# University Calendar

## First Semester

<table>
<thead>
<tr>
<th>Event</th>
<th>1984-85</th>
<th>1985-86</th>
</tr>
</thead>
<tbody>
<tr>
<td>Registration begins</td>
<td>August 27</td>
<td>August 25</td>
</tr>
<tr>
<td>Classes begin</td>
<td>August 29</td>
<td>August 28</td>
</tr>
<tr>
<td>University holiday</td>
<td>September 3</td>
<td>September 2</td>
</tr>
<tr>
<td>Homecoming</td>
<td>September 29</td>
<td>October 5</td>
</tr>
<tr>
<td>Thanksgiving recess</td>
<td>November 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 2</td>
</tr>
<tr>
<td>Classes end</td>
<td>December 14</td>
<td>December 13</td>
</tr>
<tr>
<td>Examination Week</td>
<td>December 17-21</td>
<td>December 16-20</td>
</tr>
<tr>
<td>Commencement</td>
<td>December 22</td>
<td>December 21</td>
</tr>
<tr>
<td>University holidays</td>
<td>December 24-25</td>
<td>December 24-25</td>
</tr>
<tr>
<td>University holiday</td>
<td>January 1</td>
<td>January 1</td>
</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>
</tr>
<tr>
<td>Classes begin</td>
<td>January 21</td>
<td>January 20</td>
</tr>
<tr>
<td>Foundation Day</td>
<td>February 25</td>
<td>February 26</td>
</tr>
<tr>
<td>Spring vacation begins</td>
<td>March 25</td>
<td>March 22</td>
</tr>
<tr>
<td>Saturday classes only meet</td>
<td>March 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>
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</tr>
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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>
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General Information

The University of Iowa is one of Iowa's three state universities. The core of the University is the College of Liberal Arts. Within the college there are seven schools: Art and Art History, Journalism and Mass Communication, Letters, Library and Information Science, Music, Religion, and Social Work. The College of Liberal Arts is closely linked with the professional colleges of Business Administration, Dentistry, Education, Engineering, Law, Medicine, Nursing, and Pharmacy, and with the Graduate College, all located on a single campus in Iowa City. Some faculty members from the University's professional colleges also teach undergraduate classes in the College of Liberal Arts, including a number of interdisciplinary courses. Total University enrollment during 1983-84 was about 26,599 students.

Founded on February 25, 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 ten of the traditional academic fields for graduate degrees in the arts and humanities. The university 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, and in graduate programs in speech, dramatic art, and communications. In the past few years, its writers workshops have been 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, and in graduate programs in speech, dramatic art, and communications. The location of the university is important in the development of the arts and humanities.

The UI faculty includes some 1,600 full-time members, many of whom have established national and international reputations. Their effectiveness as teachers is enhanced by their involvement in scholarly and scientific research. The University seeks to foster faculty vitality by maintaining a healthy balance between teaching and research, and between undergraduate and graduate or professional instruction.

The University's undergraduate enrollment is about evenly divided between men and women students. Approximately three out of four undergraduates are Iowa residents. The rest are students from all over 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 aid. Most of the University's students have some form of employment. Over half 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 in-schools, conferences, workshops, and continuing education programs for professionals, to Saturday and evening classes offered off campus and credit courses taught off campus. In 1977 the University, in cooperation with Iowa's other two state universities, introduced a new Bachelor of Liberal Studies (B.L.S.) degree program geared specifically to adults who wish to earn a college degree but are unable to enroll in traditional on-campus study.

Degrees Offered

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

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

Accreditation and Associations

The University of Iowa has been accredited by the North Central Association of Colleges and Secondary Schools since the association's organization in 1913. The University is a member of the Association of American Universities. It is associated with Northwestern, Indiana, Purdue, Ohio State, and other leading universities.
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

Psychotherapy—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 one to three additional weeks for students in the Graduate College and the College of Law.

Code of Student Life

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

Human Rights

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

Student Complaints Concerning Faculty Actions

Student complaints concerning actions of faculty members are pursued first through the informal mechanism established in each college for this purpose. Although there is some variation among colleges, these mechanisms generally involve the following steps:

1. The student should first attempt to resolve the issue with the faculty member involved.
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.
4. Some colleges (Business Administration, Dentistry, Education, Engineering, Law, and Nursing) also have established ombudsperson systems as an alternative mechanism for handling faculty complaints.
5. Information concerning informal mechanisms established in a college is available in the college dean's office or College Administrative Council (CAC) office.

Policy on Sexual Harassment

Under the Regents Rules of Personal Conduct, the University of Iowa's Human Rights Policy, faculty, staff, and students have rights to be free from sexual harassment by colleagues, supervisors, and faculty members. The University does not condone actions and words which a reasonable person would regard as sexually harassing or coercive.

Individuals who feel that they have been the objects of such harassment should
advice to 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
D (1) below average but passing
F (0) failing
H honors
I incomplete
N no pass
O no grade
P passing
R audit
S satisfactory (Graduate College only)
W withdraws

"Not used in computing grade-point averages"

The College of Law uses a numeric grading system.

Recognition of High Scholastic Achievement

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

All undergraduate colleges except Pharmacy
Highest distinction highest 2% Highest distinction next highest 3% Degree
High distinction next highest 5%
Pharmacy
Highest distinction 3.75 = GPA High distinction next highest 3.50-3.74 Degree
Distinction 3.38-3.49

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 four applications to the Admissions Office and must furnish official transcripts and other supporting material as specified.

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

Application Deadlines

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

College of Liberal Arts—Ten days before classes begin—All sessions
College of Business Administration—April 1 for summer session, March 1 for fall semester, September 1 for spring semester

College of Dentistry—November 30, fall semester only
College of Engineering—Ten days before classes begin, all sessions
Graduate College—The general Graduate College deadlines; May 1 for the summer session, July 15 for the fall semester, and December 1 for the spring semester. Some departments may have earlier deadlines. Early submission of materials is advised. To be considered for graduate awards, students must apply by February 1 for the fall semester.

College of Law—March 1, summer or fall semester
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
Physician Assistant Program—January 15, summer session only
Teaching Education Program—May 1 preceding 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 semester, April 15 for fall semester, October 1 for spring semester

Please Note: The preceding deadlines are general guidelines. College deadlines, individual departments and programs may establish earlier deadlines which are indicated 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)  
Ap. x 15 for fall semester (August)  
October 1 for spring semester (January)  

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

Pharmacy  
March 1 for fall semester (August)  

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

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

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

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

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

ACT Test Scores  

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

The University of Iowa uses ACT scores for:  

- Admission—As a criterion for admitting some students unconditionally or on probation; for requiring some students to attend a probationary summer session; and for denying admission to applicants who do not meet minimal standards.  

Place—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 his or her anticipated registration.  

Applicants who have completed the tests but did not have their scores reported to the University should request this information from the College's office, American College Testing Program, Box 451, Iowa City, Iowa 52243. Further information, including testing dates and location, may be obtained from high school or college counselors, or from the ACT Program.  

Graduate and Professional College Examinations  

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

Medical Information  

The Student Health Service provides health care for the needs of registered students. A health history form must be completed by the student including all information about immunizations. Proof of immunity to measles and rubella is irreplaceable 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 registers classes all students enrolling in the University as residents or nonresidents of Iowa according to criteria established by the Iowa Board of Regents and on the basis of information provided by the student and all other relevant information. The criteria may be found under "Iowa Administrative Code: Board of Regents" at the back of the Catalog.  

Tuition and Fees  

The following is the University’s schedule of tuition and fees, per semester, for full-time students, for the academic year 1985-86. Extension courses are $50 per semester hour. Correspondence courses are $25 per semester hour. All fees are subject to the action of the State Board of Regents.  

<table>
<thead>
<tr>
<th>Category</th>
<th>Resident</th>
<th>Nonresident</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undergraduate</td>
<td>$901</td>
<td>1725</td>
</tr>
<tr>
<td>Graduate</td>
<td>736</td>
<td>1800</td>
</tr>
<tr>
<td>Dentistry</td>
<td>1410</td>
<td>3330</td>
</tr>
<tr>
<td>Law and Doctor of Pharmacy</td>
<td>800</td>
<td>2135</td>
</tr>
<tr>
<td>Medicine</td>
<td>1960</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 gymnastics; free admission to minor sports events and to student-faculty concerts and plays; reduced rates for admission to major sports events and to performances by visiting stage and concert artists; subscriptions to the student newspaper, the Daily Iowan, delivered to housing units; certain student hospital services; and other 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>Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tr>
<td>88</td>
<td>Dental hygiene</td>
<td>9</td>
</tr>
<tr>
<td>89</td>
<td>Orthodontics</td>
<td>10</td>
</tr>
<tr>
<td>90</td>
<td>Pedodontology</td>
<td>11</td>
</tr>
<tr>
<td>91</td>
<td>Periodontics</td>
<td>12</td>
</tr>
<tr>
<td>111</td>
<td>Preventive and Community Dentistry</td>
<td>13</td>
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<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>College of Education</td>
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<td>7D</td>
<td>Counseling Education</td>
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<tr>
<td>7E</td>
<td>Educational Administration</td>
<td>18</td>
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<tr>
<td>7F and 7H</td>
<td>Foundations, Postsecondary, and Continuing Education</td>
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<td>7P and 7W</td>
<td>Psychological and Quantitative Foundations</td>
<td>23A-23B</td>
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<tr>
<td>7S</td>
<td>Secondary Education</td>
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<tr>
<td>7U</td>
<td>Special Education</td>
<td>22C</td>
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<tr>
<td>7X</td>
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<td>22M</td>
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<tr>
<td>52</td>
<td>Biomedical Engineering</td>
<td>23</td>
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<td>53</td>
<td>Chemical and Materials Engineering</td>
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<td>54</td>
<td>Engineering</td>
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<td>Civil and Environmental Engineering</td>
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<td>56</td>
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<td>Bachelor of General Studies Courses</td>
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<td>Lakeside Laboratory</td>
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<td>1A</td>
<td>Fundamentals</td>
<td>35</td>
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<td>1B</td>
<td>Elements of Art</td>
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<td>Ceramics</td>
<td>36B</td>
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<td>1D</td>
<td>Design</td>
<td>36C</td>
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<tr>
<td>1E</td>
<td>Art Education</td>
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<tr>
<td>1F</td>
<td>Drawing</td>
<td>36R</td>
</tr>
<tr>
<td>1G</td>
<td>Metamershing and Jewelry</td>
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- Mathematics
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- Museum Training
- Music
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- Physical Education and Dance
- Dance
- Physics and Astronomy
- Political Science
- Psychology
- Religion
- Literature, Science, and the Arts
- Sociology
- Spanish
- Communication and The Arts
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- Communication
- Rhetorical Studies
- Dramatic Art (Theatre)
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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 in the Undergraduate Academic Advising Center. Students in professional colleges (Business, Education, Engineering, Nursing, Pharmacy, Dentistry, Law, and Medicine) are advised by the college deans or their designated representatives. Graduate students are advised by their department heads and the Graduate College dean.

In addition to academic advising, 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 placement plans, and other items of concern. They assist students who wish to change advisers and/or majors, and they also act on student complaints.

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

Campus Information Center
Located in the south lobby of the Iowa Memorial Union, the center provides information about campus and community activities and University services and operations; refers individuals 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 restaurants, 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 for special events are ongoing tasks for program advisers and students and include planning traditional events, such as Homecoming and Riverfest, as well as new campus programs.

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

University Careers Office
Placement
The University Careers Office provides job placement and related assistance for seniors and graduate students seeking employment in business, industry, government, and nonprofit agencies. Assistance includes individual consultations with advisers and
OFFICE OF COMMUNITY COLLEGE AFRS

The Office of Community College Affairs (OCCA) provides a variety of services to students transferring from community colleges. Students seeking information can contact the office whenever questions arise concerning University services and procedures, the campus environment, or particular transfer policies. Each semester, the Office of Community College Affairs conducts workshop 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 institution. In addition, OCCA develops and distributes several publications useful to transfer students. OCCA also coordinates a computerized system of information regarding course equivalencies between community college courses and those of the University. This system contains data from community college courses that have been approved by academic departments as meeting the requirements of various baccalaureate majors.

Cooperative Education

The Cooperative Education Program provides a variety of services to students who are employed half-time while being enrolled part-time. Students may choose internships as part of their academic programs. Cooperative Education internships encourage students to apply what they have learned to improve their work skills. Students must meet the eligibility requirements of their specific departments or colleges and receive faculty approval to participate. Opportunities are available to undergraduate and graduate students in a wide variety of organizations throughout the nation.

Counseling Service

The University Counseling Service provides a variety of counseling services to students. Counseling services are available to students without cost.

Dental Service

The dental clinics at the University of Iowa Dental School are primarily for educational purposes. All employees of the University and all students who are registered in the University may receive dental treatment at the college and will be accorded the same opportunity for treatment as any other patient. However, the College of Dentistry is not affiliated with the University Student Health Service and no student is covered 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 develop and improve classroom tests by providing analyses of the results of examinations, helps faculty or students prepare for examinations, and provides counseling services on examinations. The Service also 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 (GSFL), 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 Services Center. All registered students at the University, except those registered in off-campus courses, are eligible for student health care at the Student Health Clinic. There are clinics for laboratory procedures, X-rays, accident examinations, minor surgery, and some special procedures. All students are advised to have health and accident insurance. A University-sponsored group insurance is available for students in individual or family plans.

High School-College Relations

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

Intercollegiate Athletics

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 of the University Board of Trustees, one student Trustee, one University Alumnus, one representative of the University Staff Council, and two students.

Intercollegiate Athletics for Women

The University also 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 championships sponsored by the Intercollegiate Conference of Faculty.
Representatives (Big Ten Conference) and the National Collegiate Athletic Association. Scholarships are available in all ten programs to qualified student-athletes. In 1982-83 women's intercollegiate athletics was included under the university Board in Control of Athletics.

Intural Mal and
Recreational Activities

Through the University's Division of Recreational Services, all interested students have opportunities to participate in more than 20 different intramural and extramural 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 Office helps students contact study-abroad programs to complement their course-load and personal interests 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 advisors in the OIES provide information, counseling, and services in the areas of orientation, immigration regulations, financial aid, and liaison with foreign governments and study agencies. Advisers help with problems and questions in most areas except academic advising. The Office also serves as an information source or support educational programs, such as the Host Family Program, the Conversational English Program, and lunch-time 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 ticketing services, the Oues's Campus Programs and Student Activities; a coffeehouse with live entertainment; the Bijou Films; a variety of food service; a recreation area with bowling, billiards, and electronic games; an arts 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, peers, conference participants, and other visitors to the campus. Also housed in the Union are the Student Activities Center and student organization office, University Counseling Service, University Careers Office, the Office of Cooperative Education, the Center for Conferences and Invention, 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 community 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 instruction in individualized and class instruction for any University students who wish to improve their college-level reading performance. Students are given Individualized instruction 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, testing 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 12 weeks. Students may attend more or less often than they wish, and may enroll at any time during that time if they feel they need reading help. The lab service course carries no credit and does not assign a grade. Obviously, 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: 10:30 rhetoric, a one-semester, two-credit course for students who need exceptional help preparing for college-level reading and BP 20 Advanced Reading Comprehension, BP 30 Speed Reading, and BP 40 Practical College Vocabulary.

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 deep, and interning 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 freely accessible to people with disabilities. The Office for Students with Handicaps (OSH) provides services for students with both visible and non-visible disabilities. Facilities and services for students with disabilities are accommodated, including hearing and speech impairments, learning disabilities, mobility restriction, visual impairments, and others. The goal of OSH is to help students with disabilities enjoy the same rights and assume the same responsibilities as all students.

