

Advanced mathematics, such as the
theory of functions of a complex variable
and vector and tensor analysis, is used
freely in these courses. An introduction
to these fields is given in 29:171-172
Mathematical Methods of Physics. The
selection of less advanced courses will
depend on the adequacy of the student's
preparation for graduate work, the
student's choice of more advanced and
specialized courses will depend on
the direction in which he or her interests
develop. No more than 20 of the minimal
72 semester hours may be in research
and seminars.

A candidate for the Ph.D. degree will not
be recommended for the degree until he
or she has written the dissertation in
proper form for formal publication and
has submitted it, with the approval of the
research adviser, to a widely distributed,
refereed, scientific journal for publication.

Financial Assistance

Fellows qualified for graduate study are
encouraged to apply for fellowships and
assistantships. Inquiries should be
directed to the head of the department.

Research and Facilities

The department has an excellent library
and a number of well-equipped
laboratories and observatories. The
associated facilities of the University's
Weep Computing Center are available for
research by students in the NPA staff of
the department, and several other
computer resources are available within the
department. The general computing
machine shop is fully equipped and
staffed with skilled instrument
makers and machinists, and there are
several electronic and machine shops
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; magnetospheric physics;
solar-terrestrial, interplanetary, and
planetary science; astro-molecular
physics; low-temperature physics; laser
physics, and acoustics of musical
instruments.

A major experimental space physics
program is conducted in the department.
Extensive satellites are available for
constituent measurement of satellites
and spacecraft. In the research of
spaceborne telemetry, and for computized
decoding and analysis of data.

An unusually versatile 6-MW Van de
Graaff 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 nuclei. Experiments on
fundamental thermal, electrical, and
magnetic properties of materials, alkali,
and compounds are included in the
exposed solid state program, as are
surface studies of insulating 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
spectrometers and molecular beam
studies are carried out at the Iowa Laser
Facility.

The department is well equipped for
research in observational astronomy. The
primary optical interferometer, a 24-inch
reflector with a computer-controlled
photographic recording system, is used
for interferometric and astrophysical
research programs in galactic and
extragalactic radioastronomy and are carried out using an
18.2-meter parabolic reflector located at
the North, Liberty Radio Observatory near
Iowa City, one of the radio telescopes in
the U.S. Very Long Baseline Interferometry
Network. Current long-
term projects include studies of
extragalactic radio sources and OH
masers. Students and faculty also
conduct research programs at the Very
Large Baseline Array, National Radio
Astronomy Observatory, the Kitt Peak National Observatory, and the Arecibo Observatory.

Theoretical research is devoted to
elementary particle physics and high-energy
physics; plasma physics; astrophysics
atmospheric, solar, 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
completely satisfied the course for which
the elementary course, or its equivalent,
is a prerequisite. Courses 29:5, 29:8,
29:11-12, 29:17-18, 29:50, and 29:51-52
are recommended toward the College of
Liberal Arts general education
requirements in the natural sciences.
Physics

Primary for Undergraduates

204 Exploring Physics 2 h.
210 Modern Physics 2 h.
215 Introductory Physics I 3 h.
216 Introductory Physics II 3 h.
217 Introductory Physics C 3 h.
218 Introductory Physics C 217 4 h.
221 Introductory Physics C 218 4 h.
223 Introductory Physics C 219 4 h.
224 Introductory Physics C 220 4 h.
230 Modern Physics 3 h.
232 Introductory Physics C 3 h.
234 Advanced Laboratory I 2 h.
235 Advanced Laboratory II 2 h.
236 Advanced Laboratory IV 2 h.
237 Introductory Physics C 238 4 h.
238 Introductory Physics C 239 4 h.
239 Modern Physics 3 h.
243 Introductory Physics C 244 4 h.
244 Introductory Physics C 245 4 h.
245 Advanced Laboratory I 2 h.
246 Advanced Laboratory II 2 h.
247 Introductory Physics C 248 4 h.
248 Introductory Physics C 249 4 h.
249 Modern Physics 3 h.
250 Advanced Laboratory I 3 h.
251 Advanced Laboratory II 3 h.
252 Advanced Laboratory III 3 h.
253 Advanced Laboratory IV 3 h.
254 Advanced Laboratory V 3 h.
255 Advanced Laboratory VI 3 h.
256 Advanced Laboratory Vll 3 h.
257 Advanced Laboratory VIII 3 h.
258 Advanced Laboratory IX 3 h.
259 Advanced Laboratory X 3 h.
260 Advanced Laboratory XI 3 h.
261 Advanced Laboratory XII 3 h.
262 Advanced Laboratory XIII 3 h.
263 Advanced Laboratory XIV 3 h.
264 Advanced Laboratory XV 3 h.
265 Advanced Laboratory XVI 3 h.
266 Advanced Laboratory XVII 3 h.
267 Advanced Laboratory XVIII 3 h.
268 Advanced Laboratory XIX 3 h.
269 Advanced Laboratory XX 3 h.
270 Advanced Laboratory XXI 3 h.
271 Advanced Laboratory XXII 3 h.
272 Advanced Laboratory XXIII 3 h.
273 Advanced Laboratory XXIV 3 h.
274 Advanced Laboratory XXV 3 h.
275 Advanced Laboratory XXVI 3 h.
276 Advanced Laboratory XXVII 3 h.
277 Advanced Laboratory XXVIII 3 h.
278 Advanced Laboratory XXIX 3 h.
279 Advanced Laboratory XXX 3 h.
280 Advanced Laboratory XXXI 3 h.
281 Advanced Laboratory XXXII 3 h.
282 Advanced Laboratory XXXIII 3 h.
283 Advanced Laboratory XXXIV 3 h.
284 Advanced Laboratory XXXV 3 h.
285 Advanced Laboratory XXXVI 3 h.
286 Advanced Laboratory XXXVII 3 h.
287 Advanced Laboratory XXXVIII 3 h.
288 Advanced Laboratory XXXIX 3 h.
289 Advanced Laboratory XL 3 h.
290 Advanced Laboratory XLI 3 h.
291 Advanced Laboratory XLII 3 h.
292 Advanced Laboratory XLIII 3 h.
293 Advanced Laboratory XLIV 3 h.
294 Advanced Laboratory XLV 3 h.
295 Advanced Laboratory XLVI 3 h.
296 Advanced Laboratory XLVII 3 h.
297 Advanced Laboratory XLVIII 3 h.
298 Advanced Laboratory XLIX 3 h.
299 Advanced Laboratory L 3 h.
300 Advanced Laboratory LI 3 h.
301 Advanced Laboratory LII 3 h.
302 Advanced Laboratory LIII 3 h.
303 Advanced Laboratory LIV 3 h.
304 Advanced Laboratory LV 3 h.
305 Advanced Laboratory LX 3 h.
306 Advanced Laboratory LXI 3 h.
307 Advanced Laboratory LXII 3 h.
308 Advanced Laboratory LXIII 3 h.
309 Advanced Laboratory LXIV 3 h.
310 Advanced Laboratory LXV 3 h.
311 Advanced Laboratory LXVI 3 h.
312 Advanced Laboratory LXVII 3 h.
313 Advanced Laboratory LXVIII 3 h.
314 Advanced Laboratory LXIX 3 h.
315 Advanced Laboratory LXI X 3 h.
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317 Advanced Laboratory LXIII X 3 h.
318 Advanced Laboratory LXIV X 3 h.
319 Advanced Laboratory LXV X 3 h.
320 Advanced Laboratory LXVI X 3 h.
321 Advanced Laboratory LXVII X 3 h.
322 Advanced Laboratory LXVIII X 3 h.
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324 Advanced Laboratory LX X 3 h.
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368 Advanced Laboratory LXIV X 3 h.
369 Advanced Laboratory LXV X 3 h.
370 Advanced Laboratory LXVI X 3 h.
371 Advanced Laboratory LXVII X 3 h.
372 Advanced Laboratory LXVIII X 3 h.
373 Advanced Laboratory LXIX X 3 h.
374 Advanced Laboratory LX X 3 h.
375 Advanced Laboratory LXI X 3 h.
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 semester hours of work in the 30.182-183 Honors Seminar, with a grade of B or better each semester. Students may substitute the seminar 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 plan, 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 two-year 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 final examination. Although the schedule suggested 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

30.228 Introductory Public Policy I 3 s.h.
30.229 Public Policy Analysis 3 s.h.
30.229 Introduction to Administrative Computing 1 s.h.
30.233 Introduction to Social Research Methods 3 s.h.
66.119 Economics of the Government Sector 3 s.h.
Electives 5 s.h.

Spring Semester

30.229 Administrative Theory and Policy 3 s.h.
30.231 Urban Administration 3 s.h.
30.233 Public Policy Analysis II 3 s.h.
Electives 3 s.h.

Summer Session

30.351 Internship in Public Policy and Administration 3 s.h.
30.392 Practicum in Public Policy and Administration 3 s.h.
Electives 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 3.0, 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 thesis and course work.

Master of Arts without Thesis

If a student's first-year evaluation commits him to the course work and research plan provided, he may also complete the course work and research plan without a thesis. The departmental thesis requirement is waived for students who have completed 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 degree, and recommends that the student be permitted to seek the nonthesis 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 30.351 Advanced Research Methods and receiving a grade of no lower than B. Any special training that is needed for conducting dissertation research—e.g., foreign-language, econometrics, or experimental design—must be acquired after completing the course work and the comprehensive examination. Students in doubt about their training should discuss it with their faculty advisor in the first term of graduate study.

Comprehensive Examination

Students must take the comprehensive examination after completing the sixth semester of residence, or the first examination period following their attainment of 45 hours of graduate credit, whichever comes later.

Candidates for the Ph.D. take written examinations in three of these areas: American Politics and Public Policy, Comparative Politics, and International Relations.

Before taking the written examinations, candidates must present a written dissertation proposal. They must submit and defend the proposal in an oral examination, which may go forward with any matter relevant to the written examination.

Each Ph.D. candidate in political science must acquire at least four semesters of special supervisory training in teaching and/or research. This instruction is
graduate students with little or no previous knowledge of Latin American politics.

35.04 Problems of Comparative Politics 64 lb. Selected problems in comparative analysis of politics. May be repeated with consent of instructor.

35.06 Political Economy and Public Policy in Developing Countries 64 lb. Relationships between political, economic, and social change in developing countries. Emphasis on development of policy, emphasis on significance of social theory for resolving challenges posed by alternative development strategies.

35.11 Political Elites and Leadersh. 64 lb. Background, career, attitudes, and behavior of political leaders. Geopolitical focus may vary with instructor. May be repeated with consent of instructor.

35.33 Legislative Behavior 64 lb. Systems analysis of legislative institutions, processes, and behavior, which may focus on the United States, Europe, or developing countries. May be repeated with consent of instructor.

35.35 Legislative Process 64 lb. Analysis of formal processes and bureaucratic systems, roles of policy, clientele, and lobbying in the legislative process, selection, recruitment, and assimilation of legislative leaders, support to each in making legislative and with group dynamics of political decision making. May be repeated with consent of instructor.

35.37 Public Opinion and Electoral Behavior 64 lb. Analysis of public attitudes and beliefs in mass politics, voting behavior, functioning of electoral systems, and political parties.

35.38 Human Rights and World Community 64 lb. Nature of human rights and international obligations relating to them, prospects of international action. May be repeated with consent of instructor.

35.39 Problems in International Politics 64 lb. Intensive examination of selected topics of international politics, emphasizing theories of international relations. May be repeated with consent of instructor.

35.37 Accounts and Research (TA) 64 lb. Personal research in an agreed upon area. May be repeated with consent of instructor. Prerequisite: consent of supervising faculty member.

35.62 Theory in Public Policy and Administration 64 lb. Prerequisite: consent of supervising faculty member. May be repeated with consent of supervising faculty member.

35.63 Design and Research (TA) 64 lb. Prerequisite: consent of supervising faculty member. May be repeated with consent of supervising faculty member.

35.98 Thesis 64 lb. Prerequisite: consent of supervising faculty member. May be repeated with consent of supervising faculty member.

35.98 Ph.D. Dissertation 64 lb. Prerequisite: consent of supervising faculty member.

Portuguese

See “Spanish and Portuguese.”

Psychology

Department chair: Del W. Matzke


clinical assistant professor Ivan L. Stover

degrees (PhD) B.A. S.S., M.A., Ph.D.

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 particular training 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 tied to the world of work, e.g., education, social work, journalism, nursing. It should be understood that almost all vocational opportunities in psychology require advanced degrees.

The B.S. 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 of undergraduate work 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 eventually enrich the B.A. program with courses in statistics and experimental psychology.

Students in either program begin with a general introductory course, followed by one or more courses in methodology and electives in several broad areas of psychology: animal behavior, learning and biology, 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 psychology. At least 15 semester hours of the major must be completed in this department. Satisfactory completion of the psychology 317-419 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. A student may substitute Psychology 131 for General Psychology 31.43. Exercising Psychological Research; 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 31.43 requirement may be satisfied by a combination of 31.42 introduction to Statistics in Psychology and 31.120 Experimental Psychology I, or equivalents. The former 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: 31.1 General Psychology or 31.1 Elementary Psychology or 31.13 Experimental Psychology. 31.120 Experimental Psychology I, one elective course from each of the five area groupings given below, with at least four of these five area electives being 100-level courses. Candidates for the B.S. degree in psychology are expected to satisfy the general education requirement in natural sciences in one of the following ways: one or more courses of the following: one semester of chemistry and one semester of biology; two semesters of physics; three semesters of chemistry, one semester in physics and chemistry. A major 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 advisors can assist students in identifying sequences of courses for a minor appropriately complement the student's major.

Area Electives

Area offerings vary somewhat from semester to semester. Prior to each registration period, students should
Graduate Program

The graduate program in psychology is designed primarily for students seeking the Ph.D. degree. Except in very special circumstances, applications are considered only for that degree. For students entering without previous graduate work, it is a four-year program; those entering with previous graduate training 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, governmental, 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 the primary and to follow a program which develops through understanding of the comprehensive nature and breadth of investigation which are 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 competence 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 is also prepared to help students develop additional expertise in any of the following interest areas: human factors, behavioral medicine, aging, sensation and perception, organizational and consumer behavior, communications, and neurobehavioral science. Preparation in one of these interest areas will involve some special breadth seminars. As 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 satisfy, through one of several options, requirements in statistics and research methods, and in learning. A course in the history and/or the philosophy of psychology is strongly encouraged. 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 it 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 Ph.D. program, the student is expected to complete the masters project and defend the thesis. A comprehensive examination covering material in the primary training area and 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 and research activities, includes 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 current 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 Master of Arts degree. The Master of Arts degree with thesis is a required step for students on the Ph.D. objective. This degree requires...
satisfactory completion of at least 30
semester hours of graduate course work
in psychology, with at least 18 semester
hours in psychology. The course work
must include a statistics sequence, a
laboratory course, and at least one
course outside the primary area. The
student also 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 two semesters. Awarding of this degree requires
satisfactory completion of at least 30
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 also must perform successfully
on 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
animals and their behavior, primarily on
infant subjects, through the use of
behavioral and/or cognitive biological
principles. Special faculty strengths
include the study of operant and
classical conditioning, comparative
psychology, motivation, neuropharmacology, neuroendocrinology, and
neurobiochemistry. Toward this end, this
program will have the opportunity to
learn state-of-the-art techniques in
computer-controlled experimentation and
electronic instrumentation, and modern
analytic and laboratory methods in
neurochemistry, histology, and biochemical
assays.

Faculty members in the animal learning
and biopsychology area interact extensively with colleagues from a
number of basic science departments in the
College of Medicine. These
interdisciplinary collaborative activities provide excellent
research and training opportunities for students interested in such emergent
interdisciplinary fields as behavioral
medicine and neurobehavioral science.

Child and Developmental
Psychology

Students in the child and developmental
program are exposed to a broad
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 these major areas, 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
specialization area but a number of faculty
members in the department are involved in
research on aspects of aging and hence
may be able to provide some supervision for students interested in this area. Faculty
members have close contact with
collaborators from the Department of
Speech Pathology and Audiology, the
College of Education, and the
Department of Pediatrics, and these
relationships can be utilized 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
clinical psychology. It is designed to
prepare 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 practical experience
with the individual research experience.

Students in the clinical program may
develop special competence in such
areas as psychophysiology, personality, psychophysiological processes, the
effective disorders, behavioral and
cognitive therapy, sexual psychology, and
child psychology. Faculty members are
collaborating scaffolding studies
with colleagues from departments such as
psychology, psychiatry, audiology, and
gynecology, and from agencies such as the Health
Services Research, Biostatistics, the School of
Social Work Gerontology Program, and
the Area Education Agencies. Notably as a consequence of such
cooperation, behavioral medicine and
growth are interest areas in which a
number of clinical faculty members are
prepared to offer research supervision.

Within the department, joint training
programs in clinical psychology 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
degree. The internship ordinarily
commences after completion of all course
work and of most, if not all, 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, psychophysical scaling, and
signal detection theory; cognitive effects of drugs, human judgment, and decision
making; inform processing, and
psycholinguistics.

Faculty members in the human
experimental area are prepared to help
students gain additional exposure in a
variety of interest areas, including human
factors, communications, aging,
organizational behavior, and
behavioral medicine. Collaborative
research is under way with faculty
members from the College of Business
Administration; from the Health Sciences
Research Center; and from several
departments including industrial and
Management Engineering, Speech
transduction and Audiology, Neurology and
Psychology.

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 following areas: social
psychophysiology, dealing with reciprocal
processes in social systems; social cognition, dealing with such areas as stimulus
acquaintance and change, cognitive consistency, attribution, and perception; social
influence on thought and action, including social learning, social development, imitation,
conformity, and the social psychology of
groups, dealing with conflict, conformity, and group decision processes, social
facilitation, and social identity.

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
collaborative experiences in measurement projects, will
broaden the student’s employment opportunities.
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, see us on file by that date. The Graduate Record Examination (GRE) Aptitude Test should be taken in October, certainly no later than 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 of 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, particularly biology, is certainly desirable though not required. Students who have not had a background but who are strongly qualified on other grounds may be admitted, but will be expected to remedy deficiencies by additional work or independent study prior to enrolling in the regular graduate program. A student whose experience consisted substantial graduate work at another institution at the time of admission to this program will be expected to present documents, such as transcripts or certificates, which reflect significant engagement in research and scholarly writing. This makes it likely they will be allowed to transfer some graduate course work will be reviewed by the faculty members of the appropriate training area as a basis for placement in the graduate program. In no event will a student be admitted to complete independent 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 either the M.A. or the Ph.D. degree in psychology.

Financial Assistance

All students admitted to the graduate training program in psychology automatically are considered, on the basis of merit, for such financial support as may be available in the form of teaching assistantships, research assistantships, travelships, 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 excellence of the faculty to research and scholarship is manifest 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 editors as editors, associate editors, and regular reviewers editors for major psychology journals.

Facilities

The department's facilities for graduate training and research are among the finest in the country. The Kenneth W. Spence Laboratories of Psychology, and adjoining space in Seashore Hall, include three separate animal facilities, several surgeries, a histology laboratory, a number of small laboratory computers, automated data acquisition and reduction systems, observatories with remote astronomical control and recording equipment, sound studios, a number of closed circuit TV systems, electrophysiological recording rooms, conditioning laboratories, the Carl E. Seashore Psycholinguistic, and well-equipped computer, electronic, mechanical, and electromechanical shops. Specialized equipped research laboratories are available for use in studies conducted at schools and other locations.

The University's Weeg Computing Center has an IBM 3635, three PRIME 850 and two PRIME 750 computers. Students and faculty have ready, inexpensive access to these systems through terminals in the administration and through a facilities 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 of the University and local agencies, including the University's Hospitals and Clinics Psychiatric Hospital, the University Research Medical Center, the University Counseling Service, the Child Development Clinic, the Snedekor March and Hearing Clinic, the Health Science Research Center, and the School of Social Work's Department Program.

Courses

For Undergraduates

Either 311 or 313 is equivalent, is prerequisite to all other courses in psychology. Only one of these two courses may be taken for credit.

311, 313; 314, 315, 316, 317, 319, and 413-433 are open to freshmen who have satisfactorily completed an introductory to psychology course, e.g., 311 or 313.

311 Elementary Psychology

An overview of behavioral science, including different theory types, perception, and motivation. Various areas of interest include decision making, stress, and through participation in demonstration-demonstrations and in actual research studies, or through preparation of research reports. May not be taken pass-fail.

313 General Psychology

Same content as 311, but with additional discussion sections and greater emphasis on experimental methods in the preparation of behavioral research. Recommended for B.S. majors in psychology, open to all honors students, and to other qualified students. Permission of instructor. May not be taken pass-fail.

311 Introduction to Clinical Psychology

Survey of personality and developmental psychology of abnormal behavior. Various presentations of various disorders. Prerequisite: 311 or 313 or equivalent.

314 Introduction to Child Psychology

Survey of current theories and therapies in child psychology including infant, young child, child, adolescent, and personality development. Prerequisite: 311 or 313 or equivalent.

315 Introduction to Social Psychology

Research testing behavior of individual human organism in interaction with other human organism, environmental, and social influences on personality and social perceptions, social interactions, including communication processes. Prerequisites: 311 or 313 or equivalent.

316 Introduction to Mental Processes

Survey of the study of individual human cognition perception, attention, memory, language, learning, problem solving, decision making, and thought, considered from information-processing view. Prerequisites: 311 or 313 or equivalent. Prerequisite: 311 or 313 or equivalent.

317 Introduction to Comparative Psychology

Comparative study of animal behavior in relation to human behavior and development. Emphasis on similarities, differences, attention, language, and consciousness, points of view concerning animal emotions, motivation, evolution, and neurophysiology. Prerequisite: 311 or 313 or equivalent.

318 Psychology in Business and Industry

Applications of psychology to problems in the world of work, emphasis on personnel selection, training, motivation, management, industrial relations, and human resource management. Prerequisite: 311 or 313 or equivalent.

319 Evaluating Psychological Research

Development of skills required to critically evaluate the professional and public literature dealing with the scientific study of behavior. Includes sections on the scientific approach to study of behavior, the nature of research methodology, internal reliability, validity, and generalizability; and variables, and statistical testing. Students should not enroll for the first time at 319, but should register for the second semester. Prerequisite: 311 or 313 or equivalent.
Recreation Education/LIBERAL ARTS

Bachelor of Science

The student must take 34 semester hours of professional core courses, including:

104.60 Foundations of Recreation
104.61 Recreation Leadership
104.105 Introduction to Therapeutic Recreation
104.106 Recreation Program
104.108 Administration of Recreation 1
104.199 Internship in Recreation

Students must take 9 to 15 semester hours of courses in one of the areas of concentration described below.

Community Recreation

The community recreation concentration is designed for students preparing for positions in which they will be responsible for organizing and administering recreation programs, facilities, and departments. This concentration is oriented primarily to municipal, district, and county-level recreation and park departments.

Courses required for this area of concentration are:

104.130 Park and Recreation Facility Management
104.134 Introduction to Planning and Design of Recreation and Park Areas and Facilities

Therapeutic Recreation

Therapeutic recreation focuses on preparing students to organize, plan, and lead recreation programs in treatment and treatment settings for people with intellectual, aged, disabled, and disadvantaged.

Courses required for this concentration are:

104.120 Orientation to Rehabilitation Recreation
104.121 Orientation to Special Populations
104.126 Role of Therapeutic Recreation in Rehabilitation

Leisure Studies

The leisure studies concentration is designed for students preparing for graduate work, or who have an interest in leisure research or recreation as a contemporary social issue, or an interest in diverse fields of recreation, such as outdoor, industrial recreation, etc. It is the most flexible of all concentrations, and makes the maximum use of courses outside the Program in Recreation Education. It is also ideal for students wishing to obtain a minor in recreation education.

Religion/LIBERAL ARTS

104-C 138 Introduction to Commercial and Industrial Management 3 hrs.
Development and operation of "super-market" programs in supermarkets, retail dealers for consumer needs; promote good programs, skills, and legal aspects of commercial management; service, fitness and training, nutrition, public relations, safety, etc. May include laboratory.

110-C 140 Physical Education and Recreation 3 hrs.

111-C 141 Career Administration 3 hrs.
112-C 142 Principles of Outdoor Education 2.5 hrs.
Development and storage of outdoor education, including administration, organization, administration, administration, marketing, and consumer attention to recreation programs in the field. Recreation and education.

114-C 144 Outdoor Organization and Leadership 3 hrs.
115-C 145 Recreational Leadership and Supervision 2 hrs.
Survey of recreation and leisure and the role of the recreation leadership and education.

118-C 143 Introduction to Social Psychology of Leisure 3 hrs.
Examine leisure activities, social psychology, and social aspects of leisure behavior within a leisure context.

119-C 141 Alternative Leisure Life Styles 3 hrs.
Various uses of leisure in other cultures, in historical periods, and in modern cultures are explained and compared. With modern leisure, the potential of modern leisure time for human and social development and the relationship between a leisure life and modern leisure.

120-C 142 Aging and Leisure 2 hrs.
121-C 143 Social Psychology of Sports 2 hrs.
Review of past theoretical and empirical research related to the social psychology of sports and major behavior. Examination of social psychology of sports and major behavior, social psychological and sociological considerations for major behavior.

125-C 150 Leisure Education: Service Delivery and Administration 3 hrs.
Explores leisure education as a component of service delivery in a well-rounded recreation and leisure education program. May be taken for the professional preparation certificate in leisure education.

126-C 150 Independent Study 1 hr.
Implements professional supervision for specific areas of interest.

128-C 150 Field Experience in Recreation 1 hr.
129-C 150 Internship in Recreation 1 hr.
Practical job experience designed to include direct leisure services, planning, and administrative responsibilities. Prerequisites: 126-C and permission of department.

130-C 150 Internship in Recreation 1 hr.
Continuation of 128-C.

131-C 151 Field Experience 1 hr.
132-C 152 Graduate Practicum 1 hr.
133-C 151 Graduate Practicum 1 hr.
134-C 150 Concept of Recreation and Leisure 3 hrs.
Advanced philosophical, historical, and practical approaches in leisure and recreation. Leadership principles; leisure-related case and group studies for graduate students; without an undergraduate degree in recreation and/or leisure management.

135-C 152 Concepts of Recreational Recreation 3 hrs.
Designed to prepare the student for recreation service in areas of disability, public and handicapped children's recreational dispositions and handicaps. To develop stage activities. Direction program activities. Emphasis on therapeutic recreation activities which contribute to personal and social development. Prerequisite: graduate status and consent of instructor.

136-C 150 Development of Therapeutic Recreation 3 hrs.
Instruction, improvement, expansion of therapeutic recreation service for handicapped, mentally handicapped children. Practice of therapeutic recreation; parallel practices of related fields. Prerequisites: 135-C and consent of instructor.

137-C 150 Senior Internship in Recreation 3 hrs.
Practicum, supervision, and personal experience.

138-C 150 Internship in Therapeutic Recreation 3 hrs.
Specialized and philosophical development of therapeutic recreation programs. Planning, designing, implementing, delivering, evaluating, and evaluating.

139-C 150 Planning and Design of Recreation and Parks Areas and Facilities 3 hrs.
Principles, terminology, standards of design, planning, construction, site, maintenance of areas and facilities for recreation and physical education.

140-C 150 Theories and Methods of Social Psychology of Leisure Behavior 3 hrs.
141-C 151 Recreation College Teaching Internship 3 hrs.
142-C 151 Seminar: Thesis I 3 hrs.
143-C 152 Seminar: Thesis II 3 hrs.

Religion

Religion

Rexner, John P.; Smith, Paul; and other writers.

Religion of the School of Religion is to help students to understand the major field and gain an understanding of the history and literature of the religions, and insights into the nature and meaning of the religious dimensions of human culture.

The school is not a theological seminary; it does not prepare students for ordination.

Academic rather than vocational in its orientation, the undergraduate major in religion provides a foundation for interdisciplinary academic work or for study at a theological seminary. The school's graduate programs provide preparation for the study and teaching of religion as an academic discipline. Many University students majoring in other subject areas elect courses in religion as part of their general education; some elect religion as a second major.

Bachelor of Arts

For a major in religion, undergraduate students elect at least 24 semester hours of course work in religion according to their own interest, provided they take a minimum of four 100-level courses in religion, one of which is ordinary the majors seminar (321-196 Senior Majors Seminar). Students majoring in religion also elect 12 semester hours in related disciplines, such as anthropology, art, classics, history, philosophy, psychology, or sociology. The student must also fulfill the requirements of the College of Liberal Arts (see the "College of Liberal Arts" section of the Catalog). The selection of the foreign language must be approved by the advisor.

Honor

Religion majors may apply for the liberal arts honors program. May obtain a degree with honors; through satisfactory completion of an honors essay during the senior year.

Graduate Programs

The School of Religion seeks to prepare a select and limited number of graduate students to become specialists in the study and teaching of religion. Graduate study is offered in five areas, including 13 fields:

Jewish and Christian Scriptures
Ox Testament

Post-Biblical Judaism

New Testament

History of Christianity

Early Christianity

Modern (since 1500)

American

Theology and Ethics

Jewish

Roman Catholic

Protestant

Asian Religions

Hindu Religions: Methodology

Religion in India, China, or Japan

Religion and Personalities

Religion and Personality

Religion and Development

Religion and Health

Master of Arts

There are two tracks toward the M.A. in religion. Students choosing the thesis track must earn a minimum of 36 semester hours in the School of Religion, including a minimum of two graduate seminars, and write a thesis, which may count for up to six of the required semester hours. Students choosing the non-thesis track must earn a minimum of 36 semester hours in the School of Religion, including a minimum of three semester hours of the School of Religion. For students in either program, a maximum of six semester hours of
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, 30 hours in their 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 third 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 illness and health 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 examined in another accredited graduate or professional school. A maximum of six semester hours may be transferred from another accredited graduate or professional school.

The program includes required courses in religion and personality, and in related fields of ethno, religion in America, and other relevant courses 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 elect 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.

Doctoral students must demonstrate competence in either French or German before taking the qualifying examinations. Competence in both languages must be demonstrated at least 12 months before the comprehensive examination. With 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 three-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 one 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 enrolling for graduate study. The student is expected to have passed the doctoral language requirements at least 12 months before taking 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 semester of the comprehensive 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 available 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, teaching assistantships, and research assistantships. Awards are made annually on a competitive basis. Fee-paying 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 at least 1050 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 1130 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

211 Judaism-Christianity
3 h.
Study of the nature of religion and analysis of the relationship between Judaism and Christianity.

212 Religion and Society
3 h.
Study of theories of secularization, expressions of religion, using lectures, films.

250 Doctor of Ministry
3 h.
Explores specific issues for candidacy of persons interested in religious leadership.

211 Introduction to Religion and Society
3 h.
Provides an overview of several different religious traditions.

212 Introduction to Religion and Society
3 h.
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however, 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 emphasis, and philosophy of related courses offered, vary from fall to fall and from department to department, using library resources for amplifying and supporting ideas throughout the curriculum to students.

Courses

101 Rhetoric
1.5 h.
Instruction and practice in speech, writing, and critical writing with the issue an emphasis on composition. Emphasis will be placed on teaching the elements of composition: modeling and analysis of effective writing and the development of writing skills through the use of library resources for amplifying and supporting ideas throughout the curriculum to students.

102 Rhetoric
3 h.
Continued instruction in and practice in speech, writing, and critical writing with the issue an emphasis on composition. Emphasis will be placed on teaching the elements of composition: modeling and analysis of effective writing and the development of writing skills through the use of library resources for amplifying and supporting ideas throughout the curriculum to students.

103 Rhetoric
1.5 h.
Instruction and practice in speech, writing, and critical writing with the issue an emphasis on composition. Emphasis will be placed on teaching the elements of composition: modeling and analysis of effective writing and the development of writing skills through the use of library resources for amplifying and supporting ideas throughout the curriculum to students.

104 Rhetoric
3 h.
To improve reading proficiency, regular assignments combining reading, discussion, and writing. Emphasis will be placed on teaching the elements of composition: modeling and analysis of effective reading and the development of reading skills through the use of library resources for amplifying and supporting ideas throughout the curriculum to students.

105 Rhetoric
3 h.
After an initial sequence of writings, instruction focuses on discussion and writing. Emphasis will be placed on teaching the elements of composition: modeling and analysis of effective writing and the development of writing skills through the use of library resources for amplifying and supporting ideas throughout the curriculum to students.

106 Rhetoric
3 h.

Russian

Department Chair: Roy J. Parrett, Jr.
Faculty: professors Norman Lubetsky, Harvey R. Webber; assistant professor Nemee Solbobo; associate professor T. Hy. Parnis, J. Christopher A. Wenz.
Instructor: Arlene J. Gollander
Degrees offered: B.A., M.A.

The purpose 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 that 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 offer 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 area studies.

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:

41:109 Intensive Conversation I 3 s. h.
41:110 Intensive Conversation II 3 s. h.
41:111-112 Intermediate Russian I- II 8 s. h.
41:113-114 Fourth-Year Russian I-II 8 s. h.

Three of the following:

41:151 Russian Literature in Translation 1800-1860 3 s. h.
41:152 Russian Literature in Translation 1860-1917 3 s. h.
41:165 Tosty and Dostoevsky 3-4 s. h.
41:181 Soviet Literature in Translation 3 s. h.
41:182 Russian Culture 3 s. h.
41:191 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.

The focus in literary studies is on the development of Russian literature, both as a national phenomenon and as a part of European culture. Students are expected to analyze writers' styles, perceive literary techniques, recognize literature's role in English, and develop the ability to sound criticism of form, content, and language of works in all genres.

requires a solid background in Russian area studies for. For example, a recent statement on the criteria for U.S. Government employment cites as a 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 culture will be a background of other substantive background may be viewed as over-specialization in a field of limited practical use."

For major in Russian the student must complete a minimum of 12 semester hours in the department beyond the second year, including the two-semester sequence 41:115-116.

Honors

Russian majors of junior or senior standing with a grade point average of at least 3.6 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 for at least three semester hours. Students may take up to nine semester hours of honors in Russian.

Summer and Study Abroad Programs

The department vigorously encourages undergraduate and graduate students to participate in study abroad programs of language study both in the United States and in the Soviet Union. In recent years an increasing number of students (38 of 42 applicants, an extraordinary high number) have studied in summer, semester, and year-abroad programs at several universities, including Georgia State University, under the auspices of the Fulbright Commission, the Educational Exchanges, as well as in the similar American Council of Teachers of Russian programs at the Pushkin Institute in Moscow. Other students have studied in the Russian language schools in various intensive summer programs as major American universities. Inquiries should be directed to the Russian department office.

Master of Arts

Offered with or without thesis, the M.A. program in Russian offers two major emphases, in literary or in language study.

The focus in literary studies is on the development of Russian literature, both as a national phenomenon and as a part of European culture. Students are expected to analyze writers' styles, perceive literary techniques, recognize literature's role in English, and develop the ability to sound criticism of form, content, and language of works in all genres.
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 Westward 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 Slavko, 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, disc, and cassette recordings are also available.

Courses
For Undergraduates and Graduates

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<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
<th>Prerequisites</th>
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<tbody>
<tr>
<td>401 1st-Year Russian</td>
<td>4.0</td>
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<tr>
<td>412 2nd-Year Russian</td>
<td>4.0</td>
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<tr>
<td>413 Second-Year Russian</td>
<td>4.0</td>
<td>Standard second-year course, required for students selecting Russian language majors for B.A. degree and desiring further training in active use of the language.</td>
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<tr>
<td>414 2nd-Year Russian II</td>
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<tr>
<td>415 Russian for Reading</td>
<td>2.0</td>
<td>Exams on precepts in Russian and Russian literature, all for students, especially those majoring in Russian, who need to develop reading skills for research purposes.</td>
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<tr>
<td>416 Russian for Reading II</td>
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<td>417 Readings in the Soviet Press</td>
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<td>418 Special Readings</td>
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<td>419 Russian Civilization</td>
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<td>420 History of Eastern Europe</td>
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<td>421 History of Europe</td>
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<td>422 2nd-Year Russian III</td>
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<td>429 4th-Year Russian IV</td>
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<td>430 Russian Civilization</td>
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<td>431 History of Eastern Europe</td>
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<td>432 History of Europe</td>
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<td>440 4th-Year Russian IV</td>
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Financial Aid
Aid is available to graduate students in the form of tuition scholarships. University fellowships, and one-quarter time teaching and research assistantships; it is awarded annually on a competitive rank of graduate teaching and research assistantships. It is not awarded to first year students. (Exceptions occasionally are made on the basis of special academic or language skills. Applications are considered only from students who have been admitted to the Graduate College. Inquiries should be addressed to the departmental 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 411 1st-Year Russian in the Soviet Press is designed especially for the student who wishes to develop a reading proficiency geared toward the daily and periodical press. A number of other courses are open to all University students and are offered in English. These include survey courses in Russian and Soviet literature, Russian history, and civilization, and a monograph course on Tolstoy and Dostoevsky.

Science Education
Coordinator: James A. Shuman
Faculty: John F. Finich, John E. Forman, James A. Shuman, Robert E. Varga

Inclusions: Robert J. Bliss, Herbert Brumfitt, Thomas Bubba, Paul A. Christiansen, John B. Doyle, Frederick J. Duke, Steven D. Evans, Charles H. Evers, Clifford Foster, Linda L. Gould, Robert E. Graham, John P. Hicks, Darwin 0. Holsinger, 0. Howard, Daniel B. Huff, Paul H. Jacob, Maurice G. Kangas, Gerald Manassieh, George Nagy, Vincent D. Mitchell, Paul Oltz, Jaya Oltz, Andrew D. Plank, Philip H. Phillips, David R. Rollins, Donald L. Toyer, J. Vaeth, Valerie Greener, James C. Wright
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 sciences, a consideration of science from a philosophical, historical, and sociological perspective, an introduction to the applied sciences (technology), and a sequence in education.

Because science education is a 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 assisting 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 to be completed by all students while providing an appropriate option for students interested in education as a career 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 students enter the 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 years or six semesters of college study.
- Preparation in a second area of pure science, equivalent to two years or four semesters of college 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 one).
- A view of science from a historical, philosophical, cultural, and sociological perspective; and
- 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 s.h.
- 57:3 Principles of Animal Biology  5 s.h.
- Electives in botany, microbiology, or zoology, including ecology, and physiology  14 s.h.
- 4:13-14 Principles of Chemistry I- II  6 s.h.
- 4:16 Principles of Chemistry Lab I  2 s.h.
- 4:21 Organic Chemistry I  3 s.h.
- Chemistry Electives  5 s.h.
- 12:3 Principles of Physical Geology  2 s.h.
- 12:4 Principles of Historical Geology  2 s.h.

**Chemistry Emphasis**

- 29:11 College Physics  4 s.h.
- Mathematics course at the level of 22M:11 or 22S:8 or higher  3-4 s.h.
- 97:103 Societal and Educational Applications of Scientific Concepts  3 s.h.

**Mathematics course at the level of 22M:11 or 22S:8 or higher  3-4 s.h.

**Application of Science**

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.
- 97:126 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.

**Environmental Studies Emphasis**

- 4:14-15 Principles of Chemistry I- II  5 s.h.
- 4:16 Principles of Chemistry Lab I  2 s.h.
- 2:1 Introduction to Botany  4 s.h.
- 32:3 Principles of Animal Biology  5 s.h.
- 37:126 Fundamental Genetics  3 s.h.
- 33:122 Ecology and Behavior  4 s.h.
- Electives in Biology  7 s.h.
- 97:144 Problems in Integrating the Teaching of Environmental Science  3 s.h.
- Electives in geology, geography, environmental engineering, and/or environmental health courses  15 s.h.

**Chemistry Emphasis**

- 4:13-14 Principles of Chemistry I- II  5 s.h.
- 4:16 Principles of Chemistry Lab I  2 s.h.
- 4:21 Organic Chemistry I  3 s.h.
- 4:111 Physical Chemistry I  3 s.h.
- 4:141 Organic Chemistry Laboratory  2 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 Chemical Concepts 3 s.h.

**Application of Science**

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 sequence just outlined must be earned in 100-level courses.

**Physics Emphasis**
28:11-12 College Physics 8 s.h.
or
28:17-18 Introduction Physics I & II 8 s.h.
28:19 Introductory Physics III 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.
4:16 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 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 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:
Graduate Programs

The Science Education Program offers graduate studies leading to the degrees Master of Arts in Teaching, Master of Science, Educational 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 | 9 s.h. |
| Science Specialization | 20-25 s.h. |
| Correlative 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. |
| Correlative Studies | 3-6 s.h. |
| Minimum Total | 32 s.h. |

Doctor of Philosophy

| Advanced Science Education | 24 s.h. |
| Research Doctorate | 10 s.h. |
| Science Specialization | 28 s.h. |
| *Correlative 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 computerized materials for awareness conferences and workshops.

In addition, Iowa-ASSIST administers a fall Science and Education Conference that attracts more than 360 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 enrolling 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 teaching
- Science education research
- Educational technology
- Computer-assisted learning
- Simulation systems
- Classroom interaction studies
- Creativity
- Piagetian development psychology
- Cross-cultural experiences
- Health education
- Instructional psychology
- Teacher behavior
- Mathemagiciant activity
- Inquiry processes
- Instructional modes
- 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 cooperation. A sizable number of foreign students is enrolled. The faculty has been invited to extend periods of time 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 basement of 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, an office for coordinating the Science Education Program, 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 faculty of the program; laboratory for the elementary school science methods course; and two large teaching laboratories.

The seventh floor includes central offices for the history and philosophy of science faculty of the science education and secondary school teacher education programs; a self-instructional laboratory for graduate students; a library of materials; a library, a large seminar room with seating facilities for the staff; a computer center for the secondary teacher education sessions; including many facets of the Iowa UPSET* program; multiple offices for graduate students; a common area for small group discussion 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.

Primary for Undergraduates

9702 Cooperative Education Internship 5.0 h.
9717 Fundamentals of Science 4.0 h.
9718 Modern Scientific Inquiry: a survey of laboratory investigations drawn from physical, life, and earth sciences; focus on problem solving and measurement skills. Applicable to natural sciences general education requirement.
9728 Investigations in Science an 3.0 h.
9747 Science Survey 3.0 h.
9748 Science Survey 4.0 h.
9758 Science Foundations I 3.0 h.
9761 Science Foundations II 3.0 h.
9778 Honors Research Project 3.0 h.
9714A Science Foundations 3.0 h.

For Undergraduates and Graduates

97135 Societal and Educational Applications of Earth Science Concepts 3.0 h.
97139 Societal and Educational Applications of Biological Concepts 3.0 h.
97140 Societal and Educational Applications of Geology Concepts 3.0 h.
97145 Societal and Educational Applications of Physical Concepts 3.0 h.
97160 Societal and Educational Applications of Chemical Concepts 3.0 h.
97161 Societal and Educational Applications of Scientific Concepts 3.0 h.
97162 Sociology of Science Education 3.0 h.
97163 Developmental Education 3.0 h.
97164 Individual Education 3.0 h.
97165 Health Education 3.0 h.
97166 Science Methods 3.0 h.
97167 Science Education 3.0 h.
97168 Science Education 3.0 h.
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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**

30.11 Introduction to American 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 Racism or 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 8–12 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
Business
Economics
Education
English
History
Home Economics
Journalism
Political Science
Psychology
Recreation Education
Religion
Sociology
Spanish

**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 2.25 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 with 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 understand the dynamics of human development and change; commit themselves to making human service organizations responsive to people; understand the linkages between the society and the individual; and acquire 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 advisors, they plan 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 with advanced standing may expect to complete the program in three or four semesters (i.e., the summer session or fall semester following fall admission). Students requiring the entire 60 semester hours after 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 College generally requires. The student may elect a thesis option for credit, and the final examination is the oral defense of the thesis. Either the advanced research requirement or the final examination project/thesis must be related to the concentration selected.

The following in an outline of the M.S.W. degree requirements:

**Core Courses**

42.113 Human Behavior in the Social Environment 3 s.h.
42.114 Social Work Practice I 3 s.h.
42.115 Social Work Practice II 3 s.h.
42.144 Social Work Research 3 s.h.

**Other Required Courses**

42.202 Social Change, Social Development, and Social Work 2 s.h.
41.127 Social Work and Racism 2 s.h.
42.119 Social Work and Discrimination 2 s.h.
42.366 Advanced Research 2 s.h.
Required advanced practice courses:
42.203 Interpersonal Communication and Change 3 s.h.
42.204 Human Services Administration 3 s.h.
42.201 Community Organization 3 s.h.
Concentrations/Generalist options:

- Concentrations (Individual, Family, and Small Group Services; Human Services Administration; Social Development); three additional courses in the concentration selected

Generalists: one course in each of the three concentrations

- Practicum Seminar 12 s.h.
- Practicum Seminar 12 s.h.
- Final Exam/Thesis 0–6 s.h.
- Thesis 10–13 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 suit 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 Quad Cities satellite centers. Regular Social Work faculty are available for student advising and teaching all required courses.

The centers have three main purposes: to (1) educate the professional group of full-time students by providing greater diversity of practicum opportunities; to (2) offer the professional group of degree in social work geographically accessible to students unable to relocate to Iowa City; and to (3) 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 of the full-time opportunities are available in state government offices, child and family agencies, mental health programs, and a variety of other settings. The Quad Cities Center 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 center also provides a wealth of practicum opportunities unavailable in Iowa City. Regular group work, planning, agencies serving racial and ethnic minorities, and programs for the elderly are just a few examples. Students relocating in the Quad Cities also have the opportunity to commute to the Des Moines for some classes and special events.

The Siouxland Center, located in Sioux City in the northwest corner of the state, provides opportunities for part-time degree study and continuing education. It is different from the others in that a full program is unavailable there.

Intensive, short-term, split session courses are offered on the Iowa City campus in the summer months, and in the other centers taking on-campus courses.

Part-Time Program

The School of Social Work has one of the largest part-time programs in the nation. Admission and degree requirements are the same as for full-time students. The program enables single parents, working people, and others unable to pursue a degree on a full-time basis to complete the program. Part-time students complete the program in no more than twelve semesters with only two semesters of full-time registration (nine semester hours or more).

Students may complete the part-time program in Iowa City, or in the Quad Cities or Des Moines Centers. The Siouxland Center also provides opportunities for part-time study toward the master's degree, although students cannot complete the entire program there. They must complete at least 12 semester hours of course work on the main campus or at the Des Moines Center.

Joint Degree and Special Programs

The school has formal agreements with the College of Law and the Department of Urban and Regional Planning for joint degrees. Students must be accepted to each department through its regular admissions process. Twelve semester hours in each program are applied to requirements of the other, thus reducing the time it would normally take to pursue two degrees. Individual arrangements may be made with other departments.

Students have pursued joint degrees with the College of Business, the College of Education, the American Studies Program, School of Religion, School of Journalism and Mass Communication, and others. Students are encouraged to consult with their departments to ensure that they are pursuing joint degrees.

Other special projects students may select include the National Resource Center on Family-Based Services, operated by the school, the School of Social Work Gerontology Program, and the Institute on Urban and Community Development.

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.
- A 3.0 grade-point average for the junior and senior years of undergraduate study, or for 12 semester-hour of transfer 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.
4201 Community Organization
3 cr.
Concepts and principles of interaction in communities, and the ability to organize community action for sustained change. Emphasizes the process of identifying and analyzing issues and situations, and designing and implementing strategies for change. Prerequisites: 4214G, 4211G, 4214, or consent of instructor.

4210 Social Change, Social Development, and Social Work
3 cr.
Examines major historical forces, social philosophies, and social movements in the United States. Critical social work history within the context: explore social work development as an approach to social change. Prerequisites: 4210G, or consent of instructor.

4211 Interpersonal Communication and Change
3 cr.
Examines principles generated by communication systems, systemic, family and psychodynamic theory, presents a macroframe for understanding change, and provides a foundation for analyzing process and interpreting social change. Emphasizes the development of personal qualities and skills in analyzing problematic situations and in relationships, implications for change interventions. Prerequisites: 4210G, or consent of instructor.

4212 Macro Social Systems Analysis
3 cr.
Selected theories of organization, methods of organizing, assessment of visions and values issues and values issues in human service organizations, personal and social admirable attributes. Differential social group in an organization, Prerequisites: 4210G, 4241G, 4214G, or consent of instructor.

4213 Political Science
3 cr.
An advanced seminar reviews theoretical and empirical literature on women and management and develops skills in identifying problems for women administrators, Prerequisites: 4224G or consent of instructor.

4216 Group Leadership in Human Services
3 cr.
Theoretical issues and research findings, as they relate to individual small group process and outcomes, with emphasis on individual, interpersonal, and group process. Experiences in small groups and individual interviews serve as group facilitator for human services. Prerequisite: 4214G or consent of instructor.

4217 Introduction to Social Policy
3 cr.
Legal systems, topics, and issues related to legislative processes, the impact of political and social systems on issues of social action, The issue of social policy, The role of the social policy analyst, social issues for human services. Prerequisites: 4211G or consent of instructor.

4218 Family Policy
3 cr.
Theories of policy, values, policies, and programs affecting families and families of the U.S. with an emphasis on public policy factors and their integration, Prerequisite: 4211G or consent of instructor.

4219 Social Policy Issues Health Care
3 cr.
Analysis of major health issues in the United States, with an emphasis on the public health system, the socioeconomics-political contexts of ideology, government, cost and access to health care, Prerequisites: 4210G, 4214G, or consent of instructor.

4220 Social Policy Issues Human Services
3 cr.
addresses students' knowledge of social policy, awareness, awareness of major processes, and the role of government in the human services field. Prerequisites: 4210G, 4214G, or consent of instructor.

4221 Social Policy Issues in Health Care
3 cr.
Studies in health care issues, such as health care systems, significant physical, psychosocial, economic, cultural, and societal factors affecting health care, and the role of government in the health care field, Prerequisites: 4210G or consent of instructor. Same as 4220.

4222 Psychosocial Dimensions of Health
3 cr.
A study of the psychosocial factors in the development of physical, psychosocial, emotional, cultural, and societal factors affecting health, health care, and illness behavior. Prerequisites: 4210G or consent of instructor.

4223 Theories of Personality
3 cr.
Theories of personality providing an overview of the history of Western theories and the empirical factoring of personality and the cognitive model of each theory as related to practice, Prerequisites: 4210G, or consent of instructor.

4227 Human Development Through the Life Cycle
3 cr.
Psychological development of the individual from conception to death, theoretical issues in personality development, and the impact of social and biological influences on the development, Prerequisites: 4210G or consent of instructor.

4228 Group Dynamic Practice
3 cr.
Developing a skills base in group counseling with emphasis on interpersonal development, group structure and process, and the techniques of group work, Prerequisites: 4210G, or consent of instructor.

4229 Working with Groups
3 cr.
Introduces students to groups as a social institution, and explores the interpersonal and social psychological processes of group work, Prerequisites: 4210G or consent of instructor.

4230 Children's Growth and Development
3 cr.
The historical development of the child, topics in child development, and the application of developmental theories to practice, Prerequisites: 4210G or consent of instructor.

4231 Health Teaching
3 cr.
An introduction to health teaching, including principles of health teaching, methods of health education, and application of health education, Prerequisites: 4210G or consent of instructor.

4232 Theory and Practice of Group Counseling
3 cr.
Theoretical and practical issues involved in providing professional social work services in various settings, Prerequisites: 4210G, or consent of instructor.

4233 Research Methods
3 cr.
An introduction to research methodology, and research methods and techniques, Prerequisites: 4210G or consent of instructor.

4234 Intervention with Individuals
3 cr.
Strategies for working with individuals, and the use of empirical evidence to support practice, Prerequisites: 4210G or consent of instructor.

4235 Children of Women
3 cr.
Children of women, and the impact of social policy on women, and the integration of social work practice, and human services. Prerequisite: 4211G or consent of instructor.

4236 Human Aging
3 cr.
Human aging process, the aging process, and the impact of social policy on the elderly, relationships, and the integration of social work practice, and human services. Prerequisite: 4211G or consent of instructor.

4237 Family Therapy
3 cr.
An overview of family therapy, and the impact of social policy on family therapy, Prerequisites: 4210G or consent of instructor.

4238 Administrative Theory
3 cr.
An introduction to administrative theories and their impact on social work practice, Prerequisites: 4210G or consent of instructor.

4239 Research Methods
3 cr.
An introduction to research methodology, and research methods and techniques, Prerequisites: 4210G or consent of instructor.

4240 Cultural Supervision and Consultation in the Human Services
3 cr.
An advanced seminar appearing theories in human services supervision. Presents a framework for decision making, planning, coordinating, and evaluating, Prerequisites: 4210G or consent of instructor. Same as 4254.

4241 Group Development
3 cr.
Development of practical skills in group work, group building, and the application of group principles, Prerequisites: 4210G or consent of instructor.

4242 Group Process
3 cr.
An introduction to group work, and the application of group theories and techniques to group intervention, Prerequisites: 4210G or consent of instructor.

4243 Social Work with Children
3 cr.
Theories, methods, and techniques of social work with children, and the application of social work practice, Prerequisites: 4210G or consent of instructor.

4244 Social Work with Adolescents
3 cr.
Introduction to social work with adolescents, and the application of social work practice, Prerequisites: 4210G or consent of instructor.

4245 Social Work with Families
3 cr.
An introduction to social work with families, and the application of social work practice, Prerequisites: 4210G or consent of instructor.

4246 Professional Ethics and Practice
3 cr.
Theories and practices of professional ethics and practice, Prerequisites: 4210G or consent of instructor.

4247 Social Work with People in Groups
3 cr.
Theories and practices of social work with groups, and the application of social work practice, Prerequisites: 4210G or consent of instructor.

4248 Social Work with Older People
3 cr.
Theories and practices of social work with older people, and the application of social work practice, Prerequisites: 4210G or consent of instructor.

4249 Social Work with Children
3 cr.
Theories and practices of social work with children, and the application of social work practice, Prerequisites: 4210G or consent of instructor.

4250 Social Work with Adolescents
3 cr.
An introduction to social work practice with adolescents, and the application of social work practice, Prerequisites: 4210G or consent of instructor.

4251 Social Work with Families
3 cr.
An introduction to social work practice with families, and the application of social work practice, Prerequisites: 4210G or consent of instructor.

4252 Social Work with Groups
3 cr.
An introduction to social work practice with groups, and the application of social work practice, Prerequisites: 4210G or consent of instructor.

4253 Social Work with People in Groups
3 cr.
An introduction to social work practice with people in groups, and the application of social work practice, Prerequisites: 4210G or consent of instructor.

4254 Cultural Supervision and Consultation in the Human Services
3 cr.
An advanced seminar appearing theories in human services supervision. Presents a framework for decision making, planning, coordinating, and evaluating, Prerequisites: 4210G or consent of instructor. Same as 4237.

4255 Social Work with Children
3 cr.
An introduction to social work practice with children, and the application of social work practice, Prerequisites: 4210G or consent of instructor.

4256 Social Work with Adolescents
3 cr.
An introduction to social work practice with adolescents, and the application of social work practice, Prerequisites: 4210G or consent of instructor.

4257 Social Work with Families
3 cr.
An introduction to social work practice with families, and the application of social work practice, Prerequisites: 4210G or consent of instructor.

4258 Social Work with Groups
3 cr.
An introduction to social work practice with groups, and the application of social work practice, Prerequisites: 4210G or consent of instructor.

4259 Social Work with People in Groups
3 cr.
An introduction to social work practice with people in groups, and the application of social work practice, Prerequisites: 4210G or consent of instructor.

4260 Professional Ethics and Practice
3 cr.
Theories and practices of professional ethics and practice, Prerequisites: 4210G or consent of instructor.

4261 Social Work with Children
3 cr.
An introduction to social work practice with children, and the application of social work practice, Prerequisites: 4210G or consent of instructor.
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 many fields, such as social services, criminal justice, personnel, applied social research, community organization services, and social science teachers 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 or related fields 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, preferably from 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 s.h.)
- 34:2 Introduction to Sociology: Problems (3 s.h.)
- 34:12-1 Theory, Research, and Statistics (6 s.h.)
- 34:12-2 Electives (15 s.h.)

The student should complete the two-semester theory and research course work early, to maximize his or her capacity to benefit from the other sociology courses.

In addition to the sociology requirements listed above, most majors in sociology acquire the following:

- 28:113 Introduction to Symbolic Logic (3 s.h.)

or

- 28:104 Introduction to Philosophy of Science (3 s.h.)
- 28:25 Elementary Statistics and Inference (3 s.h.)

One of these three combinations:

- 28:10 Fundamentals of College Mathematics I (4 s.h.)
- 28:11 Fundamentals of College Mathematics II (4 s.h.)
- 28:12 Fundamentals of College Mathematics III (4 s.h.)
- 28:20 Elementary Functions (3 s.h.)
- 20:21 Introduction to Programming with PASCAL (4 s.h.)
- 20:22 Programming Techniques and Data Structures (3 s.h.)

Students with exceptionally strong high school backgrounds in mathematics may substitute 28:12-28 Calculus I 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 fields: 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 their 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:

1. At departmental requirements for either a B.A. or a B.S. degree:

   - Two related fields 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 an exceptional level. To qualify for the Honors Program, students must have a grade-point average of 3.55 overall and in sociology courses. The Honors Program 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 program (34:100), one upper level honors course (see 34:193), 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 34:2 Introduction to Sociology: Principles, introduction to Sociology: Problems for a double 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 emphasis and prepares specialists for positions in college teaching or research in academic, private, or governmental positions; 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 or 36 semester hours without thesis. The program without thesis is intended for persons who desire a terminal degree and for whom a wider range of course content in sociology is appropriate. As candidates for the M.A. degree must complete 34:201 History of Sociological Theory, 34:202 Methodology I, 34:214 Elementary Statistics and Data Analysis, and 34:215 Sampling, Measurement, and Observation Techniques, with grades of B or higher.
M.A. 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 sophisticated work in this field. Therefore the student may select 12 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, considerable 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; thus a low faculty-student ratio is maintained. Facilities are available with local criminal justice agencies. Successful completion of this graduate program requires a minimum of 38 credit hours, 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. Up to 9 hours may be credited toward the J.D., even though these hours are also credited toward an M.A. in sociology.

At the discretion of the student's M.A. committee, the College of Law 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 normally 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 also pass comprehensive examinations and write a dissertation.

All doctoral candidates are examined in the basic tool areas of sociology— theory, history of 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 the right to select graduate students for its graduate curriculum requirements for admission, and that 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 admission should be directed to the chair, Admissions Committee, Department of Sociology, 1111 University Avenue, University of Illinois at Urbana-Champaign. The M.A. program in criminal justice and corrections requires a B.S. or B.A. degree, a grade-point average of 2.75 and a total score of 1000 from the quantitative plus verbal sections of the GRE Aptitude Test. Enrollment in this program is currently limited to five admissions per year. A descriptive publication is available at the department office.

Graduate Financial Aid

The Department of Sociology offers three types of awards to graduate students: teaching assistantships, research assistantships, and teaching/research fellowships. Resident tuition is charged to out-of-state students who receive awards. Students who receive assistantships will be expected to work 20 hours 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, three research project rooms, and the Iowa Urban Community Research Center (IUCRC). The Research Laboratory consists of 18 rooms specifically designed for social and psychological research. The facilities include a small-group laboratory complex with audio and video equipment; two IBM PCs controlling eight subject terminals; and an apparatus shop. The IUCRC maintains a research library and data banks. Surveys in the data bank are accessible for secondary analysis. See the "Research Activities" section of the Catalog). Access to the University's main computers is available because of convenient remote facility (ten 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, 34:13, 34:30, and 34:120. All other undergraduate courses are open to freshmen with stated prerequisites.

34:06 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 juniors. May be repeated. Prerequisites: Completion of Program and approval of supervisor.

36:1 Introduction to Sociology: Principles

Examination of how individuals are organized into social groups, ranging from intimate groups to international superstates. Emphasis is on the development of sociological concepts and the application of these concepts to the study of social behavior; and to the understanding of social relations, roles, and institutions. The course is intended for students of all majors.

36:1 Social Problems: Problems

Emergence and distribution of selected social problems; alternative solutions; social problems may include population, inequality, female male relationships, rural crime.

36:19 Theory, Research, and Statistics

Statistical methods and mathematical models used in sociological research are discussed. Special emphasis is given to descriptive and inferential statistics used in research design, with application to tests of significance and the interpretation of results. Prerequisites: 26:222 and a grade of A or B in sociology.

36:11 Understanding Social Science Research and Methods

Logic and strategy of social science research methods: emphasis on basic methods; logical validity of generalizations; comparison of sociological, psychological research and the role of theory in research. This course is designed to enable students to be critical consumers of social science research.