OSH works closely with University faculty and staff to ensure that students receive the maximum benefits from their experience at the University of Iowa. Assistance is provided in the areas of admissions, orientation, academic and career planning, academic support services, financial aid, housing, transportation and parking, vocational and attendant care, and health services. OSH also contacts students on an individual basis to locate the type of assistance appropriate to their needs, whether securing tutors or personal attendants or finding tape recorders or emergency toaster wheelchairs. OSH works closely with Recreational Services to provide activities ranging from picnics to bowling and basketball. Workshops on numerous topics such as career exploration and social skills are also offered by OSH.
Special Support Services

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

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

Speech and Hearing Clinic

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

Sponsored Programs

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

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

Transcripts

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

Veterans Services

The Office of Veterans Services is part of the Office of the Registrar, and serves veterans, dependents of veterans, and 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-to-one problem solving sessions; and publishes a newsletter twice a year.

The WRAC houses the Sojourner Truth Women's Resource Library of books and periodicals on a wide range of women's topics, and maintains an extensive information and referral service. For those individuals dealing with sexual discrimination and sexual harassment, WRAC acts as an advocate and provides emotional and informational support. The WRAC's Rape Victim Advocacy program provides a 24-hour crisis line for victims of rape, attempted rape, sexual assault, and incest. WRAC also maintains information and speakers bureau.

Writing Lab

The Writing Lab provides individualized writing experiences for any University student who feels inadequately prepared for college writing. Lab students discuss their work in personal conferences with teachers who offer comments and suggestions to help them become perceptive, critical readers of their own writing as they learn how to develop their ideas clearly and effectively.

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 problem 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 housing accommodations shall be available to all students on the basis of their individual merits as persons, without discrimination or exclusion on the basis of race, creed, color, or national origin.”

Iowa City has a fair housing ordinance, providing for equal opportunity to secure housing without distinction due to race, religion, national origin, or ancestry. The Iowa Civil Rights 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 partial board are available in the Great Hall Residence Halls (east side of the campus), which include Hillcrest, Quadrangle, Westfawn, South Quadrangle, Rienow, and Slater halls, and in the Clinton Street Residential 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-sponsored programs and activities provide opportunities to pursue social, recreational, cultural, and educational interests. Several camps 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 $1,614 for a single room with full board. Rates for the several residence halls and board options vary according to the accommodations available. 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 Parklawn 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, not including gas, electricity, and telephone. All units are un furnished. Rates are subject to change annually.

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

Off-Campus Housing

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

Fraternities

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

Undergraduate fraternities are Aracacia, Alpha Epsilon Pi, Beta Theta Pi, Delta Chi, Delta Tau, Delta Iota, 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 Phi Epsilon, Sigma Pi, and Tau Kappa Epsilon.

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

Sororities

The 15 national sororities with active chapter houses at Iowa are Alpha Chi Omega, Alpha Delta Pi, Alpha Phi, Alpha Xi Delta, Chi Omega, Delta Delta Delta, Delta Gamma, Delta Zeta, Gamma Phi Beta, Kappa Alpha Theta, Kappa Kappa Gamma, Pi 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 94701) or ACT Financial Aid Services (Box 1020, Iowa City, IA 52242), 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 in the University.

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

The application priority deadline is March 1.

The Presidential Scholars’ Program

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

The Iowa Center for the Arts Scholarship

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

The University of Iowa Minority Achievement Scholarship Program

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

National Merit Scholarships

The University sponsors a number of National Merit Scholarships for entering freshmen who have participated successfully in the National Merit Scholarship competition. Based on financial need, these awards range from $250 to $2,500 per year and are renewable for a four-year period.

Freshman Honor Scholarships

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

Transfer Honor Scholarships

Iowa community college students transferring to the University with a 3.0 grade-point average or above qualify for $100 Honor Scholarships.
General Scholarships
To qualify for government scholarship assistance, an entering freshman must apply for financial assistance, 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 or her high school class. An undergraduate or a transfer student must have at least a 3.0 cumulative grade-point average to qualify for an invite scholarship award, and must maintain at least a 3.0 average to continue the scholarship.

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

Pell Grants
Undergraduate students applying for University financial aid must also apply for entitlement to federal Pell Grant assistance. The United States Department of Education determines eligibility for a Pell Grant award. The maximum award is $1,200 per academic year, minus the amount of the applicant's completed family resources. 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 need. The maximum grant is $650 per academic year. There are no specific academic requirements for a SEOG award, but the applicant must show academic or creative promise and must be enrolled at least half-time. No special application is required.

National Direct Student Loans (NDSL)
The NDSL program is the University's largest source of long-term student loans. Undergraduates may borrow up to $800 a year and $8,000 overall, graduate students up to $600 a year and $12,000 overall. NDSL assistance is available to students who are citizens or permanent residents of the United States and who are enrolled at least half-time. Guaranteed Student Loans
Under the Iowa Guaranteed Student Loan Program, undergraduate students may borrow up to $2,500 a year, graduate student up to $5,000 per year. The student negotiates the loan directly with a commercial bank, credit union, savings and loan association, or other eligible lending institution, and begins repayment at 7-9 percent interest, when he or she ceases to be at least a half-time student.

Health Professions and Nursing Student Loans
These programs assist United States citizens and nationals studying full-time to be doctors of medicine or dentistry, or studying full-time toward degrees in pharmacy or nursing. Amounts available depend on federal funding. Loan recipients make repayment arrangements with the University's Student Loan Accounting Office when they graduate or terminate full-time registration. The interest rate is 9 percent on the Health Profession Loans and 8 percent on the Nursing Student Loans.

Part-Time Jobs
More than 90 percent of 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/or culturally disadvantaged students is available from the University's Department of Special Support Services. Information about financial assistance for physically handicapped students is available from the University's Office of Services for the Handicapped.

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

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

Information about Education Aid to War Orphans is available from the Iowa Bonus Board (State House, Des Moines, IA 50311).

An itemized list of the University's financial aid 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, clinics, facilities, and service programs 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 Center units and related programs are described below.

The University of Iowa Hospitals and Clinics

Deans and assistant deans are appointed to the president for statewide health services. John W. Collison

Deputy director: Clifford H. Ronge

Special assistant to the dean: Douglas R. Williamson

Senior assistant deans: Donald E. Wood, John H. Slaby

Associate deans: Mary A. Beck, Carl E. Stiff

Assistant to the dean: William H. Mauer, Gary S. Lents; Ann M. Rogers

Clinical service heads: John H. Trayer, Anesthesiology; Donald B. Olson, Dentistry; John B. Strauss, Dermatology; Richard L. Stowe, Family Practice; Francois Atherton, Internal Medicine; Monroe W. van Allen, Neurology; Roy A. Wink, Ophthalmology and Gynecology; Charles O. Phelps, Otorhinolaryngology, Dr. Reginald Cooper, Orthopedics; Brian McCann, Ophthalmology and Otorhinolaryngology; LeRoy G. Lynch, Pediatrics; Fred Smith, Pediatrics; George Wessell, Psychiatry; Edmund A. Farnan, Radiology; Robert Corp, Surgery; 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, accommodating some 40,000 admissions annually. In addition, 135 specialty clinics accommodate another 590,000 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 catheterization facilities, nuclear magnetic resonance, neonatal intensive care units—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 Air Care 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 5,600 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 170,000 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 meals and component transfusions.

Recent modernization provided new intensive care, cardiology, coronary care, and urology units. A seven-story, $15 million Boyd Tower addition went into service in 1978, providing expanded and replacement facilities for a variety of
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, Southwest Iowa Emergency Medical Services Center, Gerontology Center, Air Cargo Helicopter Service hanger and ped. pediatrics and physiology laboratories, and the Animal Research 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, analytic, training, and consulting services in bacteriology, immunology, parasitology, industrial hygiene, toxicology, physical, and radiation chemistry.

The Laboratory also provides a wide variety of services related to water, wastewater, air, and food quality monitoring and analysis; pest control and herbicide laboratory; mineral and metal analyses; and disease surveillance.

The Hygienic Laboratory serves as Iowa's primary laboratory for drinking water analyses. It is an accredited industrial hygiene laboratory. It holds an interstate license for the diagnostic services involved in blood lead screening, and is also for screening for perchlorate metabolic errors in the newborn.

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 an environmental engineering studies. In addition, the Hygienic Laboratory provides classroom and individual bench training to University students and to laboratory and medical personnel interested in learning specific laboratory procedures.
Regional Child Health Specialty Clinics

The Regional Child Health Specialty Clinics (CHSC) is an organization which administers several statewide 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 Collaborative Care Program for Hemophilia Patients, Statewide Perinatal Care Program, Immunization Screening Program, Community Child Health Center Program, and a program called Regional Mobile Health Clinics.

At Regional Mobile Health Clinics, conducted in communities throughout the state, and in 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 handstands such as muscular dystrophy, mental retardation, phenylketonuria; and subsidizes 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, art, music therapy, psychology, social work, special education, prevocational, and vocational activities.

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

Intents, 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 of the Department of Pediatrics are also housed in the University Hospital School and are utilized extensively in its research, training and service programs.

University Speech, Language, and Hearing Clinic

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

Iowa City Veterans Administration Medical Center

Medical students and residents receive much of their clinical training in this 327-bed hospital. University of Iowa Health Center facilities based here include 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 science colleges, offers unique training opportunities in clinical pharmacology, gastroenterology, cardiology, nephrology, and applied immunology.
Research Activities

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

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

The Office of the Vice-President for 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 interlocking 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 accomplishments in basic research or creative activity, one representative of the University staff, and two student members. Faculty members include two each from the physical, biological, and social sciences, and the humanities, and two from the faculty at large. The Council gives regular consideration to such matters as the establishment of general policies with respect to the University's research and creative efforts, the review of policies and procedures concerned with securing and allocating funds for support of research and creative activity, and additional matters related to the general research and creative functions of the University and the health of basic scholarship on the campus.

Programs

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

Junior Faculty Research Support

A limited amount of money is available each year from the National Institutes of Health for the support of the initial research efforts of junior faculty either in the colleges of Dentistry, Medicine, and Pharmacy who wish to do health-related research. To qualify, the faculty member must hold at least an 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; for faculty travel related to specific research projects or for the purpose of acquiring skills, knowledge, or techniques which will enhance research at the University; and for honoraria and expenses of visiting lecturers.

Services

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

Central Research Facilities

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

Electron Probe Microanalysis (EPMA) Facility

The EPMA Facility possesses instrumentation for the chemical microanalysis of solid specimens and/or bulk analysis of solid, liquid, or powdered specimens. Primary instrumentation includes an extensively updated Applied Research Laboratories EMX-5M electron microprobe X-ray analyzer with three crystal spectrometers, a SISU solid state...
RESEARCH ACTIVITIES

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detection system, an automation system and a digital beam control system. The electron beam may be scanned by analog or digital control and image modes are available for backscattered electrons, secondary electrons, sample current, transmitted electrons and characteristic X-rays. Automated image analysis is performed for the selection and chemical characterization of small objects (1-100 micrometers) in the scanned image, incorporated into 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 EMFA 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 (EM) Facility

The Electron Microscopy Facility provides instrumentation and technical assistance to research programs involving the use of scanning and transmission electron microscopy as well as X-ray microanalysis. Equipment includes a JEDOL-Jeol JSM scanning electron microscope, a Jeol 200CX transmisison electron microscope, a Jeol 2000FX SEM, a Hitachi H-600 transmission electron microscope and a Hitachi TM-1000 scanning electron microscope. The facility also maintains an Oxford Instruments X-ray microanalyzer, a Bioscan 3000 SEM, and a JEOL model JEM-2000EXII microscope, an automatic tissue processor, glass knife maker, diamond knives, ultramicrotomes (including a Reichert Ultrakut E cryo-ultramicrotome), a Zeiss digital image analysis system, vacuum evaporators, cryo drying apparatus, light microscopes, enlargers, microtomes, and equipped photographic darkrooms.

In addition to these services, the facility also provides a wide variety of services involving ultramicrotomy including specialized staining and embedding techniques, negative staining, metal coating, autoradiography, electron crystallography, chemical microscopy, 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 available.

In order to serve both the experienced and novice investigator and to provide training for those who need it, the facility is open to all faculty and students as well as visitors. Applications for TEM and SEM use are available online or in the facility office.

Flow Cytometry Facility

The Flow Cytometry Facility provides facilities, technical personnel, and consultation services to investigators studying diverse problems in cellular biology, immunology, endocrinology, histology, cell physiology, and cell kinetics. It is equipped with an advanced fluorescence-activated cell sorter (Becton-Dickinson FACSort) which is programmed for automated, high-throughput, high-speed analysis of the various instruments which are used in the field of flow cytometry. A variety of instruments are used in this facility, including a Coulter Multibead System, a FACSort, a FACSVantage, and a FACScan. The instruments are used for the detection and analysis of cell surface antigens, intracellular proteins, and DNA content.

Located in the second floor of the Chemistry-Botany Building, the Flow Cytometry 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.

Research computing centers provide a range of services to support research activities, including access to high-performance computing resources, data management and analysis services, and collaboration tools.

Computing Center

The Computing Center provides computing resources and infrastructure for research activities, including access to high-performance computing resources, data management and analysis services, and collaboration tools.

Video Center

The Video Center provides access to digital video equipment and services, including video recording and editing, video streaming, and video conferencing.

Sponsored Programs

The Division of Sponsored Programs is responsible for the management and oversight of sponsored research activities, including the development of proposals, the administration of grants, and the monitoring of project progress.

The Office of Research and Sponsored Programs is responsible for the management and oversight of sponsored research activities, including the development of proposals, the administration of grants, and the monitoring of project progress.

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

University House
University House began in 1977 as a program dedicated to three separate but related impacts: 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 a congenial, supportive setting. It is also 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 expand its activities in other educational development activities jointly pursued by faculty members from 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 common, interdisciplinary arrangements that foster the acquisition of external support for research, education, and appropriate service. University House has nearly six thousand square feet of meeting space in the Oakdale Hospital, including private offices, several conference and project rooms, and a lounge. Secretarial services are available. Located in the same building as a cafeteria, an auditorium, a large conference room, a copy center, a desk terminal connected to the Waeg Computing Center, a terminal with text-editing capabilities, 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, Biological Sciences, Engineering and Administration, and Liberal Arts, as well as the University of Iowa Hospitals and Clinics.

The Graduate Program in Hospital and Health Administration accepted 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 "Supporting 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.

Summer Research Consulting Center
See "Statistics" in the "College of Liberal Arts" section of the Catalog.

Toxicology 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.
Clinics
Child Development Clinic
Contact the Department of Pediatrics in the College of Medicine for information.

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

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

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

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

Located along the west bank of the Iowa River on the University of Iowa campus, the Iowa Center for the Arts is a major cultural resource not only for the University community, but for the people of the state and region. The center 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.E. McCabe Theatre, and Gapp 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 plays 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 1926. Major additions were made in 1968-69, greatly extending classroom and studio spaces and providing a new wing for sculpture.

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

The school’s Corborese Gallery, located in South Hall (the old Music 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 3,900 individuals and business firms contributed toward the museum’s construction cost. The museum opened in 1969 and quickly earned recognition as one of the nation’s finest university museums.

A gift from Industrialist Roy Carver of Muscatine made possible the construction of a major addition opened in 1978. 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 Stanely Collection of African Sculpture, a gift of Max and Betty Stanley 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. Mush in the Museum, a Sunday afternoon concert series; and art study trips to other cities and countries. Museum docents lead groups on guided tours of the museum’s exhibitions. Catalogs of many exhibitions are
available for purchase. Friends of the Museum of Art, a private support group, sponsors receptions, open houses, and an active Print and Drawing Study Club.

University Theatres

The University Theatre Building houses the Division of the Visual Arts and the Department of Communication and Theatre Arts. It is the home of E.C. Malie Theatre, the traditional setting for many major University Theatre productions each year. Malie 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, two additional theater spaces in other parts of the campus will greatly expand the performance range of University Theatre productions.

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

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

Studio II in the Old 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 units of the School of Music were designed for spacious, well-equipped classrooms and performance facilities. The new buildings are located near the campus center and are accessible by foot or bus. The School of Music offers a comprehensive curriculum in music performance, education, and musicology. The facilities include classrooms, practice rooms, recording studios, and a state-of-the-art recital hall. The School of Music is committed to providing a rich and diverse program of music education for all students.

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 year of existence, the auditorium hosted a variety of events, including concerts, lectures, and other cultural programs. Today, Hancher Auditorium continues to be a leading cultural center, attracting national and international performers and artists.

Theater and Dance

The University of Iowa, located in the heart of the Midwest, is home to one of the most diverse and dynamic theater and dance programs in the country. The University of Iowa Department of Theatre and Dance offers a wide range of programs and opportunities for students at all levels.

Broadcasting and Film

The Television Center at the University of Iowa is a state-of-the-art facility that serves a wide range of students and faculty. The center is equipped with the latest technology for video production, editing, and distribution.

Arts Center Outreach

Cultural projects and programs which utilize the space of the University of 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, service organizations, special community and arts groups, etc.), this program is intended to share the University of Iowa's cultural resources with as many people 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

Dance is a vibrant and dynamic art form at the University of Iowa. The Department of Theatre and Dance offers a wide range of programs and opportunities for students interested in dance. The Department of Theatre and Dance provides a supportive and creative environment for students to explore and develop their skills.

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Dance is a vibrant and dynamic art form at the University of Iowa. The Department of Theatre and Dance offers a wide range of programs and opportunities for students interested in dance. The Department of Theatre and Dance provides a supportive and creative environment for students to explore and develop their skills.
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 accomplished 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 involve all of the major publishers in the country.
General Services

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

During the academic year the clinic teaching program includes practicums in Iowa City schools and on-campus diagnosis and treatment activities conducted within the James B. Street Educational Services Center. During the summer the Clinic is in the 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 and cooperation among the various aspects of international studies—foreign language and area studies, comparative and local 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 University of Iowa departments and programs and their counterparts in foreign institutions by means of technical cooperation and faculty exchange programs.

The liaison office 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 Tozzer 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 Cabinet of Natural History, which was established in 1858 by an act of the Iowa General Assembly. It is the oldest university museum west of the Mississippi River.

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

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

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

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

Scheduled for completion in early 1985, the museum's new 5,000-square-foot Iowa Hall gallery illustrates the natural heritage of Iowa—the geology, native culture, and ecology—in a series of 60 exhibits linked by locale, theme, and time. Exhibit highlights of Iowa Hall include the Marquise-Juliet diorama, Devontian reef, Mesquakie lodge, and a life-sized reconstruction of an Ice Age grass-grown site.

Old Capitol
Old Capitol is the official landmark of the University, the Department of the Territory of Iowa from 1842 until 1846 and the capital of the State of Iowa from 1846 until 1857, when the government moved to Des Moines and gave the "old" capitol to the University as its first permanent building. Various University offices and departments have been located in Old Capitol through the years, and it housed the office of the University president continuously from 1850 to 1970, when the president's office was relocated to make way for the restoration of Old Capitol as a historic site.

Most of the rooms were restored to the 1840s and 1850s. Two rooms restored to the 1920s, to represent the University years. Old Capitol was reopened in 1976 as a "living museum." Guided tours are conducted daily without charge.

Public Information and University Relations
The Office of Public Information and University Relations exists to promote understanding of, participation in, and support of the University's mission and activities both within the University and to the general public. It tries to promote the development of an effective information program through the use of internal and external media; counsels with the University administration on matters involving public information and University relations; and provides a liaison between the central administration and appropriate University, governmental, civic, and other groups.

University public information programs are implemented through the combined efforts of OPI's individual units on campus, including those that specialize in coverage of the performing arts, the health sciences, and arts and the intercollegiate athletics, as well as general news, business, special events, and photography units. These units supply news, photos, and information to print and electronic media; gather and prepare informative material for special and general-interest publications; answer requests for information; and assist writers, photographers, and broadcasters who visit the campus.

OPI publications the general University Calendar of Events; Campus Correspondent for students' parents; the FYI newspaper for faculty and staff; Programmes for forthcoming arts activities; and Speaker for alumni and friends of the University. The department also includes the Office of State Relations, serves as the executive office of the Parents Association; operates the University Speakers Bureau; and provides campus tours and other services for University visitors and guests. In addition, OPI has management responsibility for the University Publications and the University Press.

Publications
The Department of Publications provides in-house services to meet printing and publications needs of the University. It provides in-house printing of student publications, organizations planning, editing, designing, and producing publications. Copy centers located about the campus provide quality, inexpensive copier service, including for students. The department also manages the Campus Stores, which produces and sells manuals, lab notebooks, and other unique instructional materials created by the faculty and not commercially available, and an order fulfillment unit for books and periodicals of the University. The department is responsible for University compliance with the printing regulations of Iowa, including provision for obtaining competitive bids on printing purchased outside the University.

The University of Iowa Press
The University of Iowa Press was established in 1999 and now offers significant results of original scholarly research and significant creative work in the arts. The imprint is controlled by the University Editorial Advisory Board, composed of faculty members and students appointed by the vice-president for educational development and research.

Recreational Services
The Division of Recreational Services administers a program of more than 15 intramural sports and recreational activities for all students. An intramural program is offered in such activities as martial arts, tennis, golf, yachts, aquatics, skiiing, and gymnastics; and provides informal activities for students, faculty and staff members, and their spouses and families. Activities include basketball, badminton, volleyball, table tennis, swimming, handball, paddleball, raquetball, squash, racquetball, golf, archery, weight lifting, frisbee, tennis, fencing, and jai-alai. The Division's Touch the Earth Outdoor Program includes such activities as rafting, parachute jumping, bicycle trips, backpacking, fishing, cross-country skiing, wildlife research, winter camping, kayaking, canoeing, and horseback riding. Bicycles, camping equipment, topographs, 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 students continue their identification with the University after they leave the campus is the University of Iowa Alumni Association. The association was organized in 1867 and membership includes University graduates and friends who continue to support 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 stability and growth of the State and the nation; and, through organized alumni efforts, to serve the University in strengthening its programs in teaching, research, and public service. The association publishes the Iowa Alumni Magazine and the 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 trust funds 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, nonteaching 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 it prepares and collects personnel record data for both faculty and staff employees.
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 80,000 volumes; Botany-Chemistry, 69,000; Business Administration, 22,000; Engineering, 81,000; Geology, 35,000; Health Sciences, 185,000; Library Science, 11,000; Mathematics, 34,000; Music, 62,000; Physics, 36,000; Psychology, 41,000; and Zoology, 30,000.

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

Special Resources

Main Library facilities include microfilm 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 Legh Hunt Collection, brought together by Legh Percival 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 many of his famous literary friends. The association volumes, and 600 editions of Hunt's writings.

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

The French Revolution Collection includes more than 8,000 political pamphlets, chiefly from the years 1788-1799, supplemented by numerous French newspapers and government publications of the time.

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

The "Ding" Darling Collection comprises original of nearly six thousand volumes, which, for more than 40 years, Ding recorded and commented upon 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 R. H. Bollinger Lincoln Collection, gathered by Judge James W. Bollinger of Davenport, is one of the best libraries of Lincoln's 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 Americana, Roxburghe Club Publications, private press books, and selected modern first editions.

The Manuscript Collection includes more than 10,000 individually cataloged sets or manuscript items of English and American authors or historical figures, principally of the nineteenth and twentieth centuries, in addition to more than 450 inventories of collections of papers, letters, and correspondence files relating to midwestern economic, political, and agricultural history.

Other special collections include the Harvey Pigham Collection of books written by American Indians; the Levi C. Leonard Collection of manuscripts and documents dealing with building the Union Pacific Railroad; the Hildebrandt Collection, which contains several thousand letters and business documents descriptive of the Hildebrandt movement; the Blount Collection of poetry, literature, and American history; the Swaine Collection of manuscripts and letters relating to the contemporary English poet Edmund Blunden; the Iowa Authors Collection; the Map Collection, containing more than 190,000 maps and indexed aerial photographs and nearly 3,000 street, 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 volumes 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
Davenport, Iowa.
People have many reasons for going to college. Some have specific careers in mind, while others are looking for guidance in seeking careers. Most expect that college will help prepare them for a wide variety of employment, social, and personal developments in their lives. A liberal arts education is intended to ready students for effective performance in many situations over the course of their lives after graduation. It includes both preparation in specialties and a broad exposure to other areas of learning. Through the wide study of literature and language, mathematics, the physicist, biological, and social sciences, and the arts, students may gain a general understanding of the many types of situations and people they will meet after leaving college. Although this education often includes sound preparation for specific jobs, it also enhances career flexibility by giving students broad bases for responding to changing employment opportunities. As a result, the danger that a graduate may become "locked" into a single, unsatisfactory job is reduced.

The kinds of flexibility and adaptability mentioned here are built upon an understanding of other cultures and languages, the social and political institutions in American society, communication behavior, and the philosophical and biological world about us. A liberal arts education includes something called a "general education" because students receive broad preparation for the opportunities and problems they will encounter throughout their lives. This approach to education assumes that, because we cannot now foresee all of these opportunities and problems, students are better prepared for the future if they have learned and developed abilities, awareness, sensitivities, 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 nondoartmental 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 Schools of Art and Art History and the School of Music, there are schools of Journalism and Mass Communication, Latvia, 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 undergraduates enrolled in the Colleges of Business Administration, Engineering, Nursing, and Pharmacy.

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

Liberal Arts Advisory Council

The liberal Arts Advisory Council, located in 116 Schaeffer Hall, functions as an integral part of the office of the Dean of the College of Liberal Arts. Every undergraduate student enrolled in the college has an academic advisor to help the student with registration and the progressive development of the educational program to 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-nonpass, satisfaction-fail, the second-grade-only option, deadlines for various administrative actions (such as dropping 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 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.
Italian—B.A.
Journalism and Mass Communication—B.A., B.S.
Latin—B.A.
Linguistics—B.A.
Literature, Science, and the Arts—B.A.
Mathematical Sciences—B.A., B.S.
Microbiology—B.S.
Music—B.A., B.M.
Philosophy—B.A.
Physical Education—B.A., B.S.
Physics—B.A., B.S.
Political Science—B.A., B.S.
Portuguese—B.A.
Psychology—B.A., B.S.
Recreation Education—B.S.
Religion—B.A.
Russian—B.A.
Science Education—B.A., B.S.
Social Studies—B.A.
Social Work—B.A.
Sociology—B.A., B.S.
Spanish—B.A.
Special Education—B.A., B.S.
Speech and Hearing Science—B.A., B.S.
Statistics and Actuarial Science—B.A., B.S.
Zoology—B.S.

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

Majors in Education and the Teacher Education Programs

Students may indicate a major in one of the fields of education at the time of admission or change their majors to one of these fields at any time after enrolling. In order to be allowed to enroll in the baccalaureate (major) courses in education, the student must be admitted to the Teacher Education Program (TEP) To be accepted into the TEP, a student must have attained sophomore standing (28 semester hours) and must have earned a total cumulative grade-point average of at least 2.3. Transfer students may be admitted to the TEP upon admission to the University. In order to remain in the TEP, a student must maintain a 2.3 total cumulative grade-point average. Application forms for admission to the TEP 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 "Areas of Concentration or Major" under Requirements for Graduation.

Honors Interdisciplinary Major

Honors students may pursue an individually planned major in an area of study which draws upon courses from two or more departments, as approved by the honors advisor 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 area of study, department, or program in the college outside of their major department or in another college of the University. The minor may relate directly to the student's major, or, in other cases, may allow a student to follow an entirely different and separate interest from the major. Students should seek help from their major advisors in planning minor programs.

Requirements

A minimum of 15 semester hours must be taken in the minor area. At least 12 of the 15 semester hours must be taken in upper-level courses acceptable to the academic unit granting the minor (students should check with the minor department to identify acceptable courses).

No course accepted toward the minor may be taken pass-nonpass.
A student must have at least a 2.0 grade-point average in all work attempted in the minor department.

Students must inform the Office of the Registrar of their desire to have a minor listed on their transcript at the time of 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, secondary education, and dental hygiene do not offer minors.

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

Students who earn bachelor’s degrees in interdisciplinary programs—such as ancient civilization, biology, or literature, science, and the arts—may not earn minors in areas falling within the major degree field.

Additional Comments
Some programs in the college that do not offer undergraduate degrees have been permitted by the Educational Policy Committee to offer minors. Information about program approval is available in departmental offices.

For further information about the minor programs 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 3 s.h.
- Course in statistics 3 s.h.
- (numbered 225 or higher) 3 s.h.
- 61:1-2 Principles of Economics 3 s.h.
- 61:1-2 Introduction to Financial Accounting 3 s.h.
- 61:2 Introduction to Managerial Accounting 3 s.h.
- 61:100 Introduction to Marketing 3 s.h.
- 61:100 Introductory Financial Management 3 s.h.
- 61:100 Administrative Management 3 s.h.
- 61:47 Introduction to Law 3 s.h.
- "Must be taken junior or senior year.

Students complete the remaining courses for the 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 other college sections 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 Africa.

The program prepares students for a career or further study in the social sciences, education, museum studies, and law.

Latin American Studies
Students may supplement their undergraduate majors by earning either a minor or a Latin American Studies Program. For further information about the minor program in Latin American Studies, contact the Latin American Studies Program.

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 a sense of the issues and problems and work through them. An L.S.A. major provides strong background for graduate study in an area of specialization and for the arts.
institutionsizing that knowledge within the university community. The term "women's studies" does not connote segregated education for women but emphasizes teaching and research about women which is of intrinsic interest to all students. This new academic dimension in education forms a cumulative pattern of learning about women which, in turn, supplements neglected 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 chair of the appropriate language department serves as adviser to students in preparation for the certificate. After selecting an area or country of interest, 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 requirements for the certificate will include at least six semester hours in courses designed to provide an introduction to the chosen 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 chair in consultation with the Foreign Studies Certificate with his or her major degree.

Interested students should consult the chair of the appropriate department:

Asian Languages and Literature (India, China, Japan, Korea, Thailand, Indonesia, the Philippines, Malaysia, and Vietnam)

Classics (Ancient Greece or Rome)

French and Italian (France or Italy)

German (Germany, Austria, or Switzerland)

Russian (Eastern or Eastern Europe)

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

Specializations within Degree Programs
Almost every degree-granting unit in the college offers internal specializations. Some of these are formal divisions or options within departments. For example, broadcasting is offered in the Department of Communication and Theatre Arts, actuarial science is offered in the Division of Mathematical Sciences, and fashion merchandising and dietetics are offered in the Department of Home Economics. The School of Art and Art History and the School of Music have many different tracks leading to a bachelor's degree. Some studio emphasis, art history emphasis, interior architecture, music education, music theory, composition/conducting 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 specializations with courses taken in the School of Art and Art History and the School of Journalism and Mass Communication; or a specialization in management with courses taken in the various social science departments.

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

Preprofessional (Joint) Programs
Joint programs leading toward graduation from the College of Liberal Arts may be used in combination with the University of Iowa College of Medicine, the University of Iowa College of Dentistry, and any accredited medical or dental college in the United States that offers advanced degrees. To be eligible to use a joint program with the above colleges toward a bachelor's degree from The University of Iowa, students must obtain certain requirements. Prior to attending the pre-collegiate college a student must have earned at least 84 semester hours; fulfilled all general education requirements; met the requirement for the major; and satisfied the residence requirement of the college. After the student successfully completes the first year of medical or dental school, the College of Liberal Arts will, upon presentation of a transcript, award a student 30 semester hours of ungraded elective credit that may be applied toward a degree: however, no more than 30 semester hours earned in the professional college after the student transfers from the College of Liberal Arts may be counted as electives toward a degree in the College of Liberal Arts. To use a joint program with an accredited U.S. medical or dental college other than the University of Iowa, a student, during his or her last semester in residence at the University, should apply to the 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 satisfying 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 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 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 as early as possible. The University has identified the time required to complete the combined degree program. The student in the combined program can normally meet the baccalaureate degree requirements of both colleges in about five academic years. However, the exact length of time to complete the combined degree program will be determined by the major areas of study selected in Liberal Arts and Engineering.