36:50 Water in Society

Environmental impact on society: water aspects of international, structural, and institutional perspectives. Prerequisites: introductory sociology or equivalent, or consent of instructor.
3430 Seminar in Political Sociology 3 s.h.
3432 Social Distribution 3 s.h.
3433 Seminar: Social Stratification 3 s.h.
3435 Research Seminar 3 s.h.
3437 Labor and Work 3 s.h.
3439 Sociology and Economic Development 3 s.h.
3450 Seminar: Social Institutions 3 s.h.
3510 Seminar: Structural & Social Mobility 3 s.h.
3516 Seminar: Occupational Structure 3 s.h.
3600 Seminar: Urban Sociology 3 s.h.
3620 Complex Organizations 3 s.h.
3625 Special Problems 3 s.h.
3626 Seminar: Issues in Social Control 3 s.h.
3640 Seminar: Empirical Research Methods 3 s.h.
3650 Seminar: Graduate Research Seminar 3 s.h.
3650 Seminar: Graduate Research Seminar 3 s.h.
4681 Independent Reading and Research Projects 3-12 s.h.
4690 Seminar in Research 3 s.h.
4693 Supervised field work (For sociology majors) 3-12 s.h.
4999 Master's Thesis 3-12 s.h.
5099 Doctoral Dissertation 3-12 s.h.

Spanish and Portuguese

Department Chair: Thomas E. Lewis
Faculty, professors: Julio Aburto-Caño, Duncan Ferrer-Meléndez, José García, Bruce Harkavy, Ana L. Hernández, Robert Hofmann, R. Thomas Hough, Enrique Ramírez Barrios, Renato Fial, Carmen Joffe, Philip Kren, Thomas E. Lewis, Ana María Mesa, John Rice, assistant professor: María Duarte, Diana Vela
Faculty, instructors: assistant professor: Diogo da Fonseca
Undergraduate Director: Professor Ana de la Torre
Graduate Advisor: Professor Ana de la Torre

The Department provides course work for undergraduate and graduate majors in Spanish or Portuguese for the satisfaction of foreign language requirements for baccalaureate and advanced degrees in other fields, and for the satisfaction of the second language requirement for undergraduate majors in 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 translating.

Undergraduate Programs in Spanish

First- and second-semester Spanish courses introduce the four performance objectives—understanding, speaking, reading, and writing—through a four-skill model and 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 or writing orientation or an emphasis on reading, writing, and content analysis.

Major in Spanish

The undergraduate major in Spanish consists of 30 semester hours of required course work, according to the following program:

Language (12 s.h.)
35-117 Third-Year Spanish Language I 4 s.h.
35-118 Third-Year Spanish Language II 4 s.h.
35-137 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:
35-101 Renaissance and Golden Age Literature 3 s.h.
35-102 Modern Spanish Literature 3 s.h.
35-103 Contemporary Spanish American Fiction 3 s.h.
35-104 Spanish American Poetry 3 s.h.
35-105 Spanish American Drama 3 s.h.
35-106 Short Story of Spanish America 3 s.h.
35-107 Spanish American Literature of Fantasy 3 s.h.
35-110 Survey of Pre-Twentieth Century Spanish American Literature 3 s.h.

35-111 Literature of the Discovery and Conquest of Spanish America 3 s.h.
35-112 Contemporary Latin American Novel and Short Story 3 s.h.
35-116 Representative Spanish American Novels 3 s.h.
35-144 Surveys of Twentieth Century Puerto Rican Literature 3 s.h.
35-150 Twentieth-Century Spanish Women Writers 3 s.h.
35-151 Nineteenth-Century Spanish Writers 3 s.h.
35-180 Representative Spanish Writers Since the Civil War 3 s.h.
35-181 Spanish Novels Since the Civil War 3 s.h.
35-192 Masterpieces of Modern Spanish Literature 3 s.h.
35-190 Representative Works of Golden Age Fiction 3 s.h.
35-191 Representative Works of Golden Age Poetry and Drama 3 s.h.
35-192 Representative Works of the Romantic Genre 3 s.h.

Civilization (3 s.h.)
One of the following:
35-114 Spanish Civilization 3 s.h.
35-115 Spanish American Civilization 3 s.h.

Electives (6 s.h.)
The electives may include one course in Portuguese (with exception of 35-1 and for a maximum of more than four more than four four semester hours credit or of any number course 35-100 or above) and an additional from the following courses may not be elected to fulfill major requirements. The following courses may not be elected to fulfill major requirement.
35-126 Spanish Language Practicum 3 s.h.
35-129 Basic Program for Foreign Language Computer-Assisted Instruction 3 s.h.
35-131 Language Laboratory Equipment Program 3 s.h.
35-136 Language Teaching Practicum 3 s.h.
35-154 Advanced Elementary Spanish 3 s.h.
35-155 Accelerated Intermediate Spanish 3 s.h.

One course given in English may be taken to satisfy the four 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 Arts are also required, as is one semester of practice teaching, taken in the junior year.

Spanish and Portuguese
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 toward 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 or in a bilingual program are encouraged to complete language study through 35:107 Fourth-Year Language 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 may be transferred from other institutions toward the requirements for the major 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 space is reserved in these and other foreign study programs may be available toward the requirements for the major or minor in Spanish.

Honors

Admission to the honors program in Spanish requires a minimum 3.0 overall grade-point average and a minimum 3.2 average in Spanish. Graduation with honors in Spanish requires, in addition to the 30 semester hours major described above, four semester hours in courses taken at the 100-level and 35:125 Chicano Literature, 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 incorporate 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:

- 38:1 Elementary Portuguese I 4 s.h.
- 38:2 Elementary Portuguese II 4 s.h.
- 38:100 Accelerated Portuguese 0-5 s.h.
- 38:111 Intermediate Portuguese I 3 s.h.
- 38:112 Intermediate Portuguese II 3 s.h.
- 38:114 Intermediate Intermediate Portuguese 3 s.h.

Required Courses (15 s.h.)

- 35:122 Topics in Portuguese Language 3 s.h.
- 35:114 Culture and Civilization of the Portuguese-Speaking World 3 s.h.
- 35:109 Brazilian Literature I 3 s.h.
- 35:110 Brazilian Literature II 3 s.h.
- 35:117 Introduction to Portuguese Literature 3 s.h.

Two of the Following Courses (6 s.h.)

- 35:121 Portuguese for the Professions 3 s.h.
- 35:122 Latin American Language 3 s.h.
- 35:123 Brazilian Fiction 3 s.h.
- 35:124 Romance Literature 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 are also acceptable. (e.g. Art, Anthropology, Comparative Literature, Geography, History, Latin American Studies, Linguistics, Sociology).

Minor in Portuguese

The undergraduate minor in Portuguese consists of 16 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 humanities and foreign civilization and culture general education requirements with 35:90 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 do background readings in the language before enrolling in the required senior seminar. For further information on the Latin American Studies Program see "Latin American Studies Program" in the Catalog.

Master of Arts in Spanish

Candidates for the M.A. degree must have completed the equivalent of the undergraduate Spanish major. Defenses may be scheduled with the appropriate course work.

Required Course Work

Spanish phonology (either 35:157 Spanish Phonology or phonology component of 35:208)

35:208-209 Graduate Spanish Linguistics (4-6 s.h.)

35:225 Convertible Don Quijote 3 s.h.

35:230 Seminar in Teaching 1 s.h.

35:251 Medieval Spanish Literature I 3 s.h.

35:253 Historical Ibero-Romance Language 2 s.h.

35:260 Golden Age literature 3 s.h.

35:261 Medieval Spanish Literature II 3 s.h.

35:262 Spanish-American Literature 3 s.h.

Electives bringing student's total to the required minimum of 36 semester hours in the major.
The student is also responsible for the work listed in the departmental reading list.

**Maximum Study Loads**

Maximum course registration is 15 contact hours for the fall of spring semesters, and 8 graduate semester hours during the summer sessions. One-quarter and one-third time teaching assistants are permitted to register for the maximum study loads. One-half time teaching assistants may register for not more than 12 semester hours in the fall or spring semesters, and for not more than six semester hours during the summer sessions. Additional hours may be taken only with Graduate College approval.

**Transfer Credit**

A maximum of nine semester hours of graduate credit in approved courses may be transferred from other institutions toward the 38-semester-hour requirement for the M.A. degree.

**Teaching Certification**

Exclusion of the practice-teaching requirement, graduate students may take the courses necessary for secondary teaching certification while completing M.A. requirements in the department.

**Examinations**

Three written examinations and one oral examination are given. For the written examinations, the student must include at least one topic each from the following three areas:

1. Spanish and Hispanic-American literature
2. Modern European or Golden Age Literature
3. Modern Spanish-American, Spanish American, or Luso-Brazilian literature

**Doctor of Philosophy in Spanish**

Two doctoral programs are available. One is dedicated to Hispanic literatures. Both programs require an extensive examination the candidate must become well-acquainted with another Romance language literature (a Portuguese-Brazilian program is especially recommended). Complete the equivalent of a year of college Latin, and demonstrate a reading knowledge of another approved foreign language. Qualifying examinations, to be taken during the second semester of residence of all students who wish to work for a M.A. work was done at other institutions, consist of a two-hour written examination covering two to four literary works, or one major literary work and authoritative criticism of the works; as previously determined by the student and the department; an oral examination, and a research paper prepared at The University of Iowa.

The second doctoral program provides for specialization in Spanish linguistics and literature with emphasis on

**Linguistics.** Before his or her comprehensive examination, the candidate must complete a course in linguistics and the equivalent of three semesters of college Latin, and demonstrate a graduate-level knowledge of a second approved foreign language and a reading knowledge of a third approved foreign language.

In both programs, course work and individual reading must be designed to give the candidate a thorough knowledge of the Spanish language, its literature, and related civilization, from medieval to modern times; provide adequate experience in a second Romance language; and develop the candidate’s capacity for critical analysis of literary texts.

The following fields together with the departmental doctoral reading list are considered a basic minimal program for the doctoral degree. The requirement may be fulfilled by acceptable studies at another institution except that seminar requirements must be satisfied at The University of Iowa or by the courses at the University of Iowa indicated in parentheses. The requirement may be met by independent reading and examination. The candidate is encouraged to pursue further studies in these and other areas, in line with his or her particular interests and in order to improve employment opportunities.

**Program I: Emphasis on Literature**

**History of the Spanish Language and Medieval Literature**

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<th>Course</th>
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<tr>
<td>35:251 Medieval Spanish Literature</td>
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<td>35:265 Histories of Spanish Culture</td>
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<td>35:235 History of the Romance Languages</td>
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<td>35:240 Medieval, Renaissance and Baroque Perspectives</td>
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<td>35:257 Lyric Poetry of the Golden Age</td>
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<td>35:256 Medieval, Renaissance and Golden Age Spanish Poetry</td>
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<td>35:262 The Picaresque Novel</td>
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</tbody>
</table>

**Golden Age Literature**

<table>
<thead>
<tr>
<th>Course</th>
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</thead>
<tbody>
<tr>
<td>35:235 Drama of the Golden Age</td>
</tr>
<tr>
<td>35:236 Cervantes’s Don Quixote</td>
</tr>
<tr>
<td>35:227 Fiction of the Golden Age</td>
</tr>
<tr>
<td>35:228 Masterpieces of Renaissance and Baroque Literature</td>
</tr>
<tr>
<td>35:238 Lyric Poetry of the Golden Age</td>
</tr>
<tr>
<td>35:256 Medieval, Renaissance and Golden Age Spanish Poetry</td>
</tr>
<tr>
<td>35:262 The Picaresque Novel</td>
</tr>
</tbody>
</table>

**Modern Peninsular Literature**

Three of the following (at least one course must be selected in each of the two centuries; a seminar may be substituted for one of the courses, provided the two-century stipulation is met):

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>35:220 Nineteenth-Century Spanish Novel</td>
</tr>
</tbody>
</table>

**Latin American Literature**

Five courses (12 semester hours) selected from a minimum of three of the following areas:

**Area A**

35:245 Novel of the Mexican Revolution | 3 s.h. |
| 35:271-273 Spanish American Novel of the Twentieth Century | 9 s.h. |

**Area B**

35:232 Spanish American Essays and Thinksers | 3 s.h. |
| 35:242 Spanish American Literature of the Nineteenth Century | 3 s.h. |
| 35:266 Images of War in Latin American Literature | 3 s.h. |

**Area C**

35:251 Latin-Post Modernist Spanish American Poetry | 3 s.h. |
| 35:257 Latin American Poetry of the Twentieth Century | 3 s.h. |
| 35:257 Modernism | 3 s.h. |
| 35:300 Latest Currents in Spanish American Poetry | 3 s.h. |
| 35:276 Spanish American Love Poetry | 3 s.h. |

**Area D**

35:231 Spanish American Drama | 3 s.h. |
| 35:245 Spanish American Short Story | 3 s.h. |
| 35:235 Spanish American Short Story of Fantasy | 3 s.h. |
| 35:265 Masters of Spanish American Short Story | 3 s.h. |

**Area E**

Course in Brazilian literature | 3 s.h. |

**Contemporary Linguistics**

35:208-209 Graduate Spanish Linguistics I-II | 8 s.h. |
| 35:157 Spanish Phonology I or Phonology component of 35:208 | 3 s.h. |

**Literary Theory**

35:284 Types of Modern Criticism | 3 s.h. |

**Professional Training**

35:211 Research Methods and Bibliography | 2 s.h. |
Phonology component of 35:208
Graduate-level phonetics/phonology
3 s.h.
35:208-209 Graduate Spanish
Additional graduate linguistics
2 s.h.
(see additional seminars below)

Literary Theory
35:284 Types of Modern
Criticism
3 s.h.

Professional Training
35:292 Research Methods and
Bibliography
2 s.h.
35:232 Seminar in Teaching
1 s.h.

Seminars
Two 300-level seminars in
Spanish linguistics
4 s.h.
taken at The University of Iowa

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.

The length of time during which the doctoral examinations are taken is determined by the candidate. They may be taken during the course of a semester or limited to a shorter period. One four-hour and four-hour-three hour written examinations are administered, followed by a two and a half hour oral examination covering the candidate’s main field of study (45 minutes), the remaining fields (60 minutes total), and the Ph.D. reading list (last 6 months).

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 status and performance meet departmental standards, he or she will continue to receive support over a four-year period of time, but usually not over five years. A sound working relationship with the 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 slide/lecture radioradios, tape recorders, player recorders, soundproof recording rooms, two- and six-channel tape recorders providing a simultaneous master duplicate and student record, an electronic classroom, a soundproof work room, a 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 language 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- or second-semester class. A student with two or more years of high school Spanish will be placed in a second-year class. Proposal for enrolling entering students should consult a departmental advisor. Students wishing to advance 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 is its equivalent or prerequisite.

10:10 Spanish for Non-Spanish Speakers 6 s.h.
10:11 Elementary Spanish I 6 s.h.
10:12 Elementary Spanish II 6 s.h.
10:13 Intermediate Spanish I 6 s.h.
10:14 Intermediate Spanish II 6 s.h.
10:15 Advanced Spanish I 6 s.h.
10:16 Advanced Spanish II 6 s.h.
10:17 Advanced Spanish III 6 s.h.
10:18 Advanced Spanish IV 6 s.h.
10:19 Advanced Spanish V 6 s.h.
10:20 Advanced Spanish VI 6 s.h.
10:21 Advanced Spanish VII 6 s.h.
10:22 Advanced Spanish VIII 6 s.h.
10:23 Advanced Spanish IX 6 s.h.
10:24 Advanced Spanish X 6 s.h.
10:25 Advanced Spanish XI 6 s.h.
10:26 Advanced Spanish XII 6 s.h.
10:27 Advanced Spanish XIII 6 s.h.
10:28 Advanced Spanish XIV 6 s.h.
10:29 Advanced Spanish XV 6 s.h.
10:30 Advanced Spanish XVI 6 s.h.
10:31 Advanced Spanish XVII 6 s.h.
10:32 Advanced Spanish XVIII 6 s.h.
10:33 Advanced Spanish XIX 6 s.h.
10:34 Advanced Spanish XX 6 s.h.
10:35 Advanced Spanish XXI 6 s.h.
10:36 Advanced Spanish XXII 6 s.h.
10:37 Advanced Spanish XXIII 6 s.h.
10:38 Advanced Spanish XXIV 6 s.h.
10:39 Advanced Spanish XXV 6 s.h.
10:40 Advanced Spanish XXVI 6 s.h.
10:41 Advanced Spanish XXVII 6 s.h.
10:42 Advanced Spanish XXVIII 6 s.h.
10:43 Advanced Spanish XXIX 6 s.h.
10:44 Advanced Spanish XXX 6 s.h.
10:45 Advanced Spanish XXXI 6 s.h.
10:46 Advanced Spanish XXXII 6 s.h.
10:47 Advanced Spanish XXXIII 6 s.h.
10:48 Advanced Spanish XXXIV 6 s.h.
10:49 Advanced Spanish XXXV 6 s.h.
10:50 Advanced Spanish XXXVI 6 s.h.
10:51 Advanced Spanish XXXVII 6 s.h.
10:52 Advanced Spanish XXXVIII 6 s.h.
10:53 Advanced Spanish XXXIX 6 s.h.
10:54 Advanced Spanish XXXX 6 s.h.
10:55 Advanced Spanish XXXXI 6 s.h.
10:56 Advanced Spanish XXXXII 6 s.h.
10:57 Advanced Spanish XXXXIII 6 s.h.
10:58 Advanced Spanish XXXXIV 6 s.h.
10:59 Advanced Spanish XXXXV 6 s.h.
10:60 Advanced Spanish XXXXVI 6 s.h.
10:61 Advanced Spanish XXXXVII 6 s.h.
10:62 Advanced Spanish XXXXVIII 6 s.h.
10:63 Advanced Spanish XXXXIX 6 s.h.
10:64 Advanced Spanish XXXX 6 s.h.
10:65 Advanced Spanish XXXXI 6 s.h.
10:66 Advanced Spanish XXXXII 6 s.h.
10:67 Advanced Spanish XXXXIII 6 s.h.
10:68 Advanced Spanish XXXXIV 6 s.h.
10:69 Advanced Spanish XXXXV 6 s.h.
10:70 Advanced Spanish XXXXVI 6 s.h.
10:71 Advanced Spanish XXXXVII 6 s.h.
10:72 Advanced Spanish XXXXVIII 6 s.h.
10:73 Advanced Spanish XXXXIX 6 s.h.
10:74 Advanced Spanish XXX 6 s.h.
10:75 Advanced Spanish XXXI 6 s.h.
10:76 Advanced Spanish XXXII 6 s.h.
10:77 Advanced Spanish XXXIII 6 s.h.
10:78 Advanced Spanish XXXIV 6 s.h.
10:79 Advanced Spanish XXXV 6 s.h.
10:80 Advanced Spanish XXXVI 6 s.h.
10:81 Advanced Spanish XXXVII 6 s.h.
10:82 Advanced Spanish XXXVIII 6 s.h.
10:83 Advanced Spanish XXXIX 6 s.h.
10:84 Advanced Spanish XXX 6 s.h.
10:85 Advanced Spanish XXXI 6 s.h.
10:86 Advanced Spanish XXXII 6 s.h.
10:87 Advanced Spanish XXXIII 6 s.h.
10:88 Advanced Spanish XXXIV 6 s.h.
10:89 Advanced Spanish XXXV 6 s.h.
10:90 Advanced Spanish XXXVI 6 s.h.
10:91 Advanced Spanish XXXVII 6 s.h.
10:92 Advanced Spanish XXXVIII 6 s.h.
10:93 Advanced Spanish XXXIX 6 s.h.
10:94 Advanced Spanish XXX 6 s.h.
10:95 Advanced Spanish XXXI 6 s.h.
10:96 Advanced Spanish XXXII 6 s.h.
10:97 Advanced Spanish XXXIII 6 s.h.
10:98 Advanced Spanish XXXIV 6 s.h.
10:99 Advanced Spanish XXXV 6 s.h.
10:100 Advanced Spanish XXXVI 6 s.h.
Portuguese Courses

301 Elementary Portuguese I 4 h.
302 Elementary Portuguese II 4 h.
Pre-requisite: 301 or equivalent.
303 Intermediate Portuguese I 3 h.
Pre-requisite: 302 or equivalent.
304 Intermediate Portuguese II 3 h.
Pre-requisite: 303 or equivalent.
305 Advanced Intermediate Portuguese 3 h.
Pre-requisite: 304 or equivalent.
306 Advanced Portuguese I 3 h.
Pre-requisite: 305 or equivalent.
307 Advanced Portuguese II 3 h.
Pre-requisite: 306 or equivalent.
311 Brazilian Portuguese 2 h.
Pre-requisite: 307 or equivalent.
312 Advanced Portuguese Culture and Civilization 3 h.
Pre-requisite: 307 or equivalent.
313 Special Work 2 h.
Pre-requisite: consent of dean or chair.

301 Elementary Portuguese I

Introduction to the language of Brazil primarily designed for students with prior experience in other foreign languages; training in comprehension, speaking, writing, and reading modern Brazilian Portuguese, with an emphasis on speaking and writing.

302 Elementary Portuguese II

Pre-requisite: 301 or equivalent.

303 Intermediate Portuguese I

An introduction to the language of Brazil primarily designed for students with prior experience in other foreign languages; training in comprehension, speaking, writing, and reading modern Brazilian Portuguese, with an emphasis on speaking and writing.

304 Intermediate Portuguese II

Pre-requisite: 303 or equivalent.

305 Advanced Intermediate Portuguese

Pre-requisite: 304 or equivalent.

306 Advanced Portuguese I

Pre-requisite: 305 or equivalent.

307 Advanced Portuguese II

Pre-requisite: 306 or equivalent.

311 Brazilian Portuguese

Pre-requisite: 307 or equivalent.

312 Advanced Portuguese Culture and Civilization

Pre-requisite: 307 or equivalent.

313 Special Work

Pre-requisite: consent of dean or chair.

314 Brazilian Portuguese I

Pre-requisite: 301 or equivalent. Empirical study and practice of modern Brazilian Portuguese. Includes study of the language of Brazil, pronunciation and vocabulary, and review of the Romance languages spoken in the Americas.

315 Brazilian Portuguese II

Pre-requisite: 302 or equivalent.

316 Brazilian Literature I

The study of the language of Brazil, beginning with the emergence of the modern language, covering all aspects of the language spoken in Brazil, including the various dialects and the influence of other languages.

317 Brazilian Literature II

The study of the language of Brazil, covering all aspects of the language spoken in Brazil, including the various dialects and the influence of other languages.

318 Introduction to Portuguese Literature

Pre-requisite: 301 or equivalent.

319 Brazilian Literature: A Multiliteracy Course

A comprehensive study of the language of Brazil, covering all aspects of the language spoken in Brazil, including the various dialects and the influence of other languages.

320 Language, Culture, and Society in the Portuguese- Speaking World

Pre-requisite: 318 or equivalent.

321 Portuguese for Professionals

Pre-requisite: 316 or equivalent.

322 Portuguese for Professionals

Pre-requisite: 316 or equivalent.

323 Portuguese Language and Literature

Pre-requisite: 316 or equivalent.

324 Portuguese Language Practice

Pre-requisite: 316 or equivalent.

325 Portuguese Language Practice

Pre-requisite: 316 or equivalent.

326 Portuguese Language Practice

Pre-requisite: 316 or equivalent.

327 Portuguese Language Practice

Pre-requisite: 316 or equivalent.

328 Portuguese Language Practice

Pre-requisite: 316 or equivalent.

329 Portuguese Language Practice

Pre-requisite: 316 or equivalent.

330 Portuguese Language Practice

Pre-requisite: 316 or equivalent.

331 Portuguese Language Practice

Pre-requisite: 316 or equivalent.

332 Portuguese Language Practice

Pre-requisite: 316 or equivalent.

333 Portuguese Language Practice

Pre-requisite: 316 or equivalent.

334 Portuguese Language Practice

Pre-requisite: 316 or equivalent.
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:

15:16 Introduction to Speech and Hearing Processes and Disorders 3 s.h.
105:119 Articulatory and Auditory Phonetics 3 s.h.
31:110 Anatomy of Speech and Hearing Mechanisms 3 s.h.
31:112 Fundamentals of Speech Science 3 s.h.
31:113 Introduction to Hearing Science 3 s.h.
31:117 Psychology of Language I 3 s.h.
31:118 Psychology of Language II 3 s.h.
29:113 Introduction to Audiology 3 s.h.
7P:143 Introduction to Statistical Methods 3 s.h.
31:161 Elementary Psychology or
31:162 General Psychology 4 s.h.
One additional course in psychology, anthropology, or sociology 3 s.h.

Child Psychology
One of the following: Courses marked with * are preferred.
31:14 Introduction to Child Psychology 3 s.h.
31:103 Development of Children's Social Behavior 3 s.h.
31:110 Learning and Motivation in Children 3 s.h.
31:112 Development of Social Behavior in Children 3 s.h.
31:114 Cognitive Development of Children 3 s.h.
31:148 Individual Differences in Developmental Psychology 3 s.h.
31:120 Growth and Development of the Young Child 3 s.h.
7P:141 Development or a course of comparable content 3 s.h.

Psychology of Personality
One of the following:
31:13 Introduction to Clinical Psychology 3 s.h.
31:116 Personality 3 s.h.
31:116 Psychology of Sex Differences 3 s.h.

31:163 Abnormal Psychology 3 s.h.
31:165 Behavior Disorders in Children 3 s.h.
31:170 Behavior Modification or a course of comparable content 5 s.h.

Students seeking a bachelor's degree must also complete or have had the equivalent of college algebra and trigonometry, college physics dealing with light and sounds, and a college course in the biological sciences.

Students are provided the opportunity and are encouraged to obtain 25 hours of clinical observation, a prerequisite for clinical practice. This requirement is satisfied by completion of 3:190 Introduction to Clinical Practice 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 graduation 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 3:597 Honors Seminar and 3:598 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/or 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. All M.A. programs with professional emphasis will meet the requirements for state-level 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 involvement in seminars (at 2 s.h. each) and/or research hours. Completion of the research hours registration may consist of work toward a thesis, or 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 professional emphasis will be required to take at least one written comprehensive examination.

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 coursework in the professional M.A. program. Additionally, the student's M.A. program are 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 fulfills requirements under I below, and, depending on specific interests, the courses listed under 2, 3, 4, or 5, below.

1. Offered as 3:116 Neural Processes of Speech and Language 3 s.h.
3:185 Hearing Loss and Audiology
4 s.h.
3:214 Developmental Language Disorders
3 s.h.
3:244 Rehabilitative Audiology
3 s.h.
"C" Counselor for Related Professions
3 s.h.
or
3:100 Counseling Theories and Techniques
3 s.h.
3:510 Seminar Introduction to Research in Speech and Hearing
0 s.h.
Advanced seminars or research
4 s.h.
Additional semester hours of practicum registration sufficient to meet supervised, direct clinical experiences toward the Certificate of Clinical Competence of the American Speech-Language-Hearing Association, and to provide broad supervisory practicum experience.
*Equivalent undergraduate course will be accepted as meeting requirements.
3. Speech-Language Pathology, General Clinical Emphasis Courses listed under 1 and 2.
1:183 Studying
3 s.h.
3:212 Voice Disorders
2 s.h.
3:329 Neuropathology of Speech and Language
3 s.h.
3:337 Oral Pathology and Related Disorders
2 s.h.
Additional practicum, research, and elective courses.
7:101 Remedial Methods in Speech and Hearing
2 s.h.
7:102 Laboratory Practice in Elementary School
5 s.h.
Additional practicum, research, and elective courses.
4. Audiology, General Clinical Emphasis Courses listed under 1 and 2.
3:120 Fundamentals of Audiology
3 s.h.
3:140 Manual Communication Skills
1 s.h.
3:240 Clinical Audiology and Hearing Aids
4 s.h.
3:241 Advanced Audiology
3 s.h.
3:242 Clinical Audiology and Hearing Aids
4 s.h.
3:245 Audiologic Procedures for Special Populations
5 s.h.
Additional practicum, research, and elective courses.
5. Audiology, School Hearing Clinician Courses listed under 1 and 4.
7:104 Remedial Methods in Speech and Hearing
2 s.h.
7:105 Laboratory Practice in Elementary School
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 must meet the certification requirements of the states in which they plan to work. Completion of the following courses, in addition to those listed under 3 or 5 above, will meet the certification requirements of Iowa and most other states:
7:101 Human Relations for the Classroom Teacher
3 s.h.
7:104 Remedial Methods in Speech and Hearing
2 s.h.
7:106 Laboratory Practice in Elementary School
3-5 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 their disorders. Students with diverse backgrounds in the natural and behavioral sciences are encouraged to apply and develop their skills in an atmosphere of interdisciplinary research.

The program develops the broad interests and diverse backgrounds of the faculty. It is in speech-language-hearing, engineering, physiology, physics, psychology, linguistics, and audiology; and is committed to an interdisciplinary approach to questions at all levels of the speech and language production/perception system. The course of study in the doctoral program is to provide the integrated knowledge necessary for a productive career in the field of speech-language pathology and audiology, communication sciences, 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 of study will be developed from the courses offered in this department, those in other departments (e.g., physics, engineering, psychology, mathematics, statistics, computer science, and audiology) are expected 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 purely by the student and the student's faculty committee.

Doctoral students who have not written a master's thesis must complete the equivalent of a master's thesis project before, or as a part of, the comprehensive examination in the doctorate, and must successfully complete and submit a dissertation based on original research.

3:120 Fundamentals of Audiology
3 s.h.
2:201 Principles of Voice Production
3 s.h.
3:216 Language Acquisition
3 s.h.
3:216 Psychology of Language
3 s.h.
2:220 Advanced Laboratory Audiology
3 s.h.
2:324 System and Signal Theory for Speech and Hearing
3 s.h.
3:230 Speech Perception
3 s.h.
3:250 Audiology
5 s.h.
3:268 Physiological of Hearing
4 s.h.
3:315 Psycholinguistics
4 s.h.
3:330 Seminar: Articulation and Language Disorders
3 s.h.
3:341 Seminar: Slurring
3 s.h.
3:350 Seminar: Speech and Language Skills of the Mentally Handicapped
2 s.h.
3:352 Seminar: Voice
2 s.h.
3:352 Seminar: Cleft Palate
3 s.h.
3:352 Seminar: Rehabilitative Audiology
2 s.h.
3:352 Seminar: Neuroanatomical Aspects of Speech and Language
2 s.h.
3:350 Seminar on Communication and Aging
2 s.h.
3:352 Seminar: Speech Science
2 s.h.
3:353 Seminar: Psycholinguistics
2 s.h.
3:353 Seminar: Psycholinguistics
2 s.h.
3:353 Seminar: Experimental Audiology
2 s.h.
3:353 Seminar: Clinical Audiology
2 s.h.
3:353 Seminar: Auditory Perception and Communication
2 s.h.
3:350 Research
1 s.h.

Students in the Ph.D. program are normally expected to register for research credit during each semester of required course work and to participate in 3:515 Practicum. Knowledge in each of the areas of hearing, speech-language, mathematics, statistics, computer science, and audiology is expected 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 purely by the student and the student's faculty committee.

Doctoral students who have not written a master's thesis must complete the equivalent of a master's thesis project before, or as a part of, the comprehensive examination in the doctorate, 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 applications for admission or to graduate study in the Department of Speech Pathology and Audiology must comply with 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 toelhoang, the department admits few applicants with undergraduate grade-point averages below 3.5.

Completed applications must be received no later than February 1 for enrollment in the next summer session or fall semester. Later applications will be considered only if the department chair so designates.

Applicants to Ph.D. Program
Completed applications should be received at least two months prior to the beginning of the term for which applicants plan to be considered. Applications for the summer session should be received by April 1 for summer session, July 1 for fall semester, 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.

Applications will usually be notified of admission within six weeks after their applications are complete.

Applications for Graduate Appointments
The information applies to all financial arrangements administered by the department.

Graduate appointments usually begin only in fall semester. Students beginning study in the spring semester or summer session are considered for appointments for the following fall semester.

Grades on the Graduate Record Examination (GRE) and Graduate Aptitude 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.

Clinical Facilities
The clinical training program offers great benefits 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 and hearing disorders and audiometry.

The University of Iowa Affiliate Speech and Hearing Services include the University of Iowa Speech and Hearing Clinic: the division of speech and hearing in the Department of Otologyngn—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 Psychology, 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 for speech, hearing, and language problems, and a 52-week 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, clinical training may be acquired in supervised clinical practice with elementary and secondary school programs. Arrangement with the various state Area Education Agencies; and in supervised clinical practice in speech and hearing services provided by the Department of Otolaryngology—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.

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 include an audiological audiometric mixing suite, 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, psychophysiologic, and neuropsychologic 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 of research and 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

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Description</th>
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<tbody>
<tr>
<td>380</td>
<td>Speech Pathology and Audiology Cooperative Education Arrangement</td>
<td>3.0 credit hours. Cooperative program in cooperation with the College of Pharmacy. Focus on a cooperative study in educational, psychological, and administrative functions of audiology. Completes 380 Cooperative Education Arrangement.</td>
</tr>
<tr>
<td>390</td>
<td>Introduction to Hearing and Learning Processes</td>
<td>3.0 credit hours. Introduction to the study of human learning and behavior processes in speech, language, and auditory function in infants and young children.</td>
</tr>
<tr>
<td>391</td>
<td>Honors Seminar</td>
<td>3.0 credit hours. Seminar in speech, language, and auditory behavior as fields of scientific study. Development of major areas of speech, hearing, and language disorders.</td>
</tr>
<tr>
<td>394</td>
<td>Honors Thesis</td>
<td>3.0 credit hours. Preparation of a thesis paper covering research on a problem in speech-language pathology and audiology. Open only to honors students.</td>
</tr>
<tr>
<td>398</td>
<td>Counseling Theories and Techniques</td>
<td>3.0 credit hours. An introduction to counseling and psychological theories as they relate to assessment and management of communication disorders. Techniques in counseling with emphasis on the development of specific techniques to treat client counseling.</td>
</tr>
<tr>
<td>399</td>
<td>Anatomy of Speech and Hearing Mechanisms</td>
<td>3.0 credit hours. Anatomy of the structures involved in the production of speech and hearing mechanisms; section on general neurology.</td>
</tr>
<tr>
<td>399</td>
<td>Fundamentals of Special Science</td>
<td>3.0 credit hours. Introduction to special sciences, physical, psychological, and educational characteristics of the various disabilities. Introduction to laboratory data and methods.</td>
</tr>
<tr>
<td>399</td>
<td>Normal Auditory Function</td>
<td>3.0 credit hours. Normal auditory function, including audiometric measurement, analysis of auditory brainstem responses, and psychophysics.</td>
</tr>
<tr>
<td>399</td>
<td>Speech and Language</td>
<td>3.0 credit hours. Basic anatomy and physiology of the nervous system as related to speech and language disorders. Introduction to the speech and language communication disorders. Approaches to treatment and management of speech and language disorders.</td>
</tr>
<tr>
<td>399</td>
<td>Speech and Language</td>
<td>3.0 credit hours. Introduction to the normal and abnormal development of language. Analysis and discussion of language and the role of the brain in language development.</td>
</tr>
<tr>
<td>399</td>
<td>Phonetics and Language</td>
<td>3.0 credit hours. Introduction to phonetics, phonetics, and phonetics terminology. Introduction to the normal and abnormal development of language. Analysis and discussion of language and the role of the brain in language development.</td>
</tr>
<tr>
<td>399</td>
<td>Phonetics and Language</td>
<td>3.0 credit hours. Introduction to phonetics, phonetics, and phonetics terminology. Introduction to the normal and abnormal development of language. Analysis and discussion of language and the role of the brain in language development.</td>
</tr>
</tbody>
</table>
1501 Student: Bethany
1.5 h
Introductory examination (skeletal structure and functions). Requires: Preadmission. 
1502 Student: Speech and Language Skills of the Mentally Handicapped
1.5 h
Study of speech and language development in normal and mentally handicapped children. Requires: Preadmission. 
1503 Student: Social Work
1.5 h
Systematic study and critical evaluation of social work practices. Requires: Preadmission. 
1504 Student: Geri-Pediatric
1.5 h
In-depth individual study of the problems and issues related to the elderly. Requires: Preadmission. 
1505 Student: Paralegal
1.5 h
Individual study of the legal environment and practice related to the legal environment. Requires: Preadmission. 
1506 Student: Neurophysiology of Speech and Language
1.5 h
Individual study of speech and language disorders. Requires: Preadmission. 
1507 Student: Economics
1.5 h
In-depth exploration of the economic principles related to speech and language disorders. Requires: Preadmission. 
1508 Student: Psychology
1.5 h
In-depth study of the psychology of speech and language disorders. Requires: Preadmission. 
1509 Student: Experimental Audiology
1.5 h
Individual study of the experimental approaches to speech and language disorders. Requires: Preadmission. 
1510 Student: Clinical Audiology
1.5 h
In-depth study of the clinical approaches to speech and language disorders. Requires: Preadmission. 
1511 Research: Speech Pathology
1 h
Independent student research. Requires: Preadmission. 

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**Statistics and Actuarial Science**

See "Division of Mathematical Sciences."

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**Urban and Regional Planning**

Program Chair: David J. Finsterkorn
Associate Professor: Jon W. Fuller, James L. Harris, Andrew W. Thompson, Ewell P. Fair, David J. Finsterkorn, James W. Smokey
Adjunct Professor: Andrew A. Zuckerman
Degree offered: M.A. and M.S.

Planning encompasses the development of policy alternatives to improve the quality of life in cities and regions. Planners devise courses of action in response to a variety of problems and opportunities, and assess the likely outcomes of these actions. Planners are involved in diverse issues such as land use, transportation, housing, environmental quality, public services, and economic development. The University of Iowa planning program is a two-year master's program recognized by the American Planning Association. One of the few in the nation to approach planning from the perspective of policy analysis, the program focuses on six areas of the field within the same framework (represented by the core curriculum), independent of disciplines between physical planning, social planning, or economic planning. This approach enables students to acquire the essential theoretical understanding and practical skills necessary to be effective planners, regardless of their chosen areas of specialization. An independent academic unit administratively affiliated within the Graduate College, the program has benefited from an opportunity to develop its curriculum and faculty interests without the constraints imposed by affiliation with another discipline or professional field.

Faculty and students in the planning program at The University of Iowa bring to each other a wide range of experience and prior education, which is reflected within the faculty, on the basis of previous training, including planning, architecture, public policy, economics, operations research, geography, engineering, political science, and law. The program's students have diverse undergraduate majors, including economics, political science, geography, architecture and landscape architecture, environmental sciences, engineering, anthropology, sociology, urban studies and planning, English, history, classics, and philosophy. Almost half of the program's 65 graduate students are women, one-third are married, and two-thirds are from out-of-state. Largely because of the common core of courses students get to know each other, and a significant portion of the educational experience takes place in informal planning groups.

Recent graduates of The University of Iowa planning program have assumed positions at city, metropolitan, and regional planning agencies, and in state and federal government. The past several years' graduates took oaths in all group-units regulating the United States and in several foreign countries.

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**Curriculum Structure**

The planning curriculum comprises a 48-semester-hour, four-semester (plus internship) program encompassing two academic fields. The curriculum is based on the general philosophy that planners must develop the theoretical and analytical skills that permit them to identify issues and recommend alternative ways for resolving these issues, as well as the professional skills (e.g., report writing, presentations and briefings, team management that allow them to function effectively in various organizations and political environments. Students thus become well versed in such tools as economic theory, quantitative methods, information presentation techniques, and approaches for group involvement.

**Core Curriculum**

At the heart of The University of Iowa planning program is a unique and integrated core curriculum, which occupies the first academic year. Its purpose is to provide a rigorous foundation for analyzing public and social issues.

The function of the core is to develop a common knowledge base about the various social, economic, political, administrative, and legal systems—that provide the context for policy analysis and constrain public choices; a capability for identifying social and normative criteria for organizing society's resources; and analytic skills, both quantitative (e.g., statistical, forecasting, decision analysis) and nonquantitative (e.g., scenario writing, judgment assessment). In total, the core accounts for 27 semester hours.

**Core Courses**

First Semester
102/205 Economics for Policy Analysis
102/200 History and Theories of Planning
102/209 Urban Law and Legislation
102/210 Introduction to Analytic Methods

Second Semester
3 h

Third Semester
3 h

Fourth Semester
3 h
Second Semester
102:204 Collective Decision Making 3 s.h.
102:018 Economics for Policy Analysis 4 s.h.
102:220 Intermediate Analytic Methods 3 s.h.
102:300 Information Presentation 2 s.h.

Third Semester
102:210 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 practice 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 creative 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 directed 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, health, environmental quality, urban services, regional development, and urban management—and others can be designed by the student, subject to faculty approval.

Sectional majors are organized around public policy 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 examines skills and concepts with answers 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 two 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 helping students to secure these internships. Alternatively, the student may elect to complete an additional two semester hours of credit, bringing the total to 55 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 A.M. 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. Separate 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 A.M. or M.S. in Planning in a total of five 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 gained 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 A.M. 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 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. The degree is reduced by one year from the separate requirements of the two programs. Separate admissions to both academic units are required.

Social Work
A concurrent studies program is offered between the Urban and Regional Planning Program 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 needs involved in social service delivery. Twelve semester hours of credit in planning are accepted toward an M.S.W., and 12 semester hours of credit in social work are accepted toward an M.A. in Planning. Separate admissions to both academic units are required.

Transportation
The transportation research and training program is offered through the Center for Transportation Studies. A transportation fellowship program is awarded to students in academic graduate departments or programs within the University who successfully complete a prescribed set of courses in transportation. These courses are taught in the planning program and several other units on the campus. The fellowship allows students with sectoral majors in planning, transportation, and other fields to combine these interests and obtain an additional credential. For particulars, see "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 and undergraduate scholarships, research assistantships, and internships in local agencies. All but tuition scholarships require from 10 to 20 hours of work per week, under the direction of a faculty member or professional planner. Tuition minute applications for financial support, and awards are made on the basis of merit, experience, and interests. In recent years the program has been successful in providing support to a majority of enrolled students.
Transportation Studies

Transportation is among the most vital needs of modern society. In the U.S., as in every other nations, numerous critical transportation problems and issues exist. The Transportation System is reaching an advanced stage of its life cycle, public transit operating deficits are magnifying, the quality of the transportation network needs to meet the needs of many citizens is unacceptable low, serious financial imbalances exist and extensive changes in transportation administrations are occurring. Transportation planners and analysts increasingly will need 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, what we shall supply can all of the means, principles, or methods needed to address the varied and complex problems in transportation. Recognizing this fact, three academic units within The University of Iowa participate in an interdisciplinary transportation program. The Department of Civil and Environmental Engineering, the Department of Geography, and the Graduate Program in Urban and Regional Planning have established a graduate certificate program, which enables students in these academic units to obtain an additional 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 in conjunction with 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 course materials, 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 seven semester hours of credit, or through a 30-semester hour thesis 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 defended at 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**

59:263 Urban Transportation Planning 3 s.h.
150:260 Transportation Policy and Planning 3 s.h.

59:134 Methods of Transportation Analysis 3 s.h.
59:311 Transportation Seminar 3 s.h.
59:261 Ph.D. Program in Transportation Engineering 3 s.h.
59:456 T.R. McDowell Modeling of the following courses:
59:156 Transportation, Environmental Engineering M.S. Thesis 3 s.h.
59:146 Transportation Elaboration 3 s.h.
59:166 Transportation Exercise 3 s.h.
59:188 Individual Investigations in Civil and Environmental Engineering 3 s.h.
59:199 Research Civil and Environmental Engineering M.S. Thesis 3 s.h.
59:216 Technical Elective 3 s.h.

Technical electives typically are advanced courses in engineering operations research, computer-aided design, or economics. Specific course requirements are sufficiently flexible to conform to a student's graduation schedule and desired area of specialization. Applications should be made through the Graduate College and the Department of Civil and Environmental Engineering.

Geography

The Department of Geography offers the M.A. and Ph.D. degrees in geography. The specialization in transportation studies 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 quantitative methods courses, and four additional courses in geography or economics. The M.A. degree is available with or without a thesis. If a thesis is prepared, it can substitute for two of the courses. Students who have studied calculus as undergraduates can complete the master's program in four semesters. Students who have not studied calculus may choose research or teaching assistantships may require an additional one or two semesters to complete the program.
A typical master's level program includes the following courses:

**First Semester**

EI183 Statistical Methods in Economics 3 s.h.
44201 Geographical Analysis I 2 s.h.
10290 Transportation Policy Seminar 3 s.h.
44350 Research Seminar Staff 1 s.h.

**Second Semester**

62184 Methods of Quantitative Economics 3 s.h.
102261 Problems in Transportation and Land Use 3 s.h.
44402 Geographical Analysis II 2 s.h.
44350 Research Seminar Staff 1 s.h.

**Third Semester**

62203 Microeconomics I 3 s.h.
53262 Urban Transportation Planning 3 s.h.
44324 Methods of Transportation Analysis 3 s.h.
44350 Research Seminar 1 s.h.

**Fourth Semester**

44226 Travel Demand Modeling 3 s.h.
55170 Deterministic Operations Research 3 s.h.
44295 Regional Development: Theory and Policy 3 s.h.

Ph.D. students, in addition to taking the courses recommended for master’s study, are strongly encouraged to take advanced courses in areas such as econometric applications research, regional development, and location theory and analysis. Ph.D. students also are required to undertake original research leading to the preparation of a dissertation. A dissertation 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 in the context of a transportation planning curriculum and to develop an appreciation for the different policy levels at which transportation problems are addressed.
History
16:158 Society and Gender in Europe: 1450-1750
16:159 Society and Gender in Europe: 1750-1950
16:181 Women in America: Colonial Period to 1874
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 Psychological Research in Women in Sport
28:153 Sociology of Women in Sport
28:254 History of Women in Sports
Psychology
31:116 Psychology of Sex Differences
Religion
32:111 Religion and Women
Rhetoric
*10:3 Historical
Social Work
42:112 Human Sexuality
Same as 7C:112, 96:112
42:205 Women in Administration
42:236 Women and Therapy
42:273 Women and Social Change
Sociology
34:108 Women and Society
34:124 Courthage, Marriage, and Alternative Life Styles
34:168 Economic and Political Development: Women's Roles
Same as 110:138
34:155 Sociology of Sexuality; Contemporary Social Patterns
*Only certain sections of these courses are Women's Studies credits.

Women's Studies Courses
Women's Studies presently offers three interdisciplinary courses with the program's own number (131).

131:210 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 culture. The course will also consider the relationship of these disciplines and the historical development of our society. A survey of theoretical approaches and political perspectives will be considered. A major group project with a major paper on that project will be required.

131:219 Topics in Women's Studies 3 s.h.
Course varies, may be repeated with permission of instructor.

131:215 Federal Theory 3 s.h.
A survey of historical and contemporary federalism and its underlying political assumptions. A survey of political philosophies and political perspectives will be considered. A major project and a major final paper are required.

Undergraduate Program
The undergraduate degree program in zoology provides a liberal arts background for a career in biological science. Graduates may enter directly into graduate school or industry. The program also prepares students for certification or advanced degree programs leading to research, teaching (university, four-year college, 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 plans to which health-related professionals, or fields such as psychology, anthropology, and sociology, as well as students in other fields who have a natural interest in biological science.

A one-semester introduction, 37:3 Zoology, 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 minimum of 36 semester hours. A student may substitute 100-level courses in other areas of natural science or in mathematics (exclusive of the specific course requirements listed below) for up to 8 semester hours in the 36-semester-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)
Honor

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 worked in college or university teaching. A substantial number of students have completed their training with an M.S. degree. The remaining 20 percent of students are preparing for careers in research or industry, some of which require independent responsibility in performance or planning. Prior to registration in August, all new graduate students in zoology take a diagnostic examination covering topics in developmental biology, genetics, and physiology with an emphasis on cell biology, physiology, and evolution. On the basis of examination results, students may be excused from further work in one or all of the fields, 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. A student's degree committee will decide whether the student may waive certain parts 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, sometimes with joint sponsorship of the faculty in those departments. For information on the graduate student advisory, research in zoology is divided into several areas: development, biology, ecology, and behavior. Research topics are assigned to the student by the 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 to make up undergraduate deficiencies. After the thesis is accepted, the candidate must pass an oral examination based on the work reported in the thesis and on related subject matter.

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 10 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.

As a prerequisite, students are encouraged to take courses in zoology and other sciences beyond the required minimum.

Minor

A minor in zoology requires a minimum of 15 semester hours of zoology courses, of which 9 semester hours must be in advanced courses (numbered 100 or above). Any 3 semester hours of credit may be counted from 37:197 Honors Readings in Zoology, 37:198 Honors Seminar in Zoology, or 37:199 Introduction to Research.
to graduate courses in botany, and the
remaining seminars in the three
electives. 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/her departmental advisory
committee on the basis of the student's
takeback 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-biological knowledge of zoology and a
master of one or two specialized fields in
zoology.

The student's research culminates in his
or her preparation of a dissertation, which
must be approved by the department
before the student can take the final
examination. 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
tenure 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, interdepartmental
training programs in cell and molecular
biology and neurobiology. These
programs also support postdoctoral
fellows. Support through interdisciplinary
programs in genetics (predoctoral) and
cancer (predoctoral) is also available.

The department also participates in the
University-sponsored program of
teaching assistantships for biology.
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 marine
laboratories on the coasts, or at other
appropriate field stations.

Most graduate students receive assistantships for the following academic year that begin 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, since 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 (PRE) 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
undergraduate programs 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
research 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 capacity.

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
poles and concave ones, and those with
Nomarski optics. Special facilities exist for
computed image analysis. CENTUS, which consists of various sorts,
including refrigerated, high-speed, and ultra-high-speed centrifuges, are available.

Other special equipment includes
electrophoresis, gas-liquid and high-
pressure liquid, and chromatography
apparatus; electron microscopy and
recording equipment for
neurophysiological studies; a VAX
computer; and other desk-top computers,
gas-liquid and solid scintillation
and gamma counters for radiocative
tests and detections, and gas-liquid and
temperature units for various types of
measurable and growth studies;
and incubators; recording
ultraviolet and visible
spectrophotometers; densitometers;Coaler counters; instruments for
work in physical ecology; water tables, aquaria, and
specialized aquatic microorganisms; tissue culture rooms and
deals, and cold rooms. Laboratories are
also equipped with other advanced
work which calls for specialized biochemical,
biophysical, cytological, or other
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

331A10 Cooperative Education 5 s.h.

351 Introduction to Animal Biology 4 s.h.

351L10 Principles of molecular biology: cell
     biology, biochemistry, microorganisms, and animal development, evolution, and
     genetic and molecular analysis. This is an
     excellent first course in biology for pre-nursing,
     pre-dentistry, and speech pathology. It is not
     acceptable for students majoring in biological sciences
     but is acceptable for students majoring in non-biological sciences
     such as psychology, premedical studies, and pre-medical technology
     programs. Prerequisites: A 3-year requirement.

351 Principles of Animal Biology 5 s.h.

353 Animal behavior, organization, metabolism, cell
     differentiation, development, genetics, behavior, and communication in vertebrates.
     Selection for all courses open to students who have not had advanced courses in
     vertebrate biology is restricted to upperclassmen. Prerequisites: 353 or consent of
     instructor. 3 s.h. Primary for upperclassmen.

Elementary Topics of General Interest

These courses are not open to graduate
students. They cannot be taken for credit
by major in biology or zoology major.

354L10 Biology of the Brain 3 s.h.

354L10 Introduction to animal behavior 3 s.h.

354L10 Legal and medical aspects of animal behavior

354L10 Social structure and ecology of animal behavior

354L10 Evolution and animal behavior

354L10 Environment and behavior

354L10 Evolution and animal behavior

354L10 Social structure and ecology of animal behavior

354L10 Legal and medical aspects of animal behavior

354L10 Evolution and animal behavior

354L10 Environment and behavior

354L10 Evolution and animal behavior

354L10 Social structure and ecology of animal behavior

354L10 Legal and medical aspects of animal behavior

354L10 Evolution and animal behavior

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354L10 Social structure and ecology of animal behavior

354L10 Legal and medical aspects of animal behavior

354L10 Evolution and animal behavior

354L10 Environment and behavior

354L10 Evolution and animal behavior

354L10 Social structure and ecology of animal behavior

354L10 Legal and medical aspects of animal behavior

354L10 Evolution and animal behavior

354L10 Environment and behavior

354L10 Evolution and animal behavior
27.187 Lectures on Faculty Research 0.5 b.h.
No incoming graduate students required to attend. undergraduates seniors and other graduate students permission of instructor.

27.188 Field Biology 4 b.h.
Field experiences on plants or animals. Discussions, written reports. Prerequisite: consent of instructor.

27.199 Developmental Neurobiology 2 b.h.
Lectures, discussions, readings, reports on development of nervous system and sense organs, development of behavior, nerve growth and repair. Prerequisites: 27.119 or 27.129 or 27.168. Consent of instructor.

27.200 Seminar: Cell Structure and Function 2 b.h.
Lectures, readings, and reports covering current research. Development of organelles, comparative analysis of organelles. A seminar course covering the manipulation and integration of topological hypotheses and their relevance in research of cell function involves a central theme of investigation.

27.201 Virus and Organelle Assembly 1.5 b.h.
Reviews of literature with emphasis on current problems. Topics will include the assembly of tobacco mosaic virus, technique for isolation, individual organelles, structures, organization, procedures. Prerequisite: course work beyond 27.12, with some emphasis on biochemistry or genetics.

27.202 Protein in Cell Research 2.5 b.h.
A discussion, based on original research articles, of those areas in cell biology in which studies using protein have contributed to the general understanding. Prerequisites: genetics and/or biochemistry or cell physiology.

27.204 Topics in Developmental Biology 2 b.h.
Lectures, reports, and discussions of selected topics in developmental biology, with special current interest. Prerequisite: 27.12 or consent of instructor.

27.215 Pattern Formation in Development 2 b.h.
Problems of pattern formation of embryos and development of pattern in both multicellular and unicellular organisms. Prerequisite: consent of instructor.

27.216 Honors Laboratory Research 1.5 b.h.
For honors candidates.

27.217 Honors Readings in Zoology 1.0 b.h.
For honors candidates.

27.218 Honors Seminar in Zoology 1.0 b.h.
Discussions and readings centered on either single major topic or on regular lecture series. May be repeated.

27.219 Introduction to Research 1.0 b.h.
Primarily for seniors majoring in zoology. Prerequisite: consent of instructor.

27.221 Seminar: Animal-Plant Interaction 2.0 b.h.

27.223 Seminar: Ecological Witting and Criticism 2.0 b.h.
Same as 27.213.

27.225 Genetics Seminar 6.0 b.h.
Lectures, discussions, seminars on selected topics in genetics. May be repeated. Prerequisite: 27.129 or consent of instructor. Same as 91.216, 2.216, 98.215.

27.227 Seminar: Zoology 6.0 b.h.
Weekly lecture on current research. Invited speakers.

27.228 Cell Discrimination Techniques 5.0 b.h.
Lecture and laboratory on methods of tissue isolation, embedding, ultra-thick sectioning and staining, tissue use, maintenance of electron microscope, associated photographic techniques, case project required. Prerequisite: course in cell biology and consent of instructor. Same as 21.216, 91.216, 98.217.

27.229 Seminar: Endocrinology 5.0 b.h.
Selected topics of current research interest in basic physiology and biochemistry of hormone action. Prerequisites: 27.129 or equivalent.

27.230 Fundamentals of Tropical Biology on Ecological Approach 8.0 b.h.
A field course in Costa Rica sponsored by the Organization for Tropical Studies. Limited to 10
Whitman. One hour of laboratory per week. Prerequisite: permission of instructor. Offered in the spring and summer semesters.

27.320 Seminar: Ecology 2.0 b.h.
Current concepts in ecology. Prerequisite: 27.120 or consent of instructor.

27.322 Advanced Techniques in Light Microscopy 2.0 b.h.
Threed of modern techniques in light microscopy with some demonstrations: bright field, dark field, phase contrast, Nomarski, fluorescence.

27.327 Seminar: Echinodermata 2.0 b.h.
Current topics in evolutionary biology. May be repeated. Offered spring semesters. Prerequisite: graduate standing and consent of instructor.

27.328 Seminar: Behavior 2.0 b.h.
Discussions, readings, reports on topics relating to behavior and behavior-ecology. Prerequisite: a course in behavior, or consent of instructor.

27.329 Developmental Genetics 2.0 b.h.
Lectures, readings, discussions on gene action in development. Offered irregularly. Prerequisite: 27.120 or equivalent.

27.340 Seminar: Behavioral Genetics 2.0 b.h.

27.3711 Neuronal and Neurogenic Sciences Seminar 2.0 b.h.
Open student faculty discussion of current literature in neuronal and neurogenic sciences and behavior. Same as 51.215, 91.216, 92.216.

27.3712 Seminar: Cell Physiology 1.0 b.h.
Current topics studied through critical reading of the scientific literature. May be repeated. Prerequisite: 27.120 or consent of instructor.

27.373 Seminar in Cellulor and Molecular Biology 2.0 b.h.
Information transfer and regeneration, assembly and developmental processes, proteins and transport; presentation of research results by students. Topics selected from contemporary literature. Prerequisites: research training and other interests. Consent of the instructor. May be repeated. Same as 80.379, 81.373, 81.372, 92.273, mt 271.

27.3755 Seminar in Ecology: Genetics 2.0 b.h.
Selected topics in molecular genetics discussed with emphasis on current literature. Prerequisite: consent of instructor.

27.501 Seminar in Neurobiology 1.0 b.h.
Presentations of current literature. Prerequisite: consent of instructor.

27.594 Advanced Techniques in the Neurosciences 1.0 b.h.
Experimental and interdisciplinary courses presenting neurobiological techniques used in different research laboratories throughout the university. Prerequisite: consent of instructor. Same as 27.224, 91.216, 92.216.

27.597 Problems in Cell Biology Teaching 1.0 b.h.
Experiences in philosophy of teaching classes and examining in college-level biology courses. Prerequisites: graduate status.

27.598 Research: Zoology 1.0 b.h.

27.599 Independent Study in Zoology 1.0 b.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 activities 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 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 non-business 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, in all course work attempted at the University, in all business and economics course work attempted, in all business and economics course work attempted at the University, in all course work attempted in the major, and in all course work attempted at the University in the major.

Common Requirements

The B.B.A. candidate must satisfy these minimum common requirements:

- Rhetorical-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.
- Social psychology: 3 s.h.
- Quantitative methods: 8 s.h.
- 6A:1 Introduction to Financial Accounting: 3 s.h.
- 5A:2 Introduction to Managerial Accounting: 3 s.h.
- 6E:1 Principles of Economics: 4 s.h.
- 6E:2 Principles of Economics: 3 s.h.
- 6F:103 Introductory Financial Management: 3 s.h.
- 6M:100 Introduction to Marketing: 3 s.h.
- 6L:47 Introduction to Law: 3 s.h.
- 6L: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:

- 6L:165 Business Policy: 3 s.h.
- 6K:165 Business Policy: 3 s.h.
- 6F:128 Managing the New or Small Business: 3 s.h.
- 6K: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 departments 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 course 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.
(registered 324-7 or higher)
A statistics course 3 s.h.
(registered 220 or higher)
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 6M:100 Introduction to Marketing 3 s.h.
6F:100 Introductory Financial Management 2 s.h.
6L:100 Administrative Management 3 s.h.
6L:47 Introduction to Law 2 s.h.
"Must be taken in junior or senior year.
Interested students should complete or be registered for the first seven courses listed above by 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 implied 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基辅 basis with the consent of the advisor and department. However, a student may not count more than 16 semester hours of pass-fail or pass-nor基辅 credit in the last 60 semester hours of course work. Courses with the grades S, D, or D+ are not on passing or failing basis. Students who take the post-fall or pass-nor基辅 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 double regression is not involved, 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 the fall or spring semester. Second-semester sophomores may be admitted if an advanced placement score has been established. Unconditional admission requires at least a 2.25 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 and communication, psychology/sociology, quantitative methods, accounting and economics, and either historical-cultural or literature.

No more than 62 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. Persons not meeting the minimum requirements do not receive 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 by the College of Business Administration: Master in Arts (M.A.) in business administration, Master in 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 and modern economy.

The curriculum is designed for college graduates in any field. Previous courses 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, 62 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 500-level courses must be completed in residency 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 apply to the Undergraduate Program Committee to satisfy elective requirements in their undergraduate degree programs. Strategically selected course work may allow such students to complete a baccalaureate degree in four years and the M.B.A. degree in the fifth year.

Foundation Courses (27 semester hours)

6A:101 Financial Accounting—M.B.A. 3 s.h.
6E:100 Consumer and Firm Balance 3 s.h.
6E:151 National Income Analysis 3 s.h.
6E:152 Managerial Finance—M.B.A. 3 s.h.
6K:103 Computer Methods—M.B.A. 3 s.h.
6K:107 Quantitative Methods—M.B.A. 3 s.h.
6L:154 Management of Operations—M.B.A. 3 s.h.
6L:158 Society, Law, and Business—M.B.A. 3 s.h.
6M:190 Marketing Management—M.B.A. 3 s.h.
6A:151 Computer 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.
Integrated Core (18 semester hours)  
5A-214 Management Accounting — M.B.A.  
6K-261 Administrative Science — M.B.A.  
6K-265 Administrative Policy — M.B.A.  
6L-265 Administrative Policy — M.B.A.  
6K-271 Statistical Methods — M.B.A.  
6K-273 Managerial Economics — M.B.A.  
6K-276 Operations Research — M.B.A.  
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. The 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 total program is 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 professionals currently seeking advanced business education. The program is limited to experienced executives who wish 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 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 course combinations within the College of Business Administration or from outside the college.