Students selecting this program will be required to complete the general education requirements, the requirements for the major, and the residence requirements of both the College of Liberal Arts and the College of Engineering. The specific engineering courses taken may vary, and the student's plan of study will be determined according to the engineering specialty selected. Since the courses in science, mathematics, and the humanities are regularly accepted for credit by both colleges, the student may, in many cases, satisfy the requirements for two colleges in the taking of a particular course.

Two or More Bachelor's Degrees
Students seeking an additional different bachelor's degree must commit at least 30 additional consecutive 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 degree requirements for graduation except the foreign language
Liberal Arts


Total Earned Hours

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

Residence

Students must meet a minimum residence 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.

Nonresidence Instruction includes course work at other colleges and universities, correspondence courses, and transfer of credits from colleges 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 (on a 4.0 scale) in 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 points to 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 1:00 rule for graduation) does not apply to students who enroll at Iowa for the first time after May 1982 or who have not graduated by May 1988. Those students must have a 2.0 grade-point average—see (1) above—in order to graduate and be in good standing as a senior.

General Education Requirements

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

- Rhetoric
- Mathematics
- Quantitative or formal reasoning
- Foreign language
- Physical education
- Natural sciences
- Social sciences
- Humanities
- Historical perspectives
- Foreign civilization and culture

Rhetoric

All students must register for their assigned rhetoric course at their first registration and continue to enroll in rhetoric courses until the requirement is completed. Once enrolled in a rhetoric course a student may not drop the course. No more than eight semester hours of credit earned in rhetoric courses may be counted towards 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.
- 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 subtest 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 subscore of the ACT general test battery or the mathematics 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 Mathematical 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 the final 30 semester hours at The University of Iowa.

Quantitative or Formal Reasoning

The requirement may be satisfied:

- By completing any one of the courses listed below.
- By completing any advanced course which has one of the listed courses as a prerequisite.

7P:25 Elementary Statistics and Inference
22M:7 Quantitative Methods I
22M:19 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 Elementary Calculus I
22S:2 Statistics and Society
22S:2 Quantitative Methods
22S:25 Elementary Statistics and Inference
26:36 Principles of Reasoning
26G:25 Theory and Practice of Argument
112:12 Language and Formal Reasoning

This requirement should be met by the end of the student’s second year in
resides or during the first 60 semester hours of study at The University of Iowa. Students should meet the requirements before taking the mathematics requirement before beginning to meet this requirement.

Foreign Language
Four semesters of a foreign language are required 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 University catalog. In order to fulfill the foreign language requirement, instruction in the same language in high school must be taken in foreign language to fulfill the requirement.

High School Courses
Successful completion of four sequential years of study of the same language in high school meets the B.A. degree requirement. Successful completion of two sequential years in high school meets the B.S., B.F.A., and B.M. degree requirement. Students 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 Taken

Foreign Language
One year of high school study in a foreign language is equivalent to one semester of college study. A 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 measuring proficiency equivalent to that usually attained after four semesters of college study meets the B.A. degree requirement. Students may take the proficiency examination after two semesters of college study to 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-no pass 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 11:12 Intermediate French, or 9:26 Second-Year Composition and Conversation, or a combination of 9:27 Second-Year Composition and Conversation and 9:25 French Conversation First Level. 9:25 alone is not sufficient to meet the fourth semester requirement. Other combinations are possible. Contact the French department, 10 Schaeffer Hall (phone 292-4587).

A two-semester sequence of either elementary Chinese or elementary Japanese (a total of 12 semester hours) will meet the foreign language requirement for the B.A. degree. One semester of either of these language (six semester hours) will meet the foreign language requirement for the B.B., B.F.A., and 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 hour courses in physical education skills under the satisfactory-fail grading procedure.

NOTE: Because of extensive remodeling in the Field House, the physical education skills requirement will be 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, 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 1983 may satisfy the physical education skills requirement with three semester hours.

Only courses 11:33, 10:41, 10:42, offered by both physical education departments, may be used to satisfy the requirement. Courses under these numbers have activity of 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. Before repeating a course, 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 who pass or in part by passing comprehensive tests in specific physical education activities or sports.

Up to four semester hours of ungraded credit or exemption may be awarded for successful completion of these tests. Credit from these tests may not be used as elective credit towards a degree. A maximum of four semester hours of credit by examination in physical education skills will be counted towards a bachelor's degree.

Transfer Students
Transfer students may satisfy this requirement 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 twentieth birthday prior to their first enrollment at the University, as well as those who have passed their twentieth birthday prior to their graduation, are excused from the physics 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 area of armed forces.

Natural Sciences
Students must complete at least eleven 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.")

2:1 Introduction to Botany (Lab) 4 s.h.
2:100 Plant Diversity (Lab) 4 s.h.
4:5 Technology and Society 3 s.h.
4:7 General Chemistry I 3 s.h.
4:8 General Chemistry II 3 s.h.
4:33 Principles of Chemistry I 3 s.h.
4:34 Principles of Chemistry II 3 s.h.
4:18 Principles of Chemistry Lab (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.
2:15 Introduction to Geology (Lab) 4 s.h.
12:23 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.
29.5 Chemistry and Physics of the Environment 3 s.h.
29.6 Basic Physics (Lab) 4 s.h.
29.11 College Physics (Lab) 4 s.h.
29.12 College Physics (Lab) 4 s.h.
29.17 Introductory Physics I (Lab) 4 s.h.
29.18 Introductory Physics II (Lab) 4 s.h.
29.50 Modern Astronomy (Lab) 4 s.h.
29.50 Modern Astronomy 3 s.h.
29.51 General Astronomy (Lab) 4 s.h.
29.62 General Astronomy (Lab) 4 s.h.
37.3 Introductory Animal Biology (Lab) 4 s.h.
37.3 Principles of Animal Biology (Lab) 5 s.h.
37.40 Biology of the Brain 3 s.h.
37.49 introduction to Animal and Human Behavior 3 s.h.
37.81 Human Genetics 3 s.h.
37.91 Genetics and Evolution 3 s.h.
44.3 Introduction to Physical Geography (Lab) 4 s.h.
97.7 Fundamentals of Science (Lab) 4 s.h.
113.13 Human Origins 3 s.h.

Social Sciences

Students must complete a minimum of six semester hours from the courses listed below:

3:15 Introduction to Speech and Hearing Processes and Disorders 3 s.h.
66.1 Principles of Economics 3-4 s.h.
66.2 Principles of Economics 3-4 s.h.
76.12 Introduction to the History of Education 3 s.h.
16:60 Introduction to African American Literature 3 s.h.
19.50 Social Scientific Research Methods and Communication 3 s.h.
30.1 Introduction to American History 3 s.h.
30.2 Introduction to Politics 3 s.h.
30.39 Introduction to Political Thought and Action 3 s.h.
30.48 Introduction to Comparative Politics 3 s.h.
30.59 Introduction to Political Behavior 3 s.h.
30.60 Introduction to World Politics 3 s.h.
30.110 The American Political System 3 s.h.
31.1 Elementary Psychology 3 s.h.
31.3 General Psychology (either 31.1 or 31.3 may be used) 4 s.h.
31.13 Introduction to Clinical Psychology 3 s.h.
31.14 Introduction to Child Psychology 3 s.h.
31.14 Introduction to Mental Health 3 s.h.
31.17 Introduction to Comparative Psychologies 3 s.h.
34.1 Introduction to Sociology: Principles 3 s.h.
34.2 Introduction to Sociology: Problems 3 s.h.
368.25 Mass Media and Mass Society 3 s.h.
365.26 Communication Theory in Everyday Life 3 s.h.
44.1 Introduction to Human Geography 4 s.h.
44.11 Introduction to Social Geography 3 s.h.
44.19 Contemporary Environmental Issues 3 s.h.
44.20 Environmental Management 3 s.h.
44.39 introduction to Economic Geography 3 s.h.
45.50 Intro to Afro-American Society 3 s.h.
47.50 Freshman Honors Seminar 3 s.h.
103.11 Language and Society 3 s.h.
113.13 Introduction to the Study of Culture and Society 3 s.h.
113.10 Anthropology and Contemporary World Problems 3 s.h.
113.14 Language and Human Behavior 3 s.h.
113.19 Urban Anthropology 3 s.h.

Humanities

Students must complete the course 8G-1: The Interpretation of Literature (three semester hours) and a minimum of six additional semester hours from the courses listed below.

11:1 Understanding the Visual Arts 3 s.h.
11:2 The Art of Tribal Cultures 3 s.h.
11:3 Art and Religious Symbolism 3 s.h.
11:4 Masterpieces of World Art 3 s.h.
8:40 Major Texts in World Literature I 3 s.h.
8:41 Major Texts of World Literature II 3 s.h.
8:139 The European Novel 1850 to Present 3 s.h.
8:156 Masterpieces of European Literature 3 s.h.
80.2 Biblical and Classical Literature 3 s.h.
80.3 Medieval and Renaissance Literature 3 s.h.
80.4 Idea of Tragedy 3 s.h.
80.5 Idea of Comedy 3 s.h.
80.6 Narrative Literature 3 s.h.
80.7 Lyric Poetry 3 s.h.
80.8 Literature of the Theater 3 s.h.
80.9 American Lives 3 s.h.
80.11 The Personal Voice 3 s.h.
80.12 Comedy and Tragedy 3 s.h.
90.14 Literature of the African Peoples 3 s.h.
90.15 The Literary Presentation of Women 3 s.h.
12.17 German Heine and Erock Literature of the Middle Ages 3 s.h.
13.121 Introduction to Modern German Literature I 3 s.h.
13.102 Introduction to Modern German Literature II 3 s.h.
13.118 The Third Reich and Literature 3 s.h.
13.154 Human Nature and the Impact of Science 2-4 s.h.
13.173 Opera as Drama 2-4 s.h.
13.180 The Faust Tradition in Western Civilization 3 s.h.
14.13 The Classical Views 3 s.h.
14.103 Women in Antiquity 3 s.h.
14.112 Classical Mythology 3 s.h.
20.113 Religion and the Occult in Antiquity 3 s.h.
25.19 Masterpieces of Music 3-4 s.h.
25:14 Masterpieces of Music 3 s.h.
25:103 World Music I 3 s.h.
25:104 World Music II 3 s.h.
26:11 Introduction to Philosophy 3 s.h.
26:102 Introduction to Ethics 3 s.h.
28:40 Art of Dance in Contemporary Society 3 s.h.
32:3 Religion and Society 3 s.h.
32:3 Quest for Human Dasein 3 s.h.
32:10 Introduction to Religious Studies 3 s.h.
32:51 Religious Thinkers of the Western Tradition 3 s.h.
32:164 Religion and the Occult in Antiquity 3 s.h.
32:164 Good Society 3 s.h.
33:154 Human Nature and the Impact of Science 3 s.h.
33:161 From Milos to the Arts 3 s.h.
33:173 Opera as Drama 3 s.h.
33:16 Contemporary Latin American Narrative 3 s.h.
33:16 Survey of Film 3 s.h.
369:14 European Film History 3 s.h.
369:145 National Cinema 3 s.h.
367:1 Art of the Theatre 3 s.h.
36:19 Asian Humanities 3 s.h.
36:20 Asian Humanities 3 s.h.
42:1 American Values 3 s.h.
42:18 Literature of the African Peoples 3 s.h.
48:14 Introduction to Afro-American Literature 3 s.h.
40:23 Major Texts in World Literature I 3 s.h.
40:24 Major Texts of World Literature II 3 s.h.

Historical Perspectives

Students must complete at least six semester hours from the courses listed below.

101.1 The Concept of the City: Rome 3 s.h.
101.2 The Concept of the City: Athens 3 s.h.
23.99 History of Music I 3 s.h.
23.135 History of Music II 3 s.h.
26.33 Philosophy and Human Nature 4 s.h.
26.34 Philosophy and Human Nature 4 s.h.
32.1 Judeo Christian Tradition 3 s.h.
32.4 Living Religions of the East 3 s.h.
36:172 Theatre and Society 3 s.h.
39:16 Introduction to Asian Art 3 s.h.
39:35 Civilizations of Asia 3 s.h.
39:35 Civilizations of Asia 3 s.h.
39:34 Living Religions of the East 3 s.h.
113:12 Introduction to Prehistory 3 s.h.
Foreign Civilization and Culture

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

16:4 Western Art and Culture Before 1400
3 s.h.
16:106 Eastern Art and Culture After 1400
3 s.h.
16:14 Islamic Art and Civilization
3 s.h.
16:16 Introduction to Asian Art
3 s.h.
16:101 Education, Politics, and Culture of Mainland Southeast Asia
3 s.h.
80-14 Literature of the African People
3 s.h.
16:17 German Heroic and Erotic Literature of the Middle Ages
3 s.h.
16:101 Introduction to Modern German Literature
3 s.h.
16:102 Introduction to Modern German Literature II
3 s.h.
16:105 German Cultural History
3 s.h.
13:115 Contemporary German Civilization
3 s.h.
13:118 The Third Reich and Literature
3 s.h.
14:113 The Classical Views
3 s.h.
16:1 Western Civilization to 1792
3 s.h.
16:2 Western Civilization since 1792
3 s.h.
16:5 Civilizations of Asia
3 s.h.
16:6 Civilizations of Africa
3 s.h.
16:9 Introduction to Colonial Latin America
3 s.h.
16:10 Introduction to Modern Latin America
3 s.h.
116:55 Survey of Ancient Near East and Greece
3 s.h.
16:107 The Hellenistic World and Rome
3 s.h.
16:110 Medieval Civilization
3 s.h.
16:112 Medieval History of the Medieval Church
3 s.h.
16:118 Early France and the Age of Chivalry
3 s.h.
16:123 Society and Culture in Europe 1500-1648
3 s.h.
16:124 Age of the Renaissance
3 s.h.
16:128 France from Revolution to Revolution
3 s.h.
16:139 French Revolution and Napoleon
3 s.h.
16:141 France 1789-1914: Consumption of Power
3 s.h.
16:142 Germany since 1914: Society and Revolution
3 s.h.
16:151 History of East Central Europe 1385-1795
3 s.h.
16:152 East Central Europe: 1795-1818
3 s.h.
16:154 Kleist’s Rats and the Latin American Revolutions to 1882
3 s.h.
16:155 Imperial Russia 1662-1917
3 s.h.
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 level.

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 D (pass) and 16 with a grade of F (noncredit) may be permitted in addition to credit earned by examination.

Semester hours for courses completed with a grade of N (nonpass) do not count toward the total number required for graduation, 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 towards 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 by 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 are not required to be registered to apply for a degree.

Graduation Analysis
Students may obtain a written graduation analysis upon sponsorship at the Office of the Registrar. The analysis may be requested at any time after the completion of the work required. 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 elective requirement for the B.G.S.

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

Within the freedom of the B.G.S. degree, students may select courses for the purposes of a related topic or they may take courses from a number of disciplines. Individuals may put together one or more groups of 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 their interests only when it seems in their best interests to do so. The University’s definition of an individualized “area of concentration,” the student should examine the requirements in the major most closely related to his or her field of interest.

If a student has been pursuing a B.G.S. degree to earn a B.A., B.S., B.F.A., or B.M. degree instead, he or she must meet the special 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 30 semester hours in any one department and no more than 30 semester hours in any of the other colleges of the University.

 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 elective requirement for the B.G.S. No major or concentration is specified with this degree, and B.G.S. students are not eligible to earn minors. Within the freedom of the B.G.S. degree, students may select courses for the purposes of a related topic or they may take courses from a number of disciplines. Individuals may put together one or more groups of 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 their interests only when it seems in their best interests to do so. The University’s definition of an individualized “area of concentration,” the student should examine the requirements in the major most closely related to his or her field of interest. If a student has been pursuing a B.G.S. degree to earn a B.A., B.S., B.F.A., or B.M. degree instead, he or she must meet the special 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 30 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 7) are
considered to be in one department;
all College of Business Administration
courses (prefix 6) are considered to be in
one department except those in
economics (prefix 6E) and all 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.
Lower-hour 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 all B.G.S. upper-level
courses and distribution course
distribution requirements.

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

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

A B.G.S. student seeking certification
to enter the teaching profession
of education and psychology courses to
avoid exceeding the B.G.S. maximum
allowance of 45 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 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
in-service courses; Saturday and evening
classes; extension courses, enrolling those
with new distance- learning formats; and
regular on-campus courses. Students
may also take proficiency examinations.

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

Admission Requirements

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

An A.A. degree from an accredited
two-year college, with a 2.0 grade-
point average, or

At least 60 semester hours of
college work acceptable for credit

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 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
degree requirements need not be used to
meet the distribution area requirements.

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

Registration

Procedures

Adding and Dropping of
Courses

Courses may be added during the first
three weeks of the semester or first one
and one-half weeks of the summer
session with the approval of the advisor
and instructor.

Courses may be dropped at any time
during the first ten weeks of the semester
or 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 end at different times
than the beginning and end of the
semester, and are so listed in the
Schedule of Courses, may be added
with the necessary signatures at any
time during the first one-fifth of the duration
of the course and dropped at any time
during the last one-fifth of the duration of
the course. Similar proportional
deadlines will operate during the usual
eight-week summer session and for other
special session courses.

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

Undergraduate students in the College of
Liberal Arts will be assigned a mark of W
(Widrawn) 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-tenth 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-no pass registration or registration for zero credit (audit) may be made only during the first three weeks of the semester (or first one and one-half weeks of the summer session) and only with the approval of the adviser and instructor.

Students' Responsibility

It is the responsibility of the student to seek the change in registration form and have it approved by the adviser, instructor, or dean (as needed) and be 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 an F in each course.

Students who self-cancel may not be reenrolled or have the deadline 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, 10 semester hours in a summer session. Students may obtain permission in the Liberal Arts Advisory Office to register for more hours than the maximum allowed.

Grading Procedures

The following grading system is used in the college:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Grade point for each s.h.</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>4</td>
</tr>
<tr>
<td>B+</td>
<td>3.3</td>
</tr>
<tr>
<td>B</td>
<td>3.0</td>
</tr>
<tr>
<td>C</td>
<td>2.0</td>
</tr>
<tr>
<td>D-</td>
<td>1.7</td>
</tr>
<tr>
<td>D</td>
<td>1.3</td>
</tr>
<tr>
<td>F</td>
<td>0</td>
</tr>
<tr>
<td>W</td>
<td></td>
</tr>
</tbody>
</table>

P: Pass

Not used in computing GPA

Passing the course or meeting the minimum or better achievement of the course is considered a P.

N: Nonpass

Not used in computing GPA

Not meeting the minimum achievement or earning a grade of D, F, W, or I is considered an N.

Incompletes (I)

A grade of I may be reported only if (a) the unfinished part of the work is not the result of the student's own fault, (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 on or before the change of grading form dates in the fall or the next session in which the student is registered. No extensions to prevent the assignment of an F will be considered. If, in the instructor's, if they desire, 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 forms 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, and C for authorized courses in the College of Liberal Arts. Students registered in a P-N basis who receive grades of D or F will have N entered on their record. The grades of P and N will not be used in computing grade-point averages nor will the grade of N count as earned hours for graduation. Students taking courses in other colleges of the University who have an unsatisfactory grading policies of those colleges. Students from outside of the College of Liberal Arts will be subject to Liberal Arts grading policies.

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

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

Not more than 16 semester hours of P grades from all colleges will be accepted toward the bachelor's degree. Transfer students admitted to the University with
lower 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 better served. All students on the S-F basis,

Not more than 16 semester hours of grades may 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 F.

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

No Grade Reported (0)
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 incomplete grades. Failure to remove the O by the specified date may result in the student being placed in F being assigned for such each record.

Registered (Audit)
Students in the College of Liberal Arts may register as auditors if approval is granted by the advisor and the instructor of the course. In addition to obtaining the signatures of the advisor 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 the course to be audited. Any change of registration must be made within the first three weeks of the semester (first and one-half weeks of the summer session), using a change-of-registration form to obtain 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 dropped for zero credit will not be graded and will not be included in computing the grade-point average. 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 any grade of P, N or W. Grades of F are included in hours attempted and are used in computing the grade-point average.

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

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

Classification of Students
ClasS
Semester hours earned
Freshman
28-55
Sophomore
29-55
Junior
36-89
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. If it has occurred, the student must earn extra hours to replace those earned by duplication. Grades for both courses will be averaged in computing the student's grade-point average.

Regression
Regression occurs if a student takes a lower-level course which is a prerequisite after having satisfactorily completed a more advanced course in the same subject. Whether regression has occurred is determined by the registrar at the time of graduation. 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 or he/she decides to repeat or add it during the regular period for adding courses (the first three weeks of the semester or the first one and one-half weeks of the summer session). Apply to the Liberal Arts Advisory Office to check his/her eligibility and complete the proper form. Current procedures of counting both grades in the advisor's record or the student's record a course will be continued unless the student completes the form. Under the provisions of this option, the Office of the Registrar will mark the permanent record to show that a particular course has been repeated.

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

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

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

Scholastic Probation and Dismissal
Students who fail to attain the following minimum cumulative grade-point averages (GPA) and overall for their class and any (or continued) on scholastic probation:

Freshmen: 1.0
Sophomores: 1.75
Juniors: 1.90
Seniors: 2.0

Students who enrolled at Iowa 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 F are recognised by inclusion on the Dean's List for that semester.

Honors Program

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

Graduation Honors

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

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

Graduation with Distinction

The Office of the Registrar certifies to the dean of the college the names of students eligible for graduation with distinction. The college awards degrees "with highest distinction" to students in the highest two percent of the graduating class, "with high distinction" to students in the next highest three percent, and "with distinction" to the next highest five percent. Ranking is based on students' grade-point averages for all college-level study undertaken prior to their final registration.

Graduation with Honors

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

Placement and Exemption Examinations

Rhetoric

Proficiency tests in writing and speaking are given during the first week of classes for students who register for 10:3 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

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

Physical Education

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

Foreign Languages

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

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

Advanced Placement and Credit in Nonmajor Areas

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

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

Examination Credit in the Major

Departments may administer examinations covering required courses or areas of instruction in the major field and may grant credit with a grade of P for the successful completion of such examinations. The maximum credit by examination that may be awarded in the major field is 15 semester hours. In the case of foreign languages, credit toward graduation may be awarded only for passing the Advanced Placement 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 their 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 grades are determined. When an instructor considers that a student has been excessively absent, that is, 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, the marching band, and other recognized University groups are expected to present to each instructor prior to each absence a written statement signed by a responsible official specifying exactly the dates and times it is necessary to miss class. Students who have been absent because of illness are expected to present evidence that their absence was due to illness. Regular excuse forms for this purpose are available in each departmental office and the Liberal Arts Advisory Office. Students should not be asked to present excuses from the Student Health Service.

Commencement Attendance

Attendance at University commencements is optional. 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 the schedule of courses. During the summer session there is no designated final examination period. Final examinations are scheduled before the official end of the summer session, either during a regular meeting time or at a time determined by the instructor of the course in consultation with the students in the class.

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

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 departmental channels. The dean will be advised with a statement of the necessary facts. Final disciplinary action taken by the instructor concerned may be recorded only after a formal recommendation for such action is made by the dean to the Baccalaureate Degree Committee. Disciplinary Action

The individual instructor may reduce the student's grade, including the assignment of the grade of F in the course. A warrant may be signed by the dean and sent to the office of the dean. The dean of the college, or a student-faculty committee appointed by the dean, may impose the following in other cases: absence for disciplinary purposes, suspension of the student from attendance at the college, or recommendation for expulsion from the University.

Adequate Background for College Work

The Code of Rules and Regulations of the College of Liberal Arts urges college-bound students to prepare themselves for college-level work through studies in the following areas: the arts, English, foreign language, mathematics, science, and social science. In 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 outlined below and any special requirements for the program of his or her choice.

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

Entering Freshmen

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

A graduate of an approved Iowa high school who is in the upper one-half of his or her graduating class and meets specific curriculum requirements will generally be admitted upon presentation of certification of graduation. An applicant who is not in the upper one-half of his or her graduating class may be required to take special examinations, and, after a review of his or her entire record and at the discretion of the admission officer, may be admitted unconditionally, admitted on probation, required to enroll for a trial period during a succeeding 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 on a four-point system) for all college work attempted. In general, transfer applicants under academic suspension from the last college attended, Transfer applicants who are not residents of Iowa are expected to have maintained a 2.25 average. An applicant who does not meet this standard may be permitted to take entrance examinations. An applicant who successfully completes the examinations may be considered for admission.

In general, transfer applicants under academic suspension from the last college attended will not be considered for admission during the period of suspension. If the prospective student is in the indefinite period, will not be considered until 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 permitted 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 each case be admitted on probation, and his or her admission will be subject to cancellation.
The linguistics department offers six EFL courses for students who need to improve their English proficiency.

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

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

Nondepartmental College Courses
Unified Program Courses: Undergraduates: Humanities I, II, III 000:47 Politics I 000:48 Introduction to World Politics 000:49 History II 000:50-52 Sciences I, II 000:55-57 Humanities II 000:56 Basic Mathematics

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

10 History
4 4 4
Instruction and practice in speaking, writing, and critical reading, with the focus on argument and criticism, develops competence in analyzing, synthesizing, and advocating policy. Course requires regular writing; no sign-up for credit. Priority: 201 or equivalent course.

12 History
4 4 4
Same as 10

13 History
4 4 4
Instruction and practice in speaking, writing, and critical reading, develops competence in analyzing, synthesizing, and advocating policy. Course requires regular writing. Priority: 201 or equivalent course.

Aerospace Military Studies
Department head: U. Col. James P. Wattendorf
Professor: U. Col. James P. Wattendorf

The Department of Aerospace Military Studies administers the Air Force Reserve Officers Training Corps (AFROTC) at The University of Iowa. The purpose of AFROTC is to recruit, educate, and commission highly qualified candidates to be officers in the United States Air Force. The AFROTC is entirely voluntary and the courses are open to all undergraduate and graduate students. The amounts of credit given toward a degree for AFROTC academic work vary with the colleges at the University.

In order to receive a commission, AFROTC students must complete all University requirements for a degree and complete all coursework specified by the U.S. Air Force. Three programs are offered to complete the U.S. Air Force requirement. A student may complete the four-, three-, or two-year AFROTC program.

Prior to commissioning, all AFROTC cadets must complete a course in mathematical reasoning. Those cadets on AFROTC scholarships must also satisfy a requirement for an English composition course and for one semester of a major Indo-European or Asian language. The College of Liberal Arts core requirements minimally satisfy these requirements.
Four-Year Program

The four-year program consists of the General military course (GMC) and the Professional Officer Course (POC). The GMC affords a no-obligation look at AFROTC. In addition, books and uniformed AFROTC classes are provided.

The GMC consists of four one-credit AFROTC courses and the leadership laboratory. Normally, as a freshman a student takes 23A:11-12 The Air Force Today and as a sophomore takes 23A:31-32 Development of Air Power. To be considered an AFROTC cadet, a student must take 23A:96-97 Leadership Laboratory.

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

Three-Year Program

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

Two-Year Program

The two-year program consists of field training and the Professional Officer Course (POC). Entry into the two-year program is competitive and requires a student to have at least two academic years of attendance and to have completed 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 of Aviation Training; 23A:112-113 National Security Forces in Contemporary America and Society.

Students desiring to enter the two-year program should contact the professor of aerospace studies by the fall semester of their junior year. Applicants must be evaluated on the basis of college major, grades, ACT/SAT 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 center-oriented activity. It is largely cadet-planned and directed toward providing leadership training experiences which will improve a cadet's ability to perform as a U.S. Air Force officer. Freshmen and sophomores learn air force customs and courtesies, drill and ceremonies, wearing of the uniform, and the benefits of an air force career. Juniors and seniors plan and direct the Cadet Corps activities.

Field Training

All POC applicants must successfully complete field training at the U.S. Air Force base during the 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, soldier, sports, career, and survival orientation, junior officer training, personal training, small arms training, human relations education, and equal opportunity training. The six-week field training provides 60 hours of academics that a student normally would have taken as a freshman and sophomore.

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

Flight Instruction Program

AFROTC cadets designated pilot candidates and not certified as private pilots participate in the Flight Instruction Program. Non-commissioned officers during the senior year 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 schools include instruction in meteorology, principles of flight, radio communications, and FAA regulations.

Special Activities

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

Cadets can join the Airrot Social, 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, 1-1/2, 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 office of aerospace studies.

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

Educational Delay

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

Courses

23A:11 The Air Force Today 1.5 hr.

Introduction to the U.S. Air Force, including mission, organization, and function. U.S. military forces, and Soviet threat, emphasizes students' writing skills. Offered fall semesters.

23A:17 The Air Force Today 1 hr.

Continuation of 23A:11. Offered spring semesters.

23A:31 The Development of Air Power 1 hr.

Traces the historical development of U.S. air power from its origins of the late 19th century to the contemporary era. Emphasizes key military leaders and the student's speaking skills. Offered fall semesters.

23A:32 The Development of Air Power 1 hr.

Continuation of 23A:31. Offered spring semesters.

23A:50 Basic Flight Ground School 3 hrs.

Prepares students to pilot FAA private (or written exam includes study of aircraft systems, meteorology, navigation, radio communications, and emergency procedures). Cadets must not exceed 20 years of age. Offered summer semesters.

23A:96 Leadership Laboratory 0.5 hr.

Cadet planned and conducted activities aimed at developing leadership and management skills. Offered with consent of the professor and is a prerequisite to perform a role as a U.S. Air Force officer. Offered fall semesters. May be repeated to credit.

23A:97 Leadership Laboratory 0.5 hr.

Continuation of 23A:96. Offered spring semesters. May be repeated to credit.


Introduces contemporary forces that affect the contemporary American society, examine civil-military relations and the way U.S. policy is formulated and implemented. Excludes the role of the professional officer and military law. Offered alternating fall semesters.


Introduces contemporary forces that affect the contemporary American society, examine civil-military relations and the way U.S. policy is formulated and implemented. Excludes the role of the professional officer and military law. Offered alternating fall semesters.


Introduces contemporary forces that affect the contemporary American society, examine civil-military relations and the way U.S. policy is formulated and implemented. Excludes the role of the professional officer and military law. Offered alternating fall semesters.


Introduces contemporary forces that affect the contemporary American society, examine civil-military relations and the way U.S. policy is formulated and implemented. Excludes the role of the professional officer and military law. Offered alternating fall semesters.


Introduces contemporary forces that affect the contemporary American society, examine civil-military relations and the way U.S. policy is formulated and implemented. Excludes the role of the professional officer and military law. Offered alternating fall semesters.

23A:96 Leadership Laboratory 0.5 hr.

Cadet planned and conducted activities aimed at developing leadership and management skills. Offered with consent of the professor and is a prerequisite to perform a role as a U.S. Air Force officer. Offered fall semesters. May be repeated to credit.

23A:97 Leadership Laboratory 0.5 hr.

Continuation of 23A:96. Offered spring semesters. May be repeated to credit.
communication skills and uses group discussions, case studies, and problem-solving methods. Offered alternate spring semesters.

21A:15 Management and Leading
3.0
Concentration of 21A:15 offered in spring semester.

21A:15 Readings in Contemporary Military Issues 1.5-4.5
Individualized readings in traditional or contemporary issues within the Military-Political field. Fall or in ARCC/PAC's Program Office. Course may be repeated with permission of the department to a maximum of 15 hours.

Afro-American Studies

Program Director: Donald T. Turner
Faculty: Professor Donald T. Turner (English-Afro-American Studies), associate professors Peter Nauvash (English), Jonathan L. Calloway (History/Afro-American Studies), Patrick Sheehan (Anthropology), Alfred R. Johnson, and Tony G. Bland (Economics), and the graduate students in Afro-American Studies.