All students in the M.A. program must satisfy the core curriculum of knowledge requirement of the American Assembly of the Collegiate Schools of Business (AACSB). 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 prerequisite 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.
- Business electives: 9 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 are 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 AACSB accredited programs) take 60 semester hours of course work. Additional course requirements may be imposed to guarantee satisfaction of business knowledge requirements or the Graduate College minimum total credit hour requirement (72 semester hours of graduate credit, including dissertation course work before entering the Ph.D. program).

Prerequisite Courses  
The common body of knowledge requirements of the AACSB must be satisfied by undergraduate or graduate courses. These include courses in accounting, finance, management, marketing, organizational behavior, quantitative methods, and the economic and legal environment pertaining to profit and/or nonprofit organizations.

Core Courses  
Core courses are designed to develop common foundation courses which provide necessary background for study in more specialized courses. Geleluate courses are required as follows: behavioral sciences (three semester hours), economics (six semester hours), issues in scholarly activity (three 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. Areas of study include 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
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 course
work taken, and official Graduate
Management Admission Test (GMAT)
scores to the Admissions Office, Calvin Hall.
Three letters of recommendation from
former employers should be submitted to
the Graduate Programs Office, College of
Business Administration.

Graduate Record Examination (GRE)
Applicants must submit GRE scores in
the Graduate Record Examination (GRE) in
the Graduate 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,
Cavin 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., 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.

The College of Business Administration
is located in Phelps 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.

Research Facilities
The Industrial Relations Institute is
located in the Union. The Institute is
funded by students and faculty
who conduct research in the
field of industrial relations.

Institute for Economic
Research
The Institute for Economic Research
conducts research in continuing economic research
and establishes a formal mechanism for
providing interaction with and economic
advice to industry and government.
The institute's research objectives are to:
Provide economic information, service,
and advice to a continuous basis to business
and to public agencies; to provide a state
total research and to enhance
economic research and teaching in
institutions.
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 science, 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.

48300 Cooperative Education Internship M.B.A. 5 S.H.
Writing for business careers. Restricted to M.B.A. candidates.

48201 Oral Communication Skills M.B.A. 5 S.H.
One presentation skills. Restricted to M.B.A. candidates.

Accounting

Department head: Russell J. Pletcher
Faculty professors: D. Barre, Darrel W. Colter, (Marvin Professor), Robert W. Ingram, Vaclav C. Lazarek, Russell J. Pletcher, Gerald W. Saklar, Stephen Mawer, Harold and Company Professor John H. Stein
Associate professors: Richard A. Grunow, Albert A. Schaefer
Associate professor: Renate Sue Campbell, Douglass V. C. Jung, Philip J. Moler
Degree offered: B.B.A., M.B.A., and Ph.D.

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 of students in conceptual, analytical, and communication skills required in the accounting profession. Students who wish to only undertake undergraduate-level preparation will take the Certified Public Accountant (CPA) or Certified Management Accountant (CMA) examinations at minimum completion of 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 1 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 semester, for current information regarding admission procedures, program requirements, electives, and optional course planning.

Program I
This program is for students completing their pre-professional program at The University of Iowa. An undergraduate student at The University of Iowa who wishes to apply for admission to the Professional Program in Accounting after competing 60 semester hours of college work, including the common requirements for the B.B.A. and M.A. first-year offerings and after earning grades of A or B in 8A: Introduction to Accounting and 8A: Introduction to Managerial Accounting, or the 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 of the Professional Program in Accounting are shown below together with the typical semester in which they are usually taken:
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:194 Managerial Accounting — M.B.A.
- 6A:115 Introduction to Taxation — M.B.A.
- 6A:122 Financial Accounting II — M.B.A.
- 6A:160 Price, Employment, and Production Theory
- 6A:193 Computer Methods — M.B.A.
- 6A:182 Management Finance — M.B.A.
- 6A:196 Marketing Management — M.B.A.
- 6A:197 Quantitative Methods — M.B.A.
- 6A:271 Statistical Methods — M.B.A.
- 6A:164 Law and Business

These are the typical second-year courses:

- 6A:144 Auditing
- 6A:220 Accounting Theory II
- 6A:231 Research in Taxation (or electives)
- 6A:230 Audit and Regulation of Accounting Practice (or electives)
- 6A:232 Control Systems (or electives)
- 6A:233 Control Systems (or electives)

*These courses are available upon admission to the third year of the program.

Program 2
This program is for students who have earned bachelor's degrees with a major field 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, 116 Calvin Hall, at The University of Iowa. Such students will normally be advised to take only the third year of the Professional Program (Program 3 above) to complete the M.A. degree.

Doctor of Philosophy
See "Interdepartmental Graduate Programs" at the front of this section of the Catalog.

Courses
Primarily for Undergraduates

- 6A:08 Cooperative Education Internship
- 6A:14 Introduction to Financial Accounting

Special Topics in Accounting
- Elective course for senior accounting majors; advanced topics in accounting, prerequisite: completion of first year of accounting.
- 6A:18 Financial Accounting — M.B.A.

Current practice and thought relating to external reporting by firm to its investors, creditors and
Undergraduate Majors

The bachelor's degree programs in Economics and Business Administration are designed to provide students with a broad understanding of the principles and practice of economic and business systems. These programs prepare students for a wide range of careers in government, business, and non-profit organizations, as well as for further study in graduate programs in economics, business, and related fields.

ECON 101: Introduction to Microeconomics
- The study of individual and business decision-making in a competitive market economy.

ECON 102: Introduction to Macroeconomics
- The study of aggregate economic activity, including national income, employment, and inflation.

ECON 201: Intermediate Microeconomics
- Advanced topics in microeconomics, including consumer behavior, market structures, and public choice.

ECON 202: Intermediate Macroeconomics
- Advanced topics in macroeconomics, including fiscal and monetary policy, and the business cycle.

ECON 301: International Economics
- The study of trade and finance between countries, including tariffs, currency exchange rates, and international financial institutions.

BUS 301: Business Administration
- An introduction to the principles and practice of business administration, including finance, marketing, and management.

BUS 401: Advanced Business Administration
- Advanced topics in business administration, including strategic planning, financial management, and human resource management.

Students in the Bachelor's degree programs in Economics and Business Administration may complete a minor in another field to complement their major. A minor may be completed within the same department as the major, or in a different department. A minor must consist of at least 18 credits, and must be approved by the Academic Dean.

For more information, please contact the Office of Academic Affairs or the Department of Business Administration.
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 contributes 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
EE-180 Mathematics for Economists I
EE-183 Statistical Methods in Econometrics
EE-203 Microeconomics I
EE-204 Macroeconomics I

Second Semester
EE-181 Mathematics for Economists II
EE-205 Microeconomics II
EE-206 Macroeconomics II

Third Semester
EE-211 Mathematical Economics I
EE-221 Economics I

Fourth Semester
EE-252 Econometrics II

An additional four semester hours in economic history, history of economic thought, or economic methodology are to be completed during the third year of residence. 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 in the major area courses.

Dissertation

The student must prepare 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: EE-1 and EE-2 may be taken in either order or they may be taken simultaneously; they satisfy the general education requirement in social sciences.

EE-140 Comparative Education Literature

EE-1 Principles of Economics

EE-1 Principles of Economics covers modern economic systems, risks of economic policies, and implications of economic hardship. All systems, international trade, and the general welfare. Prerequisite: satisfactory performance in University major's requirement.

EE-2 Principles of Economics

EE-2 Principles of Economics covers modern economic systems, risks of economic policies, and implications of economic hardship. All systems, international trade, and the general welfare. Prerequisite: satisfactory performance in University major's requirement.

EE-284 Economic Problems and Policy I

EE-284 Economic Problems and Policy I is aimed at students preparing for a career in political science, economics, business, or law. Prerequisite: satisfactory performance in University major's requirement.

EE-280 Economic History

Prerequisite: satisfactory performance in University major's requirement.

EE-281 Economic History II

EE-281 Economic History II is aimed at students preparing for a career in political science, economics, business, or law. Prerequisite: satisfactory performance in University major's requirement.

EE-306 Price, Employment, and Productivity Theory

EE-306 Price, Employment, and Productivity Theory is aimed at students preparing for a career in political science, economics, business, or law. Prerequisite: satisfactory performance in University major's requirement.

EE-310 Microeconomics

EE-310 Microeconomics covers modern economic systems, risks of economic policies, and implications of economic hardship. All systems, international trade, and the general welfare. Prerequisite: satisfactory performance in University major's requirement.

EE-311 Labor Economics

EE-311 Labor Economics covers modern economic systems, risks of economic policies, and implications of economic hardship. All systems, international trade, and the general welfare. Prerequisite: satisfactory performance in University major's requirement.

EE-312 Social Economics

EE-312 Social Economics covers modern economic systems, risks of economic policies, and implications of economic hardship. All systems, international trade, and the general welfare. Prerequisite: satisfactory performance in University major's requirement.

EE-313 Health Economics

EE-313 Health Economics covers modern economic systems, risks of economic policies, and implications of economic hardship. All systems, international trade, and the general welfare. Prerequisite: satisfactory performance in University major's requirement.

EE-314 Money and Banking

Prerequisite: satisfactory performance in University major's requirement.

EE-320 International Economics

EE-320 International Economics is aimed at students preparing for a career in political science, economics, business, or law. Prerequisite: satisfactory performance in University major's requirement.

EE-321 Environmental Economics

EE-321 Environmental Economics is aimed at students preparing for a career in political science, economics, business, or law. Prerequisite: satisfactory performance in University major's requirement.

EE-322 Urban Economics

EE-322 Urban Economics is aimed at students preparing for a career in political science, economics, business, or law. Prerequisite: satisfactory performance in University major's requirement.

EE-323 Transportation

EE-323 Transportation is aimed at students preparing for a career in political science, economics, business, or law. Prerequisite: satisfactory performance in University major's requirement.

EE-324 Economics of Development

EE-324 Economics of Development is aimed at students preparing for a career in political science, economics, business, or law. Prerequisite: satisfactory performance in University major's requirement.

EE-325 Urban Economics

EE-325 Urban Economics is aimed at students preparing for a career in political science, economics, business, or law. Prerequisite: satisfactory performance in University major's requirement.

EE-326 Environmental Economics

EE-326 Environmental Economics is aimed at students preparing for a career in political science, economics, business, or law. Prerequisite: satisfactory performance in University major's requirement.

EE-327 Urban Economics

EE-327 Urban Economics is aimed at students preparing for a career in political science, economics, business, or law. Prerequisite: satisfactory performance in University major's requirement.

EE-328 Economics of the Government Sector

EE-328 Economics of the Government Sector is aimed at students preparing for a career in political science, economics, business, or law. Prerequisite: satisfactory performance in University major's requirement.

EE-329 Urban Economics

EE-329 Urban Economics is aimed at students preparing for a career in political science, economics, business, or law. Prerequisite: satisfactory performance in University major's requirement.

EE-330 Urban Economics

EE-330 Urban Economics is aimed at students preparing for a career in political science, economics, business, or law. Prerequisite: satisfactory performance in University major's requirement.

EE-331 Urban Economics

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EE-332 Urban Economics

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EE-338 Urban Economics

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EE-339 Urban Economics

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EE-340 Urban Economics

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EE-341 Urban Economics

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EE-342 Urban Economics

EE-342 Urban Economics is aimed at students preparing for a career in political science, economics, business, or law. Prerequisite: satisfactory performance in University major's requirement.

EE-343 Urban Economics

EE-343 Urban Economics is aimed at students preparing for a career in political science, economics, business, or law. Prerequisite: satisfactory performance in University major's requirement.

EE-344 Urban Economics

EE-344 Urban Economics is aimed at students preparing for a career in political science, economics, business, or law. Prerequisite: satisfactory performance in University major's requirement.

EE-345 Urban Economics

EE-345 Urban Economics is aimed at students preparing for a career in political science, economics, business, or law. Prerequisite: satisfactory performance in University major's requirement.

EE-346 Urban Economics

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EE-347 Urban Economics

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EE-348 Urban Economics

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EE-349 Urban Economics

EE-349 Urban Economics is aimed at students preparing for a career in political science, economics, business, or law. Prerequisite: satisfactory performance in University major's requirement.

EE-350 Urban Economics

EE-350 Urban Economics is aimed at students preparing for a career in political science, economics, business, or law. Prerequisite: satisfactory performance in University major's requirement.

EE-351 Urban Economics

EE-351 Urban Economics is aimed at students preparing for a career in political science, economics, business, or law. Prerequisite: satisfactory performance in University major's requirement.

EE-352 Urban Economics

EE-352 Urban Economics is aimed at students preparing for a career in political science, economics, business, or law. Prerequisite: satisfactory performance in University major's requirement.

EE-353 Urban Economics

EE-353 Urban Economics is aimed at students preparing for a career in political science, economics, business, or law. Prerequisite: satisfactory performance in University major's requirement.

EE-354 Urban Economics

EE-354 Urban Economics is aimed at students preparing for a career in political science, economics, business, or law. Prerequisite: satisfactory performance in University major's requirement.

EE-355 Urban Economics

EE-355 Urban Economics is aimed at students preparing for a career in political science, economics, business, or law. Prerequisite: satisfactory performance in University major's requirement.

EE-356 Urban Economics

EE-356 Urban Economics is aimed at students preparing for a career in political science, economics, business, or law. Prerequisite: satisfactory performance in University major's requirement.

EE-357 Urban Economics

EE-357 Urban Economics is aimed at students preparing for a career in political science, economics, business, or law. Prerequisite: satisfactory performance in University major's requirement.

EE-358 Urban Economics

EE-358 Urban Economics is aimed at students preparing for a career in political science, economics, business, or law. Prerequisite: satisfactory performance in University major's requirement.
Students majoring in industrial relations take courses of study and have experiences dealing with labor relations and human resources management. The program is designed to give the student a thorough background in these areas of study as well as an understanding of the application to real-life situations. Specific courses, research projects, and other experiences, such as simulations, are included to build both theoretical and pragmatic aspects of the field.

Graduates of the program are prepared for a variety of line, staff, and professional positions in business, government, nonprofit institutions, and education. The areas of work for which graduates are qualified include personnel management, wage and salary administration, staff benefits, selection and recruitment, performance appraisal, industrial training, manpower issues, collective bargaining, contract administration, grievance handling, dispute resolution, and such labor legislation areas as equal employment opportunity, social security, equal pay, age discrimination, and labor relations law.

**Undergraduate Program**

Requirements for the Bachelor of Business Administration degree with a major in industrial relations and human resources management are as follows:

- 6L.150 Projective Labor Legislation 3 h.
- 6L.155 Bargaining 3 h.
- 6L.158 Personnel Management 3 h.
- **Total:** 9 h.

Students select courses in the specialized area on the basis of their individual interests and with the advice and consent of their advisers.

**Master of Arts**

A Master of Arts degree with a major in industrial relations and human resources is available for a special masters program for students who seek a professional degree in the field. The degree is designed to provide concentrated graduate study in labor relations and personnel management. Students complete from 30 to 41 semester hours of course work selected with consent of an adviser. The 35 to 41 hours are inclusive of all common body of business knowledge requirements mandated by the American Assembly of Collegiate Schools of Business. For general requirements see the "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

Primarily for Undergraduates

60/00 Cooperative Education Internship 3 s.h.
61/00 Computer Analysis
Introduction to the computer and its uses in the behavioral sciences. Management organizations, topics are computer systems terminology, introduction to programming, management information systems, and a survey of various computer applications. Prerequisites: 61/01, 61/20.
61/20 Statistical Analysis
Fundamental principles of statistical analysis and managerial problems involving uncertainty. Use of selection and use of data. Prerequisite: 225a.

62/00 Production Management
Organization and management of manufacturing enterprises; production design and process planning; plant layout and materials handling, work measurement and measurement, production inventory control. Prerequisites: 62/20 and 62/70.

For Undergraduates

62/00 Directed Readings 1-6 s.h.
Individual study under the direction of a selected topic in management sciences. Prerequisite: approval of instructor.

65/00 Organizational Behavior
A survey of major conceptual and empirical developments in the behavioral sciences in the study of individuals, groups and organizations, and the role of individual and group processes in management decision-making. Prerequisites: 65/00, 65/20, 65/70.

65/10 Individual Behavior in Organizations
Principles of motivation, perception, learning, attitude formation, socialization, decision making, roles, and stress in management situations. Prerequisites: 65/10, 65/20, 65/70.

65/20 Group Behavior
Basic characteristics of organizational structures and group processes from perspectives of a variety of social science theories and principles. Emphasis on the interdependence of workers, group norms, and roles. Prerequisites: 65/10, 65/20, and 65/70.

65/30 Group Processes in Organizations
Characteristics of organization structures and processes appropriate for particular stages of organizational development and change. Prerequisite: 65/20 or consent of instructor.

65/31 Business Policies
Studies the over-all management responsibilities of general managers; integrates functional aspects of business in problem-solving manner; studies under-graduate business policy regulations. Open only to College of Business Administration students.

65/60 Administrative Services
Administrative Science
Specific topics in organizational behavior selected for emphasis in explanation and analysis of operational social science to chosen problem. Topics are business law, conflict, decision making, etc.

65/67 Management Sciences
Econometric analysis applied to basic problems in management sciences including military and industrial areas. Provides foundation for those specialist work in these fields. Prerequisites: 65/00, 65/20, 65/70.

65/70 Decision Theory for Business
Introduction to decision theory applied to business problems; mathematical decision theory, statistical design experiments, decision-making, random selection, decision-making techniques, action-oriented procedures and Bayes' procedure. Prerequisites: 65/70 and 65/20.

66/00 Management Science Topics
Selected topics in management science, in-depth study of areas such as mathematical programming, simulation, inventory, forecasting and game theory. Prerequisites: 66/10 or consent of instructor.

66/10 Strategic Planning Systems
Formal systems for strategic planning, design requirements specified in terms of corporate strategy and organizational, financial, and control relationships. Prerequisite: 66/10 or consent of instructor.

66/20 Systems Design for Decision Making
Studying the design of new and existing management information systems; analysis of the decision making processes involved in the design of a management information system. Open to senior or graduate students in business administration. Prerequisite: 66/10.

67/00 Management Information Systems
Nature of systems, parameters for the business systems analysis, measurement and management information input-output relationship to management and control system design, planning, decision making, inventory control, and decision processes. Prerequisites: 67/00 or 67/10.

67/10 Systems Design for Operations Management
Study of the design of management and control information systems. Students assigned operations management project, presented at end of term. Prerequisite: 67/10 or consent of instructor.

67/20 Management Information Processing
A business information system is a set of interrelated, interactive, and interdependent techniques for the collection, processing, and presentation of data. Prerequisite: 67/20.

67/30 Decision Processing and Control
Systems for planning, planning, scheduling, and inventory control in operations management. Prerequisites: 67/20 and 67/70.

67/40 Computer Methods-M.A.A.
Use of computers in management, computer programming languages emphasizing the use and design of scientific software, systems design, data base structure. Prerequisite: permission of Graduate Program Office.

67/50 Quantitative Methods for Business
Quantitative methods applicable to business and economic problems. Case studies, linear algebra, examples in production, inventory and decision making. Prerequisite: permission of Graduate Program Office.

Primary for Graduates

62/00 Directed Readings
Individual study under the direction of a selected topic in management sciences. Prerequisite: consent of instructor.

62/50 N.A. Research Report
For nonthesis N.A. candidates only. Five seminar credits necessary for a major paper. Prerequisites: consent of instructor.

62/51 Administrative Science-M.A.A.
Goals, concepts, and research methodology in motivation, learning, emotion, stress, and attitude change, social exchange, values, work, thinking, and problem solving in organizational life. Prerequisites: 62/50 or consent of instructor and permission of the Graduate Program Office.

62/80 Administrative Science Group Process in Organizations
Understanding and predicting the behavior of individuals and groups in organizational settings. Emphasis on fundamental problems of work group, small group communication, decision-making, group conflict, and group dynamics. Prerequisites: 62/20 or consent of instructor.

62/81 Organizational Behavior E.O. Applications
Organization theory, applied to effective administrative design; emphasis on determining appropriate structure, size, role, and selection to meet particular problems. Prerequisites: 62/80 or consent of instructor.

62/82 Administrative Policy-M.A.A.
Nature, origin, and components of chief executive officer's job functional integration of all managerial activities. Must be taken in last semester of M.A.A. program. Prerequisites: 62/80 or consent of instructor.

62/83 Behavioral Science and Business Organizations
Individual behavior, organizational aspects of individual behavior and introduction to group behavior. Prerequisites: 62/20 or consent of instructor.

62/84 Behavioral Science and Business Organizations
Organization, enterprise, and management science and microeconomics. Organizational behavior, economic principles and social organization. Prerequisites: 62/20 or consent of instructor.

62/85 Behavioral Science Problems in Organizations
Behavioral science principles and research data which have been used to develop models of behavior in organizations and the factors which influence these models. Prerequisites: 62/20 or consent of instructor.

62/86 Behavioral Science Problems in Organizations
Behavioral science principles and research data which have been used to develop models of behavior in organizations and the factors which influence these models. Prerequisites: 62/20 or consent of instructor.

62/87 Behavioral Science Problems in Organizations
Behavioral science principles and research data which have been used to develop models of behavior in organizations and the factors which influence these models. Prerequisites: 62/20 or consent of instructor.

62/88 Behavioral Science Problems in Organizations
Behavioral science principles and research data which have been used to develop models of behavior in organizations and the factors which influence these models. Prerequisites: 62/20 or consent of instructor.

62/89 Behavioral Science Problems in Organizations
Behavioral science principles and research data which have been used to develop models of behavior in organizations and the factors which influence these models. Prerequisites: 62/20 or consent of instructor.

62/89 Behavioral Science Problems in Organizations
Behavioral science principles and research data which have been used to develop models of behavior in organizations and the factors which influence these models. Prerequisites: 62/20 or consent of instructor.
Marketing


Undergraduate Program

The Department of Marketing offers courses that help undergraduate students understand the social as well as the economic role of marketing.

Several decades ago the study of marketing dealt almost exclusively with business activities involved in the flow of goods from production to consumption. Today, the study of marketing includes principles that are relevant in the arts, athletics, and social causes as well as in the marketing of goods and services. A major in marketing includes study in the behavioral sciences, statistical analysis, computer methods, and management.

Students graduating with majors in marketing may find opportunities for employment in jobs such as market analyst, merchandising manager, buyer, community action agent, purchasing agent, advertising sales, or sales representative. In a variety of organizations, both profit and nonprofit.

The requirements for the Bachelor of Business Administration degree with a major in marketing are as follows:

6M:71 Statistical Analysis 3 s.h.
6M:134 Marketing Research 3 s.h.
In addition to the minimum common requirements for the B.B.A. degree, the student must choose at least three, but no more than five, of the following:
6M:135 Consumer Behavior 3 s.h.
6M:137 Advertising Theory and Planning 3 s.h.
6M:138 Marketing Communications 3 s.h.
6M:139 Sales Management 3 s.h.
6M:141 Senior Seminar in Marketing 3 s.h.
6M:147 Marketing Management 3 s.h.

Graduate Programs

See "Interdepartmental Graduate Programs" on the front section of this Catalog.

Courses

Primary for Upper-Division Undergraduates

5602 Cooperative Education Internship 3 s.h.
5603 Introduction to Marketing 3 s.h.
5604 Introduction to structure of marketing - advertising environment of an organization and its strategies with emphasis on marketing decisions and client involvement. Prerequisites: 6M:11 and 6M:21 or one may be a prerequisite.

For Undergraduates and Graduates

6M:130 Directed Readings in Marketing 3 s.h.
6M:241 Interdisciplinary guided readings in selected topics in marketing. Prerequisite: consent of instructor.
6M:243 Marketing Research 3 s.h.
Marketing and advertising research methods and role of marketing information as a management tool in decision making. Prerequisites: 6M:110 and 6M:121. Prerequisite: consent of instructor.
6M:245 Consumer Behavior 3 s.h.
Examines on behavioral aspects of marketing, discussion of "attention" on buying behavior, including learning, perception, dispositional, injury, symbolic, personality, attitude, role, role, reference groups, culture, social class, and family. Strategies and strategies of advertising and sales promotion in marketing. Prerequisite: 6M:100.
6M:246 Advertising Theory and Planning 3 s.h.
Examines the theoretical basis, emphasis on the advertising process, and practical principles that determine the advertising effectiveness matrix. Prerequisite: 6M:100.
6M:247 Marketing Communications 3 s.h.
Examines the media and message communication processes and their roles in the marketing mix, emphasis on creative promotional strategy, and factors which coordinate advertising, personal selling, sales promotion, packaging, public relations, and publicity, packaging, direct, distribution, and media. Policies, attitudes, and exercises as a behavioral paradigm, general semantics, nursing, Prerequisite: 6M:100.
6M:251 Sales Management 3 s.h.
The nature of personal selling and management of the sales force, recruitment, selection, training, compensation, motivation, and career. Methods of evaluating sales force performance, determination, and control. Prerequisite: 6M:100.
6M:253 Senior Seminar in Marketing 3 s.h.
Senior level topics covered in other courses, enrollment limited to senior students. Prerequisite: consent of instructor.
6M:256 Marketing Management 3 s.h.
Marketing problems of organizations, emphasis on role of managerial marketing in developing and preparing go-to-market strategies, use of behavioral science concepts to understand buyers, study of marketing decision process, pricing, advertising, personal selling, product planning, pricing, distribution, competitive strategies, purchasing, and competitive strategies in both domestic and international marketing courses.
6M:258 Experimental Course 3 s.h.
New or special topics at the undergraduate level to be announced three to seven weeks prior to the start of a class. Prerequisite: consent of instructor.
6M:261 Marketing Management- MBA 3 s.h.
Marketing problems of organizations, and social and environmental influences on marketing, strategies and strategies of marketing.
Primarily for Graduates

EM 521: Advanced Logics in Marketing
Individually guided readings in selected topics in marketing. Prerequisite: consent of instructor.

EM 525: Contemporary Topics in Marketing
Special topics in contemporary issues at the graduate level. Students may regular for credit for more than one section of this course. Prerequisite: consent of instructor.

EM 527: Marketing Management: A.A.A.
Insight into and reviews of marketing decision processes, strategy formulation, micro and macro market segmentation, marketing research, planning, and strategies. Prerequisite: consent of instructor.

EM 534: Marketing Research Methods
Methods of design and analysis of marketing research studies, including survey and laboratory and experimental research, marketing information systems, time series analysis, statistical methods, and data analysis. Prerequisite: consent of instructor.

EM 535: Advanced Durbin
Study of behavior of consumers and industrial buyers. Examination of research methods and findings from behavioral sciences. Prerequisite: consent of instructor.

EM 519: Product Management
The strategic importance of marketing planning. Examination of all the major areas of the marketing function, their role in the marketing planning model, marketing planning, and the relationship between these functions. Prerequisite: consent of instructor.

EM 520: Marketing Communications
Examination of marketing communications through a case study approach. Emphasis on the internal organization and the design and implementation of marketing communications, the design and implementation of marketing communications, the design and implementation of marketing communications. Prerequisite: consent of instructor.

EM 525: Marketing Strategies in Marketing
Brief overview of market planning and concentration on those methods as they relate to marketing problems, consumer behavior, and consumer behavior. Prerequisite: consent of instructor.

EM 526: Marketing Models
Examination of theoretical and operational models in marketing with emphasis on the importance of consumer behavior, social factors, and the role of marketing communications. Prerequisite: consent of instructor.

EM 527: Psychological Scaling of Marketing
An examination of a number of psychological scaling techniques and their applications in consumer research. Prerequisite: consent of instructor.

EM 528: Senior in Marketing
Examination of current marketing literature and current topics in marketing. Prerequisite: consent of instructor.

EM 530: Business Administration
Studies under faculty supervision. Prerequisite: consent of instructor.

EM 531: Research in Marketing
An individually guided research project on appropriate topics in marketing. Prerequisite: consent of instructor.

EM 532: Thesis in Marketing
Prerequisite: consent of instructor.

EM 533: Field Studies in Marketing
Supervision of student research in the field. Supervision of student research in the field. 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 pathology; anesthesia and pain control; oral surgery; periodontology. In addition, there are selected mini-courses in the biostatistics curriculum which are correlative between the basic and clinical sciences.

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 and orthodontics.

To achieve a close correlation of the basic sciences with clinical disciplines, the student is introduced to clinical patient-treatment situations during the first year. The second-year program includes further activities in the basic and clinical sciences.

Third-year dental students rotate through a series of "corkshocks" 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 Colegate 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 committee. 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 Colegate 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 or dentistry within the region. Examination dates are determined by the Central Regional Dental Testing Service and are available from its administrative office. 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 examinations 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 Brown Science Building, University Hospital and Clinics, and a Health Science Library. The Science Library houses all of the University's special health textbooks, a total of 148,000 volumes, including the College of Dental Science's collection of 18,000 volumes on dentistry and allied sciences subjects, and the more than 381 dental journals the library currently receives, which annually 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 mall. The south wing is devoted to clinical teaching, with various dental clinics, laboratories, and support laboratories, clinical research space, offices, and an automated learning center. The north wing houses a variety of teaching, administrative, and research facilities, including teaching laboratories, research laboratories, administration area, an audiotutorial production center, and the programs in community dentistry.

Student Organizations

All dental students are eligible for membership in the American Student Dental Association through its local chapters. The American Association of Women Dentists and the American Society of Dentistry for Children. Students who rank in the upper 12 percent of the class are eligible for election to Omicron-Kappa Upsilon, national upper council honorary dental society. Two national dental professional organizations, Delta Sigma Delta and Psi Omega, have chapter houses at both, and both have student 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 breakdown 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. needy dental students are eligible for Federal Pell Grants, National Direct Student Loans, state grants and Scholarships. Students' interest on these loans accrues at a comparatively low rate and the loans are repayable over a specified period of time after completion of the course of study. Short-term loans are available to 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 inquire at the Office of Student Financial Aid for up-to-date 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 Office of University 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 missing this deadline will be reviewed as received date; however, admitted applicants will be notified starting December 1. Applications urged to apply as soon as possible and not delay, for example, until after the Dental Admission Test is taken. Early application is in the applicant's best interests.

The prospective dental student is encouraged to embark on an educational program that will lead to a standard bachelor's degree. This will allow the student to consider a combined program which enables him or her to earn a standard baccalaureate degree upon completion of the freshmen year in dentistry (see Combined Baccalaureate Arts-Dentistry Courses). The College of Dentistry has an agreement with the state of Arkansas whereby supplemental payment toward tuition is paid for accepted Arkansas residents. The result of this payment is that these students would pay the equivalent of in-state resident tuition.

Predental Studies

The basic academic requirement for admission to the College of Dentistry is the completion of 96 semester hours of academic study at an accredited college. In exceptional circumstances, candidates with fewer than 96 semester hours of college work will be considered for admission if the applicant's performance and potential for the dental profession are considered outstanding. The College of Dentistry may consider outstanding students during their first two years of undergraduate studies for early admission to a future class. A similar provision allows admitted students to delay enrollment under specific circumstances which enhance their career goals.

The predental program of study should include:

Rhetoric
Satisfactory accomplishment in English composition, rhetoric, and speech communicative with the academic requirements of the college's bachelor's degree at the college's discretion.

Physics
One year (equivalent to eight semester hours) which one-fourth must be laboratory work.

Chemistry
Two years (equivalent to 16 semester hours), of which one year (equivalent to eight semester hours) must be 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; requirement may be satisfied by a one-year course in either general botany or zoology and botany (not botany alone).

Electives
Sufficient course work in the social sciences, philosophy, psychology, history, foreign languages, and mathematics to provide a well-rounded educational background.
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 last 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 2.5 or above. In addition to the cumulative grade-point average, the admissions committee gives special consideration to the quality of the applicant’s course work in the predental sciences.

Interviews

Personal interviews are required of applicants accepted by the College of Dentistry. After the initial evaluation of applications, the interview will be arranged for those who are in competitive positions for potential admission.

Required Dental Admission Test

All applicants must complete the Dental Admission Test administered by the Council on Dental Education of the American Dental Association. Tests are given two times 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 class. No accompanying test application forms from the University Office of Admissions or the American Dental Association, 211 East Chicago Avenue, Chicago 1, Illinois. Test 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 notification of admission. This deposit is not refundable but is credited toward the first year’s 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 Diagnosis, Oral and Maxillofacial Surgery, Orthodontics, Periodontics, Preventive and Community Dentistry, and Removable Prosthodontics. Admission to any of the graduate programs requires presentation of 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 6 s.h.
- 60:112 General Histology for Dental Students 4 s.h.
- 60:114 Oral Microscopic Anatomy and Embryology 1 s.h.
- 61:182 Dental Microscopy 4 s.h.
- 66:203 Introduction to Human Pathology 3 s.h.
- 71:111 Pharmacology for Health Sciences: Dental 5 s.h.

72:152 Mammalian Physiology 4 s.h.
99:161 Biochemistry for Dental Students 4 s.h.

Nondepartmental Courses

112:263 Transluc Carbide Acceptance 1 s.h.
112:312 Five-Year Combining Session 0 s.h.
276:214 Introduction to Geriatric Dentistry 2 s.h., including an essay of original research prepared by student and presented to the faculty.
112:665 Beeswax Options 1 s.h., selection from a series of elective mini-courses to emphasize the aesthetic aspects of dental practice.
112:610 Dental Therapeutics 1 s.h.
Clinical experience with drugs for sedation, anesthetics, antibiotics, analgesics, and tranquilizers and specific procedures in pain control, aspiration writing, drug interactions, emergency drug therapy.
112:715 Third-Year Combining Session 0 s.h.
112:725 Projected Alumni 0 s.h.
Opportunities for foreign dental studies are reviewed with the faculties of dental colleges abroad.
112:785 Fourth-Year Options 0 s.h.
112:027 Continuance Learning Day Topics 0.25 s.h.
Required fourth-year course covering special topics in practice management, conducted in a continuing study of practice management.
112:689 Advanced Clinical Comprehensive Dentistry 0.5 s.h.
Comprehensive clinical management of dental emergencies and advanced operative dentistry.
112:690 Introduction to Elective Periodontal Procedures 3 s.h.
Lectures and laboratory work dealing with fundamentals of electron optics, electron teaming, radiography, periodontal surgery, periodontal physiology, broad spectrum prevention, and disease modification.
112:691 Introduction to Waterline Dentistry 3 s.h.
Lectures and laboratory work dealing with disease-modification methods, periodontal physiology, broad spectrum prevention, and disease modification.
112:692 Dental School Studies 1 s.h.
To provide graduate students with an overview of advanced topics in dental specialties within the college. Offered fall semesters of even years.

Clinical Management Concepts

Faculty: professor Thomas W. Gartner associate professor Kenneth Langer assistant professor Michael Prownow clinical instructor Frank Stoeck, assistant in nutrition Joanne Zimmerman

112:267 Group Advocate Seminar 2 s.h.
Weekly, short seminars and student activities arranged to provide educational experiences in patient relations and treatment coordination utilizing complicated patient records; summaries.
112:268 Clinical Emergency 1 s.h.
Clinical evaluation, diagnosis, and treatment of patients with emergency or emergent premonition of patients. Patient services for dental treatment.
112:269 Advanced Topics in Quality Assurance 2 s.h.
Clinical, laboratory, and administrative services for the practicing dentist's team in the area of quality assurance. The objectives of the team in the area of quality assurance are presented and compared with the quality assurance systems of other health care providers in the area of dental practice.
112:269 Advanced Skills 1 s.h.
Clinical opportunity to assess the entire concept of
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 studies. 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 will be prepared to take the national, regional, and state dental hygiene licensure examinations required for dental hygiene practice.

Included in the general education requirements are courses in the basic and clinical 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 602: Human Microscopic Anatomy, 71:30:30:10: Human Histology, and 56:10:10:10: Human Anatomy.

Students take the practical classes during the junior and senior years. The junior year, they enroll in 602: Human Microscopic Anatomy, 71:30:30:10: Human Histology, and 56:10:10:10: Human Anatomy.

In addition, juniors learn the basic theory and clinical skills required for practical hygiene practice in 66:61: Dental Hygiene Care I and 66:62: Dental Hygiene Care II, which integrate clinical and dental anatomy with the theory and practice of clinical dental hygiene.

During the senior year, students advance after clinical skills in 66:85: Clinical Dental Hygiene. In 66:85: Advanced Periodontics for Dental Hygiene Students, each student is assigned to work with a graduate student in perioodontics 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 66:87: Practicum, Community Dental Hygiene; 66:88: Seminar, Community Dental Health; 71:17: Designing and Developing Instructional Materials; 22:101: Biostatistics; and 117:11:15 Introduction to Geriatric Dentistry.

Courses traditionally taught as isolated subject-related units, such as dental health education, public health, and gerontology, are integrated 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. Case studies enable students to apply knowledge of human behavior, basic principles of interpersonal communication, 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 some 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 course work. All students must satisfy the general education requirements of the College of Liberal Arts and complete the following dental hygiene prerequisites:

Five semester hours (eight for transfer students) in general biology—315:10: Introduction to Animal Biology

Three semester hours of inorganic chemistry—4:7: General Chemistry 1,

Three semester hours of organic chemistry, including biochemistry—4:8: General Chemistry II

Four semester hours of microbiology—1:1:4: Microbiology

Three semester hours of nutrition—7:1:4: Food, Nutrition, and You

Three semester hours of psychology—3:1:1: Elementary Human Anatomy


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 a satisfactory background for transfer into the baccalaureate program at UI.

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 the dental hygiene application and dental hygiene applications. All applicants are interviewed by the dental hygiene admission 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. The UI provides a graduate education program that is designed 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 scientists, oral health care practitioners, program administrators, consumer advocates, and preventive product consultants.

The curriculum design provides the student with a concentration in advanced dental hygiene theory, in the biological, social, and physical sciences. The program includes instruction in the patophyiology of dental plaque, including plaque microbiology and biochemistry, and the relationship of plaque to caries and periodontal disease.
the response of the gums to dental plaque, emphasizing immunological mechanisms, and the prevention of dental diseases by immunization and antimicrobial agents.

In the social science area, students consider the implications of applied sociological, psychological, economic, cognitive, and environmental concepts related to oral health. Selected readings relate societal values and structural elements of dental care delivery systems to oral health outcomes and explore the relationships of the individual, the family, and the community to oral health outcomes, both behavioral and physical.

Study in the educational field includes trends in dental hygiene with emphasis on dental hygiene education; elements of curricular design; and the theory and application of didactic and clinical teaching in dental hygiene.

Although students may begin the program during the summer session or fall semester, enrollment at the beginning of the fall semester is preferred. Applications, transcripts, and Graduate Record Examination (GRE) Aptitude Test scores should be submitted as early as possible prior to the semester admission is desired. Most students should expect to take two academic years to complete degree requirements.

Approximately 11 semester hours are assigned courses to acquire advanced knowledge in dental hygiene and 10 semester hours in research methodology and in their preparation and defense. The remaining 12 hours are for inclusion of electives in the biomedical and social sciences.

Elective course work related to the biomedical sciences may include microbiology, histology, biochemistry, oral pathology, and periodontology.

Electives emphasizing the social, economic, and personal factors of health include epidemiology, medical sociology, and health education.

Students are also encouraged to consider taking electives in education, such as educational measurement, theories of learning, and administration.


**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 2.8 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, College 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 dental health or dental hygiene education may, with the direction of faculty, conduct 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 of Iowa Health Care Complex, one of the nation's outstanding health science teaching, research, and patient care facilities.

**Financial Aid**

In addition to financial assistance available to University students in general, there are 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**

**RS 01 Dental Anatomy 1 S.H.**

Detailed study of human denture anatomy, morphology, and functions, includes dental nomenclature, histological patterns, anatomy of primary and permanent dentitions.

**RS 02 Dental Hygiene Case 1 2 S.H.**

Introduction to dental hygiene theory, group study, head and neck anatomy, and dental disease etiology and clinic experiences are related to clinical and prophylactic and dental hygiene procedures.

**RS 03 Dental Hygiene Care 5 S.H.**

Emphasis on application of dental hygiene theory in performance of intermediate clinical dental hygiene and oral disease control procedures.

**RS 04 Clinical Dental Hygiene**

Practice of advanced dental hygiene procedures with emphasis on clinical, diagnostic, and clinical services.

**RS 05 Seminar: Dental Hygiene Concepts and Practice**

Review of current research and advances in preventive procedures, ethical, legal, and social responsibilities of health care providers, and current trends in dental hygiene practice.

**RS 07 Practicum: Community Dental Health**

Knowledge of health, dental care, education, and research techniques is applied in field experiences to design, implement, and evaluate health care and educational programs.

**RS 08 Services: Community Dental Health**

Study of factors influencing the oral health of the public, including need and demand for dental care, financing of dental care, provider and patient relationships, and active and passive disease prevention.

**1-11 Independent Study**

Designates for students who plan to pursue additional study of a graduate caliber interest in dental hygiene education, research, or public health.

**For Graduates**

**RG 01 Seminar: Dental Hygiene: A Literature Review**

Analysis of dental hygiene literature on policy, methodology, and educational topics, and advanced research in the discipline, analysis of current issues and knowledge in field of dental hygiene.

**RQ 02 Evaluation of Dental Hygiene Research**

Evaluation of dental hygiene research, interpretation of results, and generation of hypotheses and/or further research studies. Emphasis on theory and practice of dental hygiene.

**RS 03 Research: Dental Hygiene**


**RS 05 Social Factors in Oral Health**

Study of current research conducted on oral health behaviors and social factors influencing oral and general health care.

**RS 06 Practicum: Dental Hygiene**

Completion of these preparation and defense.

**Endodontics**


**Predoctoral Program**

Course work and clinical experiences in endodontics are of vital importance in the overall education of a dental student. Preclinical endodontics is taught during the sophomore year and including both didactic and laboratory courses. Clinical endodontics, the student studies both normal and pathological conditions.
of the dental pulp, emphasizing the areas of prevention and diagnosis of pulp and endodontology.

**Graduate Program in Endodontics**

The graduate program offered by the department of endodontology 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-DO) programs:

- The Master of Science degree program comprises a minimum 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 formal training. The candidate is expected to write a scientific paper of publishable quality, based on original research.

The certificate program involves course study for a minimum of 24 semester hours, and only full-time students are admitted. Completion of the program requires satisfactory performance in written and oral examinations which is of a functional character and does not duplicate seminar examination.

**Department of Endodontics**

A personal interview with the applicant may be required.

Each student in the program must maintain a grade-point average of 3.0 to receive a certificate or degree. A student who falls 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 serve in private practice internships outside the college. A student who does so will be asked to obligate himself or herself exclusively either to the program or the practice.

Persons applying to the graduate program in endodontics must be able to support themselves financially for the time required to complete the program.

**D.D.S. Program**

<table>
<thead>
<tr>
<th>Program</th>
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<tr>
<td>83-146 Endodontics</td>
<td>3.0 hrs.</td>
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<tr>
<td>83-171 Clinical Endodontics</td>
<td>3.0 hrs.</td>
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<tr>
<td>83-177 Oral Diagnosis</td>
<td>1.5 hrs.</td>
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**Primarily for Graduates**

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<th>Program</th>
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<tr>
<td>83-214 Endodontic Literature Review</td>
<td>1.0 hrs.</td>
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<tr>
<td>83-221 Oral Pathology and Microbiology</td>
<td>1.0 hrs.</td>
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**Courses**

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<tr>
<td>114-161 Introduction to Practice</td>
<td>1.0 hrs.</td>
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<tr>
<td>114-162 Endodontic Principles and Practice</td>
<td>1.0 hrs.</td>
</tr>
<tr>
<td>114-163 Endodontic Surgery</td>
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The department's two practice management courses—one lecture, the other clinical—prepare the student to manage practice selection as well as manage the business aspects of a dental office.

**Family Dentistry/ENDODONTY**

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The Department of Family Dentistry is responsible for the senior dental student's final synthesis of academic experiences. The major goal is the integration of previously learned clinical skills into a well-organized and systematic approach to the comprehensive dental treatment of patients. The experience encompasses approximately three-fourths of the senior year.

Students spend five days each week in a clerkship program, where they gain a continuing experience in total patient management. The clerkship builds on the previous year's education. At the end of the clinical clerkship, the patient's needs are evaluated.

The department's two practice management courses—one lecture, the other clinical—prepare the student to manage practice selection as well as manage the business aspects of a dental office.
Fixed Prosthodontics

Department Head: Kenneth A. Turner
Department Chair: Brian E. Thayer, Carl W. Sues, Kevin A. Turner

114:07 Family Dentistry Clinic II 2 h.
Treatment of patient's oral medical needs in the Family Dentistry Clinic incorporating partially acquired knowledge and experience for an integrated and comprehensive system of dental health care management.

114:08 Family Dentistry Clinic III 2 h.
Clinical experience in diagnosis, treatment planning, and treatment incorporating an integrated and comprehensive system of dental health care management.

114:09 Family Dentistry Clinic IV 2 h.
Continuation of 114:08.

114:10 Family Dentistry Clinic V 2 h.
Continuation of 114:09.

114:12 Family Dentistry Lectures 1 h.
Synthesis, analysis, and evaluation of prosthodontics literature and research for an integrated and comprehensive system of dental health care management.

114:13 Group Practice Seminar 1 h.
Discussions of major topics of dental practice assigned to a group practice. The topics are selected to increase the awareness and efficiency of dental treatment by patients of the group.

114:14 Specialties in General Practice 1 h.
Lectures from the various dental specialties provide current techniques and findings in their areas. Discussion applications for the general practices, and provide information about selection of graduate specialty programs.

114:15 Diagnosis and Treatment Planning Seminar 1 h.
Students present documentation of diagnostic procedures used in the development of treatment plan and sequence for selected clinical problems. The student presents the problems to dental students to discuss findings and recommendations.

Predoctoral Program

The department participates in the D.O.S. program for dental students at all levels. Predoctoral courses at the first and second level prepare the student with a background in materials and techniques used in fixed prosthodontic treatment. Third-level students participate in a comprehensive one-year program of patient treatment in the specialities. 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 in fixed prosthodontics is to train specialists in the field of dentistry for the practice of fixed prosthodontics 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 histobiology or a thesis or research requirements for the master's degree. Each student is required to submit a manuscript suitable for publication in a nationally recognized professional journal, based upon the student's research and thesis topic.

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

114:01 Prosthodontic Materials Laboratory 2 h.
The student learns to handle and manipulate dental materials through one-hour laboratory projects.

114:03 Dental Materials 1 h.
Chemistry of atomic and molecular structure and its relation to physical and mechanical properties of dental materials.

114:04 Disc Jockey 1 h.
Interdisciplinary introduction to concepts of bioceramic and biomaterials.

114:05 Fixed Prosthodontic Technique Lecture 1 h.
Introduction to fixed prosthodontics, including definitions, materials, and techniques used in construction of various types of metal and porcelain units.

114:06 Fixed Prosthodontic Technique Laboratory 2 h.
Technical procedures required in construction of fixed prosthodontics.

114:07 Disc Jockey 2 1 h.
Clinical application of the concepts of occlusion and adaptation in the natural dentition.

114:08 Fixed Prosthodontic Clinical Practice 3 h.
Practice in dental laboratory, supplemented by individual supervision and evaluation.

114:09 Fixed Prosthodontic Seminar 1 h.
Summarizes previously acquired knowledge in biological and basic science and technical courses with clinical fixed prosthodontics procedures.

Primary for Graduates

114:20 Seminar Fixed Prosthodontics 2 h.
Continues and expands discussion on assigned research topics.

114:21 Seminar Occlusion 2 h.
Continues and expands discussion on assigned research topics.

114:22 Seminar Dental Materials 2 h.
Continues and expands discussion on assigned research topics.

114:23 Seminar Fixed Prosthodontic Topics 2 h.
Assign research topics for student seminar presentations.

114:24 Research Fixed Prosthodontics 3 h.
Research design and collection of data on selected research project.

114:25 Thesis Preparation Fixed Prosthodontics 3 h.
"Phileps" of dissertation with guidelines for the Graduate College.

114:26 Advanced Dental Fixed Prosthodontics 3 h.
Students complete assigned cases in a variety of fixed prosthodontics.

114:27 Advanced Materials and Techniques 1 h.
Advanced technical procedures.

114:28 Literature Assignment Fixed Prosthodontics 1 h.
Research search and preparation of bibliographies and abstracts.

114:29 Research Teaching Fixed Prosthodontics 1 h.
Teaching assignments for credit.

Operative Dentistry

Department Head: Wallace W. Johnson

Course work and clinical experiences in operative dentistry are fundamental to the overall education of a dental student. The operative dentistry curricula is designed so that the didactic material presented relates closely to the laboratory and clinical experiences. The programs are planned to provide students with the knowledge and experience necessary to proceed independently in operative dentistry during the fourth year of training.

Graduate Program

The Department of Operative Dentistry offers a program of advanced training designed to prepare dentists for teaching, research, and practice. Since operative dentistry is not a specialty area of dentistry, there is ample opportunity in the graduate program for the student to pursue courses which are of particular interest. Students may take the program for either a Master of Science degree or for a certificate in operative dentistry.
Required courses are:
86:182 Topcs in Oral Pathology 1 s.h.
86:220 Oral Pathology and
Diagnosis Literature Review 2 s.h.
86:225 Manifestations of Oral
and Paranasal Disease 1 s.h.
58:199 Basic Orofacial
Science 4 s.h.
50:206 Problems 2 s.h.
58:230 Physical Laboratory,
and Historical Features of Disease 1 s.h.
58:277 Surgeon Oral Pathology 1 s.h.
86:240 Histopathology 3 s.h.
86:241 Hospital Oral Pathology 4 s.h.
86:250 Pathologic Processes 2 s.h.
86:256 The Flavored Oral Pathology 1 s.h.
80:231 General Pathology for
Medical Students 5 s.h.
80:232 Systemic Pathology for
Medical Students 7 s.h.
95:216 Dental Sciences Research
Methodology 2 s.h.
97:315 Physical Diagnosis 2 s.h.

Facilities
The laboratories and clinics of the department are equipped in diagnostic radiology, histopathology, immunohistology, 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 the B.D.S. or M.D. degree in the foreign equivalent, with a minimum cumulative grade-point average of 2.7 (4.0 scale), 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 departmental staff. Prospective applicants are encouraged to discuss program requirements with the head of the department prior to application.

Courses
86:20 Introduction to Oral Pathology 1 s.h.
Emphasis on basic principles of disease and the development of these principles in the cause of clinical disease. Required for dental hygiene.
86:20 Oral Pathology for Dental Hygienists 1 s.h.
86:20 Dental Radiology for Dental Hygienists 1 s.h.
Emphasis on the interpretation of roentgenograms and the development of skills, first level.
86:20 Clinic Dentistry for Dental Hygienists 1 s.h.
Supervised clinical experience in taking dental x-rays, reading and interpreting images and reviewing cases, second level.
86:20 Introduction to Diagnosis and Radiology 1 s.h.
Introduction to methods of clinical and radiographic examination and record keeping, correlation of basic and clinical sciences.
81:35 Oral Pathology 4 s.h.
Lectures, conferences, demonstration laboratory course designed to develop skills involving oral organs and tissues.
81:35 Oral Pathology and Radiology 4 s.h.
Fundamental principles and techniques in diagnosis, research, and clinical pathology required for oral pathology. Emphasis in lectures, exercises, clinical oral pathology seminars.
81:35 Systems Diseases: Infections 1 s.h.
Pathology and clinical diagnosis of oral diseases by clinical, laboratory, and radiographic methods; material presented in clinical oral pathology seminars.
81:35 Oral Pathology and Diseases 2 s.h.
Study and practice of diseases of oral cavity by clinical, laboratory, and radiographic methods; material presented in clinical oral pathology seminars.
81:35 Oral Pathology and Radiology 4 s.h.
Supervised experience in taking and interpreting x-rays, including study of oral pathology in radiographic interpretation, first level.
81:35 Intraoral Oral Pathology 2 s.h.
Lectures and demonstrations in concentrated areas of special knowledge in pathology. For advanced student and selected graduate college.
Graduate Courses
81:30 Oral Pathology and Disease Literature Review 2 s.h.
Annotated reading and investigation of selected reference literature. Consists of individual instruction.
81:30 Manifestations of Oral and Paranasal Diseases 4 s.h.
Physical examination of the head and neck, parotid, sublingual, and submandibular glands; assessment of symptoms currently available for management; presentation of oral surgery, clinical pathology seminars, review of case slides, and oral pathology seminars.
81:30 Oral Pathology and Radiology 4 s.h.
Supervised experience in taking and interpreting x-rays, including study of oral pathology in radiographic interpretation, first level.
81:30 Intraoral Oral Pathology 2 s.h.
Lectures and demonstrations in small concentrated areas of special knowledge in pathology. For advanced student and selected graduate college.

Oral and Maxillofacial Surgery
Department head: Donald R. Flick
The department operates the Oral and Maxillofacial Surgery Service in the Dental School, the dental hospital, and the student clinic.

Predoctoral Program
The predoctoral curriculum is designed to develop a foundation of professional knowledge, coupled with important 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 ethical standards and developing a sound surgical concept, strongly reflecting the moral responsibility assumed for the surgical problems undertaken. The clinical portion of the curriculum allows the student to develop surgical skills and judgment. Students are exposed on an individual basis. The program is designed to be completed in the period of internship, postgraduate training, and specialized training.

Residency Program
The residency program in oral and maxillofacial surgery is provided by the division of oral and maxillofacial surgery. These programs are designed to provide advanced training in the medical and surgical management of patients with diseases of the oral cavity, maxillofacial region, and temporal bone.
The residency period covers three years of hospital training, providing an orientation to hospital procedures, integration of basic and clinical sciences, acquisition of specific skills in the areas of surgery and anesthetics, and facilitation of 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, pathology, physiology, and microbiology, and reviews such closely-related disciplines as anesthesiology, microbiology, 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 anesthesiology through an assignment in the Department of Anesthesiology. Previous advanced training in physical diagnosis, physiology, pharmacology, and pathology now assume greater clinical significance. Increased responsibility in the operating room is an essential aspect and surgeon further develops surgical judgment and skills.

The development and implementation of a research project under staff supervision enhances the educational aspects of 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 Veteran's Administration Medical Center. Each third-year resident is assigned on a rotational basis as a clinical and didactic coordinator for the residents, who are then responsible for quality of 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 studies and includes a research project and the preparation of a thesis.

Admission

Admission is limited to July 1 of each year. A full-time three-year program. The applicant should be an oral and maxillofacial surgery resident. Candidates for the program are selected on the basis of merit.

Courses

Predoctoral

87101 Anesthesiology 1 a.h.
87110 Maxillofacial Surgery 1 a.h.
87115 Orthodontics and Oral Pathology 1 a.h.
87120 Pathology 1 a.h.
87125 Oral and Maxillofacial Surgery 1 a.h.
87130 Oral and Maxillofacial Surgery 1 a.h.
87140 Oral and Maxillofacial Surgery 1 a.h.
87150 Oral and Maxillofacial Surgery 1 a.h.
87160 Oral and Maxillofacial Surgery 1 a.h.
87170 Oral and Maxillofacial Surgery 1 a.h.
87180 Oral and Maxillofacial Surgery 1 a.h.
87190 Oral and Maxillofacial Surgery 1 a.h.
87200 Oral and Maxillofacial Surgery 1 a.h.
87210 Oral and Maxillofacial Surgery 1 a.h.
87220 Oral and Maxillofacial Surgery 1 a.h.
87230 Oral and Maxillofacial Surgery 1 a.h.
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

8151 Growth and Development 1.5 h.

Provides basic and supplementary information about dental growth and development, with emphasis on the craniofacial region.

8152 Orthodontic Diagnosis and Its Biologic Foundations 5 h.

Introduction to various aspects of craniofacial biology as they relate to orthodontic diagnosis and the earliest stage of treatment planning. The course is designed to provide an understanding of the development of occlusion, phonetics of the developing child, and normal and abnormal growth of the craniofacial skeleton.

8131 Orthodontic Laboratory 5 h.

Practical experience in taking and examining orthodontic diagnostic records, developing treatment, planning, and constructing appliances.

8130 Orthodontic Treatment 5 h.

Treatments from patient management to the use of different appliances to correct some of the malocclusions that the general practitioner may face in his or her office.

8130 Orthodontic Practice 5 h.

Case analyses designed to develop in students a capacity to differentiate simple from complex orthodontic problems, orthodontic classification diagnosis, and treatment planning. The course is designed to acquaint the student with the systematic decision-making in clinical practice.

8175 Orthodontic Clinic 5 h.

Clinical experience in orthodontic diagnosis, treatment planning, and treatment. The patient will be selected so that there will be maximum orthodontic variation. This course will be a systematic decision-making in clinical practice.

Graduate Program

The purpose of the graduate program in orthodontics is to develop the capability, diagnostic, and treatment concepts in orthodontics.

Satisfactory completion of a 28-month period of intensive study, including lecture courses, seminars, clinical practice, and a research paper, qualifies a student for the Certificate of Orthodontics. If a student successfully completes a thesis based on an original research project, he or she will qualify for an M.S. degree in addition to the certificate.

Opportunities are available for research and independent study in the department.

Special facilities for research in biostatistics and craniofacial growth are available.

Interaction with other departments provides learning and research opportunities in surgical orthodontics, clinical orthodontics, orthodontic prosthodontics, orthopedics, orthopaedics, oral pathology, oral and maxillofacial surgery, human growth, and human development.

Pedodontics

Department Head: M. J. Pettifer

The Department of Pedodontics provides instruction in the prevention and treatment of dental diseases in children. Instruction combines didactic, laboratory, and clinical experiences. It gives the student an understanding of the development and treatment of problems that may affect children's oral health.

Graduate Program

Graduate study in pedodontics leads to a Master of Science degree. The program gives special emphasis to preparation for certification by the American Board of Pedodontics. It is fully accredited by the Commission on
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 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 cariostasis, dentistry for handicapped persons, fluoride therapy, and child behavior management.

Quality of Faculty

Faculty members hold numerous national and international memberships, consultations, 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 sciences personnel. Several members are Diplomates of the American Board of Pedodontics.

Financial Aid

Sufficient support is available to qualified students through a grant from the Office for Maternal and Child Health Services, Bureau of Community Health Services, Department of Health and Human Services.

Admission

Apply to the Graduate College.

Courses

90-140 Pediatric Diagnosis and Treatment 2.5 b.
Conceptual growth and development, behavior management, and preventive-treatment techniques for pediatric patient.

90-160 Clinical Pedodontics 2.5 b.
Comprehensive clinical management of pediatric patients.

90-161 Clinical Seminar in Pedodontics 1.25 b.
Discussions of patient management, case histories, and treatment philosophies.

Primarily for Graduates

90-214 Interactive Didactic Laboratory 3.00 b.

90-215 Growth and Development: Lawry and Lab 3.00 b.

90-220 Advanced Electronic Radiology 3.00 b.
Same as 220-100, 220-200.

90-221 Advanced Didactic Pedodontics 3.00 b.
Laboratories of growth and development, behavior management, preventive-radiation techniques, and procedures of pediatric patient.

90-222 Research in Pedodontics 3.00 b.
Research design and the completion of an original research project is required, with results to be presented in a presentation forum.

90-223 Thesis Preparation 1.00 b.
Preparation of original research project and completion of thesis.

90-224 Advanced Clinical Pedodontics 3.00 b.
Comprehensive clinical management in pediatric patient in areas of preventive orthodontics, operative therapy, endodontics, and motor orthopedics.

90-225 Pediatric Physical Diagnosis for Pediatric Practice 3.00 b.
Principles and rationale for making a physical evaluation of the child.

90-240 Pediatric Therapy for Dental Practitioners 3.00 b.
Principles of therapy in various disease conditions.

90-241 General Anesthesia 3.00 b.
A six to eight-week rotation through the anesthesiologist services of the University Hospitals and Clinics, with emphasis on pediatric pharmacology and medicine.

90-242 Practice Teaching in Pedodontics 3.00 b.
Observations and practice in current teaching philosophies.

90-270 Pedodontic Case Review 3.00 b.
Preparation of case summaries with emphasis on recognition of dynamics of etiology and common oral and periodontal diseases. Diagnosis, laboratory, radiographic interpretation, and therapy.

90-272 Pediatric Oral Pathology and ClinicalHematology 1.50 b.

90-280 General Geriatrical Dental Care 3.00 b.

Periodontics

Department Head: Philip A. Larson
Assistant Professor: Phillip A. Larson, Ian C. Macrakas, William C. Ruggerts, Charles B. Salstrom, J. Associate professor: Thomas S. Driscoll
Assistant professor: Paul A. Colletta, William R. Ruggerts Degree offered: M.D.

Predoctoral Program

The Department of Periodontics is concerned with the diagnosis, treatment, and prevention of periodontal diseases. 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 primarily to provide 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 thesis research and these 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 devised.

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 periododontal diseases. Such programs will be interdisciplinary with anatomy, biochemistry, microbiology, pharmacology, or physiology.

Certificate

Designed to meet all the requirements of the American Board of Periodontology for eligibility for certification, the 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 laboratories and offices exclusively to periodontics, and access to hospital experiences at the adjacent University Hospitals and Clinics and the Veterans Administration Medical Center. Research facilities include a departmental research laboratory, and college laboratories in histology and histochmstry, 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 unobstructed studies. 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 Catalog. National Dental Board of Examiners 'scores' available are required. Interviewees are encouraged, but not mandatory.

Courses Predoctoral

8201 Introduction to Periodontics 2.0h. Fundamental concepts of periodontics, for dental hygienists, presented in a lecture and seminar format as an elective course.
8202 Advanced Periodontics/Dental Hygiene Series 3.0h. Series of seminars designed to expose dental hygiene students to the theory of periodontal disease, prevention of disease, mechanics of destructive periodontal disease, maintenance of healthy periodontium.
8210 Periodontal Methods 2.0h. Fundamentals concepts of periodontics, presented in a lecture and seminar format augmented by case studies.
8211 Periodontics 2.0h. Comprehensive clinical management of the periodontal patient.
8215 Periodontology 1.0h. Comprehensive overview of periodontology and the clinical management of patients covered by anorectal and dental care.

Graduate

8231 Advanced Periodontology 2.0h. Provides incoming graduate student with comprehensive overview of periodontal therapy. Offered outline sections.
8232 Clinical Seminar in Periodontics 2.0h. Comprehensive management of periodontal patients, presented with emphasis on treatment planning and case documentation and presentation for complete periodontal therapy. Certain dental science seminars included. Required each fall and spring semester.
8236 Methods of Instruction in Periodontics 2.0h. Experience in course design in periodontics, including behavioral objectives and methods of evaluation.
8237 Practice Teaching in Periodontics 2.0h. Practical experience in lecturing, seminar direction, and clinical teaching in periodontics.
8239 Recent Advances in Periodontics 2.0h. Offered spring semester.
8239 Periodontology Pathology Seminar 2.0h. Emphasizes differential diagnosis and histopathology of cases encountered in clinical periodontal evaluation.
8242 Applied Oral Microbiology 2.0h. Review and assessment of student's knowledge of microbiology as it applies to oral health problems.
8249 Biochemical Aspects of Periodontology 2.0h. Emphasizes biochemical and molecular biological aspects of microbial and tissue reactions.
8261 Periodontal Research Methodology 2.0h. Provides facility with practical procedures involved in general and specific methods for preparation and examination of biological specimens related to dental research. Offered one summer.
8271 Dynamic of Oral Soft Tissues 2.0h. Review of methods and techniques associated with changes in oral and periodontal soft tissues.
8276 Methods for Advanced Studies in Oral Tissue 2.0h. Examination of advanced research techniques which have been used to the present concepts of structure and function of oral and periodontal tissues.
8282 Periodontology Literature Review I 2.0h. Offered fall semester of even years.
8283 Periodontology Literature Review II 2.0h. Offered spring semester of odd years.
8284 Periodontology Literature Review III 2.0h. Offered fall semester of odd years.
8285 Periodontology Literature Review IV 2.0h. Offered spring semester of even years.
8286 Research Periodontology 2.0h. Research Preparatory I 2.0h. Preparation for original research project and completion of thesis.
8287 Advanced Clinical Periodontics 2.0h. Comprehensive clinical management of the periodontal patient, with emphasis on the complex case. Registrar each semester.

Preventive and Community Dentistry

Department Head: James O. Denk
Faculty:
professor emeritus W. Philip Marx, Nathan G. Cans
professor James D. Grider, Jason A. Logan
associate professors Howard M. Fass, Prior J. Kneale, Dorothy Lowe, Roger Simpson, Cemre H. Wilcox
professor Martha Cunningham, and Hazel R. Johnson
clinical assistant professor Howard Cowan Degree offered: D.

Programs in preventive and community dentistry are designed to increase dental student awareness of oral health needs and to encourage them to develop and implement approaches to alleviate these needs.

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.

The extramural programs include a number of extramural programs that provide clinical experiences to predoctoral and graduate students. These programs are designed to give students additional training in areas that are not covered in the regular curriculum. Students in these programs are supervised by faculty members and are evaluated on their performance.

In the past, students in these programs have had opportunities to work with community health agencies, schools, and other organizations to provide dental care to underserved populations. These programs have been successful in providing valuable clinical experience and exposure to different populations.

Some of the extramural programs include:

1. Preventive Dentistry I: This program provides an introduction to the basic principles of preventive dentistry, with an emphasis on the role of the dental hygienist in the prevention of disease. Students in this program work with community health agencies and schools to provide dental care to underserved populations.

2. Preventive Dentistry II: This program builds on the principles learned in Preventive Dentistry I and includes more advanced topics such as the prevention of dental caries and periodontal disease. Students in this program work with community health agencies and schools to provide dental care to underserved populations.

3. Preventive Dentistry III: This program focuses on the role of the dental hygienist in the prevention of oral health disparities for underserved populations. Students in this program work with community health agencies and schools to provide dental care to underserved populations.

4. Preventive Dentistry IV: This program focuses on the role of the dental hygienist in the prevention of oral health disparities for underserved populations. Students in this program work with community health agencies and schools to provide dental care to underserved populations.

5. Preventive Dentistry V: This program focuses on the role of the dental hygienist in the prevention of oral health disparities for underserved populations. Students in this program work with community health agencies and schools to provide dental care to underserved populations.

These extramural programs have been successful in providing students with valuable clinical experience and exposure to different populations. They have also been successful in increasing student awareness of oral health needs and in encouraging students to develop and implement approaches to alleviate these needs.
DENTISTRY/Removable Prosthodontics

14.21 Removable Partial Denture Seminar I
Review of current research in principles, practices, and concepts of removable partial denture construction.

14.21 Removable Partial Denture Seminar II
Review of current research in principles, practices, and concepts of removable partial denture construction.

14.22 Removable Partial Denture Seminar III
Review of past research in principles, practices, and concepts of removable partial denture construction.

14.23 Research: Removable Prosthodontics
Literature review, protocol preparation, and data collection for selected research project.

14.24 Advanced Clinical Removable Prosthodontics
Treatment of patients requiring complete and removable prostheses.

14.26 Clinical Methods: Removable Partial Dentures
Assignments include studying technical methods in construction of complete and removable partial dentures.

14.27 Clinical Experience: Removable Prosthodontics
Combined clinical and laboratory experience assigned by instructor.

14.28 Journal Club
Review of current literature in prosthodontics.

14.29 Library Assignment: Removable Prosthodontics
Discussion of assigned readings that are pertinent to clinical removables in prosthodontics literature.
College of Education

The nation’s first university-level professional school 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 education 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 teachers and other professional school personnel, with the doctorate the highest 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 certification. Five of the programs involve earning a College of Education major.

Early Childhood Education

Elementary Education

Health Occupations Education

Elementary Music Education

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 all professional 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 Advisory Office, 116 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 Advisory 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 2.30 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 mentally retarded 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 of 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 secondary mental retardation program. Twenty students will be admitted each year to the preschool handicapped program. The admission process will take place as soon as spring transcripts become available to the Division of Special Education. Applicants will be notified by mail (usually by July) 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 the program 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 the ways:

They may apply to the Graduate College with their objective stated as "special education only" or in some secondary teaching areas with a Master of Arts in Teaching (MAT) objective. Students selecting this route must satisfy the following conditions:

Admission to the Graduate College.

Have a cumulative grade-point average of not less than 3.00 on undergraduate work; 3.50 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 senior 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 student teaching program. Devoted to supervised student teaching and directed observation in a variety of situations, it provides 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

Senior students, upon completion of the Teacher Education Program, must apply for admission to student teaching. Students interested in obtaining student teaching should consult with their advisors regarding specific programs for the several programs area.

Waivers

Students who have completed practicum-type experiences or courses which they feel should be considered a lieu of requirements should consult with their advisors 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 this 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-River Falls, 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 entering this program must meet the regular requirements for student teaching.

State Requirements

Certification to teach in most states, including Iowa, involves knowledge of American history, government, or American government or American history. Either of the general education (social sciences) courses introduced in American Politics or 30:110 The American Political System satisfies this requirement.

All students seeking an Iowa certificate must complete a course in human relations. This requirement can be met by completing 7X:170 Human Relations for the Classroom Teacher.

Special Requirements

Students admitted to TEP for the fall semester 1984 and thereafter must complete 74:92 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, as a taxpayer, or as a future member of a school board of education. Or, a given student may feel that such a minor would be supportive of a 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 30:110 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. A student seeking a graduate education register in the Graduate College and receive degrees 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 option. The nonthesis M.A. program usually provides a specialized course work that 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 are urged to select the M.A. thesis program which offers more experience in research procedures. Students who complete a nonthesis M.A. program and are admitted to a Ph.D. program may be asked to submit evidence of writing and research skills to their advisor or 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 outlook 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 is designed for art, 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 work in the student's proposed teaching field must be completed. A minimum of 12 semester hours of graduate work in the field must be taken to satisfy certification requirements.

Specialist in Education

The degree is granted upon completion of a prescribed two-year, postbaccalaureate program designed for students who desire special teaching or administrative responsibility in such fields as teaching, administration, 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 specialist project. Other requirements and regulations applicable to the Ed. S. are the same as for the master's degree, except that the student may have a nonresident work on campus are required in one 10-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 advisement and is appropriate for persons seeking salary credits, who are undecided about career plans, or whose applications are too late to permit processing for regular admission into degree programs. Faculty review committees may admit students to this 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 offers 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 early childhood, elementary and secondary instructional materials. It brings in a convenient central location approximately 25,000 secondary textbooks, reference books, courses of study, bibliographies, pamphlets, and non-print media such as Kinescopes, games, records, and microcomputer software. The laboratory also houses a 27,000-volume youth collection.

The Audiolavision 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, 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 field and technical assistance 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 regional educational programs, variation by evaluation teams and adherence to policies and standards for continued membership. The University of Iowa houses and supports the office of State Director of the Iowa NCA State Committee.

The Office of Research and Development provides support services for facility research, development, and grant efforts and coordinates such efforts with the University Division of Sponsored Programs. It initiates and maintains contacts with government 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 institutions accredited by the National Council for Accreditation of Teacher Education.

The College of Education Office of Student Services, N310 Lindquist Center, provides Iowa application forms and certification requirements 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 professional records, and their career or degree goals at The University of Iowa.

Graduate Assistships

Individual academic programs provide opportunities for teaching, research, or service assistships, 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 specific program in an area in which the student believes he or she can provide service or achieve an outstanding academic performance. 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 assistanship.

Special Graduate Assistships in Education

The Iowa Testing Programs and the Iowa Measurement and Research Foundation provide sufficient funds to support a limited number of special graduate assistships 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 assistships are for the academic year; the renewal is renewable for a limited number of times, and, at the present, provide stipends similar to those for other assistships. Holders 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 assistships to 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 four divisions: Associate Dean Emeritus L.A. Van Dyke; Professor Emeritus John Hatherly and John McMahon; the late Peter Maquaire, a University of Iowa alumus, and the late Donald Sweany, a University of Iowa alumus 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, 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, N320 Lindquist Center.

College of Education Awards

Awards are presented to outstanding graduate students in the College of Education at the spring semester faculty meeting of the college. The awards include:

John Leonard Davies Memorial 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 student in educational administration or higher education, particularly a student interested in the financing of education;

Perry Eugene McClanahan 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 majoring in rehabilitation counseling;

Paul C. Packard Award To the outstanding candidate for the Master's Degree in Education;

Julius T. Twai Award, Senior, M.A. and Ph.D. levels To outstanding students of high scholarship, promise in the professional analysis, 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 stage of study;

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 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 in the College of Education 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, with an additional 23% of professors rank in each of these disciplines.

Intervisitcous Courses

7/15/2018: Research Methodology Internship: 2.0 a.

Graduate students participating in Cooperative Education internships register in this course during summer in conjunction with their Co-operative Education internship. Covers careers and job placement, methods of job search, job interview techniques, and evaluation procedures.

7/10/2018: Topics in Vocational Work in the School: 2.0 a.

Introduces teachers and counselors to common student employment problems in areas such as new hire orientation, evaluation and selection, counseling, and practical work experience. Also covers preparation for a career in the field, with an emphasis on the importance of the cooperating teacher and the supervising counselor. This course is designed for students planning an occupational career in the school. This course may be repeated for a maximum of 12 credits.


Prepares students who will be teachers for the realities of teaching, the expectations of parents, and the role of the school in the community. Emphasis is on the importance of parents, teacher-student relationships, and options for both teachers and students.

7/15/2018: Human Relations for the Classroom Teacher: 3.0 a.

Develops awareness of human values, styles, and histories. Includes the study of the socialization of children, the influence of social institutions on child rearing, the role of the family, and the role of the professional in the socialization of the child. Emphasis is on the importance of the community and the role of the school in the community.


Designs a program for arts education in schools, with goal of developing common core curriculum. Emphasis is on the role of the arts in education, integration of the arts with other areas of instruction, and the importance of the arts in the development of the whole child.

7/10/2018: Teaching American History in the High School: 3.0 a.

Social history, lives, media, and television, literature and social studies. Emphasis on students' families and communities. Same as WS 110.

7/15/2018: Examination of Alternative Learning Futures: 3.0 a.

Examines current trends in societal institutions, including education and other human services. Emphasis is on the importance of the community and the role of the school in the community.


Exploration of societal human rights and equality issues, including historical bases of prejudice, discrimination, racism, and sexism. Emphasis is on the role of the arts in education, emphasizing the importance of the arts in the development of the whole child.


Explores current trends in educational policy and practice, and the role of the arts in education. Emphasis is on the importance of the community and the role of the school in the community.

7/15/2018: Evidence of outstanding leadership in extracurricular activities at an undergraduate institution.

Highly successful experience in the field.

Candidates must also evidence an appropriate level of emotional balance, personality, and interpersonal skills.

Students admitted on a conditional basis will usually be required to attain a 3.0 grade-point average to be admitted to regular status.

Education Specialist

The Ed.D. program provides specialized professional preparation in college student development by the master's level for persons with planning to enter doctoral study; to prepare candidates for such positions as associate dean or dean of students in a small college or as director of admissions, student activities, financial aids, student services, career planning and placement, residence halls, foreign student services, community college counseling service, adult continuing education, educational programs, and, with experience, as college teachers.

Admission requires completion of a master's degree in counseling, student personnel work, or a closely related area, and a 3.0 grade-point average. Successful experience in college student personnel work or equivalent experience is desirable.

Doctor of Philosophy

The Ph.D. program provides preparation for such positions as counselor educator, researcher, associate dean or dean of students, or director of admissions, student activities, financial aids, student union, career planning and placement, residence halls, foreign student services, community college counseling service, adult continuing education and external degree programs.

The M.A. degree is equivalent and not necessary for admission to the Ph.D. program. Applicants to the Ph.D. comprehensive examination, the student must pass. An M.A. degree or equivalent preparation in the relevant area of study. Students who complete the M.A. degree must pass the comprehensive exam to earn a 3.0 grade-point average to be admitted to regular status.

Rehabilitation Counseling

Master of Arts

The M.A. program (accredited by the Council on Rehabilitation Education) provides preparation for work in state rehabilitation agencies, sheltered workshops, rehabilitation centers, private rehabilitation agencies, mental hospitals, prisons, and in other public and private
Counseling and Human Development

Master of Arts

The M.A. program provides preparation for counseling in a variety of settings. Minimum requirements for regular admission to the M.A. program are a 3.0 grade-point average over the last 60 undergraduate semester hours or a 3.3 grade-point average over 12 semester hours of graduate work or a 2.75 undergraduate grade-point average with a GRE Aptitude Test score of at least 1500. Additional admission is sometimes granted.

Educational Specialist

The purpose of the Ed.S. program is to enable counselors and counselor supervisors to increase their competence beyond the master's level. Minimum admission requirements are a master's degree or its equivalent in counseling and experience as a counselor and a 3.0 minimum grade-point average on all graduate study.

Doctor of Philosophy

The Ph.D. program provides preparation for teaching, leadership, and research positions in counseling. Admission requirements are a 3.25 minimum graduate grade-point average and satisfactory performance on the GRE Aptitude Test; and a master's degree or its equivalent in a counseling area.

Substance Abuse Counseling

Master of Arts

The purpose of the M.A. program in substance abuse counseling is to prepare individuals to function in a wide variety of community counseling settings. The emphasis is on individual and family counseling. Admission requirements are the same as the minimum requirements of the Graduate College. In addition, a personal interview and some experience in the field are highly desirable.

Facilities

A wide variety of counselor education practicum experiences are available in a large number of settings in neighboring community agencies, schools, and colleges, as well as in many agencies throughout the University.

Financial Aid

Depending on federal funding, graduate teaching fellowships may be available for students entering rehabilitation counseling. Many other graduate students in the Division of Counselor Education hold a wide variety of graduate assistantships. For example, many of the University's student service units award part-time assistantships to graduate students in the division. Applicants for assistantships should contact the coordinator of the particular counselor education program they plan to enter.

Courses for Undergraduates and Graduates

Counseling and Guidance

7106 Making a Vocation-Educational Choice 2 hrs.
7109 Personality Theory and Practice 3 hrs.
7110 Human Development for Residence Hall Staff 3 hrs.
7111 Problems and Techniques of Stepfamily Counseling 3 hrs.
7112 Introductory Group Counseling 3 hrs.
7113 Psychopharmacology 3 hrs.
7114 Group Counseling in Education 3 hrs.
7115 Psychological Counseling in Elementary, Secondary, and Higher Education 3 hrs.
7116 Introduction to Research Methods in Counseling 3 hrs.
7117 Supervisor/Client Interaction 3 hrs.
7118 Social Skills and Counseling 3 hrs.
7119 Recruitment and Selection of Students 3 hrs.
7120 Counseling and Teaching Behavioral Objectives 3 hrs.
7121 Counseling and Multicultural Issues 3 hrs.
7122 Group Counseling and Leadership 3 hrs.
7123 Counseling: An Historical Overview 3 hrs.
7124 Counseling: An Intensive Examination 3 hrs.
7125 Counseling with Children and Parents 3 hrs.
7126 Counseling of Learning Disabilities 3 hrs.
7127 Counseling of handicapped students 3 hrs.
7128 Counseling of the disabled 3 hrs.
7129 Counseling with gay, lesbian, or bisexual clients 3 hrs.
7130 Career Development 3 hrs.
7131 Counseling of Women 3 hrs.
7132 Counseling of Men 3 hrs.
7133 Counseling of Criminals 3 hrs.
7134 Counseling of Adolescents 3 hrs.
7135 Counseling of Pregnant and Postpartum Women 3 hrs.
7136 Counseling of Military Personnel 3 hrs.
7137 Counseling of Parents 3 hrs.
7138 Counseling of the Family 3 hrs.
7139 Counseling of Individuals with Special Needs 3 hrs.
7140 Counseling of Persons with Alcohol and Drug Problems 3 hrs.
of study or the equivalent in one foreign language. In all other respects the B.A. and B.B. degree requirements are identical.

Required by both programs are the following foundations courses, which should be completed by the end of the sophomore year:

<table>
<thead>
<tr>
<th>Subject</th>
<th>Title</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>97.7 Fundamentals of Science</td>
<td>4.00</td>
<td></td>
</tr>
<tr>
<td>97.5 Educational Psychology and Measurement</td>
<td>3.00</td>
<td></td>
</tr>
<tr>
<td>7E.100 Introduction to Early Childhood Training</td>
<td>3.00</td>
<td></td>
</tr>
<tr>
<td>7W.91 Audio-Visual Equipment for Instruction</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>7W.90 Introduction to Microcomputing for Teachers</td>
<td>1.00</td>
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A course in American history or American politics is also required, usually completed during the junior or senior year, is the following:

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>7X.170 Human Relations for the Classroom Teacher</td>
<td>3.00</td>
</tr>
</tbody>
</table>

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 programs serving children from infancy to first grade even at elementary age. Preparation for early childhood teaching includes the study of child development, parent-child relationships, the organization and administration of child care centers in addition to the child care curriculum and methodology for young children. The program requires a minimum of four practicum 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 Board of Examiners for pre-kindergarten and kindergarten teachers. Students interested in dual certification at the pre-kindergarten and kindergarten levels 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 "Special Education" section of the Catalog. Separate requirements for this program must be made to the Department of Special Education. A student who successfully completes this combination is eligible for Iowa teaching certificate endorsements 53 and 9.

In addition to the foundations courses listed above, the following must be completed before student teaching:

<table>
<thead>
<tr>
<th>Course Title</th>
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<tbody>
<tr>
<td>17.100 Growth and Development of the Young Child</td>
<td>3.00</td>
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<tr>
<td>7P.106 Child Development</td>
<td>3.00</td>
</tr>
<tr>
<td>17.124 Nutrition with Children</td>
<td>3.00</td>
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<tr>
<td>17.123 Literature for Children I</td>
<td>3.00</td>
</tr>
<tr>
<td>17.122 Literature for Children</td>
<td>3.00</td>
</tr>
<tr>
<td>17.120 Music for the Classroom Teacher</td>
<td>3.00</td>
</tr>
<tr>
<td>17.127 Technique of Early Childhood Education</td>
<td>3.00</td>
</tr>
<tr>
<td>7E.103 Pre-Education Practice, Pre-Kindergarten</td>
<td>1.00</td>
</tr>
<tr>
<td>7E.107 Pre-Education Practice, Early Elementary</td>
<td>1.00</td>
</tr>
<tr>
<td>7E.109 Pre-Education Practice, Kindergarten and Early Elementary</td>
<td>1.00</td>
</tr>
</tbody>
</table>

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 positions. Assignments of two or more teachers assume shared classroom 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 designed specifically for elementary students 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 text continues with additional information and requirements for the program, including detailed descriptions of the courses and their prerequisites.]
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–no pass if they are offered with the pass–no pass 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 advisors concerning the appropriate registration pattern.

Graduate Programs
Master of Arts in Early Childhood Education

The program is designed to prepare persons to administer and 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 teachers. Admission will be given to those persons with undergraduate degrees which focused on the education and/or development of young children, particular 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:254 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. The remainder of the required 27 semester hours (30 with thesis) are elected mutually chosen by the student and the academic advisor.

Master of Arts in Elementary Education

This degree program, which may be taken with thesis (30 semester hours minimum) or without (32 semester hours minimum), is designed to prepare master's degree candidates in elementary education to serve as team leaders, grade-level or subject area supervisors, or curriculum consultants. Successful completion of this degree, together with four years of successful teaching experience, qualifies the student for certification as an elementary school supervisor, Iowa Endorsement 12. 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 either early childhood or elementary education. Each candidate must elect at least one course in each of these areas: social foundations, curriculum, educational psychology and measurement, and supervision. In addition, each candidate must complete an area of specialization and select course work in advanced methodology.

Graduate students who have not completed an undergraduate program in elementary education may be admitted initially as "certification only" candidates.

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 34. The program is offered with thesis (30 semester hours minimum) and without (32 semester hours minimum).

The following are required of all candidates:

7E:171 Reading Clinic 2-3 s.h.
7E:172 Teaching Techniques 2-3 s.h.
7E:173 Teaching Practicum 2-3 s.h.
7E:264 Building foundations for Reading: Pre-primary and Primary 2-3 s.h.
7E:285 Supervision of Intermediate Grades: Reading 3 s.h.
7E:194 Method: High School Reading 2-3 s.h.
7E:306 Spring: Secondary Reading 3 s.h.
7E:308 Seminar: Research and Current Issues, Reading 3 s.h.

In addition, candidates must complete one or more courses in each of the curriculum, supervision, and social foundations areas. The student selects the remaining elective hours with the advisor'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 thesis (30 semester hours minimum) or without (32 semester hours minimum). 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 3 s.h.
7E:256 Science Education: Nature of Science 3 s.h.
7E:257 Science Education: Teaching, Learning, and Curriculum Models 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 doctoral students in education and university teaching and research positions in elementary education and for research, curriculum, supervisory, or administrative positions in public school systems and government educational agencies.

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 division chair.

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. A common set of 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.
The Division of Educational Administration functions to prepare individuals for leadership positions within the educational system, offers course work leading to the M.A., Ed.S., and Ph.D. degrees.

The primary purpose of the M.A. program is to prepare individuals for appointments as elementary or secondary school principals, central staff members, for certain positions within state departments of education, and for positions with area education agencies.

The primary purpose of the Ph.D. program is to prepare students for leadership positions at all levels of education. Programs are individually designed for the candidate, including course work and research pursuits.

The Division of Educational Administration offers its programs jointly with the Division of Early Childhood and Elementary Education and the Division of Secondary Education as well as other divisions in the College of Education. It also offers joint programs with other colleges in the University.

Certification
To be eligible for recommendation by The University of Iowa for certification in an M.A. degree only, satisfy all core requirements, the candidate must:

Title: Master of Arts in Educational Administration
Code: 145
Title: Master of Science in Educational Administration
Code: 144
Title: Doctor of Education in Educational Administration
Code: 146

The requirements for the M.A. and M.S. degrees are the same. The candidate must complete the following courses:

1. Core Courses (minimum 45 credit hours)
2. Elective Courses (minimum 15 credit hours)
3. Research Project (minimum 6 credit hours)
4. Comprehensive Exams (minimum 9 credit hours)

The Division of Educational Administration offers its programs jointly with the Division of Early Childhood and Elementary Education and the Division of Secondary Education as well as other divisions in the College of Education. It also offers joint programs with other colleges in the University.

Educatioual Administration

The purpose of this program is to prepare individuals for appointments as elementary or secondary school principals, central staff members, for certain positions with state departments of education, or positions with area education agencies.

The student may take the program with the thesis (30 semester hours minimum) or without thesis (32 semester hours minimum).

Course Requirements

With the aid of an advisor, the student prepares a plan of study including these core requirements:
### All Candidates

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>7D:201 Foundations of School Administration</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7D:203 Computer Applications in Education</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>7D:201 The Principalship</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7D:298 Legal Aspects of School Personnel</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>7D:299 Supervision of Instruction</td>
<td>2-3 s.h.</td>
</tr>
</tbody>
</table>

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 advisor to satisfy degree requirements.

### Elementary Level

#### Required

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>7E:300 Design and Organization of Curriculum (elementary)</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7D:202 Field Service Projects in Educational Administration (elementary)</td>
<td>arr.</td>
</tr>
</tbody>
</table>

#### Electives

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>7F:117 Philosophies of Education</td>
<td>2, 3, 5 s.h.</td>
</tr>
<tr>
<td>7P:150 Introduction to Educational Measurement</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7D:202 School Organization Patterns</td>
<td></td>
</tr>
<tr>
<td>7E:200 Advanced Techniques of Teaching Science in the Elementary School</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7E:297 Curriculum Development in the Kindergarten and Early Childhood</td>
<td>2-3 s.h.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>7U:303 Seminar: Administration and Coordination of Curriculum</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>7D:299 Supervision of Elementary School Social Studies</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7E:293 Supervision of Elementary School Mathematics</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>7E:296 Supervision of Intermediate Grade Reading</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7E:298 Curriculum Development in the Pre-Kindergarten</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7E:290 Supervision of Student Teachers and Auxiliary Personnel</td>
<td>2-3 s.h.</td>
</tr>
</tbody>
</table>

### Secondary Level

#### Required

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>7S:291 Secondary School Curriculum</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7D:202 Field Service Project in Educational Administration (secondary)</td>
<td>arr.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>7F:117 Philosophies of Education</td>
<td>2, 3, 5 s.h.</td>
</tr>
<tr>
<td>7P:131 Educational Psychology</td>
<td>3-4 s.h.</td>
</tr>
<tr>
<td>7P:143 Introduction to Statistical Methods</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>8L:153 Collective Bargaining</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>8L:250 Staff Personnel Management</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7S:186 Curriculum Foundations</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>7D:202 Administration and Supervision of Special Education</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7P:255 Construction and Use of Evaluation Instruments</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7D:202 School Organization Patterns</td>
<td></td>
</tr>
<tr>
<td>7C:270 Issues and Trends in School Guidance</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>7D:290 Improving Instruction in the Secondary School</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7D:201 Administration of Professional Personnel</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>7D:295 Financial Management of Local School Systems</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7D:297 Theory in Administration</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7D:295 Legal Aspects of School Administration</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>7D:340 Seminar: Supervision and Administration</td>
<td>2-3 s.h.</td>
</tr>
</tbody>
</table>

### Central Staff Administration

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>7P:143 Introduction to Statistical Methods</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7D:203 Computer Applications in Education</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>7D:295 Financial Management of Local School Systems</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

#### Electives

To be selected with the approval of the advisor.

### Thesis

A student electing the M.A. program with thesis must take 7D:303 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 emphasis selected with the approval of his or her advisor.

### 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

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>7P:131 Educational Psychology</td>
<td>3-4 s.h.</td>
</tr>
<tr>
<td>7F:117 Philosophies of Education</td>
<td>2, 3, 5 s.h.</td>
</tr>
<tr>
<td>7D:201 Foundations of School Administration</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7D:297 Theory in Administration</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

### Program Emphasis

Students must complete the balance of their minimum required hours (minus required academic hours) in one of the following areas of emphasis. Courses specifically listed in each area of specialization are the required courses.

#### Elementary School Administration

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>7P:150 Introduction to Educational Measurement</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7D:201 The Principalship</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7D:202 School Organization Patterns</td>
<td></td>
</tr>
<tr>
<td>7E:300 Design and Organization of Curriculum</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7D:303 Seminar: Administration and Coordination of Curriculum</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>7D:203 Seminar: Supervision and Administration</td>
<td>2-3 s.h.</td>
</tr>
</tbody>
</table>

### Secondary School Administration

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>7E:296 Curriculum Foundations (same as 7E:298)</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>7P:150 Introduction to Educational Measurement</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7D:203 Computer Applications in Education</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>7D:291 The Principalship</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7D:290 Improving Instruction in the Secondary School</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7E:293 Secondary School Curriculum</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>7D:295 Issues and Trends in School Guidance</td>
<td>2-3 s.h.</td>
</tr>
</tbody>
</table>

### General School Administration

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>7C:300 Design and Organization of Curriculum</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7L:291 Secondary school Curriculum</td>
<td>2-3 s.h.</td>
</tr>
</tbody>
</table>

### Electives

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>7E:200 Advanced Techniques of Teaching Science in the Elementary School</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7E:293 Supervision of Elementary School Mathematics</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>7E:296 Supervision of Intermediate Grade Reading</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7E:298 Curriculum Development in the Pre-Kindergarten</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7E:290 Supervision of Student Teachers and Auxiliary Personnel</td>
<td>2-3 s.h.</td>
</tr>
</tbody>
</table>
Cognates
The student must complete a minimum of six semester hours bearing a cognate relationship to educational administration, subject to the advisor's approval.

Electives
The student chooses electives comprising the 60 semester-hour requirement for the Ed.D. degree. In the program for general student 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.D. 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.D. 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 student's area, 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 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 advisor 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 advisor 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. If 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 coursework in educational administration.

Research

Discussion Prospectus
The student must write a formal dissertation prospectus and submit it to a doctoral committee for approval. The student and advisor determine the time for completing the prospectus. Final evaluation of the prospectus is made at the meeting of the committee.

Completion of the Dissertation and Final Examination
The student must accumulate a minimum of ten 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 average, Graduate Record Examination (GRE) Aptitude Test scores, and other evidence of academic ability and professional promise.

Courses

Educational Administration

10:20J Foundations of School Administration
10:20K Introduction to Educational Administration
10:20L Leadership and Administration
10:20M Educational Policy
10:20N Educational Policy, Planning, and Management
10:20P Administrative Decision Making
10:20Q Educational Administration and Supervision
20:20A Computer Applications in Education
20:20B Educational Technology and Learning Environments
20:20C Educational Technology and Learning Environments
20:20D Educational Technology and Learning Environments
20:20E Educational Technology and Learning Environments
20:20F Educational Technology and Learning Environments
20:20G Educational Technology and Learning Environments
20:20H Educational Technology and Learning Environments
20:20I Educational Technology and Learning Environments
20:20J Educational Technology and Learning Environments
20:20K Educational Technology and Learning Environments
20:20L Educational Technology and Learning Environments
20:20M Educational Technology and Learning Environments
20:20N Educational Technology and Learning Environments
20:20O Educational Technology and Learning Environments
20:20P Educational Technology and Learning Environments
20:20Q Educational Technology and Learning Environments
20:20R Educational Technology and Learning Environments
20:20S Educational Technology and Learning Environments
20:20T Educational Technology and Learning Environments
20:20U Educational Technology and Learning Environments
20:20V Educational Technology and Learning Environments
20:20W Educational Technology and Learning Environments
20:20X Educational Technology and Learning Environments
20:20Y Educational Technology and Learning Environments
20:20Z Educational Technology and Learning Environments
to enable students to better understand the influence of social, historical, and philosophical forces upon the formal, educational enterprise. Major areas of specialization for 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 School. A personal interview with one or more members of the social foundations faculty is desirable and may be required. An understanding of and/or exposure to philosophy, the humanities, or the social sciences for at least two 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 32 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 Ph.D. program requires a minimum of 90 semester hours. Students are required to take a minimum of 24 semester hours in social foundations which must include at least 12 semester hours in the major area of specialization and a minimum of six semester hours from another social foundation of the College of Education. In addition, the student must take at least 12 semester hours in the major area of specialization in the College of Education, much of which will 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 (20 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. Further, students will complete courses in 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: three to five courses: in accordance with the individual candidate’s research interests and program: two courses in a graduate level statistics program: philosophy and science and philosophy of social science: honorography, foreign language(s): proficiency exam.

In addition, all students are required to successfully complete 7F:010 Seminar: Alternative Research Strategies and 7H:305 Research in Higher Education. Dissertation research 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 process. The educational phenomena. The academic programs in the division encompass that complexity. Degree programs are offered at all levels. There is an emphasis on both research and practice. The aim of the education and administration is to provide the teaching, research, and service activities of the faculty, and the work of the graduates of the general degree programs, illustrates that education beyond 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 core courses in educational administration and additional course work in the health occupations field in which they are concentrating.

Students majoring in this program must maintain a 3.0 overall grade-point average, complete all required courses, be in good standing throughout the program and pass the Fundamentals of Nursing (FON) examination.

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 in local school systems, community college administration, business manager, development officer, assistant to the president, director, instructor, and director, and a program similar in scope but limited to educational and instructional positions.

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 development. Transcripts, the 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 the areas of administration, curriculum and instruction, community college administration, and continuing education for students 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 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

12 s.h.
3 s.h.
3 s.h.
3 s.h.
2 s.h.
1.5 s.h.
1.5 s.h.
1.5 s.h.
1.5 s.h.
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 administration, 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 comprehensives.

Education, if possible reflecting an area of specialization within the concentration, 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—1.5 s.h.

TH:310 College Teaching internship—1.5 s.h.

TH:315 Post-High School Staff Development Workshop—1.5 s.h.

TH:395 Audiovisual Equipment for Instruction—1.5 s.h.

TH:312 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 select 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 part-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 related 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 60 semester hours beyond the bachelor's degree.

The candidate chooses one area of concentration and must earn 16 to 24 semester hours within 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 or work 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 places heavy emphasis on administration at both the theoretical and applied levels, the student is expected to take courses 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.

Applications 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, the 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 an arts and sciences field 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 by 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 Iowa.

The following courses fulfill the requirement:

TH:117 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 Introductory 3 s.h.

In addition applicants for certification must have completed an approved human relations course for three to six 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 resource and document collection relating to community colleges is available for students doing research or seeking employment information.

Courses

Social Foundations and Comparative Education 3-4 s.h.

Basic principles and methods of research drawn from psychology, sociology, anthropology, political science, and economics. Credit for this course cannot be received by students who have already been granted credit for one of the following courses: 394, 395, 396.
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. Six positions occur in research centers, testing organizations, large school systems, and state educational agencies. The program is also appropriate for students who seek to develop knowledge of measurement and research methods in occupational development.

The degree may be taken without thesis (32 semester hours minimum) or with thesis (minimum of 28 semester hours of course work plus two to four semester hours of thesis credits). 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 statistics, 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 electives may be chosen from the fields of psychology and educational psychology, statistical methods, educational measurement, computer programming and data processing, mathematics, and statistics, and counseling.

The final comprehensive examinations typically include three examinations in educational measurement and in applied psychological measurement. In addition to the M.A. committee, the student may take two examinations in other fields plus a two-hour examination in educational psychology or a substitute area. The examination areas include:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>3P-160</td>
<td>Introduction to Psychology of Reading</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>3P-173</td>
<td>Diagnostic and Prescriptive Approaches to Reading Instruction K-12</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>3P-170</td>
<td>Educational Measurement</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>71-251</td>
<td>Individual Intellige testing</td>
<td>3-4 s.h.</td>
</tr>
</tbody>
</table>

Students must also complete at least four semester hours of practicum courses chosen with the advisor’s approval from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>7E-121</td>
<td>Reading Clinic Teaching Techniques</td>
<td>1-3 s.h.</td>
</tr>
<tr>
<td>7E-172</td>
<td>Reading Clinic Teaching Practicum</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>7E-271</td>
<td>Advanced Reading Clinic Techniques</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>7E-272</td>
<td>Advanced Reading Clinic Practicum</td>
<td>2-5 s.h.</td>
</tr>
<tr>
<td>7E-365</td>
<td>Reading Clinic: Supersession ari</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7C-365</td>
<td>Teaching in a Reading Laboratory</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7S-259</td>
<td>Reading Clinic: Teaching Practicum—Secondary Level</td>
<td>4-6 s.h.</td>
</tr>
</tbody>
</table>

All students must take a minimum of 14 semester hours in elective courses, chosen with the advisor’s approval from the field of speech pathology and audiology, educational psychology, special education, elementary or secondary education.

The thesis program requires a minimum total of 30 semester hours including the following core courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credit 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 Psycholology of Reading</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>TP-273</td>
<td>Reading Clinic: Diagnostic Practicum 160-180 Introduction to Linguistics</td>
<td>1-3 s.h.</td>
</tr>
<tr>
<td>TP-353</td>
<td>M.A. Thesis in Educational Psychology</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 two or three examinations 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 solution 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) is above 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 program requires a minimum average in all courses taken for the degree 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 up educational programs, business and industry, hospitals, government, and the military. It may be taken either with or without thesis. The program 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 2.5 for the 12 semester hours of course work taken after admission.

The degree requires the following course work or approved equivalents:
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 100 fewer than six semester hours at the 200 level. Additional requirements include the following: P7 200 Educational Research Methodology: a minimum of six semester hours of 200-level course work in statistics and one graduate-level course in measurement; and ten hours of Ph.D. thesis credit. Alterations in these requirements for an individual student can be made with the approval of a three-member committee comprised of faculty members in the Education Psychology program. Candidates who took the M.A. degree without thesis must undertake a project in lieu at the Ph.D. level. 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 of studies consists of core courses, seminars of critical and analytical skills, development during the year, and purview 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 pass the comprehensive examination. Typically, these examinations consist of a total of nine hours of written examinations in two or more areas. One of these hours must be from the following: human development, cognition/learning, or motivation/socialization. With the approval of the examining committee, the student may undertake a project in lieu of one three-hour examination.

An applicant for admission to the program must hold a 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 Examination (GRE) Aptitude Test total less than 1000, he or she will not be admitted. However, in other evidence (high grade-point average, strong academic preparation, and highly supportive recommendations) warrants it, the candidate may be admitted conditionally. Applications are reviewed as received.

Doctor of Philosophy in Counseling Psychology

The program, which is approved by the American Psychological Association, provides preparation in general psychology, research methods, and therapeutic skills in order to help

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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; that is, 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 fill completion of the application 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:

P7 140 Introduction to Statistical Methods

P7 261 Research Methods in Instructional Design and Technology

P7 269 Survey of Research in Instructional Design and Technology

Every student must also complete 15 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 (Emphasis 39)

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 emphasis of the project will depend on the program, interest, and career plans of the student involved. Comprehensives 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 professorships at the university and college level, and research and administrative positions in educational agencies, clinics, hospitals, testing organizations, and the public schools. A concentration in one area of reading disabilities prepares students for careers as reading consultants, directors of reading clinics, and professors who train diagnostic and prescriptive reading specialists.

The program encompasses the substantive areas—human development, cognition/learning, and motivational/socialization. The student must have a minimum of 12 semester hours of 200 level courses in these areas. This course work must include at least one 200-level course in each of the human development and learning/cognition areas and one graduate course in motivational/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 100 fewer than six semester hours at the 200 level. Additional requirements include the following: P7 200 Educational Research Methodology: a minimum of six semester hours of 200-level course work in statistics and one graduate-level course in measurement; and ten hours of Ph.D. thesis credit. Alterations in these requirements for an individual student can be made with the approval of a three-member committee comprised of faculty members in the Education Psychology program. Candidates who took the M.A. degree without thesis must undertake a project in lieu at the Ph.D. level. 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.
Doctor of Philosophy in Educational Psychology

The purpose of this program is to prepare students for senior professional positions in the fields of educational measurement, program evaluation, and statistical research. These positions generally occur in colleges and universities, government agencies, departments of education, large public and private school systems, testing agencies, and research centers.

Every student must complete the following core courses or their equivalent:

- **7P-131 Educational Psychology** 6 s.h.
- **7P-243 Intermediate Statistical Methods** 4 s.h.
- **7P-148 Research Statistics I** 4 s.h.
- **7P-220 Educational Research Methods** 3 s.h.
- **7P-235 Construction and Use of Evaluation Instruments** 3 s.h.
- **7P-257 Educational Measurement and Evaluation** 3 s.h.
- **7P-264 Correlation and Regression** 3 s.h.
- **7P-266 Design of Experiments** 4 s.h.
- **7P-265 Program Evaluation** 3 s.h.

The student's advisor will suggest additional coursework in areas appropriate to the student's interests and vocational objectives. These courses typically include additional work in educational measurement, applied statistical methods, scaling of measures, and educational psychology.

Students who concentrate in the area of statistics, with the intention of teaching on the college level, will be required to take courses in the mathematical theory of statistics. Those who concentrate in the area of educational measurement and evaluation are advised to take courses in curriculum, counseling, and higher education. All students must develop facility with computer programming techniques and processing equipment.

Circumstances where the program will not be completed at the Ph.D. level require written consent from the student. Subjects may continue to the degree upon completion of at least 16 semester hours of course work per year. All students are required to complete a comprehensive examination at the conclusion of their program. The comprehensive examination is administered at the beginning of the program and includes the following areas:

- Educational psychology
- Educational measurement and evaluation
- Statistical methods

The student is responsible for attending the comprehensive examination. Students who fail the comprehensive examination must either retake it or withdraw from the program. Students who withdraw from the program are not eligible to return to the program for at least one year.

The student is required to complete a final examination in statistics, with the intention of teaching on the college level, in the area of statistics. This examination is administered at the beginning of the program and includes the following areas:

- Educational psychology
- Educational measurement and evaluation
- Statistical methods

The student is responsible for attending the final examination. Students who fail the final examination must either retake it or withdraw from the program. Students who withdraw from the program are not eligible to return to the program for at least one year.
Courses

Educational Psychology, Measurement and Statistics

5925 Elementary Statistics and Inference 3 cr.
Distribution theory, sampling distribution, methods of statistical inference, measures of central tendency, and standard error of estimate. Same as PSYCH 256. Prerequisite: 2221 or equivalent. Same as 2225.

5926 Educational Psychology and Measurement 3 cr.
Subjects in developmental and classroom learning, teaching, and curriculum development. Elements of classroom management, construction, use, implementation, and evaluation of educational materials. Prerequisite: 2221 or equivalent.

5930 Learner Characteristics 3 cr.
An overview of the psychology of learning, ability, models of ability organization, genetic and environmental influences, effects of sex, age and education on one or more learners' abilities. Prerequisite: 2221 or 2225.

5934 Child Development 3 cr.
Physical, mental, social, emotional, and moral development of the child from birth to age 14. Prerequisite: 2221 or 2225.

5935 Psychological Aspects of Instruction 3 cr.
Same as PSYCH 109.

5955 Developmental and Behavioral Aging 3 cr.
Social development, biological, psychological, and social development, effects of social roles on social behavior.

5955 Understanding and Controlling Human Aggression 3 cr.
Personality factors, frustration, stress, personality, and loneliness; the effects of sex and age on aggression; the relationship between aggression and behavior in learning and social situations.

5956 Building the Social Skills of Children 3 cr.
Facts influencing social behavior of children: role of models; effects of constructive and cooperative behavior; use of role models, role-playing, choice making, and social competence in learning; the social judgment of people; education and the role of social skills in society. Prerequisite: 2221 or 2225.

5957 Stimulating the Vocational Growth of Children 3 cr.
Environments factors and activities related to child growth; vocational growth and the influences of parents, teachers, siblings, and peers, and age; training a child for the labor market; educational and vocational guidance and adults; participation and administration of training systems.

5981 The Education Reform School Reform of the 1980's 3 cr.
School reform of the 1980's; their psychological aspects, and their impact on behavior of the 1980's and 1990's; writings of Garfield, Horn, Bud, and others. Sustainable for noneducation majors. Prerequisites: Psychology major. Right-hand side. Same as 5981.

5981 Educational Psychology 3 cr.
Psychological principles of teaching, learning, and motivation, including the development and design of instructional and teaching techniques, and practical applications of the learning process. Prerequisites: Psychology major.

5982 Adolescent and Young Adult 3 cr.
Psychological and educational development of adolescence and young adulthood. Prerequisites: Psychology major. Same as 5982.

5985 Measurement and Evaluation 3 cr.
Correlational, factorial, and other statistical techniques, factor analysis, data transformation, scaling, and other statistical techniques, factor analysis, data transformation, scaling, and other statistical techniques. Same as 5985.

5987 Research Statistics I 4 cr.
Correlational, factorial, and other statistical techniques, factor analysis, data transformation, scaling, and other statistical techniques. Same as 5987.

Financial Aid

The division normally employs a number of graduate students as teaching, research, and project assistants. These students are normally half-time academic year appointments, and holders are permitted to work a 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 through the Iowa Testing Program. Duties are varied, including such responsibilities as test development, test norming, and construction of tests. In the field whose pupils have participated in these testing programs. There are also a few other assistantships supported by the Iowa Testing Program which are not specific to the programs cited above. They are not open to students in the programs.

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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 Lurie 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 Litun
- Health Education
- Home Economics
- Journalism
- Mathematics
- Music
- Physical Education
- Reading

Courses are offered along with 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:

- 7S:91 Introduction to Teaching 2 s.h.
- 7S:100 Issues in Education 2 s.h.
- 7P:75 Educational Psychology and Measurement 3 s.h.
- 7W:52 Introduction to Microteaching for "teachers 1 s.h.
- 7X:170 Human Relations for the Classroom "teacher 3 s.h.

The methods or teaching courses in the major field 3-4 s.h.

Student teaching 12 s.h.

With their advisor’s approval, graduate students may elect non-thesis graduate courses in lieu of 7S:91, 7S:100, and 7P:75. Students must complete the 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 0-06080100/10100/20000 area established by the College of Education. An exception to student teaching in the customary contractual area will be considered only if the proposed student teaching site provides the student with a specific program opportunity not available in the contractual area or utilizes special cooperating teacher expertise. 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 7S, 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 Advisory Office, 119 Schaefer Hall. In order to be eligible for admission, students must have completed a minimum of 28 semester hours of course work and have a minimum cumulative grade point of 3.3. 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 the TEP. Students should consult the College of Education advisor in their subject matter field, or the Division of Secondary Education Office, N293 Lurie Center for additional information on admission criteria.

Graduate students who have been admitted to the Graduate College for "certification only" must have to apply for admission to the Teacher Education Program. Their application to "certification only" automatically implies admission to the TEP.

Upon admission to the TEP, students will be assigned an education adviser.

**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 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, foreign language reading, 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 degrees offered 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 the program is to assist teachers who want to have the opportunity to become fully literate in art theory and language of art.

**Admission**

Applicants must have completed the equivalent of the minimum course work in art required for the B.A., B.F.A., or B.F.T. degree in art from the University of Iowa and a certificate to teach art. Applicants must be accompanied by a representative portfolio of actual work consisting of eight side reproductions of art work and one example of written work. The written work may be a paper prepared by the student for a course or it may be an original paper. Deadlines in undergraduate art or courses recommended for teacher certification, if any, will be evaluated following application to permit students to make 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 studio art.

Art Education Seminars (6 s.h.)—The Craft Media Seminar. Current Issues in Art Education.

Twelve semester hours to be specified after the student begins the program.
Thesis—Either a written or studio thesis, if a studio thesis is elected the student must pass M.A. or M.F.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 thesis in art education 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 art in state departments of education and school systems. To provide an opportunity for continued inquiry and creative work in art history and in studio.

Admission

Students must meet the general requirements of the Doctor of Philosophy program in the Graduate College. It is necessary that the student have an M.A. degree in an area of specialization 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 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, child education, education, psychology, sociology), and 15 semester hours in courses meeting the individual’s needs (to be specified after the student begins the program). 71:306 or 7E:306 is required in 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 12 semester hours, which constitutes a contribution to scholarship, is expected to prepare a dissertation proposal and defend it before the dissertation committee; an oral examination on the dissertation in the Ph.D. oral 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 requirements. Application to the program 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 suppletial scholarship investigation and writing, which normally will be worthy of presentation to the committee prior to the comprehensive examination;

A comprehensive examination consisting of three- to two-hour segments to be defined and limited 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 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: 101 Educational Psychology—3 s.h.

TP: 117 Philosophy of Education—3 s.h.

TP: 107 History of Western Education—3 s.h.

7T: 150 Methods: Communication—3 s.h.

7S: 191-192 Observation and Lab Practice in the Secondary Schools—12 s.h.

7S: 187 Seminar: Curriculum and Student Teaching—3 s.h.

7T: 170 Human Relations for the Classroom Teacher—3 s.h.

Student teaching 7S: 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 7T: 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.

Degree Requirements

Common Core (15-16 s.h.):
7S:186 Curriculum Foundations
11T:117 Philosophies of Education
7P:257 Educational Measurement and Evaluation
7T:261 Secondary School Curriculum
7E:300 Design and Organization of Curriculum
Research tool—selected in consultation with the advisor.

At least two advanced supervision courses
6 s.h.
in secondary or elementary school subject fields:
7P:267 Educational Measurement and Evaluation
3 s.h.
or
7P:255 Construction and Use of Evaluation Instruments
3 s.h.
250 Problems in supervision
5 s.h.
Electives (20-35 s.h. to be chosen in consultation with advisor.)
Recommended electives include:
7T:120 Educational Sociology
7T:117 Philosophies of Education
7P:131 Educational Psychology
7P:175 Introduction to Psychology of Reading
7P:342 Selected Applications of Statistical Techniques
7T:203 Computer Applications in Education
7T:237 Theory in Administration
7W:120 Introduction to Institutional Design and Technology
7L:150 Exceptional Persons
All doctoral candidates are required to complete at least eight semester hours of cognate work, preferably in sociology, psychology, or political science.

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.

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 methods of teaching for secondary school classroom teachers.

Admission

A secondary school teaching certificate is required. Preferred undergraduate grade-point average of 3.0. Students must maintain a 3.0 grade-point average while they are in the program.

Degree Requirements

A minimum of 30 semester hours: two-thirds in the area of major coursework, offered by the Department of English and one-third of the semester hours in professional education courses...

Regular written comprehensive examinations based on a list of obligatory 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 undergraduate grade-point average of 3.0 or above and a verbal score above the 50th percentile 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. This may include college teaching, junior high school teaching, curriculum, reading, composition, speech and drama, language and communication, research, and auditory literacy, literature for children and adolescents. All courses taken toward this degree must be passed with a grade of B or better if the student wishes to teach in the secondary schools.

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-113 Educational Psychology 3 s.h.
- 7F-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 fiftieth percentile on verbal test (lowes normal) 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 in courses they are in the program. Their candidacy is reevaluated annually.

Degree Requirements
A minimum of 72 semester hours is required.

Area of Specialization: Teaching of English (6-16 s.h.), including four of the following courses:
- 7S-260 Supervision of Elementary School Language Arts 3 s.h.
- 7S-306 Seminar: Research and Current Issues 3 s.h.
- 7S-315 M.A. Seminar: English Education 3 s.h.
- 7S-415 Ph.D. Seminar: English Education 2-4 s.h. (required for two or more registrations)

Cognates and electives (up to 18 s.h.) may include reading, school curriculum, literature for young people, literature of a particular specialty, educational psychology, special education, educational media, rhetoric and composition, linguistics, literary criticism, educational measurement, speech and dramatic arts. Students and advisor will select two of the areas of specialization in consultation with the teaching of English. Areas of specialization will typically require a minimum of nine semester hours of work in an area.

Facility in a research tool agreed upon by the student and advisor which will help the student achieve professional objectives.

Foreign Language Education
Master of Arts in Teaching
The M.A.T. program in foreign language education is designed for superior liberal arts graduates who have had few or no professional education courses. Successful completion of the program leads to secondary school teacher certification.

Admission
A bachelor's degree with a major in a foreign language and a 3.0 undergraduate grade-point average is required.

Degree Requirements
At least 18 semester hours of graduate courses in a foreign language department and the following professional education courses:
- 7S-91 Introduction to Teaching 3 s.h.
- 7P-113 Educational Psychology 3 s.h.
- 7S-107 History of Western Education or
- 7S-117 Philosophies of Education 2 s.h.
- 7S-125 Basic Program for Foreign Language CAI (same as 9158, 35129) 2 s.h.

7S-116 Methods of Foreign Language Instruction 3 s.h.
7S-191-192 Observation and Laboratory Practice in the Secondary School 12 s.h.
7S-187 Seminar in Curriculum and Student Teaching 1 s.h.
7X-170 Human Relations for the Classroom Teacher 3 s.h.

A comprehensive examination covering the candidate's knowledge and proficiency in the language, literary analysis, and of foreign language education.

Home Economics Education
Master of Arts
The M.A. program is administered by the Department of Home Economics and is described in the "College of Liberal Arts" section of the catalog.

Master of Arts in Teaching
Admission to the M.A.T. program is through the College of Education, however, the program requirements are given under the "Department of Home Economics" in the "College of Liberal Arts" section of the Catalog.

Mathematics Education
Master of Arts
The purpose of the program is to provide students intending doctoral study with advanced specialization in mathematics and education as a better foundation for teaching at the secondary level.

Admission
Candidates must meet the admission requirements of the Graduate College and except in unusual cases, hold a professional certificate to teach secondary school mathematics.

Degree Requirements
A minimum of ten semester hours of course work in mathematics approved by the student's adviser:
A minimum of four courses in mathematics education, which must include:
- 7S-235 Current Issues in Mathematics Education 2-3 s.h.
- 7S-231 Teaching Computer Programming in Secondary School Mathematics 2-3 s.h.
- 7S-295 Teaching of Geometry 2-3 s.h.
- 7S-297 Teaching Mathematics in the Middle School and Junior High School 2-3 s.h.
- 7S-298 Teaching the Low Achiever in Mathematics 2-3 s.h.
- 7S-299 Teaching the Algebra 2-3 s.h.
- 7S-335 Seminar: Mathematics Education 2-3 s.h.
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-hour comprehensive examinations of the 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. This 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:

Competency 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 subject matter contents 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 taken toward the master's degree. (All credit must be updated if taken more than ten years previously.) Minimum course requirements are for exceptionally strong students. Typically, a Ph.D. will involve 80 to 90 semester hours.

The purpose of the program is to prepare supervisors, teacher education personnel, university college personnel, and researchers in mathematics education.

Admission

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 course work in mathematics at The University of Iowa which are to be chosen with the approval of the adviser.

Competency in two areas of mathematics including statistics and computer science, and algebra or analysis (both may be chosen). This competency 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 or above 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-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 area 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 required. A prospectus for 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 expected to earn a minimum of ten semester hours of dissertation credit.

Music Education

Both the Master of Arts and Doctor of Philosophy 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

Course requirement:

25:145 Contrapuntal Forms

25:147 Tonal Forms

25:154 Introduction to Music Literature

Special 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

25:305 History of Music in the Christian Church

Specific hour and course requirements in the history and literature area are determined by scores on the advisory examinations.

Music Education (10-12 s.h.):

75:144 Psychology of Music

75:206 General Music Programs in Public Schools

75:242 Supervision and Administration of Music Programs

Electives to be selected in consultation with the adviser.

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 progress earned in the music advising examinations and the amount of credit earned in music education elective courses.
in the semester in which the student expects 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 Ph.D. is designed to prepare students for teaching, research, or administrative functions in the following types of positions:

- College positions—teachers of music, educational officers, and research 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**

Applicants are invited 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 qualified for a valid teaching certificate, and have a minimum of two years of successful teaching experience.

In addition to the specific admission requirements stated above, an appraisal of teaching and successful potential, and writing ability is made by the music education faculty to whom petitions for admission are likely determined.

**Degree Requirements**

The Ph.D. degree is designed to emphasize the comprehensive nature of the student's education. In the areas of theory and practice and of music education, students are expected to complete two comprehensive and final examinations and not on the accumulation of semester hours of coursework. Undergraduate and semester hours listed below are to be considered minimum requirements for the following typical student in preparation for the satisfactory completion of the comprehensive and final examinations.

**Music (21-29 s.h.)**

- **25-321 Introduction to Graduate Study in Music** 2 s.h.
- **25-295 Musical Acoustics** 3 s.h.
- **25-145 Contrapuntal Forms** 3 s.h.
- **25-141 Tong tongue Forms** 3 s.h.
- **Elective (25-148-152)**
- **Music History and Literature**
- **25-301 Advanced History and Literature of Music**
- **25-302 Advanced History and Literature of Music** 3 s.h.
- **Elective (25-203-314)**
- **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 Behavior Research in Music** 3 s.h.
  - **75-206 General Music Programs in Public Schools** 3 s.h.
  - **Electives** 4-6 s.h.
  - **75-445 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**

- **Education (8 s.h.)**
  - **75-143 Introduction to Statistical Methods** 3 s.h.
  - **75-342 Selected Applications of Statistical Techniques** 3 s.h.
  - **Elective** 2 s.h.

- **M.A. level requirements**
  - **Electives**
  - Students select courses from the above list to meet the requirements for their major.

**Examinations**

Students must pass a minimum of two semester hours of work on a dissertation.

**Comprehensive Examinations**

The comprehensive examinations are an essential part of the student's preparation for the degree. Candidates must demonstrate mastery and scholarship in the areas of theory and practice and of music education, research design and technique, specialized music performance, history and literature of music, and music theory and analysis.

The examinations typically are divided as follows:

- Music education theory and practice and research techniques, music theory and analysis, music history and literature, and specialized music performance areas.

**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 interdisciplinatory 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 study 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 500 points 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 above 700 or above, distributed in the fields selected for concentration. A minimum of two to three semester hours of 682, 680, 75-293, or 75-293 must be completed within the first twelve months of 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
History, the social sciences, or related areas in which case the thesis director will be a member of the appropriate department or an investigative problem in social studies education, in which case the thesis director will be a member of the College of Education.

Comprehensive Examinations—A two-hour written examination in each of the three fields selected for concentration. The oral examination will be conducted by the candidate’s committee as a whole.

Doctor of Philosophy

The purpose of the program is to prepare secondary school counselors, supervisory personnel, and college instructors in the social sciences and pedagogy.

Admission

Applicants must have a bachelor’s degree in history or the social sciences; master’s degree in history, the social sciences, or education. They must satisfy the requirements for admission to a doctoral program in the Graduate College; and have a grade-point average of 3.0 or above. A minimum GRE Aptitude Test score of 1200 (composite of verbal and quantitative) is preferred. Seminar papers or field research are required as equivalent if no thesis was written as part of the M.A. An interview is required prior to regular admission.

Degree Requirements

A minimum of 84 quarter hours of course work and dissertation credit beyond the bachelor’s degree and not including the dissertation.

The 90 semester hours are to be distributed among history, social science, or related areas, and professional education, depending upon the background and goals of the candidate.

Seminars and courses numbered 200 or above are required in each of the areas of study constituting the major. A minimum of 50 semester hours of 300-400 level courses, 98.201, 98.202, or 7T.293 must be completed with one of the faculty members in social studies education, unless such course work with these faculty members has been completed.

Thesis requirements are tailored to the individual’s program and may consist of foreign languages or other requirements. Normally students will take research techniques in one or more of the fields chosen for the major.