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

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

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 earliest period to the present. To provide a comprehensive view of that subject, the program also offers courses in other fields and some relationships of African-Americans in other lands. Because a thorough understanding of African-American culture cannot be achieved through study restricted to the perspective of a single discipline, all students in the program are required to pursue 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 1969 in courses intended to foster awareness of the role Afro-Americans have taken in the development of the United States, and to promote understanding of the present 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 of 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 organize a major area.

Although most of the students in the Ph.D. program are preparing to work in colleges and universities as teachers and administrators, the B.A. and M.A. programs provide valuable backgrounds for many 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 every individual 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 conforms 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 (363 English-Philosophy Building), in the Liberal Arts Advisory Office, and the offices of most departments.

Although the Afro-American Studies Program does not have 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 hours of Afro-American literature, history and culture, and five electives from courses numbered 45-16 through 45-180. Credit earned in the Afro-American Studies Program can be applied toward the B.A. degree.

The Afro-American Studies Program is designed to give students an understanding of Afro-American culture and experience. The program is especially designed to meet the needs of college students preparing for community college teaching, work with community-service organizations, or other careers in which an understanding of Afro-Americans may be necessary or helpful.

Curriculum Requirements

The Master of Arts program in Afro-American Studies comprises 34 quarter hours of graduate work, normally completed in three semesters.

Requirements include the following:
35-110 Introduction to Research in Afro-American Culture.
35-130 Advanced Research in Afro-American Culture, and 12 semester hours of required courses in Afro-American Studies.

Most students will be required to complete 36 hours of graduate credit in Afro-American Literature and Afro-American History, with a minimum of 12 semester hours in each.

At least 15 of the 36 hours of graduate credit in Afro-American Literature and Afro-American History must be in courses approved by the student's advisor.

The Afro-American Studies Program offers a minor in Afro-American Studies.

Minor in Afro-American Studies:

The minor in Afro-American Studies provides an opportunity for students to develop an understanding of Afro-American culture and experience. The program is designed to meet the needs of college students preparing for community college teaching, work with community-service organizations, or other careers in which an understanding of Afro-Americans may be necessary or helpful.

Requirements for the Minor:

The minor in Afro-American Studies requires completion of 18 semester hours of graduate work, normally completed in three semesters.

Requirements include the following:
35-110 Introduction to Research in Afro-American Culture.
35-130 Advanced Research in Afro-American Culture, and 12 semester hours of required courses in Afro-American Studies.

Language/Tool Requirements

All foreign language or tool is required for the Master of Arts program in Afro-American Studies, but individuals preparing to complete a thesis or dissertation are encouraged to complete one tool or language requirement for their final field study while studying at the master's level.
Comprehensive Examinations
Each student is required to pass a written comprehensive examination in Afro-American Studies. The comprehensive examination 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 the student must utilize research from more than one discipline. The maximum credit for such a thesis is 12 semester hours, and a minimum of a C+ in the thesis terminates the requirement of 45-152 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 the student’s area of interest. When completed, this project must be presented to and defended before an appropriate class in Afro-American studies.

Admission Requirements
In addition to the general requirements of the Graduate College, unconditional graduate admission to the Afro-American Studies Program requires that a student have an appropriate educational background in literature and the social sciences, a minimum of 18 semester hours of collegiate credit in Afro-American studies or other disciplines in a similar field, and a minimum grade-point average of 3.0 in the required collegiate courses in Afro-American studies. A student may be asked to take, without credit toward the major, courses needed to remedy any deficiencies in undergraduate preparation.

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

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

Concentration within M.A. in Afro-American Studies
Generally, a student seeking a concentration in Afro-American studies within a Master of Arts program in American studies is preparing for a career as a research scholar or a college/university teacher, and prepares to undertake doctoral work in American studies. Of 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 complete 3011 Introduction to Research in Afro-American Culture, 35001 Afro-American Literature I-Ill, and two of the following—45-156 Afro-American History 1680-1830, 45-156 Afro-American History 1830-1914, 45-168 Afro-American History 1914-1945—except when they have taken equivalent courses at the undergraduate level.

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

Concentration within Ph.D. Program in American Studies
Generally, a student seeking a Ph.D. in American studies with a concentration in Afro-American studies is preparing to be a teacher or research scholar at the college or university level. Of the minimum 72 post-baccalaureate semester hours required for the degree, at least 30 semester hours (not including the thesis) must be in courses in Afro-American studies. The student must complete 35001 Introduction to Research in Afro-American Culture, 35001 Afro-American Literature I-Ill, and two of the following—45-156 Afro-American History 1680-1830, 45-166 Afro-American History 1830-1914, 45-168 Afro-American History 1914-1945—except when the student has completed equivalent year-long surveys in Afro-American literature and/or history before enrolling 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, with a focus 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 slave narratives. Although students in residence at the University are not eligible to be official members of the Institute, they are permitted to enroll in a three-week course which is offered at the same time as the Institute and the current year’s theme. The program plans to offer (institutes in future summers).

Black Action Theater
Academically sponsored through the Afro-American Studies Program, Black Action Theater affords participants an opportunity to experience and experiment with 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 bincasts dance, music, poetry, and visual art presentations of Black culture and history.
Afro-American Studies Graduate Student Association

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

Related Courses

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

Business Administration

61:252 Collective Bargaining 3 s.h.

Economics

ec-137 Problems in Urban Economics 3 s.h.

Education

71:104 Education in the Third World 2-3 s.h.
71:130 Educational Sociology 2-3 s.h.
71:380 Seminar: Value Problems in the Administration of American Education 3 s.h.
71:109 Socialization of the School-Age Child 2-3 s.h.
7U:133 The Culturally Different in Educational Settings 3 s.h.

History

16:61 American History, 1492-1861 3 s.h.
16:62 American History, 1877- Present 3 s.h.
16:163 United States in the Early Republic 3-4 s.h.
16:164 Civil War and Reconstruction 3 s.h.
16:165 The Gilded Age in America 3 s.h.
16:166 The Progressive Era in America 3 s.h.
16:167 The New Sins and the New Deal 1920-1940 3 s.h.
16:168 The Contemporary United States 1940-Present 3 s.h.
16:169 The Revolutionary Generation in America 3 s.h.
16:178 American Thought and Civilization to 1865 3 s.h.
16:180 American Thought and Civilization 1865-Present 3 s.h.

Courses

Afro-American Studies and Related Courses

For Undergraduates Only

45:17 Sex, Race, and Ethnicity 3 s.h.
611:188 Literature of the African Peoples 3 s.h.
Introduction to selected works of eighteenth-century Black writers of the United States, the Caribbean, and Africa. Prerequisite: BC:1, Same as BC:14.
45:10 Black Poetry Workshop 3 s.h.
Survey of Black American poetry, from its roots to its recent and innovative work. Emphasis on critical discussions of poems analyzed by students in the class.
45:11 Contemporary Black Experience 3 s.h.
Review and discussion of selected works or images of life in contemporary Black society. Genres: contemporary, fiction, and poetry, as the class determines. Same as 16:11.
45:12 Readings in Peace of Black Women 3 s.h.
Review and discussion of Afro-American narrative rape and violence from, a black female perspective, from the black slave narrative to contemporary fiction.
45:15 Third World Women and Literature 3 s.h.
A study of women workers by third world women, focusing third world women as subject.
45:16 Introduction to Afro-African Society 3 s.h.
General works in anthropology, sociology, and history, providing a framework for the social and cultural history of Afro-American women. Same as 16:10.
45:19 Introduction to Afro-American Culture 3 s.h.
An interdisciplinary introduction to Black women in the United States through a study of significant works on which women have been "makers" in art, music, literature, drama, and culture; have contributed to the development of that culture.

Primarily for Advanced Undergraduates and Graduate Students

45:20 African Drama 3 s.h.
An examination of themes by contemporary Africans, reading forklifts for playing, one act, plays.
45:26 Afro-American Art 3 s.h.
Work of Afro-American patrons and sculptors, with attention to cultural origins, movements, and African backgrounds. Open to Freshman.
45:28 Art of West Africa 3 s.h.
Same as 16:107.
45:29 Black Literature of Puerto Rican Expression 3 s.h.
Same as 28:106.
45:33 Art of Central Africa Same as 16:108.
45:11 African in the New World 3 s.h.
45:112 Afro-American literature and the black populations in the New World; race as topic element depends on instructor. Same as 16:11.
45:11 Race and Ethnic Relations 3 s.h.
Multidisciplinary study of race-group relations, emphasizing social historical, and political issues in African-American and Afro-Caribbean groups. Same as 16:10.
45:12 Afro-American Literature I 3 s.h.
Afro-American literature from the eighteenth century to 1861, selected readings to culture, social history, and politics in English, French, and Spanish. Same as 16:11.
45:12 Afro-American Literature II 3 s.h.
Literary developments among Afro-Americans from 1861 to the present; selection of works to culture, social history, and politics in English, French, and Spanish. Same as 16:11.
45:18 African Literature 3 s.h.
Study of the language, literature, and culture of contemporary African states. Same as 11:15.
45:22 Twentieth-Century Afro-American Fiction 3 s.h.
An analysis of themes and images in fiction by Afro-Americans, focusing on the interaction and collision of black culture and other cultural forces. The prose works of Langston Hughes, Zora Neale Hurston, Richard Wright, Ralph Ellison, and other relevant contemporary writers. Same as 16:10.
45:23 Readings in Afro-American Culture 3 s.h.
An advanced, individual, student supervised seminar for graduate and undergraduate students who have taken 45:22 Afro-American Literature and have an interest in the research of African culture. Open to students through the humanities and the social sciences. Must be graduate students.

45:13 The Black Woman in America 3 s.h.
History of Black women in American society, with particular attention to the interplay between stereotypic images and actual roles.
45:14 History of Black Music 3 s.h.
General survey of the history of music in Africa and the African Diaspora. To the extent possible, emphasis on significant times, styles, and contributors and their historical settings. Open to Freshman. Same as 45:13.
45:15 Topics in Black Music 3 s.h.
Selected topics for students interested in music beyond 45:10.
45:16 Afro-American Literature of the African Diaspora 3 s.h.
Same as 16:13.
45:17 Africa the Inner City 3 s.h.
Study of residential segregation, minority groups, and the effects of "ghetto" areas, environmental quality, or "ghetto" neighborhoods, social problems of crime and social stress. Same as 45:16.
45:18 Race, Ethnicity, and International Relations 3 s.h.
Racial and ethnic conflict, paralyzing situations which threaten regional and world balance, world affairs to influence these situations. Same as 110:13.
45:20 History of the Afro-Caribbean 3 s.h.
Survey of the rise, decline, and fall of African kingdoms before European colonization, political, social, and cultural institutions of these kingdoms.
45:26 Afro-American History 1865-1930 3 s.h.
West Africa and the transatlantic slave trade, Blacks in immigration, slavery and the antebellum society. Same as 16:13.
45:27 Afro-American History 1930-1964 3 s.h.
The abolition movement, Civil War past, Reconstruction, and the development, and emergence of twentieth-century protest groups. Same as 16:13.
45:30 Studies in the Fiction of Afro-Americans 3 s.h.
Critical readings of the novels and short stories which define the determinists by determining the critical perspective of Afro-American society. Same as 45:10.
45:34 Afro-American History 1964-1981 3 s.h.
The social movement, the Black Power period, and the Black Freedom Movement. Same as 16:13.
45:36 Afro-American History 1981-1994 3 s.h.
Participation in World War II, the Vietnam Reappraisal, the Civil Rights Movement, the War in the Middle East and the civil unrest of the 1960's, 1970's, and 1980's. Same as 16:13.
45:37 Afro-American History 1994-Present 3 s.h.
Participation in World War II, the Vietnam Reappraisal, the Civil Rights Movement, the War in the Middle East and the civil unrest of the 1960's, 1970's, and 1980's. Same as 16:13.
45:39 Readings in African Culture 3 s.h.
Must be an independent study.
45:41 Western African History 3 s.h.
Same as 16:15.
45:45 Black Actor Theater 3 s.h.
Theater performance course, in addition to studying theater history, involves stage presentations by Black actors, directors, producers, and playwrights. Open to Freshman.
45:46 Afro-American History 1800-1970 3 s.h.
Theatrical production course, in addition to studying theater history, involves stage presentations by Black actors, directors, producers, and playwrights. Open to Freshman.
45:47 Cultural Theater 3 s.h.
Theatrical production course, plays selected so that African and Black American plays are performed. Same as 45:13.
45:48 Afro-American History 1800-1970 3 s.h.
Theatrical production course, plays selected so that African and Black American plays are performed. Same as 45:13.
45:50 Afro-American History 1920-1940 3 s.h.
Theatrical production course, plays selected so that African and Black American plays are performed. Same as 45:13.
45:51 Afro-American History 1920-1940 3 s.h.
Theatrical production course, plays selected so that African and Black American plays are performed. Same as 45:13.
Primarily for Graduate Students

4520 Readings in the Culture of Black America 3.0 h
Overview of the social, economic, political, and religious experiences which have influenced Black American life.

4521 Introduction to Research in Afro-American Culture 3.0 h
Methodologies, techniques, sources, and resources important in a study of Afro-American culture. Required of graduate students concentrating in Afro-American studies.

4522 Advanced Readings in Black Culture 3.0 h
Selected works that illuminate cultural, political, and religious aspects of Afro-American life. Some writing and research are required. Same as 4521.

4525 Policies and the Black World 3.0 h
The role of the black in the formation of national ideology among selected Black writers; reading list determined by instructor.

4529 Religion and Black Culture 3.0 h
Interdisciplinary studies of Black culture, religions, and philosophies in various sections of texts or works. Same as 3251.3

4527 Three African Writers 3.0 h
Same as 4227.

4595 Seminar: Afro-American History 3.0 h
Same as 1636.

4528 Readings: Afro-American History 3.0 h
Introduction to historiography, methodology and methodology for the study of Afro-American history. Same as 1636.

4520 Seminar: Study of Afro-American Literature 3.0 h
Events, folk traditions, folktale, curiosities, myths, legends, and individuals as sources of affection in Afro-American literature.

4570 Advanced Research in Afro-American Culture 3.0 h
Seminar or seminar-course study project for graduate students concentrating in Afro-American studies. Prerequisite: 3240B or 4521.

4574 Seminar: African Study in Afro-American Literature 3.0 h
In-depth study of selected Afro-American playwrights, or playwrights. Intermediate, 4510 or equivalent, or consent of instructor.

4570 Seminar: African Study in Afro-American Poetry 3.0 h
In-depth study of selected Afro-American poets. May be repeated to a maximum of 12 hours. Intermediate, 4517 or equivalent, or consent of instructor.

Aging Studies Program

Coordinator: Harriet Karten
Advisory committee: Jessica Fields (Chair), Scott Yancey, Linda Dorman (coordinators), Samuel Tarr (law), Dennis Haegele (Pharmacology), Ralph A. Hood (Counselor Education), Barbara Hummel (Medical Education), James P. Johnson (Osteopathic College), Helen Klassen (Lutheran Ministry), George Oespe (Public Health), Dorothy O'Connor (Zoology), Jack Tattrie (World Studies). China Jafern Wilkins (Graduate Studies Assistant), Michael Hoke (Research Assistant), Harry Hoke (Research Assistant).

The Aging Studies Program is located in the College of Liberal Arts and Sciences.

4205 Readings in Gerontology 3.0 h
Overview of the social, economic, political, and religious experiences which have influenced Black American life.

4210 Introduction to Research in Afro-American Culture 3.0 h
Methodologies, techniques, sources, and resources important in a study of Afro-American culture. Required of graduate students concentrating in Afro-American studies.

4212 Advanced Readings in Black Culture 3.0 h
Selected works that illuminate cultural, political, and religious aspects of Afro-American life. Some writing and research are required. Same as 4521.

4215 Policies and the Black World 3.0 h
The role of the black in the formation of national ideology among selected Black writers; reading list determined by instructor.

4229 Religion and Black Culture 3.0 h
Interdisciplinary studies of Black culture, religions, and philosophies in various sections of texts or works. Same as 3251.3

4227 Three African Writers 3.0 h
Same as 4227.

4295 Seminar: Afro-American History 3.0 h
Same as 1636.

4238 Readings: Afro-American History 3.0 h
Introduction to historiography, methodology and methodology for the study of Afro-American history. Same as 1636.

4230 Seminar: Study of Afro-American Literature 3.0 h
Events, folk traditions, folktale, curiosities, myths, legends, and individuals as sources of affection in Afro-American literature.

4270 Advanced Research in Afro-American Culture 3.0 h
Seminar or seminar-course study project for graduate students concentrating in Afro-American studies. Prerequisite: 3240B or 4521.

4274 Seminar: African Study in Afro-American Literature 3.0 h
In-depth study of selected Afro-American playwrights, or playwrights. Intermediate, 4510 or equivalent, or consent of instructor.

4270 Seminar: African Study in Afro-American Poetry 3.0 h
In-depth study of selected Afro-American poets. May be repeated to a maximum of 12 hours. Intermediate, 4517 or equivalent, or consent of instructor.

Program Requirements

The Aging Studies Program involves 18 approved semester hours of course work related to aging at the 100- or 200-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 project or practicum in aging in completing the Aging Studies Program. With the approval of the student's major department, course work may be applied to the student's major or professional program of study. However, six semester hours must be taken outside the student's major department.

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

Program Eligibility

The program is open to all interested graduate, upper-level undergraduate (must have completed 49 semester hours), and special status students whose particular career interests and needs will be served by completing the program.

Students in good standing at the above-mentioned levels may establish plans of study with the Aging Studies Program coordinator who will work with the students and their advisors to shape the plan of study to complement each student's academic program and career interest.

Students should contact the Aging Studies Program coordinator to develop an appropriate plan of study. The program will include the required courses, as well as a recommendation for the sequence of other 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 the program, the coordinator will notify the Registrar, who will indicate completion of the program on the student's transcript.

Courses

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

Introductory Courses

All students must take at least one and no more than two introductory courses. The introductory courses accepted into the program include:
171 108 Basic Aspects of Aging
34 132 Aging and Society
42 184 Multidisciplinary Perspectives on Aging
91 29 1 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:
171 119 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
454 03 Aging in America
Anthropology
113 149 Special Topics in Anthropology
Business Administration
67 125 Public Economic Security Programs
Counselor Education
7 CC 280 Topical Seminar in Counselor Education
Dentistry
112 145 Introduction to Geriatric Dentistry
Family Practice
115 551 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 Style (partial credit)
American Studies Program

Program chair: John Rebench
Faculty: professors Wayne Franklin (American Studies), Alan F. Stone (American Studies/Economics), B. T. Turner (American Studies/English) and Joseph Novak (American Studies/Anthropology)

Required courses: 3 s.h.

Two of the following:

45-2 American Issues
45-3 Women in American Culture
45-4 Family and Community
45-5 Media Studies
45-6 Regional Studies: The American West
45-7 Sex, Race, and Ethnicity
45-8 American Music
45-10 Introduction to Afro-American Society
45-11 Introduction to Afro-American Culture
45-102 Readings in American Studies
45-103 Child and Youth in
45-104 Aging in America
45-156 Visual Arts and American Culture
45-157 American Institutions: The Business Corporation
45-158 American Communities: The Civil Rights Era
45-166 Autobiography and American Culture
45-198 Popular Culture

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

Nurses' aides in American studies must take 45-56 Turning Points in American Culture and 45-56 Honors Project. With the help of her advisor and nursing faculty, the student in 45-56 delivers a research project on an American studies topic, does the research, and presents the results of the research in a senior essay.

Minor

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

Master of Arts

The M.A. degree in American studies may be a terminal degree or a degree preliminary to the Ph.D. in American studies or a traditional discipline.

The M.A. program in American studies normally includes 12 courses totaling 36 semester hours. Requirements include:

45-000 Theory and Practice in American Studies
45-201 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 to form a coherent body of knowledge, but must be chosen from more than one discipline or department.

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

The M.A. may also be taken with thesis, in which case 30 semester hours of course work is the required minimum.

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 courses and seminars of the American Studies Program to explore such aspects of the United States as popular and high culture, institutions, values, social processes, artifacts, and the contributions of subcultures.

Bachelors of Arts

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

With this or her advisor's assistance and approval, the student majoring in American studies develops an individual plan of study combining courses from cognate departments and programs with integrative American Studies Program courses to explore a common period, topic, theme, or problem in American cultural experience. The major normally consists of 12 courses totaling 36 semester hours and including four courses (12 semester hours) in American and/or Afro-American studies; two courses (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
45-30 Turning Points in American Culture

Two of the following:

45-2 American Issues
45-3 Women in American Culture
45-4 Family and Community
45-5 Media Studies
45-6 Regional Studies: The American West
45-7 Sex, Race, and Ethnicity
45-8 American Music
45-10 Introduction to Afro-American Society
45-11 Introduction to Afro-American Culture
45-102 Readings in American Studies
45-103 Child and Youth in America
45-104 Aging in America
45-156 Visual Arts and American Culture
45-157 American Institutions: The Business Corporation
45-158 American Communities: The Civil Rights Era
45-166 Autobiography and American Culture
45-198 Popular Culture

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

Honors

Nurses' aides in American studies must take 45-56 Turning Points in American Culture and 45-56 Honors Project. With the help of her advisor and nursing faculty, the student in 45-56 delivers a research project on an American studies topic, does the research, and presents the results of the research in a senior essay.

Minor

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

Master of Arts

The M.A. degree in American studies may be a terminal degree or a degree preliminary to the Ph.D. in American studies or a traditional discipline.

The M.A. program in American studies normally includes 12 courses totaling 36 semester hours. Requirements include:

45-000 Theory and Practice in American Studies
45-201 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 to form a coherent body of knowledge, but must be chosen from more than one discipline or department.

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

The M.A. may also be taken with thesis, in which case 30 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 courses and seminars of the American Studies Program to explore such aspects of the United States as popular and high culture, institutions, values, social processes, artifacts, and the contributions of subcultures.
basic requirements. One is that all students directly engage, in course work and making, in the cultural and historical experiences 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 interest. 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 the first year of graduate study, and may include 46-530 Special Graduate Projects among the two or three other courses he she takes in the area of interdisciplinary approaches and methods in American studies. Instead of a written examination in this area, the student prepares a position paper or interdisciplinary essay.

The student normally takes six or seven courses (18-21 semester hours), including tutorials, in each of his or her two major areas. Four-hour written examinations on each of the major areas, together with the interdisciplinary position paper or essay, provide the basis for the candidate's oral final examination. The student also takes three or four courses, or a combination of a specific topic or subdiscipline, as one minor area. Instead of a written final examination, the candidate proposes an annotated bibliography on the minor field for evaluation. The student's advisor will have her comprehensive examination committee. A candidate who has already submitted an annotated bibliography is eligible to take the minor field exam. Each student takes 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 at Iowa in foreign language, film-making, linguistics, computer science, statistics, etc. In addition, up to 6 semester hours in 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 necessary for the development of field or discipline. The candidate may petition to receive credit for research in other such as fiction, autobiography, film—combined with a critical analysis of the cultural experiences the thesis reflects, but permission by the faculty such a thesis will not be routinely given.

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

Courses
Educator Interns
561 Cooperative Education Internship 1 sh.
561 American Values 3 sh.
Introduction to American studies as representative texts, art forms, and cultural values in historical and contemporary perspectives.
563 American Issues 3 sh.
Topics and problems in American studies.
565 Women in American Culture 3 sh.
Topics include prominent women, women and work, women's popular culture, American woman ethnics.
566 Family and Sex Roles: Alternative to Marriage 3 sh.
The American family, homosexuality in American history and culture, alternatives to marriage.
568 Media Studies 3 sh.
Studies in film, television, cartoons, the new journalism.
568 Regional Studies: The American West The American West, the South in American culture.
571 Sex, Race, and Ethnicity The Herren Renaissance: Women in Urban America.
580 African Music and Myth 3 sh.
Ae, ibises, or rock 'n roll.
580 Turfing Zephyrs in American Culture: a transatlantic investigation of a single theme over periods in American culture, employing a variety of materials and methods. In particular, the project will include an attempt to deal with the history of music in myth and reality.
590 Native Project Independent research and writing on an interdisciplinary topic.

For Undergraduates and Graduates
410 Readings in American Studies 3 sh.
4112 American Folk Literature 3 sh.
Same as B 111.
4120 Work and Culture in American Life 3 sh.
Same as 1201.
4125 Psychology and Culture 3 sh.
Same as 1268.
4117 Literature and Culture of America Before 1800 4 sh.
The civilization period in American culture, study through historical records, art forms, and the arts: selective attention to problems of archaic, andethno-literate audiences in the psychology of civilization. Same as B 1141.
4126 Children and Youth in America 3 sh.
Studies in children's books and related cultural and historical contexts.
4152 Aging in America 3 sh.
Social, demographic, historical, and biographical perspectives on the older American.
4158 Visual Arts and American Culture 3 sh.
Survey and interpretation of visual arts as cultural expression of American life and thought.
4162 Medieval Culture: American Vernacular Architecture 3 sh.
Historical and cultural studies in the vernacular architecture, rural and urban, chiefly of the East, in college course syllabus or published essay.
4163 American Society 3 sh.
4164 American Institutions: The Business Corporation 3 sh.
4165 American Community: The Cooperative Drug Store interdisciplinary study of an American scene via textbooks, secondary sources, college course syllabus, or published essay.
4166 American Communities: Ethnicity 3 sh.
4180 Anthropology and American Culture 3 sh.
Topics in American cultural life and the interpersonal relations of culture; seminars and other experiences in culture studies and the interpersonal relations of culture.
4190 Teaching American Vernaculars in High School and Community College 3 sh.
Same as 4110.
4198 Popular Culture 3 sh.
Examination of several features of American popular culture, such as sex and the detective novel, the Westerns, the vaudeville drama, emphasis on their relation to other features of American life.

Primary for Graduates
4100 Thematic Problem in American Studies 4 sh.
Theoretical methods and theories in American culture studies, with special attention to social science treatment.
4210 History, Literatures, and Culture 3 sh.
Approach to the literature and culture traditions and interactions of American culture and subcultural perspectives.
4230 Special Graduate Projects 1 sh.
Writing an essay in a chosen subdiscipline of American culture studies, employing a variety of materials and methods. In particular, the project will include an attempt to deal with the history of music in myth and reality.
4251 Seminar in American Studies: Bibliography Same as 6901.
4300 MA Thesis 3 sh.
4305 Master's Thesis 3 sh.
4310 Seminar in Film and American Culture 3 sh.
Independent study of culture theory and selected problems and approaches. Prerequisite: 49-400.
4390 MA Thesis 3 sh.
4400 Dissertation 3 sh.
Department of English  
Thematic Problem in American Studies 4 sh.
Theory, methods, and theories in American culture studies, with special attention to social science treatment.
4410 History, Literatures, and Culture 3 sh.
Approach to the literature and culture traditions and interactions of American culture and subcultural perspectives.
4430 Special Graduate Projects 1 sh.
Writing an essay in a chosen subdiscipline of American culture studies, employing a variety of materials and methods. In particular, the project will include an attempt to deal with the history of music in myth and reality.
4451 Seminar in American Studies: Bibliography Same as 6901.
4490 MA Thesis 3 sh.
4455 Master's Thesis 3 sh.
4470 Seminar in Film and American Culture 3 sh.
Independent study of culture theory and selected problems and approaches. Prerequisite: 49-400.
4490 MA Thesis 3 sh.

Anthropology
Department chair: Keith Mastha Marshall  
Ph.D., Harvard 1996  
Thomas H. Chaskalos, Ph. D., Paul Dumeniere, June Hearn, Keith Mastha Marshall  
Associate professors Michael Chilton, Nuriy Egypt, Munir Marcou, Darcy McGee, Alan Morgan, Katherine A. Spalding  
Adjunct professor Alan R. Fish  
Adjunct associate professors Dana C. Anderson, Tana Nasser Murr  
Degrees offered: B.A., M.A., Ph.D.

Department offers: whether historical or contemporary, simple or complex, are part of anthropology's study.
Anthropology provides a framework for understanding the place of human beings.
Anthropology/LIBERAL ARTS

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 anthropologists, participants acquire skills in data recovery and interpretive techniques.

Master of Arts
The M.A. program is general in nature, designed to prepare the student to deal with any aspect of anthropology at an introductory level. The department offers the M.A. degree with or without a thesis. The program without thesis 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 30 to 36, depending upon the student's previous anthropological training. The nonthesis program requires at least 36 semester hours of graduate work. A 38-hour M.A. degree without a thesis is available in conjunction with a minor concentration in museology. The following are the core area requirements at the M.A. level: Either 113:240 Seminar: Social Anthropology or 113:201 Seminar: Anthropological Theory These four courses: 113:171 Anthropological Linguistics 113:286 Seminar: Anthropological Theory and Method 113:286 Seminar: Biological Anthroogy 112:102 Anthrological 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 second year of study involves preparation and the general operational procedures of small science museums form part of the student's training. Further information on this option may be obtained from the Department of Anthropology or the Museum of Natural History.

Doctor of Philosophy
Graduate training in anthropology at the Ph.D. level is designed to lead to professional competence in both scholarly research and teaching. The Ph.D. degree represents a balance between general competence in all the subfields of anthropology obtained at the M.A. level and professional specialization in one. The specialization is a student at the University of Iowa currently and only select include archaeology, linguistic anthropology, and social-cultural anthropology.

In addition to the general requirements of the Ph.D. program, the student is required to pass the following examinations: an oral examination on selected topics in a major area and an oral examination on selected topics in a minor area. In addition, the student must submit a dissertation in one of the following areas: historical, archaeological, linguistic, ethnohistoric, or anthropological. The dissertation will be examined by a graduate committee comprised of members of the faculty competent in the pertinent areas and topics chosen by the student.

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 seminar or graduate-level course in anthropology or in a related department and an honors research project.

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 seminar or graduate-level course in anthropology or in a related department and an honors research project.

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 second year of study involves preparation and the general operational procedures of small science museums form part of the student's training. Further information on this option may be obtained from the Department of Anthropology or the Museum of Natural History.

Doctor of Philosophy
Graduate training in anthropology at the Ph.D. level is designed to lead to professional competence in both scholarly research and teaching. The Ph.D. degree represents a balance between general competence in all the subfields of anthropology obtained at the M.A. level and professional specialization in one. The specialization is a student at the University of Iowa currently and only select include archaeology, linguistic anthropology, and social-cultural anthropology.

In addition to the general requirements of the Ph.D. program, the student is required to pass the following examinations: an oral examination on selected topics in a major area and an oral examination on selected topics in a minor area. In addition, the student must submit a dissertation in one of the following areas: historical, archaeological, linguistic, ethnohistoric, or anthropological. The dissertation will be examined by a graduate committee comprised of members of the faculty competent in the pertinent 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. Course requirements:
   2. Demonstration of a reading knowledge of one of the following languages:
      a. A relevant research skill (for example, fluency in a foreign language or proficiency in a branch of mathematics, logic, computer programming, geology, or paleontology).
      b. Ethnographic or archaeological specialization in a major geographic area (for example, North America, Madagascar, Southeast Asia, the Caribbean, Europe).

3. Approval of a dissertation topic by the faculty and the A.A.

4. Preparation and oral defense of a dissertation

The major topical area is the area of theoretical concentration and orientation for the dissertation. Fields of topics that may serve either as major or minor areas in anthropology include:

- Historical: social organization, ethnography, economic anthropology, language and culture, religion, cultural ecology, and urban anthropology
- Examples of possible major topical areas for students of the department: contemporary social anthropology, settlement archaeology, environmental archaeology, and dating methods.
The comprehensive examination ordinarily will be taken when the student's coursework is completed or nearly completed, after the language and research skills requirements have been satisfied, and before he or she begins fieldwork. All doctoral candidates are required to carry on original anthropological research. Ordinarily, students conduct fieldwork as the basic focus of their research, although, however, a research proposal may be carried out using only documents, collections, or other source materials. All doctoral candidates are required to be adequately trained in techniques of gathering primary data in anthropological or ethnographic field research.