Comprehensive Examinations:

Normally three three-hour examinations, or 90 semester hours of the areas of study, will be required. Depending on the distribution of work taken, the nine hours of written examinations may be unnecessary.

The Ph.D. examining committee consists of a minimum of one faculty member from the Liberal Arts disciplines and one from social studies education. The remaining members (to make the minimum of five as required by the Graduate College) will be selected with regard to the nature of the student’s Ph.D. program and distribution of course work. An oral examination will be conducted by the committee as a whole, must register for the written examination;

Alternatives to the traditional written comprehensive examination will be considered by the candidate’s committee.

Dissertation

A dissertation on a research problem in history, the social sciences, or related areas in which case the dissertation director will be a faculty member of the appropriate department; or on a research problem in the social studies education, in which case the dissertation director will be a faculty member of the College of Education. A prospectus of the proposed research must be presented to the dissertation committee prior to undertaking the study. Upon completion of the oral examination will be conducted in defense of the dissertation.

Continuing requirements for maintaining the candidate's grade-point average of 3.0 plus annual registration.

Assistantships

A limited number of half-time assistantships is available for students pursuing the Ph.D. degree in social studies education. Holders of such assistantships may register for no more than 12 hours per semester, and except with special permission, must register for at least six hours per semester. Assistantships vary, some include teaching undergraduate courses of supervision of professional experiences and others primarily involve research activities. Assistantships in some Liberal Arts departments may also be available for Secondary Education graduate students. Candidates with appropriate credentials should apply directly to the department in question or consult the College of Education advisor directing the program in their field.

Courses

7530 Introduction to Teaching 2 s.h.

Observing and assisting students and teachers in participating daily tasks in a junior or senior high school. Usually requires from five to twelve hours in the school during the week. Regular on-campus meetings. Normally, 7530 is a pre requisite. Prerequisite: admission to the Secondary Education Program.

7535 hours in Education 2 s.h.

Overview of contemporary American secondary education, exploring the area of education, social context of education, school curriculum and organization, and personnel issues. Normally 7535 is a pre requisite. Prerequisite: admission to the Secondary Education Program.

7535 and 7551 and human relations courses are to be completed prior to arrival in 7530. Prerequisite: joint standing

7535 Introduction to Education 2 s.h.

Basic orientation in role of educator: consideration of administrative organization, instructional procedures, and contemporary problems of secondary schools. Same as 7C-101.

7536 Directed Project Activities 2 s.h.

Planning, organizing, and evaluating teaching programs of the students in the 7536 Directed Project Activities. Projects include student-directed, teacher-organized activities, projects student for competitive activities. Same as 7B-149.

7537 Administration and Curriculum in Physical Education

Methods of Foreign Language

Foreign Language

7539 Introduction to Environmental Studies for K-12 Programs 2 s.h.

Materials and activities available for introducing environmental studies in the K-12 curriculum, and course sequence and any means of supplementing existing curricula. Same as 7E-103.

7537 Implementation of Environmental Studies for K-12 Programs 2 s.h.

Seasonal activities in the area of environmental science can be an important means of implementing activities.

7539 Implementation of Environmental Studies for K-12 Programs 2 s.h.

Community of 753-107.

75312 Introduction to Ecological 3 s.h.

An introductory course encompassing the micro, meso, and macro-levels of population and spatial interactions with an emphasis on ecosystem properties. Same as 7K-112, 113-100, 104 115, 117-101.

753 Methods Secondary School Journalism 3 s.h.

Improving journalism activities in secondary schools, with focus on methods of teaching, problems involved in achieving educational goals. Emphasis on the production of school publication. Same as 7B-129.

7537 Instructional Design 3 s.h.

Instructional techniques, methods, and materials development in educational and laboratory situations, integrated with lectures and research projects. Emphasis on learning and teaching theories. Same as 7R-105.

7537 Instructional Design 3 s.h.

Effective preparation for the real world of teaching. Techniques for learning in the context of the educational system, pedagogical and psychological techniques, and practical teaching. Same as 7K-118.

7537 Instructional Design 3 s.h.

Integration of learning foreign language in secondary school. Study of methods and techniques of introduction and use of foreign language in educational teaching situations. Same as 7R-103.

7537 Instructional Design 3 s.h.

Integrating new educational technologies in K-12 classrooms. Same as 7K-118.

7537 Instructional Design 3 s.h.

Researching, evaluating, assessing, and determining the educational value of instructional materials. Same as 7R-103.

7537 Instructional Design 3 s.h.

Instructional design for teaching in the areas of instruction, strategies, and educational materials. Scheduling, planning, evaluation, and instructional methods, materials, and techniques.

7537 Instructional Design 3 s.h.

Instructional design for teaching in the areas of instruction, strategies, and educational materials. Scheduling, planning, evaluation, and instructional methods, materials, and techniques.
Special Education

75.386 Research Explorations in Science Education 2 s.h.
75.390 Problems in Supervision 2 s.h.
75.391 Problems of Curriculum Planning 2 s.h.
75.393 Elementary Science Education 2 s.h.
75.399 Field Service Project in Secondary Education 2 s.h.
75.406 Elementary Teacher's Thesis 2 s.h.
75.413 Secondary Teacher's Thesis 2 s.h.
75.414 Educational Specialist Research in Secondary Education 2 s.h.

Special Education

15.424 Seminar: Child Art and Education 2 s.h.
15.425 Seminar: Social and Psychological Factors in Music Education 2 s.h.
15.426 Seminar: Research in Secondary Education 2 s.h.
15.430 Ph.D. Thesis 2 s.h.

PhD. Thesis

Chaired: Clifford E. Hovey
Faculty: Assistant Professor Richard Hays, Clifford E. Hovey, Paul M. Reitz

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 69).

The elementary-level program requires that the student also complete the requirements for certification in elementary education (State of Iowa Endorsement 101). 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
75.30 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 Practicum with Mildly Handicapped 2 s.h.
75.136 Teaching Moderately Mentally Retarded 2 s.h.
75.75 Practicum with Moderately Handicapped 2 s.h.

Third Year
75.192 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.
75.143 Introduction to Speech and Hearing Processes 3 s.h.
75.192 Introduction to Microcomputing for Teachers 1 s.h.

Second Year
75.138 Methods of Teaching Physically Handicapped 3 s.h.

Third Year
75.191 Supervised Teaching Physically Handicapped 3 s.h.

Students completing this program are recommended for State of Iowa Approval 84 (Physical Disabilities K-9).

Secondary Mental Retardation

First Year
75.30 Introduction to Assessment in Special Education 1-2 s.h.
75.135 Mental Retardation 3 s.h.
75.135 Practicum in Education 3 s.h.
75.91 Introduction to Teaching 2 s.h.
75.91 Educational Psychology and Measurement 2 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: General 3 s.h.
34.2 Introduction to Sociology: Problems 3 s.h.

Second Year
75.135 Teaching Mildly Mentally Retarded: Secondary 3 s.h.
75.33 Practicum with Mildly Handicapped 2 s.h.
75.136 Teaching Moderately Mentally Retarded 2 s.h.
75.135 Practicum with Moderate Handicapped 2 s.h.
75.132 The Culturally Different in Education 3 s.h.
75.136 Methods: Mathematics for the Abilities of 3 s.h.
75.135 Developing Reading Skills in the Secondary School 2 s.h.
75.92 Introduction to Microcomputing for Teachers 1 s.h.
75.136 Practicum in Developmental Education 4 s.h.
Graduate Programs

The purpose of the graduate programs in special education is to train new personnel and to retain existing staff so that both groups can better provide appropriate levels of service to handicapped children. Most applicants to the graduate program have undergone 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 special education and teacher education.

Master of Arts

Most students admitted to the M.A. program in special education are seeking the Illinois certification to work in schools or other behavioral disorder or the learning disabled.

The M.A. program prepares students to function as teachers in resource, 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 preference.

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, requirements for admission to this program include a master's degree in special education or equivalent preparation and certification in special education. 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 designed to place the student in 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 91) 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 listed below, admission requirements include a master's degree and a minimum of one year teaching 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 for capable graduates 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 have at least a 3.5 grade-point average on previous undergraduate work.

Doctor of Philosophy

The purpose of the Ph.D. program in special education is to prepare students as psychologists, school psychologists, directors of special education, and university teacher educators. The program
permitted 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...

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 Tuition Scholarship is awarded to an outstanding undergraduate student in special education.

General Admission Requirements
Graduate admission requirements of the Division of Special Education consist of:

- Completion of the Graduate Record Examination (GRE). Aptitude Tests.
- Minimum grade point average of 3.0 on a 4.0 scale for the last 60 credit hours of undergraduate work.
- Three letter grades in English, history, and mathematics.
- A personal statement that describes the student's background, interests, and goals.

Courses
7210 Introduction to Assessment in SpecEd Education 3 s.h.
7212 Teaching Medically Handicapped Elementary 3 s.h.
7213 Teaching Medically Handicapped Secondary 3 s.h.
7215 Teaching Medically Handicapped Elementary 3 s.h.
7216 Teaching Medically Handicapped Secondary 3 s.h.
7217 Teaching Medically Handicapped Inclusive 3 s.h.
7218 Introduction to Teaching Practica 3 s.h.
7219 Introduction to Teaching Practica 3 s.h.
7220 Introduction to Teaching Practica 3 s.h.
7221 Introduction to Teaching Practica 3 s.h.
7222 Introduction to Teaching Practica 3 s.h.
7223 Introduction to Teaching Practica 3 s.h.
7224 Introduction to Teaching Practica 3 s.h.
7225 Introduction to Teaching Practica 3 s.h.
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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 a minor in any degree-granting department 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 for 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 CSM-35 Engineering Calculus I and CSM-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; and 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 the American College Tests with a composite score of 25 or above and a mathematics score of 22 or above (or equivalent SAT score).

High school physics and chemistry are required knowledge to the identification and an official 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 2.35.

Fulfillment of the minimum requirements for admission does not assure 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 growing technological problems. The overall objective of the curriculum program is to provide an integrated educational experience directed toward the development of the ability to apply pertinent principles to solve 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 develops the ability to utilize this education to determine practical solutions to engineering problems. This ability is developed in the analysis and design stems.

The course sequence in this stem begins with 57-1 Introduction to Engineering in the first semester of 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 social sciences sequence, which is also common to each program, each degree program offers a required group of courses which provides a common depth and breadth of topics 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 advisor. 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
- 14:1 Principles of Chemistry I 3 s.h.
- 10-1 Rhetoric 4 s.h.
- 10-2 Rhetoric 4 s.h.
- 25M-35 Engineering Calculus I 4 s.h.
- 57-1 Introduction to Engineering 2 s.h.
- 57-3 Engineering Graphics 2 s.h.
- Total 15 s.h.

Second Semester
- 14:1 Principles of Chemistry Lab I 1 s.h.
- 10-2 Rhetoric 4 s.h.
- Humanities or social science elective 3 or 4 s.h.
- 25M-36 Engineering Calculus II 4 s.h.
- 57-4 Engineering Computation 3 s.h.
- 57-7 Statistics 2 s.h.
- Total 14 or 15 s.h.

A maximum of four semester hours is allocated for satisfactio 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 receive only four semester hours toward their engineering program.

The courses listed above are required of all students in engineering. 4-14 Prerequisites are recommended during the second semester for those interested in biomedical or chemical-engineering majors. Satis of the College of Liberal Arts industrial engineering program should review the social sciences requirement specified for their major before selecting any social science courses.

Humanities and Social Sciences Requirements

The goal of the humanities and social sciences section is to provide more effective preparation for professional responsibilities by integrating humanities and social sciences into the undergraduate engineering curriculum. Supportive of this goal, the student is to select, with the advisor's approval, a maximum of 16 semester hours of humanities and social sciences electives, which is 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 sciences courses of the curricular stem in industrial engineering are specified and are not open to the same free selection as other electives, students considering a major in this field should consult the industrial and management engineering program requirements presented later.

The humanities and social sciences requirements are selected from approved courses in any of the following areas as demonstrated by examination: American studies; art and art history; classics; Asian languages and literature; communication and theatre arts; English; history, literature, science, and the arts; music; philosophy; religion, linguistics; or other departments approved by the College of Engineering faculty. Students should consult the liberal arts department for semester hours of advanced (100-level) course work to be taken in the humanities to secure sufficient depth of knowledge in an elected subject of study. This advanced course work will build on the previously completed elementary course in the same department, and students will not satisfy any of the humanities and social sciences requirements unless the courses are at or beyond the second-year level. Studio work in art and music will not fulfill the requirement.

The social sciences 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, psychology, sociology, anthropology, journalism and mass communication, and social work, or other departments.
approved by the College of Engineering faculty. Students may elect 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 material 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 either in 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 science courses early in the program to minimize the time required to complete the combined degree program. The course requirements of 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 requirement 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, in many cases, satisfying the requirements for two colleges is the saving of a particular course.

**Two Bachelor's Degrees in the College of Engineering**

Recent College of Engineering graduates and current students may earn two baccalaureate 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 126 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-humanistic elective requirements. The technical electives selected for the second degree program must be of such a level and type 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 approved 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.

**Minor**

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 program in the College of Liberal Arts. Students interested in a chemistry, physics or mathematics minor may use courses required in the preceding curriculum to satisfy the minor requirements in these three areas. A minimum of 12 semester hours of the 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 management course, a finance course, and a legal and environmental 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 226:39. A 2.5 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 accessible to the student. Undergraduates 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 a mathematics minor may not use courses required in the engineering curriculum to satisfy the minor requirements in these three areas.

**Cooperative Education Program**

Cooperative education involves the integration of academic work with practical experience in an organized program. Participating students spend alternates 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 the 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 work. Another important aspect of the experience gained, although it is difficult to evaluate, is the increased awareness of the practical 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 college degree under this option is normally five years and includes the equivalent of at least one full year of work experience. Full-time employment is an option available to qualified students on a voluntary basis.
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 student advisor 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 (or first one and one-half weeks of the summer session). Courses may be dropped with permission of the advisor and the instructor at any time during the first nine weeks of the semester. Only under unusual 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 cancels 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 advisor 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-Nonpass Option

A maximum of two courses taken in the colleges of Liberal Arts or Business Administration on a pass-nonpass basis may be applied toward satisfactory of the humanities and social sciences requirement. Students wishing to take such courses in liberal arts or business administration on a pass-nonpass basis must meet the conditions and follow the procedures specified by these colleges. The pass-nonpass option may not be used for courses taken to satisfy the rhetoric requirement.

Students enrolled in courses taught in the College of Engineering may choose to be graded on a pass-nonpass basis under the following conditions:

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 (nonpass) 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-nonpass option may be used to satisfy requirements for an engineering degree.

Second-Grade-Only Option

A student may elect to repeat a course with only the new grade being counted in his or her grade point average. This option can only be elected prior to the time of completing a course for which the highgrade course is a prerequisite. The option may be elected no more than three courses and it may be applied only once to a given course. Transfer students may apply the option on a prorated basis. For example, a student transferring no more than 20 semester hours of applicable engineering course work may use this option for a maximum of three courses, while a student with between 20 and 89 semester hours of credit may use this option for no more than one course. A student with 90 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 satisfactory-fail basis. An F (fail) grade earned for such courses will not satisfy any portion of the professional seminar requirement.

Incomplete and No-Record Grades

A mark of (incomplete) or F (no report) which is not repeated by a final grade prior to the announced deadline within the student's next regular semester of registration will be elevated by a final grade of F (failure), except that students with a mark of F (failure) 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 in the college before his or her final registration. Students in the summer enrolled engineering-liberal arts program are eligible for this recognition regardless of the usage in which they complete their residence 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 F 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 for nine or more 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 F grades still standing on the current or past semester's record, are recognized 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 comprehensive examinations administered through the AP Program will be awarded college-level credit. Credit earned through a 5C level calculus course in the AP Program may be applied to the engineering course requirement of 29M.65 Engineering Calculus I. Credit earned through other AP courses may be also be 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 completions. 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 and on a non-graduate 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 exam similar to a final exam for that course. Conditions and limitations of this policy are established by the faculty of the College of Engineering. 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 after the student 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 this policy 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. At the time of application for admission to the College of Engineering, official transcripts from each college attended must accompany the application for admission. After the credit has been certified as college level work from an accredited institution by the Office of Admissions and after admission has been granted, the credit is evaluated by the assistant to the dean either prior to or during the student's first semester of enrollment in the College. Satisfactory compliance of engineering course requirements by outside courses must be approved by the assistant to the dean. If, 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 core requirements at the University of Iowa, Rhetoric and Writing, may apply for admission to the College of Engineering courses by request and transfer credit on the basis of the agreement between the chair of the Rhetoric and Writing Committee and the College of Engineering chair. These core courses must be completed with grades of C or better. Students wishing to receive credit for other core courses may request transfer credit by the College of Education curriculum committee. For credit to be approved by the college, the college must be notified by the student and the student's department. Substitutions of courses must be approved by the student's department major, and are governed by the program faculty and approval of these core substitutions is only needed by departments and or programs of the College of Engineering, chair. All petitions must be forwarded to the Office of the Dean for inclusions in the student's academic record.

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 F will be assigned. Students completing a mark of W will not meet any requirements for any credit toward graduation. Auditing may not be used as a means to obtain a grade that would be placed on the registration card in the usual manner. However, if the instructor determines that a student has met the requirements for a course, the grade of S will be entered on 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 collegiate policy. In cases of cheating on exams or quizzes, the policy recommends that the instructor reduce the student’s grade, ending the assignment of F for the course. When a course grade has been reduced to an 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

In cases where complaints do not involve alleged student academic misconduct, students with complaints against faculty should first attempt to resolve the issue with the instructor. If a satisfactory outcome is not achieved, the student should discuss the issue with the chair of the faculty member’s department. Students who are uncomfortable with dealing directly with a faculty member or a department chair may wish to contact the Faculty Ombudsmen at attention: the Dean of Student Affairs. However, it is anticipated that grievances generally can be satisfactorily resolved most expeditiously at the faculty or dean level. If the student is not satisfied with the outcome of the above process, 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 opportunities for students to plan and carry out activities involving the entire college, such as the student and faculty picnics held each fall and spring, the homecoming football games, MECCEA 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 News. 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 Tri Beta 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; Phi Epsilon, honorary civil engineering society; Eta Kappa Nu, honorary electrical engineering society; Alpha Pi Mu, honorary industrial engineering society; and Pi Tau Sigma, honorary mechanical engineering society, recognize the work of outstanding students in their respective fields.

Graduate organizations dedicated to providing support and assistance in the development of more equitable enrollments of women and minorities in the college are the Graduate Engineering 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 end of the fall term. Graduates of unaccredited programs must complete at least one year of professional experience to be eligible to take the engineering fundamentals exam. Following graduation and the successful completion of the engineering fundamentals exam, 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 these 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 in the computer-aided engineering field. The laboratory contains interactive computer graphics terminals connected to a PRIME 750 mini-computer, graphics print/plotter, digital tablet, line printers, and a protection system. It also contains several stand-alone microcomputers. Instructions are given in computer aided graphics and design in both the undergraduate and graduate level. Software is available for graphics applications, optimal design, computer-aided design, finite element analysis, structural analysis and design, computer-aided design, mechanical and structural systems, office and plant layout, chemical engineering process flow sheet preparation, and sensitivity analysis. The main cluster of graphic terminals and associated printers are 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 microcomputers. These facilities provide access by students to the Weag Computing Center’s Prime 800 and IBM-2960 microcomputers and IBM 3033 mainframe computers for both interactive computing and remote (batch) job entry.
Computer Services

Services of the Weeg Computing Center are used extensively by students and faculty of the college under the auspices of the computer college committee. The college maintains terminals and remote printers for access to the University computer systems in the CNE Laboratory. The Center for Computer Aided Design has a dedicated PRIME 750, a high-speed array processor, and extensive graphics equipment for research in computer aided design. The Computer Aided Engineering Laboratory has a PRIME 750 and graphics equipment for instruction. The Electrical and Computer Engineering Department has two VAX 11/750 superminicomputers for teaching and research. In addition, a number of microcomputers and minicomputers are available within the college for specialized use by students and faculty.

Employment Placement Services

The placement services of the Engineering Placement Office are available to both current students and to alumni. The services include on-campus interviews for permanent and co-op employment, written and audiovisual company literature for more than 350 businesses, directories, open position listings, and information and assistance with resumes, cover letters, career goals identification, and interview techniques. The Engineering Placement Office, with an interview rooms and resource area, is located in the lower level of the Engineering Building.

Organization of the College

The College of Engineering is organized into six departments, plus three research units. The six departments are: Biomedical Engineering, Chemical and Materials Engineering, Electrical and Computer Engineering, Environmental and Civil Engineering, and Mechanical Engineering. Each department offers an undergraduate degree program, as well as a graduate degree program in biomedical engineering, civil engineering, chemical engineering, civil engineering, electrical engineering, materials engineering, and mechanical 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 on fluids and structures. The institute is responsible for the following areas: teaching, research, and engineering.

Center for Materials Research

The Center for Materials Research was established to promote the understanding of materials and their properties. The center's mission is to provide a research environment that is conducive to the development and dissemination of new materials and technologies. The center is committed to fostering interdisciplinary collaborations and to providing a stimulating and supportive environment for faculty, students, and external partners.

Center for Computer Aided Design

The Center for Computer Aided Design was established to promote the understanding of computer-aided design and development, and to provide a research environment that is conducive to the development and dissemination of new computer-aided design and development technologies. The center is committed to fostering interdisciplinary collaborations and to providing a stimulating and supportive environment for faculty, students, and external partners.

Course Numbering System

The title of each course offered by the College of Engineering is preceded by a two-digit prefix and a three-digit suffix separated by a colon. The first digit of the suffix is 5, which identifies the course as being offered by the College of Engineering. The second digit of the prefix identifies the engineering discipline or the source of the courses offered by the departments for a specific curriculum program. The correspondence between the second digit and the curricular programs is shown below.

1—Biomedical engineering
2—Chemical and materials engineering
3—Civil and environmental engineering
4—Electrical and computer engineering
5—Industrial and management engineering
6—Engineering core
7—Mechanical engineering

The three-digit suffix of a course number identifies the level and type of course. Generally the suffix numbers below 100 designate courses primarily for undergraduates, numbers 100 to 199 designate intermediate level courses for undergraduates and graduates, and numbers 200 and above designate advanced level courses primarily for graduates. The table below provides further means of conveying information on the level and type of courses.

1—Freshman core courses
10—Sophomore core courses
20—Junior core courses
30—Senior core courses
40—Required courses in undergraduate programs

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 in hydraulic engineering 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, are being pursued at IIHR at the following areas: turbulence and turbulent flow processes; boundary-layer flows with emphasis on thick and three-dimensional boundary layers; viscous aerodynamics; computational fluid mechanics; pipe flow and industrial applications; and pump instabilities.

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 has an active involvement in fluid engineering for industry, and its broadly based educational 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 the integration of a variety of disciplines in order to discover new materials and devices is essential for the advancement of technology. The center is dedicated to fostering interdisciplinary collaboration among researchers from different fields, and to providing a stimulating and supportive environment for faculty, students, and external partners.

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.

The title of each course offered by the College of Engineering is preceded by a two-digit prefix and a three-digit suffix separated by a colon. The first digit of the suffix is 5, which identifies the course as being offered by the College of Engineering. The second digit of the prefix identifies the engineering discipline or the source of the courses offered by the departments for a specific curriculum program. The correspondence between the second digit and the curricular programs is shown below.
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. Not all the following courses are available to non-engineering majors unless special permission is obtained from the assistant to the dean.

151 Introduction to Engineering 3 sh.
Survey of various branches of engineering, engineering applications, surveying, electrical problems. Prerequisites: 22012.

153 Engineering Graphics 3 sh.
See course numbers necessary in corresponding engineering including orthographic projection, engineering construction, isometric representations, design, drafting, computer-generated drawings, and plans and sections. Introduction to computer graphics with emphasis using the PROMETHEUS computer.

155 Computer Programming 3 sh.
Digital computer programming utilizing FORTRAN, assembly and logic operators, loops, subroutines, input-output, flow charts, and program development techniques with emphasis on engineering applications. Concurrency: 22030.

157 Statics 3 sh.
Vector algebra, forces, couples, equilibrium between coplanar systems, Newton's laws, friction, equilibrium equations of particle and rigid bodies. Application--simple structures. Progress: 22035.

159 Dynamics 3 sh.
Vector calculus, Newton's laws, dynamic of particles, motion, mechanics systems and rigid bodies in planar motion. Application--simple structures. Prerequisites: 311 and 22035.

160 Introduction to Electrical Science 3 sh.

161 Circuit Systems Analysis 3 sh.
Treatment of more complex systems in a study of distributed systems and applications to all types of physical systems. Prerequisites: 1510 and 2211. Concurrency: 22036.

163 Engineering Management Science 3 sh.
Basic principles of engineering economy. Time value of money, each flow equalization, depreciation, inflation, and oil developments, major system selection, present worth, annualized costs, rate of return, benefit/cost ratio, replacement analysis, break-even analysis, and capital rationing. Progress: 22236.

167 Measurement Science 3 sh.
Foundation course dealt with relationship between structures and properties of materials at atomic, micro, and macro levels. Prerequisite: 4111. Concurrency: 22236.

168 Thermodynamics 3 sh.
Basic elements of classical thermodynamics, including free and second laws, reversability, irreversibility. Carrier cycle, properties of pure substances, closed, open systems and zero-dimensional steady flow systems in application to engineering problems. Prerequisite: 4111. Concurrency: 22236.

169 Principles of Electronic Instrumentation 3 sh.
Principles of operation of diode, bipolar and field-effect transistors, various circuits or amplifiers and associated linear and nonlinear circuits. Use of electronic instrumentation in the study of electronic techniques, analog and digital integrated circuits with emphasis on laboratories. Laboratory included. Prerequisite: 5111.

170 Mechanics of Deformable Bodies 3 sh.
Elementary theories of deformable bodies, stress, strain, application to beams, columns, shells, and flexural-shear analysis, bending, torsion, combined and analysis of beams. Prerequisite: 4111. Concurrency: 22236.

171 Mechanics of Fluids and Transfer Processes 3 sh.
Laws governing fluid flow and transport processes. Thermodynamics of matter, heat, and energy. Heat transfer, fluid mechanics, fluid and particle flow properties, momentum, heat and mass transfer, and aerodynamic analysis of fluid. Engineering applications including measurement of flow properties. Prerequisites: 22437, 5110, and 5111 (or equivalents). Concurrency: 52101 (for chemical engineering majors only).

521 Principles of Design 3 sh.
See course numbers in the week projects involving the identification, modeling, and analysis of design problems and the development of design solutions. Prerequisite: 5112.

522 Principles of Design 3 sh.
Probabilistic and statistical aspects of engineering design, topics include probabilistic methods, decision analysis, risk assessment, safety factors, reliability, importance of safety factors and safety margins, and sensitivity analysis, emphasis on model construction, recognition of model limitations, and report writing. Prerequisites: 571 and 22235.

Biomedical Engineering

Department Chair: Kwak Ae
Faculty, professors Richard A. Gaynor, Michael S. Chambres, Young King Lee, Aylin P. Khan, Khan Ram assistant professor Thomas S. Brown, Steven M. Collins, Rodney A. Levine, Daniel J. Stone professor Thomas C. Gold

The past two decades have seen a tremendous growth of technological activity in biology and medicine. As engineers have become increasingly involved with projects in the life and health sciences, there has been 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 informatics 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 prefix. Course descriptions are provided at the end of this section.

The curriculum outlined below is built upon the degree provided by the College of Engineering in this field, and has been developed to prepare students for the challenges and opportunities associated with careers in the biomedical engineering profession. The program has
been carefully designed to enable 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 4 s.h.
57:10 Material Science 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 15 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.
57:19 Mechanics of Deformable Bodies 3 s.h.
57:20 Principles of Design I 3 s.h.
29:81 Intermediate Engineering Physics I 3 s.h.
51:91 Professional Seminar: Biomedical Engineering 0 s.h.
Total 16 s.h.

Second Semester
57:20 Mechanics of Fluids and Heat Transfer 4 s.h.
29:22 Design of Experiments II 3 s.h.
57:82 Intermediate Engineering Physics II 3 s.h.
72:154 Biomedical Engineering Physiology 4 s.h.
51:91 Professional Seminar: Biomedical Engineering 0 s.h.
Humanities or social science elective 3 s.h.
Total 17 s.h.

Senior Year

First Semester
51:85 Biomedical Engineering Design I 3 s.h.
Biomedical Engineering Electives 9 s.h.
Humanities or social science elective 3 s.h.
51:91 Professional Seminar: Biomedical Engineering 0 s.h.
Total 16 s.h.

Second Semester
51:86 Biomedical Engineering Design II 3 s.h.
Biomedical Engineering Electives 9 s.h.
Humanities or social science elective 3 s.h.
51:91 Professional Seminar: Biomedical Engineering 6 s.h.
Total 15 s.h.

The humanities and social science electives must be selected to satisfy the humanities and social science requirements of the College of Engineering.

The biomedical engineering elective courses are listed below, along with prereqisites and semester hours of the amount of engineering science and of engineering design for each course. The values represent the approximate break-down of the course content in the two curriculum areas of engineering science and design. Each student must select at least five of the elective courses listed below in combination so that the sum of the credits in engineering science from all the biomedical elective courses totals at least eight semester hours and, simultaneously, the sum of the design credits totals at least four semester hours. (These minimums are imposed to ensure that each student satisfies curricular guidelines established by the national engineering accreditation agency).

51:40 Biological Systems Analysis (Engineering) 3 s.h.
51:70 Biomedical Materials I 3 s.h.
51:80 Biomedical Measurements I 3 s.h.
51:82 Biomedical Materials II 3 s.h.
71:15 Cardiovascular Biomechanics 3 s.h.
51:155 Cardiovascular Biomechanics 3 s.h.
51:70 Biomedical Materials II 3 s.h.
71:170 Polymer Biomechanics 3 s.h.
71:170 Polymer Biomechanics 3 s.h.
51:91 Professional Seminar: Biomedical Engineering 0 s.h.
Total 16 s.h.

Special Facilities and Laboratories

Biomechanics Laboratory
The 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 flow past valve prostheses and flow in the human aorta.

Applied Mechanics Laboratory
This laboratory is equipped to study the biomechanics of small bore specimens under cyclic dynamic loading conditions.

Biomechanical Imaging and Computing Laboratory
This laboratory has an EYECOM imaging processing system which is used to digitize anatomical slides, photographs, X-rays, and CAT scan images—with a resolution of up to 4,000 x 4,000 pixels and can distinguish 256 colors.

Courses

50:0 Cooperative Education Training Assignment
Biomedical Engineering 3 s.h.

51:9 Biomedical Engineering Students participating in the Cooperative Education Program register in this course during work assignment periods. Registration provides a record of participation in the program on the student's permanent record card. Prerequisites: 22M:37, 57:10, and approval of the education program and approval effects tenure.

51:90 Biomedical Systems Analysis
Application of principles of systems theory, principles of computer simulation techniques to study dynamic response of physiological systems. 1 hour lecture, 72:20, 20:20, 20:20, 20:20. 3 s.h.

51:80 Biomedical Measurements
Design, development, and utilization of contemporary electronic instrumentation for measuring biomedical variables and research interest. 1 hour lecture, 0:15, 0:15, 0:15, 0:15. 3 s.h.

51:70 Biomechanics I
Introduction to practical aspects of clinical engineering as it relates to the health care system. The University of Iowa Hospitals and Clinics student has direct contact with patients, physicians, other health care providers, patients, family, and other health care facilities. Prerequisites: 22M:37, 51:90, and consent of instructor. 3 s.h.

51:82 Biomechanics II
An introduction to cardiovascular and musculoskeletal engineering. 1 hour lecture, 72:20, 72:20, 72:20, 72:20. 3 s.h.

51:72 Polymer Biomechanics
3 s.h.

51:70 Biomedical Materials I
Total 15 s.h.

51:155 Cardiovascular Biomechanics
3 s.h.

51:91 Professional Seminar: Biomedical Engineering
3 s.h.

51:90 Biomedical Engineering Students participating in the Cooperative Education Program register in this course during work assignment periods. Registration provides a record of participation in the program on the student's permanent record card. Prerequisites: 22M:37, 57:10, and approval of the education program and approval effects tenure.

51:90 Biomedical Systems Analysis
Application of principles of systems theory, principles of computer simulation techniques to study dynamic response of physiological systems. 1 hour lecture, 72:20, 20:20, 20:20, 20:20. 3 s.h.

51:80 Biomedical Measurements
Design, development, and utilization of contemporary electronic instrumentation for measuring biomedical variables and research interest. 1 hour lecture, 0:15, 0:15, 0:15, 0:15. 3 s.h.

51:70 Biomechanics I
Introduction to practical aspects of clinical engineering as it relates to the health care system. The University of Iowa Hospitals and Clinics student has direct contact with patients, physicians, other health care providers, patients, family, and other health care facilities. Prerequisites: 22M:37, 51:90, and consent of instructor. 3 s.h.

51:82 Biomechanics II
An introduction to cardiovascular and musculoskeletal engineering. 1 hour lecture, 72:20, 72:20, 72:20, 72:20. 3 s.h.

51:72 Polymer Biomechanics
3 s.h.

51:70 Biomedical Materials I
Total 15 s.h.

51:155 Cardiovascular Biomechanics
3 s.h.

51:91 Professional Seminar: Biomedical Engineering
6 s.h.

51:70 Biomedical Materials I
Total 15 s.h.

The humanities and social science electives must be selected to satisfy the humanities and social science requirements of the College of Engineering.

The biomedical engineering elective courses are listed below, along with prerequisites and semester hours of the amount of engineering science and engineering design for each course. The values represent the approximate break-down of the course content in the two curriculum areas of engineering science and design. Each student must select at least five of the elective courses listed below in combination so that the sum of the credits in engineering science from all the biomedical elective courses totals at least eight semester hours and, simultaneously, the sum of the design credits totals at least four semester hours. (These minimums are imposed to ensure that each student satisfies curricular guidelines established by the national engineering accreditation agency).

51:40 Biological Systems Analysis (Engineering) 3 s.h.
51:70 Biomedical Materials I 3 s.h.
51:80 Biomedical Measurements I 3 s.h.
51:82 Biomedical Measurements I 3 s.h.
51:155 Cardiovascular Biomechanics 3 s.h.

51/18 Biotreatment Processes 1.5 h.

51/19 Chemical Properties of Structures 1.5 h.

Chemical and Materials Engineering

Department chair: Gregory R. Carlin
Faculty, professors: Keith Beckner, James O. Counce, Douglas F. Kimmelman, Kenneth Marcello, Gregory R. Carlin, Arthur F. Varner
assistant professor: Ronald R. Dittis, W. D. Luehmann, David G. Sadowich
Degrees offered: B.S.E., M.S.E., Ph.D.
Chemical and materials engineering is the art and science of engineering applied to industrial processes in which raw materials are transformed or separated into useful products. Chemical and materials engineers design, develop, and engineer the complete process as well as the equipment used in it. They choose the proper raw materials and operate the manufacturing facilities efficiently, safely, and economically. They are employed by basic industries such as heavy chemicals, petroleum, and specialty chemicals, coal, and solvents as well as consumer-oriented industries such as plastics, food, fertilizers, pharmaceuticals, cosmetics, paints, and paper products. They are also engaged in research, process and product development, process and plant design, actual production operation, and sales. Many experienced engineers become managers or administrators.

Courses which have been designed primarily for the chemical and materials engineering program are identified by the digit 2 in the second position of the course number prefix. Course descriptions are provided in this section.

Undergraduate Program

The Bachelor of Science in engineering 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 computer engineering core courses, which together provide a strong foundation. Undergraduate students have the opportunity to work with faculty members and graduate students on current research topics.

Curriculum

Sophomore Year

First Semester
52M37 Engineering Calculus III 3 h.
51B16 Dynamics 4 h.
51T11 Introduction to Electrical Science 3 h.
51T15 Materials Science 3 h.
51P14 Applied Chemistry 3 h.
Total 16 h.

Second Semester
52M38 Differential Equations for Engineers 4 h.
51T12 Linear Systems Analysis 3 h.
52T20 Mechanics of Fluids and Transfer Processes 4 h.
52T41 Process Calculations 3 h.
29T31 Intermediate Engineering Physics I 3 h.
Total 15 h.

Junior Year

First Semester
41T11 Physical Chemistry I 3 h.
29T82 Intermediate Engineering Physics II 3 h.
52T21 Principles of Design I 3 h.
52T42 Heat and Energy and Momentum Transfer 4 h.
52T18 Principles of Electronic Instrumentation 4 h.
52T91 Professional Seminar: Chemical Engineering 0 h.
Total 17 h.

Second Semester
41T12 Physical Chemistry II 3 h.
41T44 Physical Measurements 3 h.
52T43 Chemical Engineering Thermodynamics 3 h.
52T44 Mass Transfer Operations and other science elective 3 h.
52T91 Professional Seminar: Chemical Engineering 0 h.
Total 16 h.

Senior Year

First Semester
41T11 Organic Chemistry I 3 h.
52T45 Chemical Reaction Kinetics 3 h.
52T89 Economics and Compo in Design 3 h.
52T47 Unit Operations Laboratory 2 h.
52T19 Professional Seminar: Chemical Engineering 0 h.
Total 14 h.

Second Semester
41T12 Organic Chemistry II 3 h.
51T46 Environmental Chemistry Laboratory 3 h.
52T48 Unit Operations Laboratory 3 h.
52T86 Chemical Engineering Process Design 3 h.
52T19 Professional Seminar: Chemical Engineering 0 h.
Technical elective 3 h.
Total 17 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 curricula leading to the Master of Science and Doctor of Philosophy degrees. Through course work and research, students gain an understanding of the principles of engineering science and then apply those principles to contemporary problems such as energy, environment, and materials. The emphasis is on research since most of the opportunities for graduates are in research and development. About one-third of the program is devoted to a research project, and a thesis is required for each degree. Graduate students pursue 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-separations, fine particles, reaction kinetics, and transport phenomena. Many research projects are funded by external agencies such as National Science Foundation, EPA, NASA, and private industry. Some of these research areas are described briefly below:

Air Pollution
The study of transport phenomena of atmospheric processes including the analytical 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 goal of this group is to describe mathematically the particle size and shape and then to relate these to the sorption of the particles and their behavior. Potential applications include atmospheric pollution phenomena.
Chemical reactions, crushing and grinding, crystalization, 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 microscopic media are being studied. Practical applications are in gas separations, catalysis, and water 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 arbitrary 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 chromotography processes for use in biotechnology and chemical industries.

Master of Science
A thesis and a minimum of 30 semester hours of coursework are required, including at least 24 semester hours completed in residence at The University of Iowa. Work completed in Saturday and Evenings College 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 remainder of the 30 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 or four semesters to complete the requirements.

Doctor of Philosophy
The Ph.D. degree is granted primarily on the basis of achievement rather than on the accumulation of semester hours of credit. However, 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, and 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.

Doctoral students 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 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 or above 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 in order to allow him or her to perform in the graduate courses with minimal 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, scholarships, and graduate assistantships 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 tensile testing instruments and hardness testing machines are also available. Heat treatment and sintering furnaces are available in a nearby laboratory. Teaching aids include metallography specimen kits, dislocation in L12 kits, and crystallography packages.

Required Course Laboratories
Unit Operations Laboratory
This is primarily an instructional laboratory for senior undergraduate students and involves experimentation in transport phenomena, heat transfer, fluid flow, chemical engineering unit operations, and reaction kinetics and catalysis. The laboratory includes pilot plant equipment such as dissolution column interfaced with a microcomputer, film evaporator, shell-and-tube heat exchanger, jacketed kettle, packed column for gas absorption, plate-and-frame filter press, agitated extractor, and a cabinet dryer. Other equipment includes stirred-tank reactors, packed-bed reactor, centrifugal pump, gas chromatograph, refluxmeter, 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 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 a pneumatic process controller. 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 areas of heterogeneous and homogeneous catalysis, gas-solid sorption systems, and multiphase reactors. At present the laboratory contains a complete Berty reactor unit suitable for catalytic studies at high temperature and pressures. It is
M HOW long used for an investigation of sulfur dioxide oxidation on vanadium catalysts. A chemical reaction of a dynamic unit is being used for a study of the catalytic oxidation of large industrial plants. It contains a high-temperature tubular furnace and a continuous balance with digital display. Other equipment includes a membrane reactor unit for homogeneous catalysis and a slurry reactor unit designed for parameter estimation from its dynamic response.

Powders and Particulate Laboratory

This laboratory is equipped with a particle image analyzing system; sampling devices; devices for characterizing bulk properties of powders; various mixers, grinders, and sieving equipment; optical microscopes; and mounting and polishing equipment. Facilities are available for atomizing, crystallization, particle-size separations; fluidized bed; slurry flow; solid flow; and extrusion studies. In addition there is access to scanning and transmission electron microscopes. Quantam 2020 system, electron microscope, computer center, and specialized engineering and chemistry library facilities and laboratories.

Separation Processes Laboratory

Members of the Iowa Separation Processes Group conduct theoretical and experimental studies in the design and development of novel separation and extraction technologies. The group is interested in separation processes for petrochemicals, gases, and biologically active molecules. Facilities in the laboratory include a Beckman high-performance liquid chromatograph with a variable UV detector and a controlled gas chromatograph, a scanning electron microscope, and a Raman hollow fiber ultrafiltration unit, electrophoretic and column chromatography units. There are facilities for construction of membrane separation devices, conventional chemical analytical and separation as well as access to sophisticated separation analytical instruments.

Courses

Special Courses

5289 Cooperative Training Assignee: Chemical Engineering

Chemical engineering students participating in the Cooperative Training Assignee program may apply for permission to enroll in this course during the work assignment period, registration provides a record of selection unless the student particularly requests the student's permanent record card. Prerequisites: permission from the Cooperation Education Program and the Department of Chemical Engineering.

52.41 Process Equations

Equations of motion; problems using material and energy balances and fundamental rate equations involving ordinary differential equations and boundary value problems. Prerequisites: 52.39.

52.42 Chemical Reaction Engineering

Applications of thermodynamic principles to chemical reaction engineering; stoichiometry and reaction equilibrium; properties, phase equilibria and chemical equilibria, equilibrium, the chemical reaction engineering, and reaction mechanisms. Prerequisites: 52.41, 52.42.

52.47 Operations Laboratory I

Laboratory investigation of transport phenomena and chemical engineering unit operations. Demonstration and analysis of the principles of mass transfer, energy transfer, momentum, and equipment, techniques, report writing, computer usage, and laboratory safety. Prerequisites: 52.41.

52.48 Unit Operations Laboratory I

Open-web or continuous studies on transport phenomena, chemical engineering unit operations, process control, and reaction kinetics.CHEM 321 required. Prerequisites: 52.47 and 52.49.

52.51 Industrial Seminar Chemical Engineering I

Introduction to concepts of chemical engineering presented through lectures and discussions by guest speakers. Fall, spring, summer in alternate years. May be repeated. Prerequisites: 52.41 and 52.49.

52.51 Individual Investigations: Chemical Engineering

An individual project in which the student will undertake self-study as laboratory study, independent study, or study at an engineering company, computer software development, and research. Permission prerequisite consent of faculty advisor.

Mass Transfer

52.43 Mass Transfer Operations

Fundamental principles of differential processes: diffusion, distribution, distillation, absorption, reaction, reaction, diffusion, evaporation, distillation, condensation, evaporation, reaction, liquid flow, and mass transfer. Prerequisites: 52.41, 52.42, and 54.43.

52.42 Equilibrium Stage Operations

Fundamentals of the Steady-state continuous distillation columns. Prerequisites: 52.41 and 52.43.

52.43 Dynamic Mass Transfer

Fundamentals of the dynamic equilibrium and material balance transfer processes. Prerequisites: 52.41 and 52.43.

52.44 Reactor Design Analysis

Application of chemical reactor design to design of chemical reactors. 52.31 or 52.32 and lab work. Prerequisites: 52.41 and 52.44.

52.45 Advanced Chemical Reaction Kinetics

Advanced topics in chemical reaction kinetics. Prerequisites: 52.45 or 52.43.

52.46 Chemical Engineering Thermodynamics

Introduction to thermodynamics and applications of thermodynamics in chemical and petrochemical engineering. Phase equilibrium of alkane systems. Prerequisites: 52.41.

52.47 Advanced Chemical Reaction Design

An overview of chemical reaction design. Prerequisites: 52.41 and 52.43.

52.49 Synthesis and Optimization of Chemical Processes

Introduction to synthesizing and optimizing chemical processes. Prerequisites: 52.41 and 52.42.

52.51 Transport Phenomena

Introduction to transport phenomena. Prerequisites: 52.41 and 52.42.

52.51 Molis Transport Phenomena

Introduction to transport phenomena. Prerequisites: 52.41 and 52.42.

52.51 Reactor Transport Phenomena

Introduction to transport phenomena. Prerequisites: 52.41 and 52.42.

52.51 Reaction Transport Phenomena

Introduction to transport phenomena. Prerequisites: 52.41 and 52.42.

52.51 Reaction Transport Phenomena

Introduction to transport phenomena. Prerequisites: 52.41 and 52.42.

52.51 Reaction Transport Phenomena

Introduction to transport phenomena. Prerequisites: 52.41 and 52.42.

52.51 Reaction Transport Phenomena

Introduction to transport phenomena. Prerequisites: 52.41 and 52.42.

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Introduction to transport phenomena. Prerequisites: 52.41 and 52.42.

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Introduction to transport phenomena. Prerequisites: 52.41 and 52.42.

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Introduction to transport phenomena. Prerequisites: 52.41 and 52.42.

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Introduction to transport phenomena. Prerequisites: 52.41 and 52.42.

52.51 Reaction Transport Phenomena

Introduction to transport phenomena. Prerequisites: 52.41 and 52.42.
Graduate Seminars, Advanced Topics, and Research

52180 Readings in Chemistry and Materials Engineering

52190 Seminar in Chemistry and Materials Engineering

52199 Research in Chemistry and Materials Engineering

Civil and Environmental Engineering

Department Chair: Harrison Kaye

Civil and Environmental Engineering

Civil engineering students and one of the three largest fields of engineering. It has traditionally been concerned with facilities which are both large-scale and essential to modern life. Civil and environmental engineering projects include transportation systems and their components, such as bridges, highways, public transit systems, railways, harbors, airports, sea ports, and even pipelines. Large-scale structures and office buildings provide industry and living space, environmental and hydrosystems, and provide clean water and air, including treatment plants and distribution systems for municipal and industrial water supplies, waste water treatment plants, dams, levees, and irrigation systems.

In fact, if something is one of a kind, large, and important in the daily lives of a great many people, the chances are it was planned, designed, and constructed by civil engineers. The continuing need for these and similar projects accounts for the steady demand for civil engineers through both good and bad economic times, and the variety of tasks that the individual civil engineer is qualified to perform ensures his or her career flexibility and the capacity to adjust to shifting demands.

52180 Readings in Chemistry and Materials Engineering

52190 Seminar in Chemistry and Materials Engineering

52199 Research in Chemistry and Materials Engineering

Civil and Environmental Engineering

Civil engineering courses build on the College of Engineering core curriculum and are designed to give the student the broad educational background essential to modern civil engineering practice. Electives in the senior year permit greater breadth or additional concentration in such areas of specialization as structural and foundation engineering, hydrotechnical, hydraulic engineering, and transportation engineering.

Curriculum

Sophomore Year

12M:37 Engineering Calculus III
51:10 Dynamics
51:11 Introduction to Electrical Science
51:15 Mechanics of Solids
51:16 Thermodynamics I

Total 17 s.h.

Second Semester

12M:38 Differential Equations for Engineers
57:12 Linear Systems Analysis
57:19 Mechanics of Deformable Bodies
57:20 Mechanics of Fluids and Transfer Processes
29:81 Intermediate Engineering Physics I

Total 17 s.h.

Junior Year

First Semester

29:82 Intermediate Engineering Physics II
57:21 Principles of Design I
29:95 Probability and Statistics for Engineering and Physical Sciences
53:30 Sci Mechanics
53:31 Structural Analysis I
53:91 Professional Seminar: Civil Engineering

Total 16 s.h.

Second Semester

57:14 Principles of Electronic Instrumentation
57:22 Principles of Signal II
57:35 Design of Useful Structures
57:37 Principles of Hydraulics
57:48 Principles of Hydrology
57:62 Elements of Surveying
57:91 Professional Seminar: Civil Engineering

Total 15 s.h.

Senior Year

First Semester

53:36 Reinforced Concrete Structures
53:63 Transportation Engineering
53:79 Hydraulic Design
53:91 Professional Seminar: Civil Engineering
53:190 Principles of Environmental Engineering
53:86 Environmental Sciences

Total 15 s.h.

Second Semester

53:64 Transportation Systems Design
57:91 Professional Seminar: Civil Engineering

Technical electives

Humanities and social science electives

Total 15 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 graduate program in civil and environmental engineering is designed to prepare students for professional careers and further study. The principal areas of concentration are environmental engineering and science, hydraulics and water resources, structures, mechanics and materials, and transportation.
Environmental Engineering and Science

The environmental engineering curriculum has two basic steps, 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 colleges of Business, Law, and Liberal Arts. Course work and research permit a general program of study or specialization in one of these areas: water quality management, air quality management, or solid wastes management.

Hydraulics and Water Resources

The hydraulics and water resources curriculum are associated with the civil engineering and hydraulic research, whose laboratories are world-renowned. The senior staff members of the institute are professors in the program and devote about half-time to teaching. The institute offers unique opportunities for students to participate actively in the research, analysis, and design aspects of real world problems. Consideration 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 engineering and structural design, analysis, research, or a combination of these. Special strengths exist in the areas of time-dependent behavior of reinforced and prestressed concrete structures, optimal design of structural systems, computer aided design, solid mechanics 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 operation of street and highways systems and facilities. A cooperative relationship exists with the graduate 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, 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 in the nonthesis environmental engineering curriculum.

Each student, with the approval of his or her adviser, 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 near 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 bachelor's degree, one year of which is devoted to the preparation of a dissertation which contributes to knowledge in the field. In some special areas, qualifying examination is required during the second semester for students who have not earned an M.S. in one of The University of Iowa 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. The 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 diverse, and students will be admitted from all disciplines of engineering as well as from the mathematical and basic sciences.

An applicant for the master's degree program is expected to have a cumulative undergraduate grade-point average of at least 2.5; similarly, 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 intensive use is made of the Computer Aided Engineering Laboratory which is described under "College Facilities." For information about laboratories affiliated with one course or another, the department, and the faculty, see the respective sections of the other engineering departments.

Required and Elective Course Laboratorios

53-30 Soil Mechanics

The soils laboratory is equipped for determining the classification, shear strength properties, stress-strain properties, and strength of soils.

53-150 Principles of Environmental Engineering

The Environmental Laboratory and University Water Treatment Plant are used for demonstrations of 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 and bench scale unit processes are operated and evaluated.

53-155 Limnology

The laboratory for limnology is a part of the Environmental Laboratory. Typical aquatic organisms are studied in the laboratory and several field exercises are conducted on streams and lakes in the area.
Electrical and Computer Engineering

probability theory, statistical theory, operations research, computer science, network design, planning, design and operation of water projects such as storage and collection systems for urban, municipal and industrial water supply, new system acquisition, food distribution, refrigeration, etc. Precourse: MATH 5170.

3261 Electromagnetic Fields

3 h.
Waves, fields, harbor structures, current structures, stability, antennas, and separation of antennas, transmission lines and microwave. Preprerequisite: PHYS 4650.

3271 Fluidic Transmission

3 h.
Fluids, flow in channels, methods of characteristics, - elements caused by centrifugal pumps, transpiration losses, pressure, free surface flow, applications of Eulerian and Lagrangian coordinate systems, vorticity and dissipation of linear ideal fluids. Preprerequisite: PHYS 5170 (PHYS 1610/1620).

3272 Environmental Engineering Processes

3 h.

3273 Computational Hydraulics

3 h.

3274 Viscous Flow

3 h.
Nonlinear Navier-Stokes equations, exact solutions, thin and high-Reynolds-Number turbulence, Euler equations, Prandtl-Batchelor integral method of images, viscous and incompressible fluids, and viscosity dependant boundary layer analysis, different type of incompressible flows, and boundary layer flows. Preprerequisite: PHYS 5170 (PHYS 1610/1620).

3275 Incompressible Flow

3 h.
Analysis and simulation of hydrodynamic, and aeroelasticity for aerodynamic, and structural analysis of, airfoil, and aeroelasticity of, airfoil, and structural analysis of, airfoil. Preprerequisite: PHYS 5170 (PHYS 1610/1620).

3279 Advanced Water Resources Development

3 h.
Computation of 323-189 with incompressible applications to hydrodynamics, water resources, and hydraulics. Preprerequisite: PHYS 5170 (PHYS 1610/1620).

Graduate Seminars, Advanced Topics, and Research

3300 Senior Seminar in Civil and Environmental Engineering

1 h.
Preliminary presentation of critical issues and concerns in civil engineering, and the importance of these issues and concerns in civil engineering, and the importance of these issues and concerns in civil engineering. Preprerequisite: graduate standing in University and consent of instructor.

3341 Graduate Seminar in Civil and Environmental Engineering

1 h.
Preparation and presentation of paper on selected topic. Preprerequisite: graduate standing in University and consent of instructor.

3518 Contemporary Topics in Civil and Environmental Engineering

3 h.
New topics in areas of study not routinely covered by major course work in University and that are of current interest to students. Preprerequisite: graduate standing in University and consent of instructor.

3519 Individual Investigations in Civil and Environmental Engineering

1 h.
Individual projects in civil and environmental engineering for graduate students who have a particular interest in a particular area. Preprerequisite: graduate standing in University and consent of instructor.

Curriculum

Sophomore Year
First Semester
57-10 Dynamics
3 s.h.
29M-27 Engineering Calculus II
3 s.h.
17-45 Introduction to Engineering
3 s.h.
18-15 Physics I
3 s.h.
57-11 Introduction to Electrical Science
3 s.h.
Total
15 s.h.
Second Semester
57-12 Linear Systems Analysis
3 s.h.
17-46 Principles of Electronics
3 s.h.
16-21 Introduction to Computers
4 s.h.
Total
16 s.h.
Junior Year
First Semester
57-23 Intermediate Engineering Physics II
3 s.h.
226.49 Probability and Statistics for Engineering and Physical Sciences
3 s.h.
55-32 Introduction to Digital Design
3 s.h.
57-46 Electronic Circuits
3 s.h.
56-50 Control Systems
3 s.h.
57-91 Professional Seminar: Electrical Engineering
1 s.h.
Total
16 s.h.
Second Semester
57-25 Modern Physics
3 s.h.
55-03 Introduction to Software Design
3 s.h.
55-54 Communication Systems
3 s.h.
57-70 Electromagnetic Theory
3 s.h.
58-84 Principles of Electrical Engineering Design I
3 s.h.
Humanities or social science electives
3 s.h.
Total
18 s.h.
Senior Year
First Semester
57-10 Engineering" and" Materials and Devices
3 s.h.
58-35 Principles of Electrical Engineering Design II
3 s.h.
58-91 Professional Seminar: Electrical Engineering
1 s.h.
"Technical electives" Humanities or social science electives
3 s.h.
Technical electives
1 s.h.
Total
17 s.h.
Second Semester
58-86 Principles of Electrical Engineering Design III
2 s.h.
Technical Electives
9 s.h.
Humanities or social science electives
4 s.h.
Total
15 s.h.
"Professional Seminar must be taken once in the junior year and once in the senior year.

The Electrical and Computer Engineering Program provides a strong background in electrical and computer engineering subjects, physics and mathematics, and allows for concentration in several areas through five technical elective courses usually taken in the senior year. A student can concentrate in one or more areas among computer, control, communication, electronics, and applied physics.
**Technical electives including at least two of the following:**
55-136 Microcomputers
55-137 Microcomputer-Based Systems
55-138 Fault Tolerant Computing
55-140 Elementary Dave and Thin Film Micro-Electronics
55-155 Introduction to VLSI Design
55-145 Digital Signal Processing
55-146 Digital Image Processing
55-164 Computer Based Control System

The humanities and social science electives must be selected to satisfy the humanities and social science requirements of the College of Engineering.

**Graduate Program**

Electrical and computer engineering offers curricula leading to the Master of Science and Doctor of Philosophy degrees. Theses and non-thesis M.S. programs are available, and either may precede Ph.D. study. Excellence in scholarship and research is emphasized through close contact with the faculty throughout the period of graduate study and through programs tailored to fit individual needs.

Each student selects an advisor, and, with the advisor, plans an individual program, bounded only by a few broad guidelines imposed by the Graduate College and by the program. Close interaction with other departments exists both within and outside the college, especially internal medicine, radiology, physics, computer science, and biomedical engineering. The principle areas of concentration are waves and materials, computer systems, signal and image processing, and statistical and computer-based control systems, each of which is briefly described below.

**Waves and Materials**
Plasma physics, electro-optics, and acoustics investigations utilize specialized laboratories in both the Engineering Building and Van Allen Hall. Collaborative research with the physics departments is directed toward topics in nonlinear plasma physics of a theoretical as well as experimental nature. These topics include plasma confinement and stability, and nonlinear wave phenomena such as solitons and shocks. A plasma physics laboratory is available to support this activity. An electro-optics laser laboratory and an ultrasonic facility are used to conduct graduate research in the areas of optical/acoustic, especially acousto-optics, surface acoustic waves, and nonlinear wave phenomena in ultrasonics. Also the 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 techniques for data security, VLSI design, and data-flow architecture. This work is supported by the availability of a computer network laboratory, and by computer hardware and VLSI design software. Current projects include simulation of ultra-reliable computing systems, design of highly survivable computer networks, fault diagnosis in multiprocessor 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, physics, 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 speech, detection of I.E.G. abnormalities in victims of near-death, and development of hardware and software techniques for the acquisition and processing of images in cardiac monitoring.

**Statistical and Computer-Based Control Systems**
Current research emphasizes optimal control, learning and adaptive control, self-monitoring systems, control, and robotics. Work is also being done in estimation, identification, and control for linear dynamic systems. The control and computer systems research laboratory supports this effort. Topics include applications of stochastic processes to problems in control and computer-control systems such as spectral estimation, identification, and control for stochastic linear 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 non-thesis option requires at least 30 semester hours of course credit with a minimum of 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 55-196 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 program 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 whom the advisor is chair. One part of the final examination must consist of an oral defense of the thesis, for these candidates, or of the materials in 55-196 Individual Investigations: Electrical and Computer Engineering, for nonthesis candidates. At the time of graduation, the candidate for the M.S. degree must have acquired a bivariate 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 a dissertation committee, with at least 45 semester hours of credit earned in formal courses, including at least 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 final oral defense of the thesis; and a cumulative grade-point average of 3.50 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 five specified 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 enforce minimal standards of progress in the student's overall plan of study. After this examination is passed, the student's advisor and Ph.D. committee have primary responsibility for the design of the subsequent 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 followed within six months of the examination, 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. An 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. Students with baccalaureate degrees in related areas (e.g., physics, mathematics, and computer science) may be admitted. In such cases, additional course work without graduate credit may be required. Each application is reviewed on an individual basis. Extenuating circumstances may warrant adjustments 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 are awarded on a competitive basis.

Special Facilities and Laboratories

Undergraduate Instruction Engineering Core

Electrical and computer engineering provides core instruction for the college in systems, electrical circuits, and electronics. A key part of this core is the laboratory experience in providing the students of the college with their first experience with engineering laboratory instrumentation. The electronics laboratory facilities are equipped with oscilloscopes, signal generators, analog and digital electronic instrumentation, and a variety of measuring instruments.

Required and Elective Course Laboratories

The undergraduate laboratories consist of the traditional electronics laboratories as well as special laboratories for microcomputers, 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, one with a multi-user operating system, and the other is a single-user facility. Analogy equipment in this laboratory consists of 160 MB disk, a 14 MB removable cassette disk, magnetic tape drive, 18 asynchronous communication ports, analog to digital and digital to analog converters, a RAMTEK 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 microprocessor, and is used for analog and digital signal processing.

A second department microcomputer system consists of two VAX 11/750 microcomputers, each equipped with a large disk drive and fast microprocessor, and is used for analog and digital signal processing.

Courses

Special Courses

Up to four compensatory Education Training Assignment - opportunity for students to participate in the Cooperative Education Program in the course during the assignment period. Compensatory education assignment at the request of the student government report card. Prerequisite: permission of the instructor.

S441 Introduction to Electrical Engineering 1

Several design problems in electrical engineering with emphasis on the use of technology and the use of integrated circuits. Emphasis on basic concepts and techniques of electrical engineering design (EC 152, 154, etc.). Prerequisites: S422 and S324.

S403 Principles of Electrical Engineering I

A new approach to the teaching of electrical science. Requires demonstration of the core project and a final electrical engineering report. Covered in S583. Prerequisite: senior standing.

S451 Engineering Electromagnetics

Principles of electrical engineering, such as transducers and signal processing, as relevant to the design and analysis of modern electronic systems. covered in S583. Prerequisite: senior standing.

S461 Laboratory Investigations: Electrical Engineering

An introduction to the principles of electrical engineering design project, with emphasis on laboratory experience and software development, research, etc. Prerequisite: consent of the supervising faculty.

S481 Introduction to Computers in Electrical Engineering

Introduction to the computer systems used in the electrical engineering programs. Prerequisites: S584 and senior standing.

S482 Introduction to Digital Design

Principles and design of digital electronics, design of digital systems. Design of digital logic and microchips; digital system control, interface and testing techniques. Design technologies using analog and digital integrated circuits, lab arranged. Prerequisites: S571 and/or S520 or S521.

S483 Introduction to Software Design

A project in the design and implementation of computer algorithms and programs. Lab arranged. Prerequisites: S571.

S531 Introduction to Computer Languages

An introduction to FORTRAN 77 and higher-level language programming and utilization from an engineering perspective. Lab arranged. Prerequisites: S533.

S561 Switching Theory

Contact and power input-forbidden. Networks, logic gates, logic circuit analysis and design, flip-flops, AND, OR, and NOT gates, logic design, and applications. Prerequisites: S560 or S560E or S561.

S562 Computer Organization

Introduction to computer organization, including memory, processor, and input/output devices. Hardware and software interfaces. Prerequisites: S520 or S523.

S584 Computer Organization

Introduction to microprocessors, microcontrollers and input/output devices. Hardware and software interfaces. Prerequisites: S520 or S523.

S585 Computer Organization

Introduction to microprocessors, microcontrollers and input/output devices. Hardware and software interfaces. Prerequisites: S520 or S523.

S592 Computer Organization

Introduction to microprocessors, microcontrollers and input/output devices. Hardware and software interfaces. Prerequisites: S520 or S523.

S593 Computer Organization

Introduction to microprocessors, microcontrollers and input/output devices. Hardware and software interfaces. Prerequisites: S520 or S523.

S594 Computer Organization

Introduction to microprocessors, microcontrollers and input/output devices. Hardware and software interfaces. Prerequisites: S520 or S523.

S595 Computer Organization

Introduction to microprocessors, microcontrollers and input/output devices. Hardware and software interfaces. Prerequisites: S520 or S523.

S596 Computer Organization

Introduction to microprocessors, microcontrollers and input/output devices. Hardware and software interfaces. Prerequisites: S520 or S523.

S597 Computer Organization

Introduction to microprocessors, microcontrollers and input/output devices. Hardware and software interfaces. Prerequisites: S520 or S523.

S598 Computer Organization

Introduction to microprocessors, microcontrollers and input/output devices. Hardware and software interfaces. Prerequisites: S520 or S523.

S599 Computer Organization

Introduction to microprocessors, microcontrollers and input/output devices. Hardware and software interfaces. Prerequisites: S520 or S523.

S600 Computer Organization

Introduction to microprocessors, microcontrollers and input/output devices. Hardware and software interfaces. Prerequisites: S520 or S523.

S601 Computer Organization

Introduction to microprocessors, microcontrollers and input/output devices. Hardware and software interfaces. Prerequisites: S520 or S523.

S602 Computer Organization

Introduction to microprocessors, microcontrollers and input/output devices. Hardware and software interfaces. Prerequisites: S520 or S523.

S603 Computer Organization

Introduction to microprocessors, microcontrollers and input/output devices. Hardware and software interfaces. Prerequisites: S520 or S523.

S604 Computer Organization

Introduction to microprocessors, microcontrollers and input/output devices. Hardware and software interfaces. Prerequisites: S520 or S523.
**Industrial and Management Engineering**

Program chair: J.R. Buck

Professor: J.R. Buck, J.M. Ostermayer, J.R.

Senior

**Sophomore Year**

**First Semester**

22M-37 Engineering Calculus III 4 s.h.

57-16 Thermodynamics I 4 s.h.

57-11 Introduction to Electrical Science 3 s.h.

57-15 Materials Science 3 s.h.

57-10 Dynamics 3 s.h.

Total 17 s.h.

**Second Semester**

22M-38 Differential Equations for Engineers 4 s.h.

57-12 Linear Systems Analysis 3 s.h.

57-19 Mechanics of Deformable Bodies 3 s.h.

57-18 Principles of Electronic Instrumentation 4 s.h.

29-31 Intermediate Engineering Physics I 3 s.h.

Total 17 s.h.

**Junior Year**

**First Semester**

225-39 Probability and Statistics for Engineering and Physical Sciences 5 s.h.

29-82 Intermediate Engineering Physics II 3 s.h.

57-20 Mechanics of Fluids and Transfer Processes 4 s.h.

57-21 Principles of Design I 3 s.h.

Humanities or social science elective 3 s.h.

Total 16 s.h.

**Second Semester**

57-83 Thermodynamics II 3 s.h.

57-22 Principles of Design II 3 s.h.

57-14 Management Engineering Science 3 s.h.

Technical elective 3 s.h.

Humanities or social science elective 4 s.h.

Total 16 s.h.

**Senior Year**

**First Semester**

Design course 3 s.h.

Technical electives 12 s.h.

Humanities or social science elective 1 s.h.

Total 18 s.h.

**Second Semester**

Design course 3 s.h.

Technical electives 9 s.h.

Humanities or social science elective 3 s.h.

Total 15 s.h.

The humanities and social science electives must be selected to satisfy the humanities and social science requirements of the College of Engineering.

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**Undergraduate Program**

The undergraduate curriculum in industrial engineering requires a strong foundation of courses in engineering science, mathematics, design, social sciences, and humanities. Advanced courses include specialty courses in management science, production operations research, quality control, human factors, human engineering, and information systems.
**Technical elective** 6 s.h.
Total 16 s.h.

The economics elective may be selected from:

- EE-100 Price, Employment, and Production Theory 3 s.h.
- EE-103 Microeconomics 3 s.h.
- EE-111 Labor Economics 3 s.h.
- EE-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.
- 56-146 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 Special Investigations: 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 of 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 areas consist of quality assurance, reliability, and production control. The area of concentration is covered by courses in the 60 series. Studies in operations research and applied statistics concentrate on mathematical statistics, numerical and computer sciences for modeling, analyzing, and optimizing systems. Various methodologies in this area include: mathematical programming, heuristic optimization, statistical analysis, and digital systems simulation. Courses in the 70 series cover these topics. 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 investigating the effects of visual and auditory input on human information processing, performance time statistics with cognitive tasks, and the effects of noise on human performance. Other ergonomic research is directed to use of computer simulation to solve human workload problems: industrial inspection, computer-aided human problem solving, and techniques of ergonomic data collection and analysis. Some current research in information and engineering management consists of fields design, quality for medical resource allocation, economics of parallel processing, entrepreneurship, governmental redistricting, methods of identifying accident causes through incident 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 processes, and inventory record accuracy-assurance procedures. On-going work in operations research and applied statistics is centered in correlation, improvements in robust regression, simulation and random number generation, and the development of programming techniques for discriminate 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 course work of 100 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 33 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, approved by the industrial and management engineering program chair, and by 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 noneengineering backgrounds.

The nonthesis options require 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. studies 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 stipulated by his or her advisor 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 a presentation of a dissertation proposal, so that the comprehensive
committee can evaluate the student's academic preparation in the light of the resources to be furthered. Upon satisfactorily completing this examination, the student accepted as a candidate for the Ph.D. and normally has only to complete and defend the dissertation.

Graduate Admission Requirements

Students with an M.S. objective may be admitted from an A.B.C., accredited baccalaureate curriculum in any engineering discipline or an advanced, baccalaureate curriculum in any engineering discipline or the earth-atmospheric and physical sciences with a minimum grade-point average of 3.0 and an acceptable score on the Graduate Record Examination (GRE) Aptitude Test (typically, at least 400 verbal, 630 quantitative). Applicants from non-U.S. institutions must meet equivalent conditions for regular admission. Students may be considered for conditional admission with a lower grade-point average and lower GRE Aptitude Test scores. Students from business or social science programs who have adequate mathematical preparation may also be considered for regular or conditional admission. The student on conditional status must achieve regular status within two sessions of registration or be dismissed. Admission may be limited by the number of faculty and available laboratory space.

Students with a Ph.D. objective may be admitted from an A.B.C.-accredited baccalaureate or a B.S.-baccalaureate curriculum in any engineering discipline or the earth-atmospheric and physical sciences with a minimum grade-point average of 3.0 and an acceptable GRE Aptitude Test Score (typically, at least 500 verbal, 700 quantitative). Students must be enrolled outside the U.S. must have an equivalent bachelor degree in an approved engineering discipline or the earth-atmospheric and physical sciences as determined by this University. Students may be considered with a Ph.D. objective and a B.S. degree without a thesis are usually first admitted to the M.S. program. All admissions to the Ph.D. program are approved by the faculty as a committee of the whole.

Financial Assistance

A number of one-quarter-time and one-half-time graduate student teaching and research assistantships are available. Awards are based on the student's academic achievement and potential contribution to the departmental research agenda and the assessment of the student's potential contribution to the department and to the teaching goals of the program. Advanced graduate students also qualify for higher stipend instructor positions. Students should write to the chair of the Industrial and Manufacturing Engineering department for further information.

Special Facilities and Laboratories

Engineering Core

For information about laboratories affiliated with core courses coordinated by other departments, see the sub-sections 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 industrial 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 controls.

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, furnaces, holding 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

50:06 Cooperative Education Training Assignment: Industrial Engineering

Industrial engineering students must complete the Cooperative Education Program during at least one work assignment period. Registration is a requirement for participation in the program on the student's permanent record. Prerequisites: admission to the Cooperative Education Program and approval of the student's faculty advisor.

50:10 Professional Seminar: Industrial Engineering

Professional aspects of industry in engineering presented through seminars and discussions by guest lecturers and others. Focus on topical current seminar. Not on register. Required each semester for industrial engineering majors and seniors. Students should register for one semester of an odd or even numbered year. Prerequisite: junior standing.

40:01 Industrial Investigations in Manufacturing

Independent projects for industrial engineering by undergraduate students such as a laboratory study, engineering design project, analysis and simulation of an engineering system, computer simulation, and research. Prerequisite: consent of advisor.

Manufacturing

50:00 Manufacturing Materials

Methods used in manufacturing are studied at the microstructure level. Metallurgical and materials courses in mechanical properties of materials, treatments, and modifications of materials, mechanical properties of materials in manufacturing and service. Offered spring semesters. Prerequisite: 57:115.

50:14 Manufacturing Processes

Methods of processing important industrial materials including casting, forming, machining, and forging. Production tools and techniques, numerical control, planning of manufacturing operations. Offered fall semesters. Prerequisite: 57:115.

Human Factors-

Ergonomics

50:00 Human Factors Methods

Procedures of analysis and design required to integrate humans into the computer systems, machines, and human performance measurements and on methods design. Laboratory projects. Offered spring semesters. Prereq: 220:329 or 220:132.

50:12 Human Factors Engineering

Design of interactive systems and development of optimum work environment by applying principles of behavioral science emphasis on sensory and perceptual processes, motor, cognitive, and psychomotor, and human factors engineering, information, and biodynamics. Offered fall semesters. Same as 315:133.

50:10 Design of Selected Areas in Human Factors Engineering

Offered spring semesters. Prereq: 50:12 or 50:14. Consent of instructor.

50:15 Psychomotor Development

Design of selected recent literature on man-machine systems in areas such as control of various systems or control of human systems. Offered fall semesters. Prereq: 315:11.
Marketing and sales, and management, and are employed throughout all industries.

Undergraduate Program

The undergraduate program prepares the student for a career in engineering, with an emphasis on the technical areas of thermal energy systems and the conversion of thermal energy to mechanical and electrical energy, mechanical systems and machines, and design and control of these systems.

The undergraduate curriculum provides a substantial number of electives in both the technical and the humanities and social science areas. Technical electives are selected to provide in-depth knowledge, in at least one of the major disciplines of mechanical engineering. Technical electives in major disciplines are offered in thermodynamics, heat transfer, solar energy conversion, fluid mechanics, aerodynamics, mechanical design and systems, feedback control, computer graphics, computer-aided design, fracture mechanics, and biomechanics. All upperclass students undertake a design project. A handbook describing the curriculum and program requirements is available in the department office.

Curriculum

Sophomore Year
First Semester
22M:37 Engineering Calculus III 4 s.h.
57-10 Dynamics 3 s.h.
57-11 Introduction to Electrical Science 3 s.h.
57-15 Materials Science I 3 s.h.
57-16 Thermodynamics I 4 s.h.
Total 17 s.h.

Second Semester
22M:38 Differential Equations for Engineers 4 s.h.
57-12 Linear Systems Analysis 3 s.h.
57-18 Principles of Electronic Instrumentation 4 s.h.
57-19 Mechanics of Deformable Bodies 3 s.h.
29-81 Intermediate Engineering Physics I 3 s.h.
Total 17 s.h.

Junior Year
First Semester
22S:39 Probability and Statistics for Engineering and Physical Sciences 3 s.h.
29-82 Intermediate Engineering Physics II 3 s.h.
57-21 Principles of Design I 3 s.h.
57-20 Mechanics of Fluids and Transfer Processes 4 s.h.
58-91 Professional Seminar: Mechanical Engineering 0 s.h.
Humorales or social science elective 3 s.h.
Total 16 s.h.

Second Semester
29-83 Modern Physics 3 s.h.
56-52 Macromolecular Systems 1 s.h.
58-45 Heat Transfer 5 s.h.
58-42 Thermodynamics II 3 s.h.
58-91 Professional Seminar: Mechanical Engineering 0 s.h.
Humanities or total science elective 3 s.h.
Total 15 s.h.

Senior Year
First Semester
58-80 Experimental Engineering 4 s.h.
58-55 Mechanical Systems Design I 4 s.h.
58-91 Professional Seminar: Mechanical Engineering 0 s.h.
Technical electives 6 s.h.
Humanities or social science elective 3 s.h.
Total 17 s.h.

Second Semester
58-48 Thermal-Fluid Systems Design 4 s.h.
58-86 Mechanical Engineering Project 3 s.h.
58-91 Professional Seminar: Mechanical Engineering 0 s.h.
Technical electives 6 s.h.
Humanities or social science elective 4 s.h.
Total 17 s.h.

Graduate Program

The mechanical engineering graduate program at both the M.S. and Ph.D. levels is designed to educate students in contemporary methods and solution techniques at an advanced level and to prepare them for a professional career in mechanical engineering design, development, and research. The plan of study is tailored to meet the student’s career objectives. The principal area of concentration in the graduate program is the thermal science and systems, fluid mechanics, mechanical systems, and biomechanics, each of which is briefly described below.

Fluid Mechanics

The graduate program in fluid mechanics is especially suitable for those seeking careers in teaching and/or research in academic and industrial organizations. Emphasis is given to the elucidation of fundamental principles and techniques of solving problems in the various fields of fluid dynamics applications. In addition to physics modeling, considerable emphasis is given to the use of digital computers, both in the mathematical modeling of flow phenomena and in the acquisition and processing of experimental data.

Thermal Science and Systems

The graduate program in thermal science and systems is designed to prepare students for careers in industry, teaching, or government. Emphasis is placed on the fundamentals of thermodynamics and heat transfer, and associated analytical and experimental methods used in energy conversion systems. Areas of concentration include gas dynamics, numerical heat transfer, solar energy systems and thermal processes, combustion, radiation, and convective heat transfer.

Mechanical Systems

The graduate program in mechanical systems is designed to prepare those who wish to pursue careers in high-level applied research, advanced system analysis, and design or teaching. Emphasis is placed on fundamental principles, techniques, and experimentation used to analyze and design mechanical systems. Areas of concentration include machine dynamics, computer-aided optimal design, structural optimization, software development, control systems, and materials behavior (fatigue, fracture mechanics, etc.).

Biomechanics

The graduate program in biomechanics is designed to provide the student with a strong background in the various aspects of this interdisciplinary subject. The educational experience is aimed at those who wish to pursue careers in high-level applied research in bioengineering, mechanical engineering, or medicine. Emphasis is placed on fundamental principles and experimental techniques used in biomechanical systems. Areas of concentration include biomechanics of the central nervous system, the biomechanics of the spine, biomechanics of the lower and upper extremities, cardiovascular biomechanics, biomedical systems analysis, optimization as applied to biomechanics, biomedical image analysis, and health care delivery.

Master of Science

The M.S. program requires a minimum of 30 semester hours of course work and research. Students may choose either a thesis or nonthesis program. A thesis program may include six semester hours in the research component. The nonthesis program must include at least six semester hours of 200-level courses. After admission to a graduate degree program, the student is urged to visit with the mechanical engineering faculty and to find an academic advisor within the first semester. All graduate students in residence are required to attend the Mechanical Engineering Graduate Seminar. To earn the M.S. degree, the student is required to attain a minimum grade-point average of 3.0 on a minimum of 30 semester hours of graduate work.
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 baccalaureate 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 courses relevant to his or her degree program. The oral examination will be conducted for the student on his or her preparation for the proposed dissertation research project in addition to the student's course work. The oral examination is given within one month after the written examination.

Having successfully completed the comprehensive examination, the student normally will be approved to successfully defend 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 seek admission to the Master of Science degree program in mechanical engineering. GRE scores and 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 with a minimum grade-point average of 3.0, reference letters, scores on the GRE Aptitude Test, student research interests, previous graduate study grade-point average, and other factors are also considered in making the decision to admit a student. Students with a Ph.D. objective who enter with a baccalaureate 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 student advisor. This 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. Support is usually available to students with financial need through research and teaching assistantships 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 objective will receive promotion in the awarding of new assistantships. Additional doctoral students may also qualify for higher assistantship positions. All applications for financial support should be directed 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; 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 Lists

The laboratory for M.E. experimental engineering provides undergraduate students with exposure to contemporary sensors, signal conditioners, instrumentation, and computer-aided data acquisition systems.

The undergraduate 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 low 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, fluid 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 experience in using modern methods of measurement and analytical tools, including computers, a variety of strain gauges, a photoelastic laboratory, and other conventional instrumentation.
Mechanical Systems

5.13 Systems Mechanics

3 a.e.

Comprehension of strength, stiffness, and stability in the design of mechanical systems. Introduction to analysis and design of structures. Prerequisite: MTH 211.

5.31 Theory of Vibration

3 a.b.

Linear theory of vibrations. Free and forced vibrations of single and multi-degree of freedom systems. Prerequisite: MTH 212.

5.32 Dynamics

3 a.b.

Investigation of the dynamics of mechanical systems. Kinetics and kinematics of particles and rigid bodies. Prerequisite: MTH 212.

Graduate Seminars, Advanced Topics, and Research

5.50 Advanced Seminar: Mechanical Engineering

3 a.

Open seminar for graduate students. Topics vary. Prerequisites: Permission of instructor.

5.51 Advanced Topics in Mechanical Engineering

3 a.

Survey of the latest advances in mechanical engineering. Prerequisites: CSE 510 or equivalent.

5.52 Theory of Optics

3 a.

Introduction to the basics of geometric and physical optics. Prerequisite: MTH 211.

5.53 Fluid Mechanics

3 a.

Fundamentals of fluid mechanics. Stress analysis in solids. Prerequisite: MTH 212.

5.54 Statics

3 a.

Statics of particles and rigid bodies. Prerequisite: MTH 212.

5.55 Dynamics

3 a.

Dynamics of particles and rigid bodies. Prerequisite: MTH 212.

5.56 Heat Transfer

3 a.

Thermal analysis of mechanical systems. Prerequisites: MTH 212 and CSE 301.

5.57 Control Systems

3 a.

Introduction to the design of feedback control systems. Prerequisite: Permission of instructor.

5.58 Topics in Satellite Technology

3 a.

Satellite design and operation. Prerequisites: CSE 510 or equivalent.
Graduate College

The University of Iowa has been a leading center of graduate study for three-quarters of a century. Presently, nearly one-fifth of its enrollment is in the Graduate College. This unusually high figure reflects the breadth of the University’s graduate programs and resources, the strength of a graduate faculty with a long tradition of personal and professional concern for students, and the opportunities afforded graduate students for involvement, recognition, and support.

The Graduate College is responsible for the review and approval of proposals for new graduate programs and for the periodic survey and evaluation of existing programs. Through its administration of scholarship, fellowship, and research funds, the Graduate College encourages research and strengthening of departments. It offers extensive assistance to individual faculty members in linking 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.*
- African-American Studies—M.A.*
- American Studies—M.A.*, Ph.D.
- Anatomy—M.S., Ph.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.* ***, Ph.D.
- 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.
- German—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 first have their proposal reviewed and approved by a departmental program in the Graduate College. For details, see Section XI.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 interdisciplinary program administered by the College of Liberal Arts in cooperation with other colleges at The University of Iowa. (The program is designed to complete graduate degree programs for students with academic, professional, research, or service career interest in aging. An entry is made on a student's transcript certifying completion of an approved curriculum in Aging Studies. For further details, see "Aging Studies Program" in the 'College of Liberal Arts' section of the Catalog.

Applied Mathematical Sciences

The 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 mathematics science, statistics, or computer science with study in a science (behavioral, biological, physical, or social). See "Applied Mathematical Sciences" under "Division of Mathematical Sciences" in the College of Liberal Arts' section of the Catalog for a list of faculty and a further description of the program.

Center for International and Comparative Studies

The Center for International and Comparative Studies (CICS) was established as a component of the University's teaching and research programs concerned with international studies. In March 1984 CICS received Kegeseth 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, journal, and outreach to the public. At present CICS addresses six interdisciplinary programs: African Civilizations, African Studies, Global Studies, International Development, Latin America, 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 primary instructional missions: African Studies, Asian Civilizations, Latin American Studies, and Global Studies (for further details, see the appropriate sections in this Catalog under "College of Liberal Arts"). The Program for International Development promotes research, teaching, and technical assistance activities. The Women in Development Committee is principally concerned with research and public programs.

The Center supports international studies by funding more than 60 public lectures and seminars yearly, by providing administrative faculty 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 community lectures, Foreign Relations Council and other community organization. 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 newsletter, which announces forthcoming events, and CICS publishes scholarly articles in several occasional series.

Evolutionary Ecology and Behavior

Program co-chairs: Stephen Smale, Henry Neu, Professor, programs Richard V. Dudley (chemistry), Albert W. Hausner (biology), Joseph F. W. N. Jones (zoology), Paul Matsum (biology). Assistant program director: Stephen Smale (biology), Henry Neu (biology). Additional program director: Linda R. Johnson (zoology), David Weimer (chemistry). Associate program directors: Max H. Temple (biology), Jonathan Roffman (biology), Sara E. Via (zoology). 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 the program, emphasizing adaptation, the genetic basis, behavior, and natural selection. Particular strengths of the program are behavioral and quantitative genetics, quantitative methods in ecology and behavioral ecology, climate, and tropical biology. There is a restless and strong emphasis on balance between controlled experimentation and field observation. Laboratory research may include controlled breeding experiments in which reliability, gene-environment interactions, and genetic covariance of neurophysiological,
behavorial, life history, or other traits are investigated. Field research emphasizes the adaptive significance of traits.

Opportunities for field research are provided locally by the Meadmore Field Campus just outside town. In the summer, the lakes, temperate hardwood forests, and old fields. The Iowa Lakeshore 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. These graduate field courses are offered by the faculty, with trips to the Smokies, the Michigan dunes, the desert, the prairie, 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, Thailand, 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 UK has a cooperative program with the University of the Andes in Merida, Venezuela.

Indoor facilities permit a wide range of studies, with varied equipment for observation and analysis, such as video recorders, movie cameras, walk-in environment chambers, computer terminals, a GCC-MS, and a high-speed computer. There is ample space for housing of organ meats, mices, primates, dogs, small animals, and field collection trips. The botany greenhouse contains more than 500,000 natural science specimens, with birds and mammals particularly well represented among the vertebrates.

The atmosphere at Iowa is friendly and cooperative and the approach multidisciplinary. Students may design their graduate programs to take advantage of collaboration, consultation, course work, and complementation of their interests through members of such departments as botany, chemistry, computer sciences, 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, tuition scholarships, 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 Busch Memorial student travel fund for study. Postdoctoral students may apply for the Postdoctoral Assistant-in-Instruction Program or the Kirkwood fellowship for students in behavior. Postdoctoral students may compete for seed 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 R., Jim, J. Dudley Andrew

*The University of Iowa is one of a consortium of 20 institutions and universities associated with the 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 Cité Universitaire American du Cinéma et de l'Art 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 arts, film culture, film and language, and film and psychology. Students discuss themes such as the evolution of the early cinema; the silent films of Griffith, Lang, Eisenstein, and Keaton; the classic Hollywood films; French cinema during and after the transition to sound, and European and American avant-garde cinemas. Participants study the works of Metz, Freud, Barthès, Lacan, Althusser, Foucault, and other leading thinkers in the understanding of contemporary French culture, mass media, and the visual arts.*

The Contemporary Criticism and Culture Program focuses on recent developments in French cultural thought and critical institutions, in linguistics, social sciences, and theater. It draws on recent theoretical concepts in the fields of linguistics, psychoanalysis, anthropology, history, and philosophy to analyze verbal and audiovisual representations in literature, painting, photography, film, and television. The interdisciplinary nature of this program makes it relevant not only to French majors, but also to students of other disciplines concerned with the problems of criticism and culture. It is of particular value to those who wish to explore the interrelationship of modernist French theory to a variety of disciplines. "Approaching Literature and other styles 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 currents of insights from other fields, such as linguistics, cultural geography, anthropology, sociology, and economics. Particularly distinctive in the French historical approach has been a preoccupation with the long-term evolution of populations and with the social context of a development of groups of ordinary people, seen in their villas or regional contexts. A student may either concentrate in one of the programs or develop an individual program combining elements from both.*

Participants are interested in the University of Paris II—Censier and are eligible to take selected courses within the University of Paris as well as those directly sponsored by the center's various programs. The program is open to all students, and does not require students from The University of Iowa. For further information contact the program coordinators.

**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 are:

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 psychology. Previous training in psychology, zoology, and the clinical departments of neurology and psychiatry.

Because of the interdisciplinary nature of neuroscience and the diverse background 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, psychology, ecology, 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 five basic areas of neuroscience as a survey of the background and current concepts of the structure and function of neural systems. First-year graduate students enrol in a special topics course designed to introduce them to the present research 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 (demonstrated 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

Predoctoral students should contact the program office for specific information concerning admissions and application materials at the following address:
Neuroscience Program Office, 5-660
Bown Science Building
The University of Iowa, Iowa City, IA 52242.

Transportation Studies

This is an interdisciplinary, nondegree graduate 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" in "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 $3,000 and $7,500 for half-time assistantships. Assistants are also eligible for tuition scholarships; nonresident assistants' teaching load may exceed one course and fees are reduced to resident rates.

University Teaching-Research Fellowships

For first-year graduate students entering doctoral programs; typical stipends are $8,000 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 at the same time; one year out of four at the same time; one year out of four at the same time; one year out of four at the same time; one year out of four at the same time; one year out of four at the same time; one year out of four at the same time.

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 teaching assistantships, supplemental, part-time employment in research or part-time teaching appointments. Often the Office of the Vice-President for Educational Development and Research maintains 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.

GROW THE COLLEGE
Graduate Student Senate

The Graduate Student Senate is the University graduate student body's representative organization. Representatives are elected annually from each department of the University having a graduate degree program. The senate's primary purpose is to serve the interests of the graduate student body in matters affecting its welfare. The senate advises the dean of the Graduate College on matters pertaining to the Graduate College.

Rules and Regulations of the Graduate College

The Academic Program

Section I: 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 admission statement from the director of admissions. Applications may obtain the proper forms from the director of admissions, The University of Iowa, Iowa City, Iowa 52242.

In addition to these forms, official transcripts from each undergraduate and graduate institution attended must be submitted to the director of admissions by the designated deadline prior to the session in which admission is expected. 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 (Applique) 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 them in addition to the General (Applique) Test. Inquires about the requirement of the Subject (Advanced) Test should be addressed to the director of the department in which the applicant is interested.

C. English for Foreign Students

Prior to consideration for admission, foreign students applying whose native language is other than English must take and pass TOEFL (Test of English as a Foreign Language), unless they have received a degree from an accredited college or university in the United States, the United Kingdom, Canada (except Quebec), Australia, or New Zealand. The examination is given at various times of the year and in many countries throughout the world. Inquiries should be addressed to the director, TOEFL Educational Testing Service, Princeton, New Jersey 08540.

Foreign students transferring from unfinished degree programs of other universities in the United States who have not taken this examination, or who have received a grade lower than the minimum established by the Graduate College dean, must take the TOEFL examination and receive a passing grade prior to consideration for admission.

The Graduate College will advise the departments of students having passed the TOEFL test. Individual departments may require these students to take and pass a course at The University of Iowa in English usage designed especially for foreign students.

D. Early Admission

A student who is within four semester hours of having satisfied the requirements for the Master's degree at The University of Iowa may apply for provisional admission.

E. Candidacy

Admission to the Graduate College is not the equivalent of candidacy as a candidate for an advanced degree, which must be earned through the successful completion of the course work and fulfills all other requirements for the degree. Admission to candidacy is: "Section XI. Two-Year Degrees," and "Section XI. Doctor's Degrees.")

F. Declaration of Major and Degree

Every applicant for admission must indicate on the application form the department or program of major interest and the degree, certificate, or professional objective he or she intends to pursue. The only exceptions to this regulation are the limited number of apprentices registered as "special students. (See definition of "special status." In next paragraph) Changes in the major or degree status may be made in the course of a student's graduate study with the approval of the department to which the transfer is proposed. To initiate such action the grade-point average should be a major or degree status in the Office of the Graduate College.

G. Status upon Admission

All students upon admission fall into one of the following categories:

1. Regular—Students who have met the minimum requirements for admission and have been recommended for admission by the department, or interdepartmental program, for work leading to a degree or certificate or professional preparation.

2. Continuing—Students who are interested in working toward a graduate degree or certificate but who are required by a department to demonstrate their ability to do satisfactory graduate work before being admitted to regular status. To be admitted on a conditional basis, the student must be recommended by a department which will assume responsibility for advising him or her. (See minimum grade-point requirements, "Section XII.") 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 3.6 (0.0 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. Registration for any subsequent session, including another summer session, requires that the student must file an application and be admitted by a department who is registered to award a regular or conditional status. A student registering as a special student can take no more than two courses during a semester or eight weeks during the eight-week summer session.

H. Minimum Requirements for Graduates

Graduates of any college or university accredited by regional accrediting agencies are permitted to graduate in the academic recognition degree or the major degree granted by the Graduate College if their academic record meets the requirements of the academic standards. For nondoctoral 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 not completed 12 graduate semester hours, the grade-point average is computed only on the last 12 graduate semester hours. The grade-point average is computed only on graduate work completed. In cases in which the candidate has completed a master's degree, the degree requirement has a grade-point average below the minimum required for graduation. Has a Graduate Record Examination score equal or 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 the 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 interdisciplinary 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 G. above.".) A person holding faculty rank as specified above may petition the Graduate College dean for permission to enter a graduate program for work leading to an advanced degree, certificate, or professional improvement except in the department of his or her appointment. Approval for this purpose is at the discretion of 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 not admitted to and enroll in the Graduate College, but who then fail to register for a period of 36 months or more, must apply for readmission. The approval of the departmental or professional departmental approval for the session in which readmission is desired. The consideration of the application for readmission will be governed by the recommendations of the Graduate College admissions standards in effect at the time of reaplication.

Section II. Registration

A. Standard Schedule

Students registered in the Graduate College may register for no more than 15 semester hours of credit in graduate courses. In the case of graduate and undergraduate courses, two hours of undergraduate credit shall 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 or one semester hour of undergraduate work is included.

The maximum semester-hour registration for work scheduled outside of the regular eight-week summer session will be arranged on a 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 below are listed as full-time students for the purposes of this policy, the person students during a semester as a condition of their appointment. One-quarter-time and one-half-time appointments are permitted to register for the maximum 15 semester hours per semester and eight semester hours during the eight-week summer session.

B. Courses Not Included in Total Registration

In addition to a full schedule, a graduate student may register for courses printed in the Schedule of Courses as carrying zero semester hours 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 academic matters and the approval of the dean of the Graduate College.

D. Reduced Schedules for Teaching and Research Assistants and Other Appointees

1. One-half-time appointees may register for not more than 12 semester hours during a semester or six semester hours during the eight-week summer session.
2. Eighteens-week summer session.
3. A two-thirds, and three-quarter-time appointees may register for not more than nine semester hours during a semester or five semester hours during the eight-week summer session.
4. Seven-eighteens-week summer session.
5. Full-time appointees, including full-time instructors, may register for not more than six semester hours during a semester or three semester hours during the eight-week summer session.

E. Retrospective Registration

No form of retroactive registration is permitted.

F. Registration for Part of a Session

A graduate student may register at any time during the semester or the eight-week summer session for not more than one semester hour of credit for each of the remaining weeks of classes (not including the examination period) in the term. The total registration may not exceed the 15 semester hours permitted for a semester and the eight semester hours permitted for the eight-week summer session. Registration after the last day of the third week of a semester or the third day of the second week of a summer session is permitted only in courses involving special projects, readings, individual study, thesis, or research, with the signed approval of the instructor concerned and the Graduate College dean.

G. Extramural Registration

After admission to a departmental program in the Graduate College, registration for work done off campus is accepted for residence credit under the following circumstances:

1. Traveling Scholar Program of the Committee on Institutional Cooperation (see "Section III.").
2. Research at approved locations under the direction of members of the graduate faculty of The University of Iowa.
3. Field work as part of a regularly scheduled course or research program.
4. Courses taught off campus by members of the graduate faculty (see "Section III.") for minimum semester hours required on campus by the master's or doctor's degree.
5. Residence graduate credit from another Iowa Regents' university (see "Section V.B.").
6. As many as nine semester hours of graduate work at the Quad-Cities Graduate Center from faculty other than faculty of the Iowa Regents' universities, provided the work is acceptable to the student's major department for the specified degree.

Extramural registration does not count toward residence credit in the following circumstances:

1. Course work transferred from another institution.
2. Correspondence courses.

H. Extramural Fees and Privileges

Extramural course work may be counted as residence credit only if the student has been admitted to a departmental program in the Graduate College (see "Section I.G.") and plays established fees. (See "Schedule X.K." for special fees applicable to postcomprehensive requirement students.) Please be confused with extramural registration for residence credit.)
I. Correspondence Courses
Correspondence study credits do not count as residence credits, not more than nine semester hours of graduate correspondence work can be applied toward an advanced degree. Such credit must be acceptable for the student’s plan of study, and must be earned after the student has completed the Graduate College in some institution, graduate-level correspondence study credit earned after a student has received a baccalaureate 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, auditing by a student in good standing of the Graduate College may grant approval. An instructor shall be required to audit courses for zero credit. Auditing is permitted only for a student who is currently registered.

L. Dropping of Courses
At any time during the first 90 days of a course after the deadline date established by the dean of the Graduate College for each session and published by the registrar, the student shall receive the grade of F unless the university is otherwise notified. This regulation may be waived only by the Graduate College or by the dean of the college on recommendation of the student's academic advisor. The student shall receive the grade of incomplete if an instructor requests that the instructor's grade shall be submitted to the registrar for registration. If the instructor requests that the incomplete grade shall be submitted to the registrar, the student shall be required to complete the requirements for good standing.

Section III. Traveling Scholar Program
A. Program
The program, under the auspices of the Committee on Institutional Cooperation, is designed to enable the student to take advantage of special resources available on another campus not available on his or her own campus. Special course offerings, research opportunities, unique laboratories, and library collections.

B. Procedure
1. A CIC Traveling Scholar must be recommended by his or her home university and have a cumulative grade-point average of 3.0 or better to be chosen from the list of candidates submitted by the registrar. The list of candidates shall be published in the university's publication for the purpose of selecting a traveling scholar. The candidate recommended by the registrar shall have completed at least one semester of graduate work and have a cumulative grade-point average of 3.0 or better. The candidate shall be notified of the decision within 30 days of the recommendation.

C. Selection of CIC Traveling Scholars
The selection of CIC Traveling Scholars shall be based on the candidate's academic record, potential for success in graduate study, and evidence of leadership and initiative. The selection process shall be conducted by a committee of faculty members from the home institution and the host institution.

D. Conditions
CIC Traveling Scholars shall be required to maintain a cumulative grade-point average of 3.0 or better. They shall be required to submit a report of their experiences at the end of each semester of their participation in the program. The report shall include a summary of their academic activities, their research interests, and their personal and professional growth.

Section IV. Academic Standing, Probation, and Dismissal
A. Non-Doctoral Students
A student, accepting an academic appointment, shall be placed on probation if, after completing eight academic hours of graduate work, his or her cumulative grade-point average on graduate work done at The University of Iowa falls below 3.0. If the student is completing eight or more semester hours of graduate work at The University, his or her grade-point average remains below 2.5, he or she shall be assigned to a lower classification than the classification assigned based on his or her previous academic record. The student shall be required to take the appropriate course work and meet the required minimum grade point average to restore his or her academic standing.

B. Doctoral Students
An doctoral student in standing 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 or more semester hours of graduate work at The University, the student's cumulative grade-point average remains below 3.0, the student shall be required to take the appropriate course work and meet the required minimum grade point average to restore his or her academic standing.

E. Academic Progress, Departmental Standards, and Dismissal Procedures
If a student is failing to meet departmental standards, the department shall warn the student of this fact in writing. The notification shall specify in writing any actions the student is failing to meet the standards. The student shall be provided with a reasonable amount of time to meet the standards prior to departmental dismissal. If conditions such as course completion or probation are not met, the department shall give the student the time of the dismissal of the requirement 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 decisions 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's placement is a result of disciplinary action, 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 procedure. 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 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 IV.

A. Transfer of Graduate Credit

Graduate work at other institutions will be accepted on the student's permanent record by the registrar and a report of this transfer will be sent to the student and to his or her major department. Credit for these courses toward an advanced degree at Iowa must have the approval of the major department and the dean of the Graduate College.

B. Residence Transfer Credit

After admission to a departmental program in the Graduate College, residence graduate credit from another Iowa Regents' university may be counted as residence credit at the institution, provided such work is acceptable to the student's major department on the basis of the department's determination of its acceptability towards the degree. (See "Section H.C.5.1" and "H.C.5.2" for minimum semester hours required or campus for the master's and doctor's degrees.)

C. Reduction in Course Load or Seminar in Independent Study, Thesis, or Research

An instructor may report less credit than the number of semester hours for which a student is registered.

D. Graduate Credit for Veterans

Credit may be granted for studies pursued in war and military situations under such regulations as may be formulated by the military 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.
4. Grade reports for the one-half and two-thirds credit periods: (a) Instructors report grades only as satisfactory or unsatisfactory. (b) Credit is to be assigned on the basis of total registration minus thesis and seminar. (c) Courses are to be counted toward specific degree requirements only after the student returns and then only with the department's approval.
5. Students who complete the twelfth week receive full credit.
6. Grade reports for the full credit period: (a) Grades are to be reported only at the end of the semester. (b) Credit is to be reported in specific courses.
7. In each instance the instructor reports the student's credit, grade, and date of cancellation. No credit is granted unless the student's work is satisfactory at the time of leaving.
8. The amount of credit in thesis and research registration is to be reported to the registrar by individual instructors on the above basis except that less than zero credit may be assigned.

Section VI. Marking 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; IP—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 semester is not completed because of illness, accident, or other reasons beyond the student's control. In registrations for these courses or in individual study, the satisfactory/unsatisfactory grades may be applied. (See next paragraph.) If an incomplete does not remove that mark within the first session or registration after the Cecil date of the session for which it is given, or if the grade becomes F, except that students with I's from the spring semester are exempt from competing the course during the succeeding summer. 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 work for which the satisfactory/unsatisfactory grades may be applied. (See next paragraph.) I—incomplete does not remove that mark within the first session or registration after the Cecil date of the session for which it is given, or if the grade becomes F, except that students with I's from the spring semester are exempt from competing the course during the succeeding summer. 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.

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 enrichment degree program provided that the instructor of the course and the student's departmental advisor approve the registration. Arrangements for satisfactory/unsatisfactory grading in these courses are accomplished by filing a card with appropriate signatures in the Registrar's Office at the time of registration, or no later than the last day of the third week of a semester or the midday 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 aband on the traditional letter grade system in the section; however, in certain exceptional circumstances, students may be permitted 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 includes: (a) registration in the Graduate College; (b) cumulative grade-point average of at least 3.0; (c) a GRE score or a GMAT score above a point to be designated by the Graduate College dean; (d) a satisfactory rate of progress in completing the program for the degree.

2. Preference will be given to candidates for completed prior to the current academic year.

3. Recommendations for graduate scholarships and fellowships are made by the Graduate College by the appropriate department and forwarded to the 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 upon 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 research experience for graduate students who are in training in research. Not more than 20 hours of service per week are required of a half-time assistant. Other part-time service is scaled in proportion, and a limited academic schedule is permitted (see "Section II.D."

Appointments ordinarily are made for the nine-month academic year, but appointments may be made for other periods of time. Special arrangements are made with the Graduate College to pay their own fees. Graduate appointments beginning in August are usually made by the Graduate College dean, recommendation of the various departments in March of each year, although 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 the purpose of assistance in the instructional program of the University and the preparation of future college teachers. In order to achieve both ends, scholastically 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 assistantships 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 Assistantships

A uniform policy governing procedures to be followed in the dismissal of assistantships has been approved by the Board of Regents. Copies of this policy may be obtained in the office of the Graduate College dean.

G. Research Associateships or Postdoctoral Fellowships

These provide for independent research. Appointment is made through the Office of the Vice-President for Academic Affairs.

H. Credits

No academic credit is allowed for the teaching or research service for which the student receives payment as a graduate or 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 form of fellowships, part-time employment on research programs, or part-time teaching. Allowances should be addressed directly to the major department.

Section VIII. Advanced Programs Offered in the Graduate College

The work and the credit which the Graduate College offers degree programs are listed under "Programs and Requirements" in the forecast of the "Graduate College" section of the Graduate Catalog.

Section IX. General Requirements for Advanced Degrees

A. Application for Degree

The student must file an application for an anticipated degree with the registrars on or before the first week after the start of the fall quarter. Failure to file the application by the deadline will result in postponement of graduation to the 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 requirements: Students who must register for the session in which the degree is to be conferred, students who do not attend classes, and students who are away from the University campus during that session may meet this requirement by registering for independent study, research, or thesis according to the practice in the various departments.

Doctoral candidates who have completed all work except the final examination may register for the postcomprehensive examination (described in "Section IX") if such registration is appropriate.

Master's candidates who have completed all work except the final examination may register for 300/400 Master's Final Examination registration at a fee equal to the postcomprehensive examination if such registration is appropriate. Registration in a correspondence course will not satisfy this requirement.

Students completing all requirements (including oral examination and thesis defense) for a Graduate degree will be enrolled in the Independent Study Session and the graduate degrees in the following semester without additional registration.

Section X. Master's Degree

A. Kinds of Degrees

Master's programs require a minimum of 33 semester hours to complete the Master of Arts degree, Master of Science degree, Master of Engineering degree, Master of Business Administration 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 and Dissemination of Information.")

C. Major and Related Fields
The plan of study should provide for reasonable concentration in the major field of interest and, subject to the approval of the major department, may include related subjects from other departments.

D. Residence Requirement
The minimum of 30 semester hours required for the degree, at least 24 semester hours must be completed under the auspices of The University of Iowa. After admission to a departmental program in the Graduate College, various forms of extramural registration may qualify toward fulfillment of this 24-hour residence requirement (see "Section II. G. Extramural Registration") in addition to regular on-campus enrollment. However, at least eight semester hours on campus are required, except for those departmental programs which ensure sufficient protection between the student and the graduate faculty and have been approved by the Graduate Council and the dean of the Graduate College for reduction of the on-campus requirement.

E. Reduction of Old Credits
Credits for a master's degree dating back more than 10 years from the session in which the degree is to be conferred are not counted toward fulfillment of degree requirements. This rule may be waived by the dean in cases affected by military service.

F. Limit on Professional Courses
Work taken by a student in the colleges of Dentistry, Law, or Medicine while enrolled for a professional degree may be credited to a graduate program leading to a master's degree if it is taken after the student has earned a bachelor's degree, or has completed work equivalent to that required for a bachelor's degree at The University of Iowa. The work accepted from the professional college must be directly related to the major field of study in the Graduate College and be approved by the advisor. Any portion of the plan of study by the student's advisor and the major department. Work taken while registered for a professional degree in law, medicine, or dentistry will be counted as part of the residence requirement for nondoctoral degrees in the Graduate College only when the student is registered in an appropriate joint degree program.

G. Two Master's Degrees
The granting by this University of two master's degrees simultaneously or in succession requires the satisfaction of all requirements for each degree separately, including two theses where a thesis is required for each, and two examinations, with a minimum combined total of 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 toward satisfying the 30-semester-hour minimum requirement. The thesis may be a scholarly study or an artistic production.

I. Core Examinations
One copy of the thesis, complete and in final typewritten 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. Examination Committee".)

J. Final Examination
The requirements for the master's degrees 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 examination committee as satisfactory or unsatisfactory, with two unsatisfactory votes making the committee report unsatisfactory. The report of the final examination is due in the Graduate College not later than 48 hours after the examination.

If the department so recommends, a candidate who fails the examination may present himself to the panel for reexamination, but not sooner than the next regularly scheduled examination period in the following session. The examination may be repeated only once.

Upon recommendation of a department, the comprehensive examination for a doctoral degree may be substituted for this master's examination.

K. Examination Committee
The examining committee for the master's degree consists of three members of the graduate faculty, appointed by the Graduate College dean upon recommendation of the major department or program. At least two of whom are from the major department. If the examination covers work in another department, one member of the committee must be from that department. Upon recommendation of the major department, the dean may appoint additional qualified persons not necessarily members of the graduate faculty to serve as voting members of the examining committee, and, if so, for duration, 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, 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 degree requires at least two years of residence credit on the University campus. This requires a minimum of 48 semester hours of fine arts credit, 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 completed of 60 semester hours of graduate credit.

For other requirements see "Section X.B. Pursuit of a Master's Degree in Limited Fields"; "K. Reduction of Old Credits"; "F. Limit on Professional Courses"; "H. Master's Degree with Thesis"; "J. Final Examination," and "K. Examination Committee.

B. Specialist in Education Degree
This degree is granted upon completion of a prescribed two-year, postbaccalaureate program designed for students preparing themselves professionally in such fields as teaching, administration, and supervision, and special services.

Of the minimum of 60 semester hours required for the degree, at least 24 semester hours must be completed in residence this University, of which 15 semester hours must be earned while the student is in residence in the 32-month period or during two summer sessions.

Twenty-eight of the 60 semester hours are prescribed in the area of
specialization. The others are in cognate fields, supervised experience, and electives. Some of the research culminates 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 by the major or sponsoring department at the time of submission of the plan of study.

Other requirements and regulations applicable to the educational specialist degree are the same as prescribed for the one-year master's degree in "Section X.B., Plan of Study; "C. Major and Related Fields; "F. Limit on Professional Courses; "J. Final Examination;" and "K. Examining Committee."

A master's degree may be earned while in residence for the educational specialist degree provided the student meets all the requirements for the master's degree in question.

C. Master of Social Work Degree

The M.S.W. degree is conferred by the University upon those students who give evidence of knowledge and competence in the professional practice of social work by meeting the following requirements:

1. A minimum of 24 semester hours in residence at The University of Iowa.

2. A minimum of 60 graduate social work hours, including a research requirement.

3. A final examination.

A thesis is optional.

The requirement of 85 semester hours must mean that a student who can satisfy the faculty of the school that he has studied as much as is practicable in the junior or senior undergraduate years, the clear equivalent of part or all 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 85 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 coordinated with field practice in various settings. Since class work and field practice are arranged sequentially, students can enter the School of Social Work only in August.

For 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 XI. Doctor's Degrees

A. Character of Degree

The Graduate College awards two doctorates, the Doctor of Philosophy and the Doctor of Musical Arts. The doctorate is the highest degree awarded by the University. The Doctor of Philosophy degree indicates marked excellence in research or other creative work, and superior comprehension in the discipline. The Doctor of Musical Arts degree indicates marked excellence in performance and pedagogy.

B. Prerequisites

The candidate must present evidence of having completed a satisfactory amount of undergraduate work in the subject for which advising is sought. 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 half 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 enrollment as a full-time student (nine semester hours minimum) in any of two semesters; or enrollment for a minimum of six semester hours in each of three semesters during which the student holds at least part-time assistantship certified by the department as contributing to the student's doctoral program. (For purposes of record and assessment of fees, student registration will reflect accurately the amount and kind of work undertaken in the Graduate College. All doctoral programs, including acceptable training credits, will contain a minimum of 72 semester hours of graduate work.)

D. Plan of Study

The development of a plan of study at the doctoral level is the responsibility of the student working together with his or her 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 plan of study for an interdisciplinary course of study, including the thesis 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 awarded 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

May be taken by a student in the College of Dentistry, Law, or Medicine while enrolled for a professional degree. May be credited to a graduate program leading to a doctoral degree if it is taken after the student has earned a bachelor's degree, or has completed work equivalent to that required for a bachelor's degree at The University of Iowa. The work accepted from the professional colleges must be 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 examinations 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 taking 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 specify standards as to the extent and level of competence, as well as the method of demonstrating these requirements. 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 adviser, the departmental executive, and the Graduate College dean. All registrations should accurately reflect the amount and type of work undertaken, the use of University facilities, and the amount of consultation with the faculty. The student should register for the courses, research, and thesis necessary to complete the plan of study. When the registrations required for the plan of study have been completed, the student may meet the continuing registration requirement by registering for 0000-0009 P.H.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 adviser determine that the student is neither making significant use of University facilities (advisory library privileges) nor partaking of consultation with the faculty. It is understood that no registration for a summer session is required when the student makes no use of University resources, unless the student is taking a degree at the end of that session or observation is required by the department.

L. Dissertation for the Doctoral Degree

A copy of the dissertation, complete and in final form, must be deposited at the office of the Graduate College before the final examination. A student is required to submit his dissertation no later 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 presentation 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 150 words of text, is to be deposited with the dean’s office. The abstract must be approved and signed by the dissertation adviser. The abstract is published in the journal of Dissertation Abstracts International. A typewritten copy of the dissertation is bound and indexed at the University Library. If the dissertation is in some nonprint form (e.g., painting, statue, performance in music) the Dean will help the student and faculty adviser work out an appropriate method of preparing the work, if such help is needed. Once the accompanying monograph is accepted, it is treated the same as any other thesis. Written dissertations shall be made available to all members of the examining committee no later than two weeks before the date of the examination.

M. Dissertation Fee

A nonrefundable dissertation fee is charged each candidate to cover the cost of processing the dissertation and abstract.

N. Final Examination

The work for the degree culminates in a final oral examination administered on campus. This examination should include a critical inquiry into the purposes, merits, and results of the investigation—-not a mere recapitulation of the process, but a follow-up and intensive questioning on areas of knowledge concerning the immediate context of the investigation. The final examination may not be held until the next term, when the student passes the comprehensive examination nor until the fourth year is accepted for first deposit by the Graduate College. However, a student must pass the final examination no later than five years after passing the comprehensive examination. Failure to meet this deadline will result in a reexamination of the student to determine his or her qualifications for taking the final examination. The procedures to be followed are the same as those for the comprehensive examination. (See "58 J. Comprehensive Examination.") Final examinations for the doctorates are open to the public. Members of the faculty of the Graduate College are expected to support the student subject to the approval of the chair, to participate in the examination. The report of the final examination is due in the Graduate College office not later than 48 hours after the examination. The final examination will be evaluated as satisfactory or unsatisfactory. An unsatisfactory vote will make the candidate subject to the necessity of taking a report of unsatisfactory in the final examination, if he or she is able to present himself or herself for examination within the next session. The examination may be repeated only once, at the option of the major department.

O. Examining Committees

The comprehensive and final examinations are conducted by committees of not fewer than five members of the graduate faculty appointed by the Graduate College dean upon recommendation of the major department, except that departments may request the dean’s permission to replace one of the five members of the graduate faculty by a recognized scholar of professional rank from another academic institution. A member of the graduate faculty from outside the major department is required in those cases where a related field outside the major department is involved. A comprehensive examination. For the final examination, the examining committee must be a member of the graduate faculty from outside the major department.
Upon recommendation of the major department, the Graduate College dean may appoint additional qualified persons (not necessarily members of the graduate faculty) to serve as voting members of the examining committees. A voting member may be added at the discretion of the Graduate College dean.

Section XIII. Exceptions
Petitions to waive these regulations may be made for appropriate and justifiable reasons on behalf of any graduate student through the departmental executive to the dean and the Graduate Council.

Courses

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<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
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<tbody>
<tr>
<td>399.360</td>
<td>Ph.D. Precomprehensive Examination</td>
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<tr>
<td>399.371</td>
<td>Master's Final Registration</td>
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<td>CC Scholar</td>
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<tr>
<td>399.100</td>
<td>CSS Early Program</td>
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**College of Law**

**Program Objectives**

The overriding 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 program places an equal emphasis on the development of fundamental skills and an appreciation of the roles of law and lawyers in society. A writing feature of the program is the conviction that these objectives can be achieved best by an educational program that cultivates active student participation in the learning process and creates regular opportunities for individuals and small groups to 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 at least 80 semester hours of academic work, take and complete all required courses, achieve a cumulative weighted 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 they applied. 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 an accelerated track, but may switch to the regular three-year sequence of study. Both the accelerated and regular programs consist of 90 semester hours of required and elective courses. All entering students are expected to take all courses designated as first-year courses and may not register for different courses or fewer hours without permission of the dean. No student may take more than 15 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 four first-year courses normally are offered. Nonaccelerated students may attend either or both periods. Accelerated students attend the entire eleven-week period.

**First-Year Small-Section Program**

One of the distinctive benefits of legal education at The University of Iowa is the first-year "small-section" program which integrates training in basic lawyer skills into substantive courses taught by regular, full-time faculty. The program’s purposes include giving careful attention to development of each student’s skills in 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 courses 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 in 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 II and must complete an upper-class small section course. The curriculum assures students the opportunity to enroll in a small class (usually 20 students) in a variety of subject matters; in conjunction with the substantive materials, 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 five 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. This includes seminar papers, independent research papers, Law Review, Journal of Legal History, 91:405-408 Legal Clinic, 91:410-411 Client Counseling I, II, 91:402 moot 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 acquire practical experience in real cases under the supervision of faculty members and other attorneys. Clinic students earn credits in interviewing, fact investigation, negotiation, and courtroom proceedings.

Students in the Legal Aid Clinic represent indigent clients in several eastern Iowa communities in a wide range of civil and criminal cases. Students in the Prisoner Advocacy 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 assistants 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, a student takes a course which is relevant to both degree programs, the course can, within limits, be counted toward the course requirements of both and the time required to obtain the degree separately. Hopefully, too, the joint-degree student will contribute to one discipline and experience gained in the other. Graduate departments with which the joint degree programs have already been initiated include Accounting, American Studies, Anthropology, Business Administration, Computer Science, Counselor 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 organizations, five in-house student organizations, offering specific extracurricular activities, and two student-produced scholarly 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 school 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 in the College of Law. The university in which the graduate of the College of Law may be called upon to perform are so varied and the possible fields of endeavor so broad and diverse, that the college prescribes a uniform prerequisite 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 keep in mind: to plan an undergraduate course of study; for education for comprehensive and expression in words; education for 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 education directed too precariously 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: 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 is a barsquare and degree work is to be conferred by The University of Iowa. This fee is waivable and is exempt for residents of Iowa who are denied admission. Students from disadvantaged backgrounds who cannot afford this fee should apply for it 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 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.

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 their or her test score forwarded to the College of Law along with the LSAS report.

### Deposit

Applicants accepted prior to April 1 are required to make an advance nonrefundable deposit of $50 by April 1. Applicants accepted subsequently 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 deans' 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 of the College of Law.

### Application Procedures

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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tr>
<td>91100 Legal Methods</td>
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<tr>
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<tr>
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<td>91190 Human Rights in the Western Community: Problems of Law and Policy</td>
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College of Medicine

The College of Medicine, as an integral part of the University, contributes to the educational programs of several PhD and students, not only those in the health colleges of Dentistry, Medicine, Nursing, and Pharmacy but also in the life sciences nodes of the College of Liberal Arts and the health-related programs of other colleges. Additionally, it serves health professionals from throughout the Midwest who take part in a year-round program of continuing medical education, in which several thousand practicing physicians update their knowledge and skills through "refreshers," short-courses, clinics, and conferences each year. It also expands and maintains educational opportunities in outreach health centers of the state, and it provides a statewide educational health care resource.

Beyond its academic responsibilities as the only college in Iowa offering programs 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 are part of the University's Health Sciences 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 state 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 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 coloproctology, 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 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 facilities available to them, without regard to interdepartmental units or to the expiration of graduate and postgraduate training. Notable among the interdisciplinary programs in endocrinology, neurology, and immunology in which degrees are not offered but in which the student can place emphasis is an orientation 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, biochemistry, and pathology are also conducted. It is an important resource of 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 disease. Its facilities address the following federally funded programs: the Regulation of the Peripheral Circulation, the Specialized Center of Research in Atherosclerosis, Specialized Center of Research in Ischemic Heart Disease, Lipid Research Clinic, several training programs, and a coordinated program of other interdisciplinary research support. Grants 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 endocrinologic diseases. 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, Psychology, Speech Pathology, 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 1,045-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 15 parallel services are directed by the heads of the corresponding academic departments in those colleges. These faculty members also provide instruction for the 324 resident physicians and dentists who comprise the house staff of University Hospitals and Clinics, which provides facilities for teaching of major medical specialties. 110 residencies in all major 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 care-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 educationists and medical specialists who guide the faculty, staff, and administration. The unit provides educational consultation, evaluates and cooperates in education research endeavors, and conducts teacher education activities (M.D.).

The medical instrument facility designs and manufactures scientific equipment, providing precision machined 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 F3 facility meets federal guidelines for recombinant DNA research requiring F3 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 spectrophotoemetric equipment. A facility for mass spectrometry provides services 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 students each year 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 scientific foundation. 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 the problems the physician will meet. In the small group discussions that follow the clinical situations, the student starts to use various problem-solving approaches.

60:103 Gross Human Anatomy for Medical Students includes clinically relevant areas of anatomical, regional, 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 and development. Registration is limited to medical students; graduate students are referred to 60:217. The course is offered fall and spring.

60:105 General Histology for Medical Students provides a course of study for the care of human structural and functional structure and function needed for the work to be accomplished in physiology and anatomy.

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 small group experience through which they learn about and improve their ability to communicate sensitively with patients and colleagues.

63:110 Basic statistics provides guidelines for the application of statistical principles to the biological and medical sciences. Emphasis is given to the interpretation of studies published in medical journals.

Second Semester
72:212 Medical Physiology offers the student an understanding of the response of the organism to external stimuli and provides a basis for understanding the integrated function of organ systems. Much of the material in these two courses is derived from a clinical point of view. In small discussion groups, students discuss their observations of replicated laboratory exercises, the students present their evaluations of the physiological mechanisms at work in the clinical materials. Some demonstrations are offered for large groups.

61:103 Medical Microbiology includes immunity and presents a concise and in-depth view of 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.

60:201 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 functions in cellular and tissue, degeneration, infection, and growth disorders. Clinical problem solving and diagnosis periods have replaced laboratories in this course.

Third Semester
69:202 Systemic Pathology for Medical Students applies the principles given in the preceding semester to different diseases in an organ approach. "Student-centered learning" is enhanced by discussion groups 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 canvas.

60:109 Preventive Medicine presents fundamentals to help prepare the student in some of the sociological, economic, and public health aspects of medical practice.

71:105 Pharmacology for Health Sciences: Medical Pharmacology bridges the clinical and basic sciences and provides the students 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 carry two semester 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, fits 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 giving guidance in such disciplines as history-taking, counseling, and history-taking. Following this is an intensive review of clinical medicine on an organ system basis, given by teams of medical and basic scientists. The final group of mornings is spent in areas of clinical medicine that 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 compassion needed by all physicians are established in this semester. Toward the end of the semester, each student is evaluated individually several times to determine the level of skill achieved. If further work is needed, guidance and assistance are provided.

Clinical Clerkships
The third year includes the required clinical clerkships and presents each student with opportunities to work with physicians who are subspecialists as they care for their patients. Students spend nine weeks in each of the following medical specialties: six weeks each in surgery, pediatrics, psychiatry, and obstetrics and gynecology; and two weeks in each of anesthesia, dermatology, neurology, ophthalmology, orthopedics, urology, and family practice. Students spend most of their 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. Memorials are 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, Carver Brown Medical Student Loan, and Sheldon Loan are College of Medicine programs.

The Dr. George Scanlon Medical Scholarship is awarded to Iowa residents through the Iowa Medical Foundation.

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 medical 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 only 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 must accompany 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 immediately or
- Completed three years of a baccalaureate program meeting the general graduation requirements of the college he or she is applying.

Prospective students must have earned at least 94 semester hours of credit, or the equivalent, including:

- Mathematics: college algebra and trigonometry, or good college mathematics for applicants who completed college algebra and trigonometry in high school.
- Chemistry: as a minimum, a complete introductory course in organic chemistry, ordinarily following a complete introductory course in modern general chemical principles.
- Biological sciences: a complete introductory course in the principles of animal biology, or zoology and botany (not botany alone), and an advanced biology course.

All the foregoing must be taken with appropriate laboratories.

Applicants for admission to the College of Medicine must possess the capability to complete the entire medical curriculum and achieve the degree. Doctor of Medicine, and must meet the following minimum requirements: a) have completed at least three years of college, b) have demonstrated proficiency in a variety of cognitive, problem-solving, manipulative, communicative, and interpersonal skills, therefore, the following abilities and expectations must be met by all students admitted to the College of Medicine:

- Candidates must be able to observe demonstrations and experiments in the basic sciences;
- Candidates must be able to learn, analyze, synthesize, solve problems, and reach diagnostic and therapeutic judgements;
- 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 routine laboratory tests and diagnostic procedures; candidates are expected to be able to display good judgment in the assessment and treatment of patients;
- Candidates must be able to learn to respond with precise, quick, and appropriate action in emergency situations;
- Candidates are expected to be able to accept criticism and respond for appropriate modification of behavior;
- Candidates are expected to possess the perseverance, ingenuity, 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.

Failure of the specific requirements for admission do 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 by the admissions committee only 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. However, 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 graded or 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 positively under the Early Decision Plan. Under this plan, the prospective student submits a single 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 New 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 apply for the examination through the University's Examination and Services Office.

Personal interviews are not usually conducted but are occasionally requested by the admissions committee. Applicants who feel that an interview is necessary may request that an interview be arranged by contacting the coordinator of admissions. Requests for interviews should normally 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.

All students entering the College of Medicine must be prepared to submit the results of a physical examination. They must have 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 Promotions Committee

The purpose of the promotions committee is to ensure that each person graduates 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 selection, admission, 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 (who serves as the office without vote). These are faculty members, one of whom is designated by the dean to serve as chair. Two are from
basic science departments, are three pre- from three clinical departments. There is a medical student member from either the junior or senior class. The dean of the College of Medicine makes faculty appointments to the committee after consulting with the executive committee, and appoints the student member after consulting with the medical student council and the chair of the committee.

Regulations and Procedures

In general, promotion from one grading period to the next is contingent upon the satisfactory completion of the courses of each grading period. Continuing enrollment of a student who has not satisfactorily completed courses in a preceding grading period may be recommended by the promotions 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 cognitive, problem-solving, manual, communication, and interpersonal skills and insists that all students adhere to general principles of medical ethics. These critical skills and ethical principles are outlined in the Handbook for New Students that medical students receive at registration. Scholaristic performance in the first three years is reported by using the letters H, P, F, and I. In the specific study segment, only grades P, F, and I will be used. The letter P indicates satisfactory achievement at the passing level. The letter H signifies "honors," indicates achievement at the highest level of performance. 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 promotions committee meets at least three times each year, following the completion of the academic semester and at other times as requested by the associate dean for medical student affairs.

The committee reviews with the course directors the records of all students who have received a grade of F or I during the previous grading period. The committee reviews the records of any students appearing on the course directors' committees or the associate dean for medical student affairs, suffering from conditions such as poor academic work, illness, death, or a disability. The committee also reviews the records of students who are continually poor academic work, or failing to demonstrate proficiency in any of the eleven skills or abilities detailed above, or not meeting 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 next session to represent the faculty. Pastille recommendations include: immediate dismissal of the student from the College, requiring the student to repel all or any part of the curriculum; and allowing the student to continue either a regular or a decelerated schedule. Students having unremediated grades of Failure 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 the students and will serve as a resource for and provide advice to the promotions committee.

Appeals

Students desiring to appeal promotions decisions must submit an appeal 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 the promotions committee, 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.
embryology and neuroanatomy by taking these and other courses and working in laboratory sections under faculty supervision. Students ordinarily require four to five years of full-time study to complete the doctorate in anatomy.

During the first year, the student chooses a research area and becomes affiliated with a faculty member whose research is in that area, or, if uncommitted to a particular laboratory, the student rotates through two or more laboratories by the end of the first year. By the end of the second year, the student undertakes the comprehensive examination, defines a research problem with his or her major advisor and formulates a research proposal. The comprehensive examination assesses the student's ability to analyze, organize, and apply the information, concepts, and skills acquired in the first two years of the program. The third and subsequent years are devoted heavily to research. During this period, the student may also elect advanced graduate course work and gain additional teaching experience.

The final examinations for the Ph.D. consist of a public oral defense of the dissertation. The dissertation is based on original research conducted with the guidance of the student's faculty advisor and four other faculty members.

Financial Aid

Aid is awarded on a competitive basis to students admitted to the Ph.D. program. Teaching and research assistantships for aid can be completed concurrently with the seminars and application and submitted by April 1.

Graduate Admission

An applicant for admission to the M.S. or Ph.D. program in anatomy should have undergone preparation including college mathematics, one year of organic chemistry, one year of general physics, and upper level college biology. For admission requirements, see the "Graduate College" section of the Catalog, in addition to taking the Graduate Record Examination (GRE). Applicants who graduate in anatomy are strongly encouraged to take the GRE Advanced Test in Biology or their major undergraduate area. Applications for admission for the summer session should be submitted by April 1.

Facilities

The department occupies over 35,000 square feet in the Bowen Science Building in the health sciences sector of the University campus. These quarters house modern facilities and well-equipped laboratories. The most modern instrumentation is available, including three high-resolution electron microscopes. Balint-evaporation unit, spectrophotometers, cryostats, and automated gamma and beta counting systems. Research is problem-oriented, rather than discipline-dependent.

Courses

705-124 Human Anatomy 6.5 h.

Lecture and laboratory in human anatomy. Includes: nervous, muscular, skeletal, endocrine, and respiratory systems.

705-124 Human Microscopy 3.5 h.

Microscopy of structural and functional units and organs with emphasis on skin, skeletal, and endocrine systems. Laboratory procedures are directed by the instructor.

705-124 Human Anatomy for Dental Students 6 h.

Regional anatomy, including head and neck, thorax, and extremities, with emphasis on structures relevant to dental and oral hygiene programs. Laboratory procedures are directed by the instructor.

705-121 Principles of Human Anatomy 3.5 h.

Lecture on gross and microscopic anatomy. Emphasis on particular emphasis on organs involved in drug response and metabolism. Open to premedical students.

705-125 Gross Human Anatomy for Medical Students 7.5 h.

Regional anatomy, lectures, demonstrations, laboratory, and discussion, include clinically relevant areas of anatomical knowledge and surface anatomy with clinical correlation. Laboratory procedures are directed by the instructor.

705-125 Laboratory for Medical Students 2.5 h.

Lectures on gross and microscopic anatomy. Emphasis on particular emphasis on organs involved in drug response and metabolism. Open to premedical students.

705-126 Medical Entomology 1 h.

Lectures on human anatomy with emphasis on the clinical aspects of development. Registration limited to medical student graduates students are limited to 62 207.

705-126 Laboratory for Medical Students 4 h.

Microscopy study of skin, skeletal, and organ systems. Registration limited to medical student graduates students are limited to 62 207.

705-126 Laboratory for Medical Students 4 h.

Regional anatomy, lectures, and demonstrations with emphasis on organs involved in physical therapeutic medicine. Registration limited to physical therapy students, or with consent of instructor. Open to premedical students.

705-126 Human Anatomy 6 h.

Regional anatomy, lectures, and demonstrations with emphasis on organs involved in physical therapeutic medicine. Registration limited to physical therapy students, or with consent of instructor. Open to premedical students.

705-126 Human Anatomy 6 h.

Regional anatomy, lectures, and demonstrations with emphasis on organs involved in physical therapeutic medicine. Registration limited to physical therapy students, or with consent of instructor. Open to premedical students.

705-126 Medical Entomology 1 h.

Lectures on human anatomy with emphasis on the clinical aspects of development. Registration limited to medical student graduates students are limited to 62 207.

705-126 Medical Neuronomy 1 h.

Lectures on the clinical aspects of development. Registration limited to medical student graduates students are limited to 62 207.

705-126 Human Anatomy for Physiological Assistant 4 h.

Regional anatomy, lectures, and demonstrations with emphasis on structures relevant to anatomical knowledge and surface anatomy with clinical correlation. Laboratory procedures are directed by the instructor.

705-126 General Histology for Dental Students 4 h.

Microscopic study of skin, skeletal, and organ systems. Registration limited to dental students; graduate students are limited to 62 207.

705-126 Laboratory for Dental Students 2 h.

Microscopic study of skin, skeletal, and organ systems. Registration limited to dental students; graduate students are limited to 62 207.

705-126 Clinical Microscopy and Histology 1 h.

Emphasis on the use of the microscope. Laboratory procedures are directed by the instructor.

705-126 Independent Study in Anatomy 1 h.

Projects related to anatomy, arranged with faculty members, for the departmental independent study program. Requires special consent of instructor.

705-126 Clinical Microscopy and Histology 1 h.

Emphasis on the use of the microscope. Laboratory procedures are directed by the instructor.

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Emphasis on the use of the microscope. Laboratory procedures are directed by the instructor.

705-126 Independent Study in Anatomy 1 h.

Projects related to anatomy, arranged with faculty members, for the departmental independent study program. Requires special consent of instructor.
The division faculty member who coauthors the student's work.

26:354 Neurosurgical Sciences Seminar 1 h.
Open student-faculty discussion of current literature in research areas being on neurosurgery and related studies. Presentations by neurosurgeons, faculty, and students of current research. Same as 36:250, 37:250, 74:250.

26:727 Seminar in Cellular and Molecular Biology 1 h.
Presentation by selected visiting scientists or students on their recent studies. Students in attendance are encouraged to discuss their own work with the faculty. Presented at the convenience of the students. Same as 16:215, 30:217, 37:217, 37:219.

26:977 Advanced Techniques in the Neurosciences 1 h.
Presentation by selected visiting scientists or students on their recent studies. Students in attendance are encouraged to discuss their own work with the faculty. Presented at the convenience of the students. Same as 31:284, 37:284, 71:284, 71:286.

26:995 Special Study in Anatomy 1 h.
Instructor's course of study specially designed to meet the needs of the student. Same as 16:995, 31:995, 71:995.

28:699 Special Study in Anatomy 4 h.
Required for junior medical students only. Course of study arranged with the instructor of anatomy. Same as 16:699, 31:699, 71:699.

### Research in association with department

#### Division of Associated Medical Sciences

**Division Head:** Dr. Michael T. Drinkwater

The Division of Associated Medical Sciences provides for coordination of professional programs that formally include medical technologists, research medical 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 therefore 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 advisor to assure the proper sequencing of courses.

This is a typical curriculum for undergraduate students, with options being exercised after consultation with program advisors. Programs are abbreviated as follows: M.T. — Medical Technology; NMT — Nuclear Medicine Technology; P.A. — Physician Assistant; M.P.T. — Physical Therapy.

### Freshman Year

**First Semester**

- **10:1 Psychology**
  - 4.0 h.

- **Foreign civilization and culture**
  - 3.0 h.

- **14:1 Principles of Chemistry I**
  - 4.0 h.

- **14:2 Principles of Biochemistry II**
  - 3.0 h.

**Total**

- **16.0 h.**

**Second Semester**

- **10:2 Rhetoric**
  - 3.0 h.

- **Physical education**
  - 1.0 h.

- **14:4 Principles of Chemistry II**
  - 3.0 h.

- **37:3 Principles of Animal Biology**
  - 3.0 h.

- **14:2 Principles of Chemistry Lab II**
  - 1.0 h.

**Total**

- **18.0 h.**

### Sophomore Year

**First Semester**

- **Science**
  - 3.0 h.

- **14:2 Organic Chemistry I (MT, PA)**
  - 4.0 h.

- **37:3 Principles of Animal Biology (MT, PA, P.T.)**
  - 3.0 h.

- **61:177 General Microbiology**
  - 4.0 h.

- **61:12 Introduction to Medical Technology (MT)**
  - 1.0 h.

- **Physical education**
  - 1.0 h.

**Total**

- **15.0 h.**

### Second Semester

**Historical perspectives**

- **Humanities**
  - 3.0 h.

- **Social science**
  - 3.0 h.

- **14:2 Organic Chemistry II (MT, PA)**
  - 3.0 h.

- **37:3 Principles of Animal Biology (MT, PA, P.T.)**
  - 3.0 h.

- **61:153 General Microbiology**
  - 3.0 h.

- **61:177 General Microbiology**
  - 3.0 h.

- **61:181 Introduction to Biostatistics (MT)**
  - 3.0 h.

**Total**

- **17.0 h.**

The student who has satisfactorily completed the above prerequisites has satisfied the minimum academic requirements for admission to the Medical Technology, Nuclear medicine Technology, and Physician Assistant Program. Other academic requirements are in addition to the following:

**Junior Year**

**First Semester**

- **Minor**
  - 24.0 h.

- **37:3 Principles of Animal Biology (MT, PA, P.T.)**
  - 3.0 h.

- **37:103 Comparative Vertebrate Anatomy**
  - 4.0 h.

- **37:112 Cell, Tissue, and Organ Biology**
  - 2.0 h.

- **37:131 Introduction to Clinical Psychology**
  - 3.0 h.

**Total**

- **16.0 h.**

**Second Semester**

- **Foreign language**
  - 3.0 h.

- **14:2 Organic Chemistry I (MT, PA)**
  - 4.0 h.

- **18:4 Cell Physiology**
  - 4.0 h.

- **14:2 Principles of Chemistry Lab II**
  - 1.0 h.

- **14:2 Principles of Chemistry Lab II**
  - 3.0 h.

- **14:2 Principles of Chemistry Lab II**
  - 1.0 h.

**Total**

- **19.0 h.**

- **14:2 Principles of Chemistry Lab II**
  - 1.0 h.

- **14:2 Principles of Chemistry Lab II**
  - 3.0 h.

- **14:2 Principles of Chemistry Lab II**
  - 1.0 h.

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Medical Technology

Program director: Marian Schaeffer
Medical director: James A. Darrow
Faculty: associate professor, James A. Geiser, Larry O. Mentzer, Mark R. Tschop, and Robert B. Seidman

1st Year

General education, electives, or advanced courses in the departments of biology, chemistry, microbiology, and others specified for specific degree requirements.

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Second Semester

BIO 101 Biochemistry 4 s.h.
Total 14-15 s.h.

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the Council on Medical Education of the American Medical Association. Fulfillment of the requirements established by the AMA 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 appropriate to a baccalaureate degree, most common in one of the following areas: zoology, botany, chemistry, biochemistry, or microbiology. In the event a student is not admitted into the WMT program, the student could then complete a degree in the chosen area.

Junior Year
Required courses:
60:2 Elementary Human Anatomy
72:130 Human Physiology
29-2 Introduction to Computing with FORTRAN
Advanced courses in chemistry, zoology or geography
Recommended course options:
Science:
37-12 Cell, Tissue, and Organ Biology
37-104 Introduction to Developmental Biology
61-17 General Microbiology
41-121 General Chemistry I
41-122 General Chemistry II
41-141 Organic Chemistry Laboratory
60:140 Physical Chemistry
Electives:
63:101 Dynamics of Health
65:108 Principles of Human Pathology
Senior Year
The curriculum of this clinical year is organized in accordance with the "Essentials of an Accredited Educational Program in Nuclear Medicine Technology," Courses are taught in the following areas: radiopharmacy, radiology, radiopharmacy and tracer techniques, radiographics and internal dosimetry, radiopharmacy laboratory procedures, radiation protection, patient care, medical terminology, anatomy and physiology, physics and instrumentation, scintillation autoradiography, mathematics and statistics of nuclear medicine, and computer applications in nuclear medicine. Clinical rotations focus on nuclear imaging, clinical radiopharmacy, computer applications and quantification of radioactivity in vivo and in vitro, including kinetic studies. Rotations are also established in radiodiagnosis, diagnostic X-rays, computed tomography, and ultrasound.

The clinical year consists of these courses:
74:109 Principles of Nuclear Medicine
74:180 Applied Nuclear Medicine
74:180 Medicine Technology
74:180 Advanced Nuclear Medicine
16:100 Nuclear Medicine Practice

For course descriptions, see "Radiology" in this section of the Catalog.

Admission
Requirements for admission to the nuclear medicine technology program include:
A minimum of 80 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 80 semester hours of study in the recommended areas.

A new class begins in late August each year. Information 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 employment to supplement full-time employment are awarded 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.
qualities candidates for the Professional Examination Service (P.E.S.) test for licensure in Iowa and other states.

The two-year professional certification program is divided into:

First Semester
- 60:108 Human Anatomy 4 s.h.
- 101:85 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 II 2 s.h.
- 101:119 Clinical Observation 0 s.h.
- 101:110 Introduction to Clinical Medicine I 2 s.h.
- 101:122 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 Orthopedics and Clinical Sciences 3 s.h.
- 101:111 Therapeutic Exercise II 4 s.h.
- 101:113 Principles of Neurosurgery and Clinical Sciences 1 s.h.
- 101:85 Clinical Education and Rehabilitation 2 s.h.
- 101:101 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 undergraduate study must be able to satisfy all requirements for the bachelor's degree at the university before 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 professional 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 systemic physiology course, one college-level mathematics course (three 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 student 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 physical therapy. 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, health insurance, and course supplies.

Master of Arts
The Master of Arts in physical therapy emphasizes research and teaching in three areas of physical therapy: musculoskeletal, neuromuscular, and cardiopulmonary. The program focuses on theoretical and clinical applications for assessment and treatment of patient disorders in the three specialty areas. Clinical practicum experiences are offered to complement these specialties. The master's degree requires a minimum of 20 semester hours of graduate course work. Completion of basic professional physical therapy education is a prerequisite. Clinical experiences are encouraged.

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 balance), neuromuscular activity (electromyography), spinal reflexes, CNS control mechanisms, and cardiopulmonary responses (heart rate, blood pressure, energy cost, and ventilation). Use of extrapleural laboratories may also be arranged.

Colloquial references are encouraged with other departments such as microbiology, internal medicine, pediatrics, orthopedics, physiology, anatomy, engineering, pharmacology, and with providers in the physical therapy clinic.

A student successfully completing the M.A. program in physical therapy will:

Be knowledgeable and demonstrate skill in the application of basic concepts in the areas of musculoskeletal, neuromuscular, and cardiopulmonary physical therapy.

Have a knowledge of the physical therapy theoretical and research literature related to a specific topic.

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.
- 101:406 Analysis of Scientific Literature 2 s.h.
- ** Statistics 3 s.h.
- 101:213 Principles of Human Movement 3 s.h.
- 101:275 Evaluation of Selected Neurological Disorders 3 s.h.
- 101:260 Cardiopulmonary Therapies 3 s.h.
- 101:280, 285, or 284 Practicum (Teaching, Research and/or Clinical)** 3 s.h.

*Maximum of six semester hours.
**Required courses for the thesis option.
65:167 Biometrics and Bioassay or 65:161 Introduction to Biostatistics and 63:162 Design and Analysis of Experiments in the Biomedical Sciences or 7P:143 Introduction to Statistical Techniques and 7P:242 Selected Applications of Statistical Techniques.

***These courses may be taken on a pass-fail basis.
Division of Associated Medical Sciences/ MEDICINE
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Recommended courses:
7W-120 Introduction to Instructional Design and Technology 3 a.h.
69-203 Transition to Human Pathology 3 a.h.
101-325 Independent Study 3 a.h.
101-295 Electrocytology in Kinesiology and Biomechanics 3 a.h.
27-153 Advanced Anatomy and Kinesiology 2.5 a.h.
27-141 Elementary Exercise Physiology 2 a.h.
27-262 Physiology of Exercise Laboratory 2 a.h.

Admission
To be considered for admission, the applicant must be a graduate of an approved professional program of physical therapy and must have earned an undergraduate work grade point average of 2.75 or higher. Two years of clinical experience is also considered highly desirable. The student must successfully complete the Professional Examination Service examination.

Admission to the master's degree program is granted on the basis of the student's grade-point average for previous college work, academic work scores on the Graduate Record Examination (GRE) Aptitude Test, recommendation from three sources, and a personal interview. The applicant must also meet the requirements established by the Graduate College.

The applicant must complete the Graduate College application and the application for the Physical Therapy Educational Programs. The application is reviewed after the application has been accepted by the Graduate College and all aspects of the written application for the Physical Therapy Educational Programs are submitted. Deadlines for completed written applications are October 15 with notification by December 1, March 15 with notification by May 1, and May 15 with notification by July 1.

Doctor of Philosophy in Physical Education (therapeutics)
Doctoral training related to physical therapy is received in a program in physical education with specialization in the field of physical therapy. Programs are described in detail under "Physical Education-Field house" in the "College of Liberal Arts" section of the Catalog.

A student successfully completing the Ph.D. program in physical education with the specialization in therapeutics will:
Be knowledgeable and demonstrate application of basic and advanced concepts in physical education, kinesiology, neuroanatomy, musculoskeletal, neurovascular, and cardiopulmonary physical therapy;
Have a comprehensive understanding of current as well as basic and applied scientific physical therapy literature; and
Demonstrate original scholarship, writing, and oral ability 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.

Doctor of Philosophy—Clinical Education
Admission Requirements
The student is admitted to the program leading to the Ph.D. degree on the basis of the student's grade-point average on the work completed for the master's degree, and his or her score on the GRE Aptitude Test.

Be able to teach at the doctoral professional and graduate levels of physical therapy training.

Doctor of Philosophy—Clinical Education
The student is admitted to the program leading to the Ph.D. degree on the basis of the student's grade-point average on the work completed for the master's degree, and his or her score on the GRE Aptitude Test.

Be able to teach at the doctoral professional and graduate levels of physical therapy training.

Doctor of Philosophy—Clinical Education
Admission Requirements
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Be able to teach at the doctoral professional and graduate levels of physical therapy training.

Doctor of Philosophy—Clinical Education
Admission Requirements
The student is admitted to the program leading to the Ph.D. degree on the basis of the student's grade-point average on the work completed for the master's degree, and his or her score on the GRE Aptitude Test.

Be able to teach at the doctoral professional and graduate levels of physical therapy training.

Doctor of Philosophy—Clinical Education
Admission Requirements
The student is admitted to the program leading to the Ph.D. degree on the basis of the student's grade-point average on the work completed for the master's degree, and his or her score on the GRE Aptitude Test.

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Admission Requirements
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Doctor of Philosophy—Clinical Education
Admission Requirements
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Doctor of Philosophy—Clinical Education
Admission Requirements
The student is admitted to the program leading to the Ph.D. degree on the basis of the student's grade-point average on the work completed for the master's degree, and his or her score on the GRE Aptitude Test.

Be able to teach at the doctoral professional and graduate levels of physical therapy training.
Physician Assistant Program

Program Director: Derek Oliver
Medical Director: Douglas W. Loaiza
Faculty: Greetings to all prospective and current medical professionals,

Associate Patricia A. McKechnie
Addressee: greets. Karen Krivitz, Scott Lefairey, Craig Lamsor
Degree offered: B.S.

The physician assistant is qualified by general education, training, experience, and personal character to provide patient services under the responsibility of a licensed physician. The physician assistant serves in a variety of ways and provides a wide range of medical services. In a typical office setting he or she is frequently the first to see the patient, take the initial history, and perform appropriate physical examination and, order necessary laboratory or X-ray studies. For many common problems he or she may formulate and initiate a treatment plan. The patient may or may not see the physician depending on the severity of the problem. The physician is consulted frequently and reviews each patient’s chart in a timely manner.

As an extension of the physician, the physician assistant makes hospital rounds, house calls, and visits to nursing homes. He or she reviews the patient’s progress, modifies the treatment plan if necessary, and performs many other health care functions. He or she provides counseling to patients about their illness, family planning, availability of social services, well-baby care, and other aspects of health care maintenance.

The Physician Assistant Program at The University of Iowa is accredited by the American Medical Association’s Committee on Allied Health Education and Accreditation, approved by the Iowa Board of Medical Examiners, and a member of the Association of Physician Assistant Programs. Completion of the program qualifies students for the Bachelor of Science degree and the opportunity to take the National Certifying Examination for Primary Care Physician Assistants. Successful completion of the national certifying examination is a prerequisite for registration in Iowa.

The Physician Assistant Program at The University of Iowa emphasizes the practice of general medicine in settings designed to foster the use of health care teams. In addition to education and career opportunities with private practicing physicians, a network of community-based primary care clinics has been developed in the state to serve communities with an integrated health care system. These model group practice clinics integrate conventional and nonconventional medicine and graduate physician assistant into the medical delivery team with physicians, health technicians, public health nurses, clinical nursing staff, and social service personnel.

Professional Program

The Physician Assistant Program is an integral part of the College of Medicine. The first-year program is designed to foster the use of health care teams. In addition to education and career opportunities with private practicing physicians, a network of community-based primary care clinics has been developed in the state to serve communities with an integrated health care system. These model group practice clinics integrate conventional and nonconventional medicine and graduate physician assistant into the medical delivery team with physicians, health technicians, public health nurses, clinical nursing staff, and social service personnel.

Phase 1

Program: First Year

71-125 Pharmacology for Health Sciences: Physician Assistant Students 5.5 s.h.
50-105 Law and Medicine for Physician Assistant Students 1.5 s.h.
60-111 Gross Human Anatomy for Physician Assistant Students 6.5 s.h.
61-110 Microbiology for Physician Assistant Students 3.5 s.h.
69-204 Systemic Pathology for Physician Assistant Students 6.5 s.h.
69-130 Clinical Pathology for Physician Assistant Students 2.5 s.h.
72-164 Human Physiology for Physician Assistant Students 4.5 s.h.
99-184 Biochemistry for Physician Assistant Students 3.5 s.h.
117-101 Seminar for Physician Assistant Students 2.5 s.h.
Phase 1

Program: Second Phase

50-121 Introduction to Clinical Medicine for Physician Assistant Students 20.5 s.h.
Second Year

Phase III: Required clinical rotations:

- 70:555 Pediatrics for Physician Assistant Students 5 s.h.
- 75:555 General Surgery for Physician Assistant Students 6 s.h.
- 78:555 Internal Medicine for Physician Assistant Students 6 s.h.
- 115:555 Family Practice I for Physician Assistant Students 6 s.h.
- 115:516 Family Practice II for Physician Assistant Students 6 s.h.
- 66:110 Obstetrics and Gynecology for Physician Assistant Students 5 s.h.
- 73:120 Psychiatry for Physician Assistant Students 5 s.h.

Elective clinical rotations, selected from the following:

- 70:102 Pediatrics Elective for Physician Assistant Students 2 s.h.
- 75:100 Emergency Room Elective for Physician Assistant Students 4 s.h.
- 78:100 Orthopedics Elective for Physician Assistant Students 2 s.h.
- 115:500 Family Practice Elective for Physician Assistant Students 4 s.h.
- 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.
- 75:105 Surgery Elective for Physician Assistant Students 6 s.h.
- 78:100 Urology Elective for Physician Assistant Students 2 s.h.
- 66:110 Obstetrics Elective and Gynecology Elective for Physician Assistant Students 2 s.h.
- 73:101 Psychiatric Elective for Physician Assistant Students 2 s.h.
- 75:110 Nuclear Medicine Elective 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 civilization and culture, and social sciences;
- Complete introductory courses in inorganic and organic chemistry; 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 3.0 for 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 the first year in advance, and close April 15. Each applicant must complete The University of Kansas 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 $500. Microscopes are not required.

Courses

- 105:1 Physician Assistant Clinical Second Year
- 117:121 Seminar for Physician Assistant Students 0.5 s.h.
- Lectures, readings, and group sessions dealing with the history, development, and practice of physician assistance.
- 117:200 Advanced Emergency Medicine for Physician Assistants
- A comprehensive review of emergency medicine, including lectures, computer simulations, clinical experiences, paramedic training at animal hospital, and clinical training, which involves direct emergency care patient management and patient care skills training experience.
- 117:200 Advanced Emergency Medicine for Physician Assistants 4 s.h.

In addition to meeting these and the general requirements of the Graduate

Biochemistry

Department Chair: Edward C. Heath
Degree offered: B.A., B.S., M.S., Ph.D.

Undergraduate Programs

See "Biochemistry" in the Liberal Arts section of the Catalog.

Graduate Programs

The Department of Biochemistry offers programs for study leading to the M.S. and Ph.D. degrees. The department also offers opportunities for qualified and interested students to pursue M.S., M.D. or Ph.D.-M.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 the basis for a thesis topic.

First-year students take general and advanced biochemistry courses (usually 99:120, 99:121, 99:130, and 99:140) and a course of effective oral presentation (99:282 Seminar). Students spend about half of their time working in three different laboratory groups (99:261 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 research experience. Students are required to complete a minimum of six semester hours in biochemistry and six semester hours of elective science courses offered in biochemistry, and in other departments.

After passing the comprehensive examination, toward the end of the second year, students are formally admitted as degree candidates, and concentrate on thesis work. The program culminates in the completion of this work, and its successful defense before the thesis committee.

In addition to meeting these and the general requirements of the Graduate
The Department of Dermatology instructs medical students and train dermatology residents in the care of patients with skin disease, and provides opportunity for the development of research skills in the field of dermatology.

This is one of very few dermatology programs in the country with a required rotation for medical students. Each third-year medical student spends two weeks in the clinic and attends about ten one-hour lectures. A good cross-section of patients is available, due to the mixture of private and clinic patients, including a large number referred from the Student Health Service. Additional patients are seen at the nearby Veterans Administration Medical Center. Various electives are available for fourth-year medical students, including further clinical experience, dermatological research, and special studies.

Courses

621 Clinical Dermatology 3 h.
Basic medical dermatology, most medical school year, lectures and self-study, clinical experience, special assignments.

623 Dermatology Elective 6 h.
Fourth-year medical students spend four weeks in advanced clinical experience, dermatological surgery, and special assignments.

614 Research in Dermatology 3 h.

626 Dermatology Elective for Physician Assistant 3 h.
General principles of medical research. Lectures or laboratory projects: individual study.

6250 Special Studies of Campus 3 h.

Dietetic Internship

Department Director: Rose Ann Stipps, Internship Director: Suzanne Koury

University of Iowa Hospitals and Clinics offers a dietetic internship program which qualifies graduates to take the American Dietetic Association (ADA) registration examination. The program is fully accredited by the ADA. Clinical Dietitians and Food Service System Managers of the Dietary Department provide the clinical teaching in the program. Courses within the program are administered by The University of Iowa College of Medicine. The following are required:

50:201-202 Dietetic Seminar 1 s.h.
50:203-204 Clinical Dietetics 4-8 h.
50:205-206 Projects in Dietetics 6 h.
50:209-310 Hospital Dietary Administration 4-8 h.

The following are recommended electives:

50:207-208 Dietetic Research 3 h.
65:215 Comparative Nutrition 2 h.
50:216 Analysis of Food Service Systems 4-8 h.
50:211 Nutrition of the Child 2 h.

Students generally complete the program with 15,17 semester hours of graduate credit. University Hospitals and Clinics awards a certificate to graduates of the program. The degree of Master of Science in the program may be applied toward an advanced degree, and approximately half of the graduates of the program do go on to complete advanced degree programs, most typically the master's degree in home economics, preventive medicine, health education, or business administration.

American Dietetic Association and University of Iowa Graduate College requirements for admission to the program include the baccalaureate degree with a strong background in food and science courses, or food service management, and basic sciences.

Students must enter the program in the fall semester. The postcard deadline for application is February 18.

University Hospitals and Clinics pays an internship stipend which partially covers educational and living expenses.

For descriptions of program courses, see the "Nondepartmental," "Human Nutrition," and "Pediatrics" listings in this section of the Catalogue.

Dermatology

Department head: John S. Skalske
clinical assistant professors: Don DeWitt, Roger L. Hattery, Robert F. Groomer, Randall Harvery, Joseph Parks, James E. Tison

Clinical Lecture Donald B. Johnson, Jr., Susan Poll.
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" under "College of Liberal Arts" for a list of participating faculty members, degree requirements, and courses offered.

Hospital and Health Administration

Program director: Samuel Levy
Faculty: professors Samuel Levy, James L. Price
Instructor emeritus: Barbara Newton
Associate professors: Lillian K. Dotsi, Robert L. Ludwig
Assistant professors: Robert D. Reaves, John R. Curry, John A. Nyhan, Daniel Russell
Adjunct assistant professor: William H. Hasson, John R. S testify, Gary E. Lewis, Kenneth M. Yamamoto
Associate professor: Douglas J. Winick
Clinical assistant professor: Mary Magdon
Clinical assistant: Robert R. Anderson
Clinical instructors: T. Ali Khan, R. Anderson
Clinical instructors: A. A. E. Smith, J. P. McCallum
Clinical instructors: Kenneth M. Grant, A. Douglas D rape, Donald M. DeMyer
Clinical instructor: Peter J. Kelsey
Instructor: Samuel T. Watson, Michael A. West, Frank J. Nudel, John O. Haney

Since its inception in 1950, the Graduate Program in Hospital and Health Administration has offered two degree programs, each having distinct, mutually reinforcing academic objectives.

The Master of Arts program is designed for individuals who seek executive positions in health organizations.

The Doctor of Philosophy program is oriented primarily to individuals who are interested in teaching and research careers in the health field or in senior health-care management and policy appointments.

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 the 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 there is a thesis option 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 34 semester hours of credit selected from 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.
80-303 Health Services Administration III 3 s.h.
80-304 Health Services Administration IV 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.

80-221 Quantitative Methods in Health Administration I 3 s.h.
80-222 Quantitative Methods in Health Administration II 3 s.h.
80-223 System Analysis 3 s.h.
80-224 Health Care Marketing Research Methods 3 s.h.
80-226 Linear Algebra of Linear 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.

Five Year Program

An early admissions plan developed with W.K. 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 undergraduate 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 to the admissions office before the third year of undergraduate work. Early applications do not make it possible for the applicant to be advised regarding prerequisites and applications should note that early admission is desired.

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 should consult the Doctor of Philosophy 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 capable of making significant contributions in teaching and research and in management and policy development in the health field.

The doctoral curriculum is designed to develop expertise in three areas of study. These areas and required courses are:

11:50 Family Practice II for Physician Assistant Students 4 s.h.
11:50 Family Practice Simulated Physician-Patient Encounter 4 s.h.
12:32 Embryology and interpersonal Skills Medical Practice 4 s.h.
11:50M Special Studies on Campus 4 s.h.
12:32M Special Studies Off Campus 4 s.h.
12:32M Special Studies On Campus 4 s.h.
mcdonald medical training. In the first semester trainees take courses in biochemistry, microbiology, general surgery, pharmacology, and general pathology. The first semester of year two is devoted to the study of the medical microbiology, genetic pathology, and aerosol health problems. During the summer between the first and second years, trainees engage in clinical 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 institutes the development of clinical skills and knowledge necessary for building and maintaining competence as a physician. This semester provides an introduction to the basic sciences and an opportunity to evaluate the student's potential for development as a physician. This scientific training is directly supervised by the faculty of the Department of Microbiology and Immunology. 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 Education. Trainees are also encouraged to participate in other clinical activities. As soon as trainees complete the course requirements of their training, they return to the College of Medicine to begin a formal clinical year. This year serves two important purposes. First, it allows trainees to continue to expand and develop their 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 compete for stipend and fellowship 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. The program is designed to provide advanced training in an individual's specialty.

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 the bachelor's degree at an accredited academic institution. In addition to outstanding academic achievements, 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 in students currently enrolled in the College of Medicine or Graduate College at The University of Iowa.

Application Procedures

The University of Iowa College of Medicine is a participant in the American Medical College Application Service (AMCAS). Program applicants should submit AMCAS to forward their credentials to the College of Medicine (IA131) as soon as possible after June 15. At the same time, applicants should request a separate Medical Scientist Training Program application from the Program Office, 5-560 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 opportunity is given 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 F. Crawford

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 areas include the study of: pathogenic bacteriology, medical genetics, immunology, microbial physiology, medical mycology, and animal virology. Several of these specializations are available for 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 during the department during their course of study. Incoming students choose 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 major 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. committees. Additional course requirements or course selections will depend upon 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, Physiology, Psychology, and Sociology. Adequate space and excellent equipment are available for teaching and research.

Admission
Prospective graduate students should begin by consulting the appropriate announcements which describe admission requirements of the Graduate College. Decisions of the department include a review and formal vote by the faculty before a student is admitted. Before beginning graduate work, the student must have completed courses in biology, chemistry (inorganic, organic, quantitative analysis), mathematics (calculus and physics). Students admitted without the above course work may take the courses during the first year of graduate study. The student should have a grade-point average of 3.0 or better in courses to be admitted to the graduate program in microbiology.

Courses
01143 Medical Microbiology
Principles and methods essential to study of microorganisms, their relation and identification, microorganisms involved in infectious diseases, current concepts of antimicrobial therapy. Evaluation of the meaningfulness of new laboratory methods of isolation and identification of microorganisms. The student must take this course if he wishes to pursue studies in pathogenic bacteria. Prerequisite: 01167 with a C or better and consent of instructor.

01184 General Microbiology
Introduction to fundamental principles of microbiology, including prokaryotes and eukaryotes, the microbiological environment, a survey of the diverse bacterial groups and their chemistry. Prerequisite: 01167 with a C or better and consent of instructor.

01194 Pathogenic Bacteriology
Introduction to the study of pathogenic bacteria, including their identification, classification, and relation to disease. Procedures covered include isolation, identification, and pathogenesis. Prerequisite: 01184 with a C or better and consent of instructor.

01168 Medical Physiology
Principles of the body's physiological processes, including muscular, nervous, and endocrine systems. Prerequisite: 01184 with a C or better and consent of instructor.

01161 Pediatrics in Microbiology
Principles of the care of a healthy infant and child, growth, energy metabolism, development, and control mechanisms. Clinical supplements. 17888 with 11186.

01181 Preclinical Microbiology
Principles relating biological aspects of human disease, their identification and treatment. Prerequisite: 01184 with a C or better and consent of instructor.

01163 Medical Genetics
Principles of heredity and human genetics. Open only to medical students.

01185 Microbiology Laboratory
Principles of laboratory techniques in microbiology. Open only to medical students.

01164 Microbiology Laboratory
Principles of laboratory techniques in microbiology. Open only to dental students.

01163 Seminar Microbiology
Principles of laboratory techniques in microbiology. Open only to medical students.

01162 Medical Laboratory Laboratory
Principles of laboratory techniques in microbiology. Open only to medical students.

01161 Clinical Laboratory Microbiology
Principles of laboratory techniques in microbiology. Open only to medical students.

01160 Clinical Laboratory Microbiology
Principles of laboratory techniques in microbiology. Open only to medical students.

01165 Laboratory Immunology
A study of the clinical applications of antigens, antibody reactions, and purification of antigens and antibodies. Other topics discussed include the theoretical and practical aspects of modern immunology. Prerequisite: 01184 with a C or better and consent of instructor.

01166 Clinical Laboratory Immunology
A study of the clinical applications of antigens, antibody reactions, and purification of antigens and antibodies. Other topics discussed include the theoretical and practical aspects of modern immunology. Prerequisite: 01184 with a C or better and consent of instructor.

01167 Medical Laboratory
Basic laboratory techniques in microbiology. Prerequisite: 01167 with a C or better and consent of instructor.

01168 Medical Pathology
Basic laboratory techniques in microbiology. Prerequisite: 01167 with a C or better and consent of instructor.

01169 Medical Pathology
Basic laboratory techniques in microbiology. Prerequisite: 01167 with a C or better and consent of instructor.

01171 Survey of Pathology
Introduction to experimental research open to juniors and seniors with an A in a 300-level average overall and 2.0 in 300-level.

01176 Survey of Pathology
Introduction to experimental research open to juniors and seniors with an A in a 300-level average overall and 2.0 in 300-level.

01174 Survey of Microbiology
Introduction to experimental research open to juniors and seniors with an A in a 300-level average overall and 2.0 in 300-level.

01177 Survey of Microbiology
Introduction to experimental research open to juniors and seniors with an A in a 300-level average overall and 2.0 in 300-level.

01175 Survey of Microbiology
Introduction to experimental research open to juniors and seniors with an A in a 300-level average overall and 2.0 in 300-level.

01176 Survey of Microbiology
Introduction to experimental research open to juniors and seniors with an A in a 300-level average overall and 2.0 in 300-level.

01175 Survey of Microbiology
Introduction to experimental research open to juniors and seniors with an A in a 300-level average overall and 2.0 in 300-level.

01174 Survey of Microbiology
Introduction to experimental research open to juniors and seniors with an A in a 300-level average overall and 2.0 in 300-level.

01173 Survey of Microbiology
Introduction to experimental research open to juniors and seniors with an A in a 300-level average overall and 2.0 in 300-level.

01172 Survey of Microbiology
Introduction to experimental research open to juniors and seniors with an A in a 300-level average overall and 2.0 in 300-level.

01171 Survey of Microbiology
Introduction to experimental research open to juniors and seniors with an A in a 300-level average overall and 2.0 in 300-level.

01170 Survey of Microbiology
Introduction to experimental research open to juniors and seniors with an A in a 300-level average overall and 2.0 in 300-level.
Neurology
Department: Neurology
Faculty: Dr. Ann McNeil
Graduate: Dr. Jane Martin, Dr. Steven Lee
Research: Dr. Robert Green, Dr. Sarah Johnson
Coursework: Dr. Jennifer Brown, Dr. Michael White

Obstetrics and Gynecology
Department: Obstetrics and Gynecology
Faculty: Dr. Susan Martin, Dr. Jane Johnson
Graduate: Dr. Jennifer Brown, Dr. Michael White
Research: Dr. Robert Green, Dr. Sarah Johnson
Coursework: Dr. Jennifer Brown, Dr. Michael White

Residency Program
The department offers a four-year residency. Upon completion, graduates are eligible for written and oral examinations leading to certification by the American Board of Obstetrics and Gynecology.

Fellowships
The department offers two-year fellowships in reproductive endocrinology (one) and reproductive endocrinology (two) and maternal-fetal medicine (two). Each year, a clinical and research activities. After competition fellows are eligible for the examination of the American Board of Obstetrics and Gynecology leading to certification of special competence.

Courses
Course Work for M.D. Students
The courses in obstetrics and gynecology are designed to give M.D. students a comprehensive understanding of reproductive medicine. This is done through a series of didactic lectures, important subject assignments, ward rounds, teaching seminars, and small-disease, courted.

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 four-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 Broadwaks Polk County Hospital, Des Moines; Outpatient Clinic and Marina Medical Hospital, Monroe, Louisiana; Medical Associates, Dubuque, The Gunderson Clinic, LeClaire, Wisconsin, and Otten Regional Medical Center, Orlando, Florida.

Residency Program
The department offers a four-year residency. Upon completion, graduates are eligible for the written and oral examinations leading to certification by the American Board of Obstetrics and Gynecology.

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 Wavello, Des Moines, Muscatine, and Davenport. During the final two years, the resident spends time at Iowa Methodist and Iowa Methodist Hospitals in Des Moines, and at St. Luke's Hospital in Davenport. 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 year, a clinical and research activities. After competition fellows are eligible for the examination of the American Board of Obstetrics and Gynecology leading to certification of special competence.

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Course Work for M.D. Students
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Ophthalmology

Department Head: Charles D. Peirce
associate professor: D. Frank Judson
assistant professors: James C. Fish, Andrew J. Friedman, David T. Tave
Degree offered: M.D.

Ophthalmology is a medical and surgical specialty concerned with research, diagnosis, and treatment of diseases of the eye and its adnexa, including conditions of refractive errors. Several subspecialties are represented in the department: ocular pathology and physiology, pediatric ophthalmology, refractive disorders, glaucoma, neuro-ophthalmology, cornea and external diseases, vascular diseases, plastic surgery, contact lens and refraction service, and medical ophthalmic photography.

The teaching program is directed toward the training of medical students and resident physicians. It emphasizes a scientific approach to problem solving in diagnosis and treatment. The residency program lasts three and one-half years, and cumulates in qualification for the examination of the American Board of Ophthalmology.

The Master of Science degree is not offered as a primary professional objective but can be pursued only in conjunction with a residency program.

Facilities

The department maintains several research laboratories: tumor diagnosis, pathology and electron microscopy, electrophysiology, microbiology, papillography, and vascular diseases. Clinical facilities are available not only at the University Hospitals and Clinics, but also at the Veterans Administration Medical Centers in Iowa City and in Des Moines. The department also manages an eye clinic at the Broadlawns Polk County Hospital. The department sponsors biennially an international symposium, annually a national conference, and monthly a statewide program of continuing education.

Two features of the department are outstanding: a large full-time faculty, and the opportunity it offers to prepare for a career of teaching and research in ophthalmology.

Courses

01:5300 Ocular Anatomy and Physiology
01:5301 Ocular Motility and Neuro-ophthalmology
01:5304 Refractive Surgery
01:5305 Intraocular Lenses
01:5306 Vitreoretinal Surgery
01:5307 Uveitis
01:5308 Glaucoma
01:5309 Ocular Surface Diseases
01:5310 Ocular Pathology
01:5311 Ocular Plastic Surgery
01:5312 Pediatric Ophthalmology
01:5313 Corneal and External Diseases
01:5314 Neuro-ophthalmology
01:5315 Metabolic and Internal Diseases of the Eye
01:5316 Ocular Immunology
01:5317 Stem Cell Therapy

Program for Full-Time Academic Ophthalmologists

This program includes the training described under the clinical program above. In addition, the resident devotes one or two years to research. This research may be in any field in which the teaching activities are related to the musculoskeletal system, and may be done in one of the residency programs or at a basic science department.

Departmental Laboratories

The orthopaedic laboratories deal with problems in these major subject areas:

Biochemistry—The biochemistry of mucopolysaccharides and collagen, the biochemical basis of diseases affecting the musculoskeletal system.

Orthopaedic Surgery

Department head: Raymond N. Cooper
Instructor: Raymond N. Cooper, Michael A. Brand, Michael R. Biegel, Joseph A. Buckwalter, Charles E. Clark, Thomas D. Lanman, Frank J. Schuster
associate professor: James Wooten, Joseph S. Kline
clinical professor: Richard C. Juvick
assistant professor: Joseph Wooten

The department offers two types of postgraduate training—a five-year integrated clinical program in which the intern and resident participate simultaneously in inpatient care, outpatient care, surgery and outpatient related to the musculoskeletal system, and a five- or six-year program for those interested in full-time academic orthopaedic careers.

The Clinical Program

Trainees enter this program through the National Internship Matching Plan directly out of medical school. The program consists of a one-year categorical diversified orthopaedic internship and four years in orthopaedic residency. During the internship year, the trainee gains experience not only in clinical orthopaedics, but in medicine, pediatrics, neurology, surgical specialties, intensive care, anesthesiology, and other services. During the following years, residents gain experience in trauma, children's orthopaedics, adult orthopaedics, musculoskeletal disorders, rehabilitation, prosthetics and orthotics, rheumatology, and basic science as related to orthopaedics. The residents take specialized courses in anatomy, bone histology, biochemistry, physiology, and pathology.

A weekly seminar reviews biomechanics, kinesiology, and selective surgical subjects.

Facilities

The department is housed in the Carver Pavilion of The University of Iowa Hospitals and Clinics and has an active service in the Veterans Administration Medical Center. Facilities include 100 beds, an outpatient clinic, a specialty library, a specialty radiology unit, a bazaar shop, and physical therapy facilities. Physicians in the outpatient clinic see approximately 100 patients a day. Specialty clinics deal with such problems as scoliosis, club foot, congenital dislocated hips, neuromuscular disease, metabolic diseases, neck, back, amputations, hips, knees, hands, ulcers, and trauma. Approximately 1,500 major operations are performed each year under auspices of the department.

The department provides consulting service to the Hospital School for Handicapped Children, State Schools for Crippled Children, and state schools for the mentally retarded.

Courses

192 Circulation Orthopedics
192 Orthopedic Surgery Course For Physician Assistant
195 Orthopedic Surgery Course For Physician Assistant
1991 Advanced Clinical Orthopedics
Open to senior medical students only.
1992 Advanced Clinical Orthopedics
Open to senior medical students only.
1993 Surgical Care of the Head
Open to senior medical students only.
1994 Special Studies on Campus
Open to senior medical students only.
1995 Special Studies of Campus
Open to senior medical students only.
1996 Special Studies of Campus
Open to senior medical students only.

Otolaryngology—Head and Neck Surgery

Department head: Brian F. McCune

Otolaryngology—Head and Neck Surgery

Department provides 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, residents, and medical students. To maintain a teaching program, the department’s faculty and staff carries a large patient load in head and neck surgery for medical students and residents. At least ten additional hours per month are spent in this field, and all the areas usually considered otolaryngology.

There are eight divisions in the department, which make program comprehensiveness. Plastic surgery and reconstructive surgery of the head and neck, rhinology, plastic and reconstructive surgery, head and neck surgery, rhinology, pediatric otolaryngology, otorhinolaryngology, speech and language pathology, and research.

Another major objective of the department is to foster research programs designed to yield new findings in the field and provide models for student and resident research training. All senior medical faculty members participate in research and are required, 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 well-developed research programs within the department in vestibular neurophysiology, otorhinolaryngology, and other craniofacial defects, head and neck oncology, and communication disorders.

Otolaryngology—Head and Neck Surgery

The graduate program in otolaryngology is in accord with the requirements of the American Board of Otolaryngology. The program consists of a four-year course of basic and clinical science. The basic science laboratories and study are conducted during the first three and one-half months of residency.

After passing an oral and/or 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 complete 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. Student's capstone of oral and/or written 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 of medical school and must have completed one year of general surgical training in an approved program.

Courses

0100 Otolaryngology 2 h.
0102 Otolaryngology—Neurology 2 h.
0104 Basic Principles of Facial Plastic and Reconstructive Surgery 4 h.
0105 Special Clinics in Otolaryngology 4 h.
0109 Basic Otolaryngology: Science
Language on developmental anatomy and physiology, surgical anatomy of head and neck, embryology, histology, immunology, anesthesiology, orbital, oral surgery, radiology, speech pathology, and alcoholism.

0201 Research Techniques in Otolaryngology
Requires two months of full-time work in departments research laboratories concerned with audiology, otolaryngology, and radiology, and related clinical aspects of otolaryngology.

0213 Clinical Conference in Otolaryngology
Presentation of diagnostic methods and techniques of management for assigned patients may be required.

0215 Clinical Audiology
Diagnostics and treatment of patients’ eyes and ears are covered in this program. A student of otolaryngology, audiology, and head and neck surgery, audiology, and management of patients.

0216 Histopathology
Inherently an elective seminar covering clinical cases involving temporal bone histology.

0219 Basic Medical Audiology
Introduction to standard audiometric procedures.

0221 Advanced Medical Audiology
Special clinical use of hearing aids for musculoereactive and other disabilities. Special emphasis on the use of hearing devices for children with hearing loss.

0250 Otolaryngology and Related Fields
Clinical exposure to the common problems of otolaryngology. May be repeated.

0256 Seminar: Otolaryngology and Related Fields
Clinical exposure to the common problems of otolaryngology. May be repeated.

0258 Otolaryngology—Head and Neck Surgery
Clinical exposure to the common problems of otolaryngology. May be repeated.

0400 Dental Treatment of Facial Deformities
Limited to graduate students in dentistry.
Pathology

Department head: Richard G. Lynch
professor emeritus Frederick W. Inabinet
associate professors Carol A. Ashworth, Robert T. Cuse, Ronald D. Field, Shrir Ball, Kathy Furer, James A. Quade, George J. Johnson, Frank A. McNeil, John R. Siperstein
associate professors Ruth A. Beachum, Ruth Y. Hynes, James M. Coomer, Manas Shrivastava, Alice Smith-Flies, Frank Wiest
clinical professor John Knaat
clinical assistant professor Donna L. Bick (Boone County hospital)

Pathology is the department of basic pathology, which includes microscopic examination of tissues, and general pathology, which includes clinical chemistry, clinical microbiology, hematology, immunology, and transfusion center. Adequate opportunity is afforded for concentrated study in most pathology sub specialties. The department also offers a postdoctoral training program in clinical biochemistry for technicians interested in this field. The program is approved by the American Board of Clinical Chemistry.

In addition, the department offers a 2-year externship program, which is designed to provide 2 publishing experiences and a variable number of clerkships or externships for postdoctoral students in any of the areas of anatomic or clinical pathology.

Clinical Training in Medical Technology

See "Division of Associated Medical Sciences" in this section of the Catalog.
Master of Science

in cooperation with clinical departments in the College of Pharmacy, 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 mandatory unless specifically waived by the Department of Pharmacology faculty. Any of these course requirements may be waived at the request of the trainee if his or her adviser and the Department of Pharmacology faculty agree that the trainee has met them satisfactorily at a prior time.

71:203 Pharmacology Research 1
71:204 Pharmacology Seminar 1
71:210 Special Topics in Pharmacology 6
83:187 Biometrics and Bioassay 4
71:212 Toxicology 4
71:216 Clinical Toxicology 4
78:380 Clinical Pharmacology and Therapeutics Lecture Series

The trainee may audit 71:105 Pharmacology for Health Sciences. Members of the College may take additional courses in this or other departments appropriate to his 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:

71:301 Introduction to Pharmacology 3
99:120 Metabolism 4
72:212 Medical Physiology 4
71:181 Pharmacology for Health Sciences: Pharmacy 4
63:187 Biometrics and Bioassay 4
71:103 Pharmacology and Toxicology 4
71:205 Biochemical Pharmacology 4
71:203 Pharmacology Research 1
71:304 Pharmacology Seminar 1
71:207 Pharmacology of Excitable Cells 4
71:18 8 Introduction to Pharmacology 1

The student must complete at least one additional course in his or her area of interest, and individual faculty research advisers 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

71:180 Chromatography 1
71:185 Microscopy and Microanalytical Methods 1
71:181 Pharmacology for Health Sciences: Pharmacy 4
71:183 Pharmacology and Toxicology 4
71:184 Pharmacology Seminar 1
71:185 Pharmacology of Excitable Cells 4
71:186 Introduction to Pharmacology 1

Philosophical and experimental approaches to drug design, emphasis on clinical aspects of theories of pharmacological research: pharmacodynamics and receptor theory. Includes: Offered fall semesters. Prerequisite: consent of instructor.

71:181 Pharmacology for Health Sciences: Pharmacy 4

Lecture course, general principles of pharmacology, pharmacological actions of drugs and their interaction with body tissues, an introduction to the concepts of drug metabolism and disposition, emphasis on the scientific foundations of clinical pharmacology. Offered spring semesters. Prerequisite: consent of instructor. 71:181 or equivalent.

71:182 Pharmacology and Toxicology 4

Comprehensive examination of the more advanced topics of pharmacology and toxicology. Offered spring semesters. Prerequisite: 71:181 or equivalent.

71:183 Pharmacology Seminar 1

Prerequisite: consent of instructor.

71:184 Pharmacology of Excitable Cells 4

Prerequisite: consent of instructor.

71:185 Pharmacology of Excitable Cells 4

Prerequisite: consent of instructor.

71:186 Introduction to Pharmacology 1

Prerequisite: consent of instructor.

71:203 Pharmacology Research 1

Lab work for actions of drugs on excitable cells, emphasizing the study of drug-induced alterations in the excitable cell; contrast emphasis on cellular and molecular mechanisms. Includes: Offered winter semesters. Prerequisite: graduate or medical student for pharmacology and preparatory course for medical students. Consent of instructor.

71:205 Pharmacology Research 1

Prerequisite: consent of instructor.

71:207 Pharmacology Seminar 1

Prerequisite: consent of instructor.

71:209 Advanced Cardiovascular Pharmacology and Physiology 1

Recent developments in cardiovascular pharmacology, physiology, and pathophysiology of cardiovascular and renal disorders. Offered spring semesters. Prerequisite: consent of instructor.

71:210 Biophysical Pharmacology 1

Basics for drug actions on the molecular and molecular biological level. Selected current developments in this area concern drug-receptor interactions, chemical considerations include membrane functions, protein and nucleic acid synthesis, intermediary metabolism, pharmacokinetics, and drug metabolism. Offered fall semesters of odd years. Prerequisite: consent of instructor. 71:209 or equivalent.

71:211 Pharmacological Mechanisms of Cardiac Arrhythmias 1

Pharmacological mechanisms by which myocardial dysfunction, impacting including actions on cell signal transduction and its modulation, electron transport, excitation-contraction coupling, and ion channels, myocardial synthesis and degradation, and integrated neuronal activity. Prerequisite: 71:209 or equivalent. Graduate or medical student for pharmacology and preparatory course for medical students. Consent of instructor.

71:212 Clinical Pharmacology Seminar 1

Review of new therapeutic subject matter. Prerequisite: 71:21, 71:26, or 71:209 or equivalent. Consent of instructor.

71:213 Special Topics in Pharmacology 1

Current issues in pharmacology. Prerequisite: consent of instructor. 71:210 or equivalent.

71:214 Toxicology 1

Toxicological principles in pharmacology and toxicology, emphasis on drug-induced injury, mechanisms of toxicity, general principles of drug safety. Includes: Offered spring semesters. Prerequisite: 71:181 or equivalent. Consent of instructor.

71:215 Pharmacological Mechanisms of Cardiac Arrhythmias 1

Pharmacological mechanisms by which myocardial dysfunction, impacting including actions on cell signal transduction and its modulation, electron transport, excitation-contraction coupling, and ion channels, myocardial synthesis and degradation, and integrated neuronal activity. Prerequisite: 71:209 or equivalent. Graduate or medical student for pharmacology and preparatory course for medical students. Consent of instructor. Offered spring semesters of odd years. Prerequisite: consent of instructor. Same as 31:203.

71:216 Biophysical Pharmacology 1

Mechanisms of action of drugs affecting renal transport systems in health and disease. Includes: Offered spring semesters of even years. Corequisites: introductory courses in physiology and pharmacology. Consent of instructor.

71:217 Toxicology 1

Toxicological principles in pharmacology and toxicology, emphasis on drug-induced injury, mechanisms of toxicity, general principles of drug safety. Includes: Offered spring semesters of odd years. Prerequisite: consent of instructor. Same as 31:203.

71:218 Protein Chemistry 1

General principles of biochemistry and structure of the protein molecule, function of the protein molecule in the body. Includes: Offered fall semesters of even years. Corequisites: introductory courses in biochemistry and pharmacology. Consent of instructor. Corequisite: consent of instructor.

71:219 Biophysical Pharmacology 1

Mechanisms of action of drugs affecting renal transport systems in health and disease. Includes: Offered spring semesters of even years. Corequisites: introductory courses in physiology and pharmacology. Consent of instructor.

71:220 Protein Chemistry 1

General principles of biochemistry and structure of the protein molecule, function of the protein molecule in the body. Includes: Offered fall semesters of even years. Corequisites: introductory courses in biochemistry and pharmacology. Consent of instructor. Corequisite: consent of instructor.

71:221 Advanced Cardiovascular Pharmacology and Physiology 1

Recent developments in cardiovascular pharmacology, physiology, and pathophysiology of cardiovascular and renal disorders. Offered spring semesters of odd years. Prerequisite: consent of instructor. 71:209 or equivalent.

71:222 Clinical Pharmacology Seminar 1

Review of new therapeutic subject matter. Prerequisite: 71:21, 71:26, or 71:209 or equivalent. Consent of instructor.

71:223 Special Topics in Pharmacology 1

Current issues in pharmacology. Prerequisite: consent of instructor. 71:210 or equivalent.

71:224 Toxicology 1

Toxicological principles in pharmacology and toxicology, emphasis on drug-induced injury, mechanisms of toxicity, general principles of drug safety. Includes: Offered spring semesters. Prerequisite: 71:181 or equivalent. Consent of instructor.

71:225 Pharmacological Mechanisms of Cardiac Arrhythmias 1

Pharmacological mechanisms by which myocardial dysfunction, impacting including actions on cell signal transduction and its modulation, electron transport, excitation-contraction coupling, and ion channels, myocardial synthesis and degradation, and integrated neuronal activity. Prerequisite: 71:209 or equivalent. Graduate or medical student for pharmacology and preparatory course for medical students. Consent of instructor. Corequisite: consent of instructor. Corequisite: 71:209 or equivalent.

71:226 Biophysical Pharmacology 1

Mechanisms of action of drugs affecting renal transport systems in health and disease. Includes: Offered spring semesters of even years. Corequisites: introductory courses in physiology and pharmacology. Consent of instructor.

71:227 Protein Chemistry 1

General principles of biochemistry and structure of the protein molecule, function of the protein molecule in the body. Includes: Offered fall semesters of even years. Corequisites: introductory courses in biochemistry and pharmacology. Consent of instructor. Corequisite: consent of instructor.

71:228 Advanced Cardiovascular Pharmacology and Physiology 1

Recent developments in cardiovascular pharmacology, physiology, and pathophysiology of cardiovascular and renal disorders. Offered spring semesters of odd years. Prerequisite: consent of instructor. 71:209 or equivalent.

71:229 Clinical Pharmacology Seminar 1

Review of new therapeutic subject matter. Prerequisite: 71:21, 71:26, or 71:209 or equivalent. Consent of instructor.

71:230 Special Topics in Pharmacology 1

Current issues in pharmacology. Prerequisite: consent of instructor. 71:210 or equivalent.

71:231 Toxicology 1

Toxicological principles in pharmacology and toxicology, emphasis on drug-induced injury, mechanisms of toxicity, general principles of drug safety. Includes: Offered spring semesters. Prerequisite: 71:181 or equivalent. Consent of instructor.

71:232 Pharmacological Mechanisms of Cardiac Arrhythmias 1

Pharmacological mechanisms by which myocardial dysfunction, impacting including actions on cell signal transduction and its modulation, electron transport, excitation-contraction coupling, and ion channels, myocardial synthesis and degradation, and integrated neuronal activity. Prerequisite: 71:209 or equivalent. Graduate or medical student for pharmacology and preparatory course for medical students. Consent of instructor. Corequisite: consent of instructor. Corequisite: 71:209 or equivalent.
The graduate programs in physiology and biophysics afford students broad and in-depth 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 in the planning of a program of formal coursework and an introduction to research activities of departmental faculty.

In addition to advanced coursework in general physiology and biophysics, the department offers specialized courses in cardiovascular, endocrine, nervous, and metabolite, and neurophysiology.

Students may elect to take courses in other departments appropriate to meeting their educational objectives.

Upon completion of required coursework 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 offers a minimum of facilities necessary for research and teaching in the various sciences concerned with the unitary function of the body. Its facilities include a separate lecture hall, individual and group laboratories, and a central, computer-controlled, high-speed, and high-quality service station.

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 in the planning of a program of formal coursework and an introduction to research activities of departmental faculty. In addition to advanced coursework in general physiology and biophysics, the department offers specialized courses in cardiovascular, endocrine, nervous, and metabolite, and neurophysiology. Students may elect to take courses in other departments appropriate to meeting their educational objectives.

Upon completion of required coursework 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 offers a minimum of facilities necessary for research and teaching in the various sciences concerned with the unitary function of the body. Its facilities include a separate lecture hall, individual and group laboratories, and a central, computer-controlled, high-speed, and high-quality service station.

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 in the planning of a program of formal coursework and an introduction to research activities of departmental faculty. In addition to advanced coursework in general physiology and biophysics, the department offers specialized courses in cardiovascular, endocrine, nervous, and metabolite, and neurophysiology. Students may elect to take courses in other departments appropriate to meeting their educational objectives.

Upon completion of required coursework 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.
Graduate Programs

The M.S. program in radiobiology emphasizes the technical aspects and serves as training for medical students whose major interest is another related field. The Ph.D. program is open to graduate students with a background of study in physics, chemistry, mathematics, biology, or health sciences, veterinary medicine, or engineering. Ordinarily, the M.S. is the only degree offered, but no specific field of study is required for admission to the Ph.D. program, but consideration is given to other methods of qualifying.

Courses

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 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 applied for by the candidate and his or her faculty sponsor.

Radiology/ENGINEERING


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—imaging ultrasonic, computed tomography, nuclear medicine, and radiation therapy—and are designated according to the student's area of interest.

COURSES

171 Introduction to Radiology 3 hrs.
172 Clinical Radiology 3 hrs.
173 Introduction to Radiation Therapy 3 hrs.
174 Physics of Radiology 3 hrs.
175 Human and Molecular Radiobiology 3 hrs.
176 Radiobiology 3 hrs.
177 Radiology in Clinical Practice 3 hrs.
178 Radiology and Neurology 3 hrs.
Faculty
Surgery
Surgery
Surgery

Surgery

Surgery

Surgery

Urology
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
Biochemistry in the teaching and
research in immunology as it relates to
transplantation and cancer.

The Department of Urology participates
very actively in the M.D. 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 in 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,
radiologic urology, 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 continuing
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 national
recognition for its studies of prostatic
diseases.

The urologic laboratories are active and
offer instruction in various urologic
research areas. The department offers
special elective courses in these areas.

Courses

79/80 Clinical Urology 3 S.H.

Intensive one-month course of study on urologic wards;
joint medical students responsible for patient care
under supervision of residents.

78/9 Advanced Catalysis in Urology 8 S.H.

Students become integral members of urologic staff,
spend full time in one department for four weeks,
assignment to assigned department, under direction
of junior and senior staff.

78/9 Advanced Catalysis in Urology at YA 4 S.H.

79/80 Individual Study and Research 6 S.H.

Individual projects, either preclinical or clinical,
determined by site, number, urologic series self
selected, in consultation with professor of urology
in department or principal department. Upon completion
of the project, the student may propose a report
and undergo an oral examination.

78/91 Urology 6 S.H.

Full-time residents in departments of Urology and Radiology,
where indications, instrumentation, interpretations,
and techniques of uroangiographic procedures are
presented and discussed. Grade in interpretation of
time provided, course expands field of departmental
conferences.
The College of Nursing is an integral part of the University of Iowa Health Center, sharing in and contributing to teaching, research, and patient care programs which have earned international recognition. This provides an unusually 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 enables many young people not only to realize their highest career potentialities, but to achieve the greatest measure of self-fulfillment in life.

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, Elgin, Monmouth College, Marshalltown, Muscatine, Clinton, Iowa Falls, Averill, Boone, and Fort Dodge.

Cooperation 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 wish more complete information about the transfer program should contact the cooperating institution of their choice.

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.

Dean: Gertrude Felton
Assistant dean, graduate studies: Marilyn Marion
Assistant dean, undergraduate studies: Elizabeth McKee
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 Advisors

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 advisor.

Student Organizations

Contact the Registrar to receive their own Association of Nursing Students and are also eligible for membership in the state and national associations for nursing students.

Expenses

Students pay the general University fees throughout the program. Students must also purchase uniforms, shoes, stethoscope, a watch with a split-second hand and supplies and materials for required nursing courses. Students arrange for their own health insurance 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 admissible 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 four science courses (organic chemistry, biochemistry, inorganic biology, microbiology, human anatomy, human physiology); 3) the minimum grade-point average is 2.2.

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 20M: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 presented for admission.

General education requirements:

Historical perspectives—3 semester hours;

Humanities—3 semester hours;

Foreign civilization and culture—5 semester hours;

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 (organics 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

To be considered 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

Fulfillment of minimum admission requirements does not guarantee admission to the College of Nursing. From applicants who meet minimum requirements, the college's admission committee selects those who appear to be best qualified. The committee may require personal interviews. A physical examination report and specific health screening requirements are to be on file at Student Health ten days prior to the opening of classes for the first clinical nursing course.

Application Deadlines

Applications must be received by January 15 or the fall semester, and June 15 for the spring semester.

Master of Arts

The University of Iowa Master of Arts program 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 are designed to serve as the foundation for specialization and role preparation in specific areas. Since the area of specialization may be broad or narrow, the core curriculum and specialization options which focus on patients or clients: children, adult, geriatric, mental health, medical surgical, adult health nursing, and community/family health nursing. Within these specialty areas, however, students may select their plans of study to accommodate their specific interests by arranging for specific sites and types of field experiences to fulfill the practicum component of the specialization courses. The curricula of specific areas in the supporting areas; and through the
problems they select for study in their thesis projects. Similarly, role preparation is available in three areas: education, administration, and advanced practice. Because the curriculum is intended to be flexible enough to accommodate diverse student interests, the same type of tailoring is possible 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. Students interested in mental health nursing, for example, may select concepts, field experiences, and supporting course work to expand their knowledge and skill in that area. Role preparation in advanced clinical practice with an emphasis on mental health nursing would further accommodate that interest area. The end result would be that, with the assistance of their academic advisors, students can design plans of study within a flexible curriculum structure to suit their particular career interests. The basic requirements of the program are:

**Degree Requirements**

The 45-semester-hour curriculum will ordinarily require four semesters of full-time study for concentration, plus fall and spring study, which 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)
- **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 to develop 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 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 are expected to develop skills for careers in clinical practice, for example, with enrollment 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 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. The thesis 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 probably complete the program in approximately the same way, but over a longer period of time. Taking one or two courses per semester, for example, would extend the time required to complete the study from 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. |
| Summer | 96.204 Leadership in Nursing: Theory and Application | 4 s.h. |
| Fall | Supporting course | 3 s.h. |
| Total | 10 s.h. |

| Spring Semester | 96.201 Conceptual and Theoretical Foundations for Nursing II | 2 s.h. |
| | 96.223 Child Health Nursing I | 4 s.h. |
| | 96.226 Adult Health Nursing I | 4 s.h. |
| | 96.224 Community/Family Health Nursing I | 4 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. |
| | 96.225 Community/Family Health Nursing II | 4 s.h. |
| | 96.246 Curricular Development in Nursing Education | 3 s.h. |
| | 96.250 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. |
| | 96.269 Clinical Specialization: Process, Roles, and Strategies II | 3 s.h. |
| | Supporting Course | 3 s.h. |
| | 96.299 Thesis | 3 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 completed application; official transcripts from other institutions attended; Graduate Record Examination (GRE) Aptitude Test scores; scores from the Test of English as a Foreign Language (TOEFL), when appropriate; and a 3.0 minimum grade-point average for regular admission, a 2.3 for conditional admission.

In addition to the general requirements for admission to the Graduate College, applicants to Nursing requires that the applicant:

- Possess a bachelor's degree with a major in nursing from a program accredited by the National League for Nursing.
- 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
may be used to fulfill the M.A. requirements.

**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 micro-computers.

**Courses**

**Undergraduate**

**NUR 1050** Cooperative Clinical Internship

**NUR 1110** Introduction to Health and Health Care Services

**NUR 2115** Development of Health and Health Care Services

**NUR 2120** Health Promotion and Behavior Developmental stages of human growth from conception through adolescence. See course schedule for available times. Prerequisites: English 101 and 102.

**NUR 3104** Health Promotion and Behavior Developmental stages of human growth from conception through adolescence. See course schedule for available times. Prerequisites: English 101 and 102.

**NUR 3115** Nutrition and Food Skills with measurement tests, observation and participation. Prerequisites: English 101 and 102. Skills in making meal plans, effective dietary patterns, relationships, increased awareness, students make important contributions to their own eating and physical health, based on data obtained. Learning experience occurs in a variety of settings and related to education for nurses ages and stages of health. Prerequisites: English 101 and 102.

**NUR 3141** Introduction to common physiological and psychological disorders of humans; emphasis on changes that occur in the human reproductive system. Prerequisites: completion of all courses required prior to 90-1511.
The pharmaceutical sciences are concerned with the discovery, development, and dispensers of medicinal products and monitoring of their quality. 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 may perform 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 human body. Perhaps no one is as familiar with the drugs available to him, and must be familiar with the drugs available to hi
Admission
Admission to the College of Pharmacy for the Fall 1984 Semester requires the following preprofessional course work:.

- Phys 4; eight semester hours of six semester hours of transfer credit in the Spanish sequence and three and two semester hours in speech.
- General chemistry: eight 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.

Transfer Students
Students who transfer into the college after two years in a community or liberal arts college can complete the pharmacy program provided they satisfactorily completed 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 pharmacy 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 Basic 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 1995 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, and satisfied general education electives. Students who wish to remain in a community college for two years before transferring to the college should consult the dean of the College of Pharmacy concerning course requirements.

The Professional Curriculum, Effective for Fall 1995 Semester

First Year

First Semester

46:33 Pharmacy Math 3 s.h.
41:12 Organic Chemistry I 3 s.h.
37:9 Principles of Animal Biology 5 s.h.
41:101 Elementary Quantitative Analysis 4 s.h.
Total 15 s.h.

Second Semester

46:14 Pharmacy Orientation 2 s.h.
41:102 Organic Chemistry II 3 s.h.
41:14 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.

*Also offered first semester for students on a 2-3 program only.

*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.

Second Year

First Semester

46:25 Pharmacology I 4 s.h.
59:152 Biochemistry for Pharmacy Students 4 s.h.
59:161 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

46:24 Pharmacology II 4 s.h.
46:22 Pharmacotherapeutics 4 s.h.
59:153 Pharmacoeconomics, Health Care Systems 4 s.h.
46:128 Medical Chemistry: Natural Products I 4 s.h.
72:155 Internship Physiology 4 s.h.
Total 16 s.h.

**May be taken in second semester of five 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: Pharmacy 5 s.h.
46:35 Pharmaceutics: Pharmacoeconomics Practice Management 3 s.h.
Total 16 s.h.

Second Semester

46:132 Medicinal Chemistry: Natural Products III 4 s.h.
71:103 Pharmacology and Toxicology 4 s.h.
46:154 Pharmacology and Toxicology 4 s.h.
61:105 Clinical Pharmacy: Case Study 3 s.h.
61:81 Clinical Pharmacy: Drug Information 3 s.h.
Total 16 s.h.

Fourth Year

First Semester

*46:60 Clinical Pharmacy: Community Pharmacy 3 s.h.
46:111 Clinical Pharmacy: Therapeutics I 3 s.h.
46:41 Jurisprudence 2 s.h.
46:43 Pharmaceutics IV 4 s.h.
*1-2 Selected Clinships 3-6 s.h.
Total 14-17 s.h.

Second Semester

*46:60 Clinical Pharmacy: Community Pharmacy 3 s.h.
46:112 Clinical Pharmacy: Therapeutics II 2 s.h.
*1-2 Selected Clinships 3-6 s.h.
General Education Electives 3 s.h.
Total 11-14 s.h.

*May be taken in either semester.

*Each P-A student must complete six clinical clerkships, including 46:60 and 46:61. The others are selected from a large number of offerings.

Transfer with Advanced Standing

An applicant 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 doctoral 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 dispensing drug therapy in hospital and ambulatory patients. The curriculum is available to a limited number of highly qualified pharmacy graduates.

Prospective students may obtain specific information on the Pharm. D. program by writing to the University of Iowa, College of Pharmacy, Iowa City, Iowa 52242.

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 pharmacokinetics, medicinal chemistry-natural products, and pharmaceutical sociology. 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, and in government agencies, and in a number of health-related institutions and organizations. The application deadlines, 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
determined by individual divisions of the College of Pharmacy.

Facilities

The Pharmacy Building is located in the Health Center complex on the University's main campus. It is close proximity to the colleges of Medicine, Nursing, and Dentistry; University Hospitals and Clinic; the Bowen Research Centers; and the Health Sciences Library.

The Pharmacy Building is a five-story structure especially designed to provide modern facilities for a comprehensive program of pharmacy education. In addition to classrooms, an auditorium, and learning resources center, the building houses well-equipped separate laboratories for instruction at the undergraduate and graduate levels.

The Pharmaceutical Services Division of the college serves as a teaching unit as well as a service division. Here undergraduate and graduate students have the opportunity to learn methods of large-scale pharmaceutical product development and production.

The Iowa Drug Information Service (IDIS) is also a service division of the college. IDIS serves as a central repository and distribution center of specialized information related to drugs and drug therapy. IDIS reaches subscribers throughout the world. It also plays an important educational role for undergraduate and graduate pharmacy students.

In the clinical pharmacy program, students work with other health professionals to provide the opportunity to monitor drug therapy in hospitalized and non-hospitalized patients, under the supervision of clinical instructors in pharmacy, medicine, and dentistry. The various endeavors in which students are involved include many of the areas under the administrative control of the University's Medical Administration Medical Center; the family practice centers at Iowa City, Mechanisville, and Davenport; Iowa City Mercy Hospital, Mercy and St. Luke's Hospitals in Cedar Rapids, Schott Hospitals in Waterloo, the Burlington Medical Center in Burlington; St. Joseph's Hospital in Mason City, Summit Hospital in Cedar Falls, and the Community Health Care Clinic (PHADICS) in Davenport; the Marion Health Center in Marion; and the Iowa Medical Security Facility; selected community pharmacies and nursing homes; and the Iowa Drug Information Service.

Courses

Undergraduate Pharmaceutics

4413 Pharmacy Math 2.5 cr.
Application of various weights and measures and mathematical calculations involved in pharmaceutical procedures and practice, includes sections in medication and its application to pharmaceutical problems.

4414 Pharmacy Orientation 2 cr.
Lectures and discussion of career opportunities, pharmacy's functions and role, practice settings, education, and professional organizations in pharmacy.

4423 Pharmacology I 5 cr.
Lectures and laboratory in general and clinical pharmacology. Characterizations of small particle, properties of solid; formulation, preparation, and evaluation of solid dosage forms. Prerequisites: 4416, 4422.

4425 Pharmacology II 5 cr.
Lecture and laboratory in the application of physical and chemical laws to the formulation and preparation of fluid dosage forms, including solutions, colloidals, and suspensions. Prerequisites: 4416 and 4423.

4428 Pharmacology III 5 cr.
Fundamentals of drug disposition, distribution, and elimination, and the pharmacology of these processes to include absorption, distribution, metabolism, and excretion. Emphasis is placed on the application of these concepts to the evaluation of therapeutic regimens. Prerequisites: 4416 and 4422.

4443 Pharmacology IV 4 cr.
Lectures on availability and formation aspects of dosage forms including oral, topical, percutaneous, rectal, nasal, and ophthalmic, laboratory evaluation of techniques of compounding and dispensing, patient record systems, recognition of drug interrelationships, i.v. additions, and an introduction to the use of computers in pharmacy. Prerequisite: 4416.

Graduate Pharmaceutics

4410 Pharmacy Projects 5 cr.
Basic and applied research programs of pharmaceutical sciences. Prerequisite: 4419 or equivalent, open to graduate students.

4412 Physical Pharmacy 3 cr.
Surface and internal pharmaceuticals, adsorption, and solubilization in pharmaceutical systems.

4414 Pharmacology and Biopharmaceutics 3 cr.
Intravenous drug administration, distribution, and elimination, including development of mathematical models. Prerequisites: two semesters of calculus and one year of statistics or equivalent. Credit/no credit option.

4415 Industrial Pharmacy: Movements 3 cr.
Organization, challenges, and job operations in the preparation of pharmaceuticals.

4416 Physical Pharmacy: Movements 3 cr.
Physical properties of pharmaceuticals, production or phenomena of pharmaceuticals, examination. Offers only summer sessions. Prerequisite: 4412.

4417 Quantitative Research Methods in Pharmacy 3 cr.
Lecture and laboratory, collection and interpretation of chemical data, instrumental analysis as applied to pharmaceutical quality control, separation techniques.

4418 Product Development 3 cr.
Application of pharmacological and physiological principles to formulation and design of pharmaceutical dosage forms.

4419 Product Development Continuation 3 cr.

4422 Advanced Pharmacometrics and Biopharmaceutics 2 cr.
Advanced treatment of selected topics in pharmacometrics and biopharmaceutics. Prerequisites: 4416, 4417.

4431 Pharmacy Seminar 4-5 cr.
Seminars and resource areas in research being conducted in pharmaceutical sciences. Required of all pharmacy graduate students. May be repeated.

4432 Pharmacy Research 3 cr.

4433 Physical Pharmacy Continuation 4 cr.
Prerequisite: 4410.

Undergraduate Medicinal Chemistry: Natural Products

4402 Non-Prescription Drugs 2 cr.
Consumer-oriented information including nonprescription drugs and other pharmacologically active substances, open to regular pharmacy students. Prerequisite: Open to pharmacy students only with pharmacist bases.

4411 Medicinal Chemistry: Natural Products I 4 cr.
First semester of a three-semester sequence; lectures and laboratory on organic and bioorganic medicinal and non-medicinal natural products, with emphasis on their physical and chemical properties, as they relate to medicinal and therapeutic effects, including biochemical and toxicologic aspects, drug metabolism, and pharmacokinetics. Prerequisites: 4410, 4412 or equivalent, and 4117 or equivalent.

4412 Medicinal Chemistry: Natural Products II 4 cr.
Continuation of 4411, which is prerequisite.

4413 Medicinal Chemistry: Natural Products III 4 cr.
Continuation of 4412, which is prerequisite.

4415 Medicinal Chemistry: Natural Products IV 4 cr.
Continuation of 4413, which is prerequisite.

4416 Medicinal Chemistry: Natural Products V 4 cr.
Continuation of 4414, which is prerequisite.

4417 Medicinal Chemistry: Natural Products VI 4 cr.
Continuation of 4415, which is prerequisite.

4418 Medicinal Chemistry: Natural Products VII 4 cr.
Continuation of 4416, which is prerequisite.

4419 Medicinal Chemistry: Natural Products VIII 4 cr.
Continuation of 4417, which is prerequisite.

Graduate Medicinal Chemistry: Natural Products

4420 Synthetic Strategy in Medicinal Chemistry 3 cr.
Synthesis and application of chemical methods of special relevance to medicinal and drug design.

4425 Medicinal Chemistry and Chemical Analysis 3 cr.
Basic concepts of combinatorial analysis, selected reactions of medicinal chemistry, and the design and synthesis of biologically active molecules.

4426 Spectroscopic Instrumentation 3 cr.
Spectroscopic instrumentation techniques: ultraviolet, infrared, mass spectrometry, radioactivity, nuclear magnetic resonance, chromatography, and mass spectrometry data collection, correlation of data, and its application to medicinal and chemical research.

4427 Medicinal Chemistry of Medications 3 cr.
Spectroscopic methods are used, and reactions are studied in a variety of chemical and medicinal preparations. Drug and medicinal product transformations, mechanism of action, resistance and tolerance, and other relevant aspects.

4428 Medicinal Chemistry of Medications II 3 cr.
Spectroscopic methods are used, and reactions are studied in a variety of chemical and medicinal preparations. Drug and medicinal product transformations, mechanism of action, resistance and tolerance, and other relevant aspects.

4429 Medicinal Chemistry of Medications III 3 cr.
Spectroscopic methods are used, and reactions are studied in a variety of chemical and medicinal preparations. Drug and medicinal product transformations, mechanism of action, resistance and tolerance, and other relevant aspects.

4430 Medicinal Chemistry of Medications IV 3 cr.
Spectroscopic methods are used, and reactions are studied in a variety of chemical and medicinal preparations. Drug and medicinal product transformations, mechanism of action, resistance and tolerance, and other relevant aspects.

4431 Medicinal Chemistry of Medications V 3 cr.
Spectroscopic methods are used, and reactions are studied in a variety of chemical and medicinal preparations. Drug and medicinal product transformations, mechanism of action, resistance and tolerance, and other relevant aspects.

4432 Medicinal Chemistry of Medications VI 3 cr.
Spectroscopic methods are used, and reactions are studied in a variety of chemical and medicinal preparations. Drug and medicinal product transformations, mechanism of action, resistance and tolerance, and other relevant aspects.

4433 Medicinal Chemistry of Medications VII 3 cr.
Spectroscopic methods are used, and reactions are studied in a variety of chemical and medicinal preparations. Drug and medicinal product transformations, mechanism of action, resistance and tolerance, and other relevant aspects.

4434 Medicinal Chemistry of Medications VIII 3 cr.
Spectroscopic methods are used, and reactions are studied in a variety of chemical and medicinal preparations. Drug and medicinal product transformations, mechanism of action, resistance and tolerance, and other relevant aspects.

4435 Medicinal Chemistry of Medications IX 3 cr.
Spectroscopic methods are used, and reactions are studied in a variety of chemical and medicinal preparations. Drug and medicinal product transformations, mechanism of action, resistance and tolerance, and other relevant aspects.

4436 Medicinal Chemistry of Medications X 3 cr.
Spectroscopic methods are used, and reactions are studied in a variety of chemical and medicinal preparations. Drug and medicinal product transformations, mechanism of action, resistance and tolerance, and other relevant aspects.
4321 Agents of Receptor Site Theory

Applications of modern chemical theory to molecular level interactions of endogenous and exogenous substances with receptor sites, emphasizing the macromolecular interactions from current literature. Prerequisites: Biochemistry, RH 390; EQ 111 and 112; or equivalent; biochemistry or consent of instructor.

4322 Medical Chemistry Survey

Discussion of recent literature applications of modern theoretical organic chemistry to study and understanding of biological phenomena, chemical and stereoelectronic aspects of cellular processes, and chemical agents influencing cell. Prerequisite: Biochemistry, RH 390 and 111-112; or consent of instructor.

4323 Medical Chemistry: Natural Products Research

4324 Physical Pharmacology

Methods

Discussion of topics commonly employed for analysis, measuring theory, production, methods of isolation and purification, physical and chemical properties, bioavailability, methods of assay, mechanism of action, toxicity, use, chemical conversion of substances.

4325 Biophysics and Biotechnology

Biologic and biophysical pathways of normal and abnormal states, techniques for handling and storing biologic materials, emphasis on methods of isolation, including biological and physical chemical screening.

4326 Antibiotics

Discussion of most commonly employed antibiotics, governing theory, production, methods of isolation and purification, physical and chemical properties, bioavailability, methods of assay, mechanism of action, toxicity, use, chemical conversion of substances.

4327 Biophysics and Biotechnology: Molecular Methods

Mechanics of applying current ideas to biological processes. Emphasis on drawing detailed mechanism of a variety of biophysical reactions and how this approach helps in designing and understanding drugs. Prerequisites: 4129 and 111 or 112.

4328 Medical Chemistry: Natural Products Seminar

4329 Selected Topics in Medical Chemistry:

Research Seminars

Discussion of recent reports of research advances in the natural and synthetic products. Prerequisite: consent of instructor.

Undergraduate Pharmacoeconomics

4330 Pharmacoeconomics: Practice Management

Principles and practice for management of human and financial resources in pharmaceutical institutions. Emphasis on introduction to methods and development of skills appropriate to practice situations.

4331 Pharmacoeconomics: Practice Management

Overview of the U.S. health care delivery system. Emphasis on economic and political factors affecting health care delivery; the role of pharmacy and the pharmaceutical industry. Prerequisites: BI 201 or 202.

4332 Pharmaceutical Socialization: Practice Management

Principles of practice management for good management of human and financial resources in pharmaceutical institutions. Emphasis on introduction to methods and development of skills appropriate to practice situations.

4333 International Health Care Systems

Overview of legal systems in the United States, with emphasis on competition, drains, taxes, and research. Emphasis on the economic and political factors affecting health care delivery; the role of pharmacy and the pharmaceutical industry. Prerequisite: BI 201 or 202.

4334 Social Policy in Health Care

Practical problems encountered by managers of community pharmacy organizations. Emphasis on starting a community pharmacy, purchasing and distributing pharmaceutical products, and managing a closed study method. Prerequisite: Biochemistry, RH 390 or consent of instructor.

4335 Community Pharmacy Practice

Current social and economic problems affecting pharmacy practice. Prerequisite: senior standing.

4347 Introduction to Research Methods

Scientific inquiry, experimental design, data collection, and statistical methods used in the study of health and disease. Emphasis on understanding the process and evaluating published studies. Preference to students having introductory statistics. Prerequisite: consent of instructor.

4354 Communicating Skills for Pharmacists

Preparation of presentations, training, and related issues in communication between pharmacists and customers. Prerequisites: 4353 and consent of instructor.

4363 Advanced Problems in Pharmaceutical Sciences

Independent study of problems in pharmaceutical sciences, preparation of presentations, and related issues in communication between pharmacists and customers. Prerequisites: 4353 and consent of instructor.

Graduate Pharmacoeconomics

4371 Drug Development and Marketing

Pharmacoeconomics related to the development and marketing of drug products, focus on decision making of marketing pharmaceutical products. Prerequisite: consent of instructor.

4382 Pharmaceutical Economics

Economic environment of the pharmaceutical industry, all levels of the chain of drug distributors, and relevant economic theory, methods, and models in studying these environments.

4383 Hospital Pharmacy

Design and management of hospital pharmacy administrations. Prerequisites: 4353 and 111 or 112.

4384 Pharmaceutical Research and Development

Introduction to research and development in new drug development. Prerequisite: 4353 or equivalent. Treatment: TI 242.

4385 Pharmaceutical Economics Research

4386 Pharmaceutical Research and Development Methods

Scientific approaches to the solutions of problems in pharmaceutical administration, emphasis on research for design, development, and implementation. Prerequisites: 4353 or equivalent. Treatment: TI 242.

4387 Undergraduate Clinical Hospital Pharmacy

4406 Clinical Pharmacy

Regulation, administration, and implementation of the various roles of a pharmacist in patient care in a hospital setting. Prerequisites: 4353 or equivalent. Treatment: PH 119.

4407 Clinical Pharmacy: Family Practice

Elective primary care pharmacy services, including lectures and clinical practice experiences in family practice offices. Prerequisites: 4353 and 140 or standing.

4408 Clinical Pharmacy: Pediatrics

Elective, includes clinical experience in either general pediatrics or the subspecialty of allergy and clinical pharmacology. Prerequisites: 4353 and 410 or standing.

4409 Hospital Pharmacy: pharmaceutical

Elective, includes pharmacological toxicology and interpretation of drug information. Emphasis on the role of hospital pharmacy in patient care. Prerequisites: 4353 and 140 or standing.

4410 Hospital Pharmacy: pediatrics

Elective, includes pharmacological toxicology and interpretation of drug information. Emphasis on the role of hospital pharmacy in patient care. Prerequisites: 4353 and 140 or standing.

4411 Hospital Pharmacy: surgery

Elective, includes pharmacological toxicology and interpretation of drug information. Emphasis on the role of hospital pharmacy in patient care. Prerequisites: 4353 and 140 or standing.

4412 Hospital Pharmacy: Geriatrics

Elective, includes pharmacological toxicology and interpretation of drug information. Emphasis on the role of hospital pharmacy in patient care. Prerequisites: 4353 and 140 or standing.

4413 Hospital Pharmacy: Neurology

Elective, includes pharmacological toxicology and interpretation of drug information. Emphasis on the role of hospital pharmacy in patient care. Prerequisites: 4353 and 140 or standing.

4414 Hospital Pharmacy: Dentistry

Elective, includes pharmacological toxicology and interpretation of drug information. Emphasis on the role of hospital pharmacy in patient care. Prerequisites: 4353 and 140 or standing.

4415 Hospital Pharmacy: medicine

Elective, includes pharmacological toxicology and interpretation of drug information. Emphasis on the role of hospital pharmacy in patient care. Prerequisites: 4353 and 140 or standing.

4416 Clinical Pharmacy: Dentistry

Elective, includes pharmacological toxicology and interpretation of drug information. Emphasis on the role of hospital pharmacy in patient care. Prerequisites: 4353 and 140 or standing.

4417 Clinical Pharmacy: Pediatrics

Elective, includes pharmacological toxicology and interpretation of drug information. Emphasis on the role of hospital pharmacy in patient care. Prerequisites: 4353 and 140 or standing.

4418 Clinical Pharmacy: Geriatrics

Elective, includes pharmacological toxicology and interpretation of drug information. Emphasis on the role of hospital pharmacy in patient care. Prerequisites: 4353 and 140 or standing.

4419 Clinical Pharmacy: Neurology

Elective, includes pharmacological toxicology and interpretation of drug information. Emphasis on the role of hospital pharmacy in patient care. Prerequisites: 4353 and 140 or standing.

4420 Clinical Pharmacy: Dentistry

Elective, includes pharmacological toxicology and interpretation of drug information. Emphasis on the role of hospital pharmacy in patient care. Prerequisites: 4353 and 140 or standing.

4421 Clinical Pharmacy: medicine

Elective, includes pharmacological toxicology and interpretation of drug information. Emphasis on the role of hospital pharmacy in patient care. Prerequisites: 4353 and 140 or standing.

4422 Clinical Pharmacy: Pediatrics

Elective, includes pharmacological toxicology and interpretation of drug information. Emphasis on the role of hospital pharmacy in patient care. Prerequisites: 4353 and 140 or standing.

4423 Clinical Pharmacy: Geriatrics

Elective, includes pharmacological toxicology and interpretation of drug information. Emphasis on the role of hospital pharmacy in patient care. Prerequisites: 4353 and 140 or standing.

4424 Clinical Pharmacy: Neurology

Elective, includes pharmacological toxicology and interpretation of drug information. Emphasis on the role of hospital pharmacy in patient care. Prerequisites: 4353 and 140 or standing.

4425 Clinical Pharmacy: Dentistry

Elective, includes pharmacological toxicology and interpretation of drug information. Emphasis on the role of hospital pharmacy in patient care. Prerequisites: 4353 and 140 or standing.

4426 Clinical Pharmacy: medicine

Elective, includes pharmacological toxicology and interpretation of drug information. Emphasis on the role of hospital pharmacy in patient care. Prerequisites: 4353 and 140 or standing.

4427 Clinical Pharmacy: Pediatrics

Elective, includes pharmacological toxicology and interpretation of drug information. Emphasis on the role of hospital pharmacy in patient care. Prerequisites: 4353 and 140 or standing.

4428 Clinical Pharmacy: Geriatrics

Elective, includes pharmacological toxicology and interpretation of drug information. Emphasis on the role of hospital pharmacy in patient care. Prerequisites: 4353 and 140 or standing.

4429 Clinical Pharmacy: Neurology

Elective, includes pharmacological toxicology and interpretation of drug information. Emphasis on the role of hospital pharmacy in patient care. Prerequisites: 4353 and 140 or standing.

4430 Clinical Pharmacy: Dentistry

Elective, includes pharmacological toxicology and interpretation of drug information. Emphasis on the role of hospital pharmacy in patient care. Prerequisites: 4353 and 140 or standing.

4431 Clinical Pharmacy: medicine

Elective, includes pharmacological toxicology and interpretation of drug information. Emphasis on the role of hospital pharmacy in patient care. Prerequisites: 4353 and 140 or standing.

4432 Clinical Pharmacy: Pediatrics

Elective, includes pharmacological toxicology and interpretation of drug information. Emphasis on the role of hospital pharmacy in patient care. Prerequisites: 4353 and 140 or standing.

4433 Clinical Pharmacy: Geriatrics

Elective, includes pharmacological toxicology and interpretation of drug information. Emphasis on the role of hospital pharmacy in patient care. Prerequisites: 4353 and 140 or standing.

4434 Clinical Pharmacy: Neurology

Elective, includes pharmacological toxicology and interpretation of drug information. Emphasis on the role of hospital pharmacy in patient care. Prerequisites: 4353 and 140 or standing.

4435 Clinical Pharmacy: Dentistry

Elective, includes pharmacological toxicology and interpretation of drug information. Emphasis on the role of hospital pharmacy in patient care. Prerequisites: 4353 and 140 or standing.
46.105 Neurology Clerkship
Lecture and advanced clinical practice of the pharmacotherapeutics related to neurological diseases. Prerequisites: PharmD standing and consent of instructor.

46.106 Surgery Clerkship
Advanced application of therapeutic skills necessary for optimal patient care in the management of general surgery patients. Prerequisites: PharmD standing and consent of instructor.

46.117 Clinical Nuclear Pharmacy Clerkship
Advanced clinical instruction in the use of radiopharmaceuticals, radiopharmaceutical drug interactions, pharmacological intervention in nuclear medicine studies, and radiopharmaceutical drug information. Prerequisites: PharmD standing and consent of instructor.

46.118 Dental College Clerkship
Advanced clinical experience involving general and local anesthesia, conscious sedation and pain control, oral antibiotic therapy, and participation in management of medically compromised patients. Prerequisites: PharmD standing and consent of instructor.

Graduate Clinical-Hospital Pharmacy

46.119 Hospital Pharmacy Survey 1 h
Medical preclinical pharmacy relations, pharmacy committees, formulary, special aspects of hospital drug procurement, theory and practice of inventory control, drug distribution and pharmacy service, pharmacy service systems, drug utilization review, drug information services, emergency services, and pharmacy budgeting and reporting. Prerequisites: consent of instructor.

46.114 Advanced Clinical Pharmacy 2 h
Application of principles of pharmacology and therapeutics to clinical practice. Puropose of clinical pharmacology is to optimize drug therapy and to avoid improper therapy. Prerequisites: consent of instructor.

46.113 Clinical Pharmacy Drug Literature Review and Evaluation 2 h
Literature of hospital pharmacy practice, including clinical aspects. Emphasis on techniques of evaluating drug literature with reference to accuracy of information, practicality of recommendations, cost-effectiveness, and available drug resources. Prerequisites: consent of instructor.

46.304 Hospital Pharmacy Fellowships 3 h
Theory and applications in preparation, packaging and testing of parenteral dosage forms.

46.301 Nuclear Pharmacy 2 h
Design, operation and evaluation of radiopharmaceuticals; radiation safety, education, pharmaceutical subjects and principles, administrative and managerial functions in nuclear pharmacy services; radiopharmaceuticals and drug information. Prerequisites: consent of instructor.

46.242 Global Pharmacotherapeutics 3 h
Contemporary pharmacotherapeutics in selected disease states, discussions on current trends emphasizing individualization of drug regimens, relative efficacy, and risks of drug therapy. Prerequisites: 46-112 or consent of instructor.

46.243 Clinical-Hospital Pharmacy Seminar 1-2 h
Topics of current interest in the specialty of clinical and hospital pharmacy. May be repeated.

46.244 Clinical-Hospital Pharmacy Research 1-5 h

46.245 Hospital Pharmacy Directed Study in Administrative Problems 1-5 h
Application of basic organizational and administrative theory to practical problems in hospital pharmacy. Prerequisites: 46-112 and 46-116 or equivalent.
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 Iowa training departments and colleges of the University by bringing the University generally into direct contact with the citizen." 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: Counselor 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 $30 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 in various locations across Iowa, where they may be served for those students who are unable to attend on-campus classes and at the request of public school officials, or where educational, industrial, or other qualified groups indicate a specific need for educational services. Courses offered in engineering are scheduled on a non-credit basis; courses in liberal arts, business administration, nursing, and education require 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 unclassified 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.A.S.) degree is designed to serve adults who cannot attend 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 multimedia 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 noncredit 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 summer and winter sessions are offered in a variety of 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. The University’s continuing education programs are available on campus and in the University of Iowa Alumni Association’s Continuing Education Unit program.

Adult Education Noncredit Program

This open enrollment program provides a wide variety of noncredit short-course and workshop series. Courses are normally conducted at the Iowa Memorial Union during afternoons and evenings hours by University-affiliated instructors. Continuing education units may be awarded by successful completion. For current offerings, contact the Center for Conferences and Institutes.

Radio Broadcasting Services

WDBU/KBU 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), WSUI contributes program materials to a national network of more than 250 non-commercial radio stations. The main studios and offices are located in 3320 Engineering Building, and a few copy of the Studios’ Program Guide may be obtained by writing to its address.

Institute of Public Affairs

The mission of the institute is to help state, county, and local governments in Iowa by serving as the primary research and continuing education link between the University and those governments. Services of the institute are available to state and local government agencies and to citizens interested in civic affairs.

The institute has a full-time research and training staff. Through the institute, other resources of the University are made available 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 variety 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, provides a liaison office between the University and Iowa’s community and vocational-technical colleges. In addition, it also provides articulation and student services, OCCA extends its services to the private two- and four-year colleges in the state. The office serves these educational systems and their respective personnel in these ways:

- Provides a liaison service between the University and the statewide professional groups and associations, as well as selected regional and national organizations; conducts relevant research on community colleges and disseminates descriptive data reports to the community colleges;
- Facilitates University-community college faculty reassignments;
- Coordinates articulation of University-Community college institutional policy and curricula;
- Provides in-service training and development opportunities for community college personnel, and assists the College of Education and other University colleges and departments in providing professional programs for community college personnel leading to state certification;
- Participates in state, regional, and national approval, accreditation, and consultation activities;
- Provides regular informal consultation and services for specialized groups of community college personnel and students;
- Provides peer counseling outreach programs to prospective community college transfer students who enroll in the University.

Iowa Lakeside Laboratory

The Division of Continuing Education has general administrative supervisory 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-around research are available. For information, write to the Division of Continuing Education.

Macbride Field Campus

The University hosts a lease from the U.S. Army Corps of Engineers on two tracts of land in the Corvallis Reserve area north of Iowa 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 storage facilities, a boathouse and sailing facilities, field archery course, facilities for handicapped persons, and picnic areas. A small nature lodge is available to school groups.
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, filmsstrips, 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, filmsstrip, opaque, and overhead projectors; portable projection screens; audio tape recorders, record players, portable public-address systems; and display devices (exhibits, naps, 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 AV equipment.

Media Production

Professional services, 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 picture—scripts, cinematography, and editing

Photography—portraits, passesports, slide shows, 16mm color, 35mm slides, duplication, printing and processing services

Television—video production, color and black-and-white (1-inch, 2-inch, and cassette); systems design, equipment maintenance; portable 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 needed, 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.
Administrative Officers

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 Dutten, Des Moines
Penny G. Harris, Cedar Rapids
Ann Jorgensen, Garrison
John McDonald, Dallas Center
June Murphy, Des Moines
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University Hospital School
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Director: Hanley 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
The following persons hold University of Iowa faculty appointments with the rank of instructor, assistant professor, associate professor, or professor, as of July 1, 1954. In this listing, the year of first appointment follows the departmental identification, and the year of present appointment is given in parentheses.

Academic Personnel


Alexander, Robert L., B.A. Queens 1942, A.M. New York 1942, Ph.D. 1951; professor; School of Art and Art History, 1951 (1950)

Alexander, Sammam J., M.B.B.S. Chir. Medical School (India) 1965, clinical assistant professor; Internal Medicine, 1979 (1962)

Al-Jaff, Abdelaziz, M.D. B.C.S. Cairo (Egypt) 1969; associate professor; Surgery, 1977 (1977)


Alley, Louis E., B.S. Central Illinois State Teachers 1933, M.S. Wisconsin 1941, Ph.D. 1947; professor; Department of Physical Education, 1942 (1962)


Altman, Catherine F., B.A. Grinnell 1950, M.S.W. Iowa 1975; associate professor; School of Social Work, 1992


Arnold, Dwight T., B.A. State Teachers 1929, M.S. E.S.S. Iowa 1935; associate professor; Computer Science and Computer Engineering, 1982 (1983)

Armato, William L., B.S. Purdue 1951; professor; School of Music, 1987 (1976)

Arms, Raymond H., B.S. Iowa 1972; associate professor; School of Journalism and Mass Communication, 1972 (1982)


Arnold, Dwight T., B.A. State Teachers 1929, M.S. E.S.S. Iowa 1935; associate professor; Computer Science and Computer Engineering, 1982 (1983)

Armato, William L., B.S. Purdue 1951; professor; School of Music, 1987 (1976)

Arms, Raymond H., B.S. Iowa 1972; associate professor; School of Journalism and Mass Communication, 1972 (1982)


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 as 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. This classification shall be based upon information furnished by the student in an application, registration, or designated person, and is subject to review only if written documents, affidavits, verifications, or other evidence deemed necessary to determine the domicile of a student. The court 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 intent. Classifications are based on the presumption that a person's true, fixed, permanent home and place of habitation is the place to which he or she returns whenever the person is absent. The person has the intention of resuming.

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 whose domicile is elsewhere. A student shall not be considered domiciled in Iowa unless the student is in continuous physical residence in this state and intends to make a permanent home in Iowa.

d. A person who comes to Iowa from another state and enters 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 an Iowa domicile established.

e. The following facts and circumstances, among others not necessarily contained, have positive value in support of a claim for resident classification: (1) residence in Iowa for twelve consecutive months, and be primarily in activities other than those of a full-time student, immediately prior to the beginning of the term for which resident classification is sought. (2) Relation upon Iowa sources for financial support. (3) Domicile in Iowa of person's legal residence. (4) Person's legal residence is in the state in which maintenance of domicile was shown in absence. (5) Ownership of a home in Iowa. (6) Admission to a licensed residential educational program in Iowa. (7) Acceptance of an offer of permanent employment in Iowa. (8) Continuous presence in Iowa during semester when not enrolled in school. Other factors indicating an intent to make Iowa the student's permanent home may be considered by the universities in classifying the student.

1. The following circumstances, standing alone, do not constitute sufficient evidence of domicile to affect classification of a student as a resident student: (1) Voting in Iowa or registration for voting. (2) Employment in any position normally held by a student. (3) The status of living quarters. (4) The nature of the employment. (5) Other public records, for example, birth and marriage records, Iowa driver's licenses.

1.4(2) Facts
a. A person who is moved into the state as the result of military or civil orders from the government for other than educational purposes is entitled to resident status. However, if the arrival of the person under orders subsequent to the beginning of the term in which the person is first enrolled, nonresident tuition will be charged in all cases until the beginning of the next term in which the student is enrolled.

b. A person or the dependent of a person whose entire legal domicile is Iowa who have been classified as a resident for tuition purposes may continue to be classified as a resident for tuition purposes, even though such domicile is maintained, even though circumstances may require extended absence of said person from the state. It is required that the student or the person is in Iowa domicile with the intent to return to Iowa domicile. (2) He or she has maintained a continuous voting record in Iowa, and (3) he or she has filed regular Iowa resident income tax returns during absence from the state.

c. Ownership of property in Iowa, or the payment of Iowa taxes, does not in itself establish domicile.

d. A student who submits false or incomplete information to establish domicile status in Iowa shall be subject to disciplinary action and must also pay the nonresident fee for each term attended.

e. An alien who has an immigration visa may establish Iowa domicile in the same manner as a United States citizen.

1. A person who has been certified as a refugee by the appropriate agency of the United States government who enters in a school at a university governed by the Iowa state board of regents may be accorded immediate resident status for tuition purposes where he or she: (1) Comes directly to Iowa from a refugee facility or part of dependency; or (2) Has resided in another state for 100 days or less, and (3) Provides satisfactory documentation that he or she has an Iowa sponsor.

Any refugee not meeting these standards will be presumed to be a nonresident for tuition purposes and thus subject to the unaided proof of method of proof of establishment of an Iowa domicile.
1.4(4) Review committee

These regulations shall be administered by the registrar or someone designated by the registrar. The decision of the registrar or committee may be appealed to the Iowa State board of regents.

270—1.5(262) Registration and transcripts—general

A person may not be permitted to register for a course or courses at a state board of regents institution until any delinquent accounts owed by the person to an institution for which an institution acts as fiscal agent has been paid.

A state board of regents institution may not issue an official transcript 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.

Admission Rules
Common to the Three State Universities

270—1.2(262) Admission of undergraduate students directly from high school

Students desiring admission must meet the requirements in this section and also any special requirements for the curriculum, school, or college of their choice.

Applicants must submit a formal application for admission, together with a $100.00 application fee, and have their secondary school provide a transcript of their academic record, including 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 first language is not English. Applicants may be required to submit additional information or data to support their applications.

1.3(1) Graduates of approved Iowa high schools who have the subject matter background as recommended by each university and who rank in the upper one-half of their graduating class will be admitted. Applicants who are not in the upper one-half of their graduating class may, after a review of their academic record, at the discretion of the admissions officer:

be admitted unconditionally,
be admitted conditionally,
be required to enroll for a trial period during a succeeding summer session, or be denied admission.

1.3(2) Graduates of accredited high schools in other states

Graduates of accredited high schools in other states may be held to the same standards as graduates of Iowa high schools. The options for conditional admission or summer trial enrollment may not necessarily be offered to these students.

1.3(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.

1.3(4) Applicants who are not high school graduates

Applicants who are not high school graduates, but who have graduated from an institution of higher learning, will be admitted on an individual basis, for part-time university study while enrolled in high school or during the summers prior to high school graduation.

In rare situations, exceptional students may be admitted as full-time students or as a guest student in a state university before completing high school. Early admission to a state university is provided to serve persons whose academic achievement and personal and intellectual maturity clearly support readiness for college-level study. Each university will specify requirements and conditions for early admission.

270—1.2(262) Admission of undergraduate students by transfer from other schools

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 may be admitted unconditionally, after a formal application for admission, together with a $100.00 application fee, and certification that each college they have attended send an official transcript of record to the admissions office. High school academic records, high school graduation records, and other records may also be required. Each university will specify requirements and conditions for early admission.

1.2(1) Transfer applicants

Transfer applicants with a minimum of twelve semester hours of grade credit from regionally accredited colleges or universities, who have maintained a C average (2.00 based on an A grade being 4 points) for all college work previously attempted, will be admitted. Higher academic standards may be required of students who are not residents of Iowa.

Applicants who have not maintained a C average or who are under academic suspension from the last college attended may, after a review of their academic and test records, and at the discretion of the admissions officer:

be admitted unconditionally,
be admitted conditionally,
be required to enroll for a trial period during a succeeding summer session, or be denied admission.

1.2(2) Graduates of accredited high schools in other states

Graduates of accredited high schools in other states may be held to the same standards as graduates of Iowa high schools. The options for conditional admission or summer trial enrollment may not necessarily be offered to these students.
1.2(2) Admission of students with fewer than twelve semester hours of 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.

1.2(3) 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.

1.2(4) Transfer applicants to 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 records.

720—1.3(262) Transfer credit practice

The regent 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 the Council on Postsecondary Accreditation (COAPA). The Transfer Credit Practice of Selected Educational Institutions, published by the American Association of Collegiate Registrars and Admissions Officers (AACRAO), and the Council on Postsecondary Accreditation (COAPA) are examples of referenced use by the universities in determining transfer credit. The acceptance and use of transfer credit is subject to limitations in accordance with the educational objectives of the University.

1.3(1) Students from regionally accredited colleges and universities
Credit earned at regionally accredited colleges and universities is acceptable for transfer except that credit in courses determined by the receiving university to be of a remedial, vocational, or technical nature, or in courses or programs in which the institution granting the credit is not directly involved, may not be accepted, or may be accepted by a limited extent.

Transfer credit from a two-year college will not reduce the minimum number of credit hours required to complete a baccalaureate degree if the credit is earned after the total number of credit hours accumulated by the student at all institutions attended exceeds one-half of the number of credit hours required for that degree.

1.3(2) Students from colleges and universities which have candidate status
Credit earned at colleges and universities which have become candidates for accreditation by a regional association is acceptable for transfer in a manner similar to that from regionally accredited colleges and universities if the credit is applicable to the bachelor's degree at the receiving university.

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 admitted after an interview and an evaluation by satisfactory academic study in residence, or by examination. Each university will specify the amount of the transfer credit and the terms of the validation processes or the time of admission.

In determining the acceptability of transfer credit from private colleges in Iowa which do not have regional accreditation, the regent committee on educational relations, upon request from the institutions, evaluates the nature and standards of the academic program, faculty, student records, library and laboratories.

In reviewing the acceptability of transfer credit from colleges in states other than Iowa which are not regionally accredited, acceptance practices indicated in the current issue of Transfer Credit Practice of Selected Educational Institutions will be used as a guide. For instructions not listed in the publications, guidance is requested from the designated reporting institution of the appropriate state.

1.3(4) Students from foreign colleges and universities
Transfer credit from foreign educational institutions may be granted if a statement of equivalent education is submitted and after an evaluation of the content, level, and comparability of the study to courses and programs at the receiving university. Credit may be granted in specific courses but is frequently assigned to general areas of study. Extensive use is made of profession journals and references which describe the educational systems and programs of individual countries.

Supplemental Specific Rules for 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 registration card, and other supporting material as required by the director of admissions. Students may not be registered until they have been issued an admission statement by the director of admissions.

720—2.2(262) College of Business Administration

2.1(1) Application for admission
Applications for admission to the College of Business Administration shall be submitted to the director of admissions.

Applicants are urged to apply as early as possible, since time is needed to process the admissions information. Some students may be eligible for immediate admission.

Applicants should be aware that the minimum requirements for admission to the College of Business Administration are the same as those for admission to any of the University of Iowa colleges. Closing dates for receiving applications will be announced in advance of the opening date of any session.

2.1(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 2.75 on a 4.0 scale at the University of Iowa, and on all courses undertaken in business and economics.

Applications from students with minor deficiencies in meeting grade-point average requirements may be accepted if the student can demonstrate by the admissions committee of the college, and upon favorable recommendation of the college, that such student may qualify for probationary admission.

Fullment of the minimal requirements listed above, however, does not assure admission to the College of Business Administration. From this point, the student is expected to consult with the college's admissions committee to develop a plan which, if followed, will be consistent with his educational plans.

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 College of Dentistry, 3500 Kenyon Road, Iowa City, Iowa 52242.

Applicants are urged to apply as early as possible, since this will give the admissions committee more time to devote to each applicant. Closing dates for receiving applications will be announced in advance of the opening date of any session.

Applicants for admission to dentistry are encouraged to complete a program leading to a baccalaureate degree before entering dentistry. Applicants for admission must have completed or be planning to complete a baccalaureate degree upon the completion of the freshman year in their undergraduate program.

Applicants for admission to dentistry are encouraged to complete a program leading to a baccalaureate degree before entering dentistry. Applicants for admission must have completed or be planning to complete a baccalaureate degree upon the completion of the freshman year in their undergraduate program.

Each applicant must place on file in the office of the director of admissions the following:

a. An official transcript of all high school and college work done.

b. A college application form and a official transcript from each college attended.

The college work outlined below will suffice to meet the minimal academic requirements for admission to the College of Dentistry.

The college curriculum must include at least three academic years of accredited work comprising at least 50 semester hours and including specific required science courses as specified by the faculty of the college.
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 to science majors it is based upon the University of Iowa's marking system in which a grade of 'A' is equivalent to four points. Other marking systems will be evaluated by the office of admissions and the committee on 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 the 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, applications for admission to the College of Dentistry are urged to be completed by the applicant by March 1 of the year in which they would like to begin their studies in September of the following year.

Accepted applicants are required to notify the college in writing of their acceptance of the offer of admission. The applicant has until June 30 to accept the offer of admission but is not required to notify the college of their decision until after completion of the college entrance examinations. If the applicant fails to make the decision within the time limit the offer of admission is withdrawn.

Applicants accepted for admission are required to submit a statement of medical fitness on their own and must be free from any communicable disease or condition. All applicants must be free from any communicable disease or condition that may be a public health or occupational hazard to the University student health service within the University of Iowa community.

Address all inquiries regarding admission to the Director of Admissions, The University of Iowa, Iowa City, Iowa. College admittance officers are charged with the responsibility of evaluating the academic strength of the secondary school record of the applicant. In the selection of students with high school records, rank in class, scores on standardized tests, and certification of high school graduation. The applicant must also submit any other evidence such as a certificate of health that may be required by the University.

Each applicant must have obtained satisfactory scores on the University's required admission examinations, maintained a satisfactory cumulative grade-point average, achieved satisfactory rank in grading classes, and successfully completed prerequisite courses. The University with the approval of the Board of Regents shall establish minimum standards for admission to the College of Dentistry. The University reserves the right to establish the requirements for admission to the College of Dentistry. Among the variables that will be determined are test scores, grade-point average, class rank, and premedical requirements. These specific determinations will be published in the University Catalogue.

Applications from students who do not meet minimum admission requirements, the director of the College, or the appropriate department head may conduct an interview to determine whether to admit the student to the fall or winter preceding the fall in which the student plans to enter.

The admissions application will be reviewed by a committee of faculty members. The committee will consider factors such as the applicant's background, the student's potential for success in the College of Dentistry, and the student's overall fitness to enter the College of Dentistry.

To be considered for admission, an applicant should have obtained a cumulative grade-point average of at least 2.5 on all college work undertaken. The grade-point average is based upon the University of Iowa's marking system in which a grade of 'A' is equivalent to four points. Other marking systems will be evaluated by the office of admissions.

Applicants for admission must present a baccalaureate degree from an approved college or university prior to commencement of the College of Dentistry.

Each applicant for admission must take the Law School Admissions Test administered by the Education 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 have to take the test in the fall or winter preceding the fall in which the student plans to enter.

Except upon showing acceptable reasons, the admissions committee will not consider applications from students who fail to take the test prior to the June 1 deadline for the fall semester in which they wish to enter.

Fulfillment of the specific requirements for admission listed above does not constitute admission to the College of Dentistry. From the applicants meeting the minimum requirements, the admissions committee will select those applicants who, in their judgment, appear to be qualified for the study and practice of law. The law admissions committee may require personal interviews of applicants.

2.73 Admission with advanced standing

A student transfer may be eligible for admission if the student has attended a school of law of another University or the American Law Schools. (P) is good standing at the institution of the previous school. The student must be received by a letter from the dean of the school from which transferring. (P) meets the admission requirements for beginning students, and (P) has a satisfactory academic record. The student must satisfy the requirements for admission to the College of Law. The candidate must have completed at least one year of full-time study, have an advanced standing, and be permitted only in exceptional cases. Applicants for admission with advanced standing must comply with the procedures required for admission to the two-year course.

720—2.8(262) College of Law

2.8(1) Application for admission

Address all inquiries regarding admission to the Director of Admissions, The University of Iowa, Iowa City, Iowa. Applications are reviewed by the Director of Admissions. The applicant's high school record, rank in class, scores on standardized tests, and certification of high school graduation. The applicant must also submit any other evidence such as a certificate of health that may be required by the University.

Each applicant must have obtained satisfactory scores on the University's required admission examinations, maintained a satisfactory cumulative grade-point average, achieved satisfactory rank in grading classes, and successfully completed prerequisite courses. The University with the approval of the Board of Regents shall establish minimum standards for admission to the College of Dentistry. Among the variables that will be determined are test scores, grade-point average, class rank, and premedical requirements. These specific determinations will be published in the University Catalogue.

Applications from students who do not meet minimum admission requirements, the director of the College, or the appropriate department head may conduct an interview to determine whether to admit the student to the fall or winter preceding the fall in which the student plans to enter.

The admissions application will be reviewed by a committee of faculty members. The committee will consider factors such as the applicant's background, the student's potential for success in the College of Dentistry, and the student's overall fitness to enter the College of Dentistry.
b. Have completed three years of a combined baccalaureate-medicine 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 last year in medicine. The course leading to the degree of Bachelor of Science in 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 are not required to take any college courses five or more years prior to applying admission in the 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 those entering the medical profession. In the selection of applicants, preference will be given to those who give evidence of having obtained such a broad education.

To be considered for admission, an applicant must have attained a grade-point average of at least 2.5 for all college work undertaken. As the quality of work in premedical science is very basic to success in medicine, special attention will be given by the admissions committee to grade point average. Grade point average is based upon The University of Iowa's ranking 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 after consultation with the medical faculty.

Preference will be given to applicants with high grade-point standing who are residents of Iowa, and consideration will also be given to individuals from non-competitive states. However, admission for an applicant who is not a resident of Iowa does not require the candidate to take the medical college admissions test which is administered by the Association of American Medical Colleges. All applicants are required to complete this test in May or October of the year preceding that for which they are applying for admission. Students may arrange to apply for the examination through the regular university examination service, The University of Iowa.

Personal interviews will be required. Applicants will be contacted for the appointment for required interviews.

Applicants accepted for admission are required to submit a satisfactory physical examination report from the Student Health Service within two weeks following notification of acceptance.

All applicants must also complete, through School of Health Administration, the dental and successful vaccination against smallpox prior to registration. 2.8(2) Admission to advanced standing

If their work preparatory to entering a college of medicine would have met entrance requirements of the college, students from other approved medical colleges may be admitted to advanced standing according to the following conditions:

Only applicants or high scholastic standing will be considered. They must present certificates showing that they have satisfactorily completed courses equivalent to those already pursued by the class they wish to enter.

The committee on admission to advanced standing will declare of each candidate from the dean or registrar of the college from which the applicant comes, whether the amount of time the student has spent in the study of medicine, the courses taken, and the grades received, together with a statement of the work preparatory to entering 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 department of the college 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.

2.9—2.9(262) College of Nursing

Applications for admission to the College of Nursing should be submitted to the Director of Admissions. The University of Iowa, Iowa City, Iowa. Applicants for admission to the undergraduate program in nursing must present a record of at least one semester of college work completed in an accredited college. For admission to the College of Nursing an applicant must have:

1. Completed one year of college work as prescribed by the faculty of the college.
2. Passed the College of Nursing entrance examination.
3. Completed the College of Nursing Tests.
4. Performed satisfactorily on all courses under consideration.

Applications from students who have minor deficiencies in meeting grade-point requirements specified in the catalog of the college will be considered 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 minimum requirements listed above, however, does not assure admission to the College of Nursing. From those applicants who meet the minimum requirements, the admissions committee will select the candidate whose new judgment, appear to be best qualified.
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), 1.22(52) and 1.30(52).

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.
For information about the admission requirements, degree requirements, and collegiate policies of the respective colleges, see their pages: Liberal Arts, 39-427; Business Administration, 209-243; Dentistry, 244-256; Education, 259-296; Engineering, 297-324; Graduate, 325-337; Law, 338-341; Medicine, 342-379; Nursing, 380-394; Pharmacy, 385-390

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