Graduate Admission

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

Any student with an M.A. with thesis may apply for admission to the Ph.D. program. A student admitted with an M.A. without thesis must complete another master's degree within the same field before he/she is admitted to the Ph.D. program. Admission to the Ph.D. program is limited to students who wish to conduct research in an area of interest and competence represented among the departmental faculty.

Applicants for admission to the graduate program must meet the general admission requirements of the Graduate College ("Graduate College") and will be required to submit a completed University application form. The application form and all material of all previous undergraduate and graduate work, two letters of recommendation from individuals competent to judge the candidate's potential for graduate study, scores from the aptitude portion of the Graduate Record Examination (GRE) Aptitude Test, and at least one typewritten essay of previous work (for example, a term paper or an original experiment). An applicant with an M.A. degree from another university must include a copy of his or her master's thesis; an applicant who earned an M.A. without thesis or whose thesis is not yet complete should submit a typewritten copy of three papers completed in graduate school. It is desirable that the applicant have at least a 3.0 grade-point average. However, students with lower grade-point averages may be admitted with conditional status if other criteria indicate potential for graduate work.

Graduate Minor in Anthropology

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

Assistantships

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

Facilities

The Department of Anthropology has access to the Iowa Archaeological Collections through the offices of the State Archaeologist. Prof. Thomas H. Byers, a fellow laboratory in Mexico. The University is a charter member of the human Relations Area Files (HRAF), an extensively annotated set of source materials on the peoples of the world—their environments, behavioral patterns, social lives, and cultures. The HRAF and other library resources give anthropology students access to source materials on more than 460 different cultures.

Faculty

Members of the anthropology faculty have studied and lived in the Pacific islands, Asia, Europe, the Caribbean, Mexico, Central America, South America, and the Subarctic. Department faculty have recently conducted field research in Mexico, Bolivia, Guatemala, Peru, Micronesia, Papua New Guinea, Thailand, the Canadian Subarctic, New Guinea, Trinidad, Borneo, North Borneo, Hungary, Iceland, the American Southwest, and Iowa. Recent research by department faculty includes precontact trade networks and the role of hydraulic cultivation systems in the emergence of civilization in the Valley of Mexico, Plains-Pueblo interaction in the United States, historical archaeology in Iowa, patterns of political and economic development of emerging nations, comparative 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 women in Peru, and agrarian and economic decision making among rural peoples in Thailand, Bolivia, and Iowa.

Courses

For Undergraduates Only

150 Introduction to the Study of Culture and Society

4 sh.

Comparative study of culture and social organization.

1510 Anthropology and Contemporary Field Problems

3 sh.

Examine selected world problems from an anthropological perspective. Prearranged field experience and coursework designed to relate to student's research interests.

1512 Introduction to Prehistory

3 sh.

Data and interpretation evidences of human cultural and pre-Columbian evidence for human evolution. Examination of prehistoric cultural change as it is reflected in archaeology.

1513 Human Origins

3 sh.


1514 Language and Human Behavior

3 sh.

Language as a cultural system. Language and behavior as a cultural system. Language and culture. Language and social behavior. Language and personal adaptation to the environment.

1520 Introduction to Middle Eastern Prehistory

3 sh.

Prehistoric cultural sequence of the Orient viewed against the background of American prehistory. Discussion of current and future research.

1571 Introduction to Field Research in Anthropology

3 sh.

Field methods of research in anthropology: selection of field sites, selection of field party, selection of field technique, selection of field project, selection of field research.

175 Individual Study

1-18 sh.

Supervised research in some special area or subdivision of anthropology in which the student has had basic course.

183I Honors Research

3 sh.

Honors theses undertaken by special research projects. Supervised research in conjunction with the honors advisor. May be repeated.

Advanced Courses

General Anthropology

1910 General Anthropology

3 sh.

Comprehensive consideration of the culture and social organization of man, as illustrated by contemporary and historical examples. Note: this course is not open to freshmen.

1910 Anthropological Data Analysis

2 sh.

Quantitative techniques for analyzing field data and library material: elementary statistics and introduction to computer methods.

1913 Introduction to Modern Society

2 sh.

Same as 91-100.

1915 Introduction to Field Research Studies

2 sh.

Supervised research in some special area or subdivision of anthropology in which the student has had basic course.

1916 American Communities: The Citieship

Same as 93-105.

1917 Cultural Medical Health

Same as 96-174.

1918 Health and Cultural Diversity

Either 1918-100 or 1918-101, or consent of instructor. Same as 96-172.

1919 Labor and Anthropology

Same as 81-10.

1914 History of Anthropology

3 sh.

Development of anthropology as a discipline; comprehensive overview themes, concepts, problems and solutions in the development of anthropology. Preparation for research in field. Preparation for professional work in anthropology. Preparation for work in social science and public relations.

1917 Special Topics in Anthropology

3 sh.

Problems and concepts involved in contemporary and emerging field of study and topic of interest. Prearranged field experience and coursework designed to relate to student's research interests. May be taken a maximum of three times with consent of instructor.
Individual Reading and Research Projects
11330 Independent Study Anthology
11340 Independent Study Art History
11350 10 Years

Applied Mathematical Science
See "Mathematical Sciences."

Art and Art History
School faculties: Wallace J. Torenent
Franklin Whajeehio Keith Arrichmond, Margaret
Alexander, Roger Alexander, Wayne Bignell, Jan
Bader, Byron Bingen, Chung-hou Chu, Hugo Roal
Mayoral, Los Angeles, Max Welling, Virginia Myers, Joanna
Paws, Julius Bellett, Walter Scholes, William Tiegs, Alan Loveman
associate professors: John Davis, Peter
Feldman, Stephen Felder, Carol Hanrahan, Charles
Hodges, Barry McPhail, Robert Myers, Christopher
Pocock, Christopher Poole, Robert Schiller, James Sessler,
Martin Tschudy, Ronald Toral, Roger Walker,
associate professor: Louis M. Schilling, Patricia
Harrell, G. Kay Miller, Ann Roberts, Ann Susan, Carol
Stambaugh, Alex Torenent
Degree offered B.A., B.A. M.A., M.F.A., Ph.D.

The University of Iowa School of Art and Art History pioneered the artist-teacher concept, appointing its teachers on the basis of their work rather than the number of years of degree, 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 reflected 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 outstanding regional recognition for presenting large exhibitions of works by American painting and sculpture.

Its national image and position are maintained not only through the University of Iowa Art Museum, its program of exhibitions, and its growing collection of arts works of art periods and national, but also through its participatory program of employing visiting artists and scholars of both national and international prominence.

The flexibility of its undergraduate and graduate programs in art history continues with the support of an excellent art library and a large collection of visual materials. The employment of visiting lecturers for short-term workshops, in addition to the permanent faculty, continues to keep students directly involved with current scholarship. A number of the school's graduates enjoy success as practicing professional artists, historians, department administrators, museum directors and curators, and teachers. Regardless of employment preferences, 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 with commercial designers.

As far as possible, the design of academic programs is arranged to meet the individual student's needs, permitting the development of specific 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 one introduction to studio art. The studio major requires development of a foundation in art history and in at least six areas of studio art. The aim of the joint curriculum is to give students a basic understanding of art and aesthetics; it does not focus on particular short-term styles or fashions.

Bachelor of Arts
The B.A. candidate in art or art history must earn at least 74 semester hours of credit in non-art courses, but may apply no more than 80 semester hours toward the total of 124 semester hours required for the degree.

Cross-listed courses originating in the School of Art and Art History may not be counted toward the general liberal arts core and end requirements.

Art majors in the B.A. degree program may waive three semester hours of Historical Perspectives general education requirement; those in the B.A. program may waive six semester hours of Historical Perspectives general education requirement.

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

Art History: Two courses
Two additional courses exclusive of those listed above

Art History: Two courses

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

Art History: Two courses

Two additional courses exclusive of those listed above

Art History: Two courses

Two additional courses exclusive of those listed above

1A-3 Basic Drawing 2 s.h.
1A-4 Basic Design 2 s.h.

Applies to the following courses:
1C-60 Ceramics I 2 s.h.
1E-64 Introduction to Metalworking and Jewelry 2 s.h.
1I-50 Multimedia I 2 s.h.
1I-15 Undergraduate Sculpture I 2 s.h.
One introductory studio course 4 s.h.

Electives to bring the total number of courses in History of Art, Studio, or Art Education combined to a minimum of 38 semester hours.

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

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

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

Art History Emphasis
Major requirements for the B.A. degree with an emphasis in art history are 12-13 semester hours of studio courses, as defined, and six semester hours (two courses) from among 1H-1, 1H-5, 1H-6, and 1H-16, plus 18 semester hours of intermediate and advanced art history.

Electives must raise the total of art courses to a minimum of 38 semester hours and may raise the total to a maximum of 50 semester hours. Art courses taken beyond this level do not count toward the B.A. degree.

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

Non-credits must include two or more semesters of a second foreign language, and at least 12 semester hours in at least three areas, including two of the following: art history, drama, history languages, literature, music, philosophy, religion, or sociology.
Transfer students planning to major in art history should meet with the professor in charge of art history to discuss the student's required minimum registration for courses in art history and studio.

**Art Education**

Students seeking the B.A. degree in art education may choose either the studio or art history emphasis, satisfying the requirements described above, and, in addition to the general requirements for teacher certification (see the "College of Education" section of the Catalog) must satisfy these specific requirements:

1E:196 Concepts in Art Education 2 s.h.
1E:198 Art Education Studio 3 s.h.
7E:143 Methods: Art 3 s.h.
7S:105 Advanced Methods: Art 3 s.h.
7S:171 Seminar: Curriculum and Student Teaching 3 s.h.
7E:152 Lab Practices in Elementary School 6 s.h.

The following course is an elective:

1E:230 Art Education and the Museum 3 s.h.

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

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 "Core of Liberal Arts" section) and major requirements listed above for the B.A. degree, in the studio areas, the B.F.A. candidate must complete three courses in a studio area of concentration beyond the fundamental core, and must complete at least the second semester of coursework in each of two additional studio areas. All major electives 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 areas of specialization.

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 30 semester hours of graduate-level course work, with a grade-point average of 3.0 or higher, and
- At least a one-semester (minimum 100-level) reading course in a foreign language.
- A minimum of 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
  - Pre-Columbian

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

11H:294 Seminar: Methodology of Art History and Criticism 3 s.h.
Two other art history seminars (with different instructors) 2-4 s.h.
Additional art history courses 14-21 s.h.
Studio 0-6 s.h.
Courses outside the school 0-9 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 may 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 in art history, 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 (GSFLT), examination by the appropriate University of Iowa language department, satisfactory completion of the final semester of a Ph.D. language reading course, or satisfactory completion (at least a 3.0 grade-point average) of the fourth semester of a college or university language course.

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

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

**Master of Arts in Studio**

The school offers the M.A. degree in studio work in design, drawing, metalworking and jewelry, multimedia and video art, painting, 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 courses, if any, may be made up concurrently, but are in addition to, graduate requirements).

A minimum of 38 semester hours of graduate work, including at least 12 semester hours in a major studio subject, 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.

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

Studio and written thesis.

Studio majors may elect to take an art history seminar, but not the studio or art history 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 should major in art history minor of 15 semester hours, including an introduction to Methodology of Art History and Criticism, and one other semester. These hours are in addition to the minimum course work for an art history major (except for the second foreign languages, 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 in graduate credit in studio and six in art history, or six in studio and 12 in history), eight semester hours in graduate seminars in art education
and 12 semester hours to be specified by the student; commences the program;
Art and/or written examination in art education.

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

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

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

Master of Fine Arts
(studio only)
The school offers the M.F.A. degree with a major in ceramics, design, drawing, filmmaking and jewelry, multimedia and video art, painting, photography, printmaking, or sculpture. The M.F.A. candidate must have an M.A. degree in art equivalent to that offered at the University of Iowa, and 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 in written work and theory of art, and eight semester hours in courses corresponding 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 as well as 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 72 semester hours required for the Ph.D.

The University of Iowa: Evidence requirement for the doctoral degree 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 18-26 s.h.
Courses outside the school 0-12 s.h.

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

Within the first 15 semester hours of graduate work toward the M.A., the doctoral student shall 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 follows:

The student must complete a comprehensive examination in one major field (at least two seminars and two hours) and a minor field (at least one seminar and two hours); one seminar may be either more than the major; this may be in a discipline other than the school, for example, religion, history, or philosophy.

The student must prepare a written dissertation consisting of an original scholarly contribution to the field. The school will allow a maximum of 12 credit hours of credit toward the art history coursework for dissertation preparation. The student must formally present the dissertation topic for faculty approval. The student is given a final oral examination on the dissertation.

Graduate Admission:
Studio
Admission procedures for graduate studio programs include a committee review of the application and a written statement of the applicant's supporting material. The committee will then make a recommendation to the school for final approval.

Ceramics, design, drawing, jewelry, multimedia or video art, or painting majors must submit slides and/or photographs of their work in their major field; only applicants who are in residence at the University may submit original work in these areas. Design majors must submit original drawings (10 by 14 inches) and photographs of their work in their major field. Major photographs should consist of original photographs or slides; slides, if color is important, or their work. Studio applicants must also submit examples of their work in other areas, and must submit three letters of recommendation.

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

If applicants must submit other letters of recommendation:
Deadline for receipt of completed art

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 assistantsship fulfills the recipient to the 12-hour tuition rate.

Scholarships paying partial or full tuition and retaining no departmental duties require at least a 3.0 cumulative grade point average.

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

Facilities
School facilities include an art library containing 60,000 volumes; a visual materials library containing 925,000 slides and 86,000 photographs; an integrado 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 kits; a large shop for woodworking, metalworking, and industrial design; electroforming.
Courses

Art History

Primarily for Undergraduates

0 1 1 Understanding the Visual Arts

Exploration of the artistic and symbolic aspects of art that are fundamental to understanding the visual arts.

1 2 3 The Art of African Cultures

Installation of the visual cultures of Africa and its influences on and in the Americas beyond the European colonial period.

1 3 2 Art and Religious Symbolism

Analysis and interpretation of artistic images produced for world religiosity.

1 4 1 Representations of the World

In-depth study and interpretation of selected masterpieces of architecture, painting, and sculpture.

1 5 3 Western Art and Culture before 1500

Introduction to art, its creators, and the culture of the historical, ancient, and medieval periods.

1 5 4 Western Art and Culture after 1500

Introduction to art, its great artists, and culture from the Renaissance to the present.

1 6 1 Islamic Art and Calligraphy

Survey of art, a city-state, and the culture from the period to the present.

1 7 6 Introduction to Asian Art

Art in Africa, China, Southeast Asia, and Japan. Same as 20.1.

1 8 0 Introduction to Ancient Art

Art and architecture of the Mediterranean cultures (Mesopotamia to the 15th century). Same as 14.28.

1 9 3 Introduction to Medieval Art

Art and architecture in Europe from 300 to 1600 A.D.

2 0 1 Renaissance to the Baroque

Art and architecture in Europe from early Renaissance to 1600.

2 1 0 Introduction to Baroque Art

Art and architecture in Europe from 1600 to 1750.

2 2 0 Introduction to Modern Art

Art and architecture in Europe from 1660 to 1914.

2 3 0 Architecture, Planning, and Visual Culture

Architecture, Planning, and Visual Culture. Same as 21.0.

2 4 0 Mesoamerican Art History

Survey of the artistic and historical achievements and writing for Hours in Mann.

For Undergraduates and Graduate Students

Courses numbered above 100 have as prerequisite an introductory course in the appropriate art history area or permission of the instructor.

1 8 0 Art and the South

Art and the South. Same as 18.0.

2 0 2 Traditional Art of Micronesia, Melanesia, and the Marshall Islands.

2 0 3 Art of Pre-Columbian America

Art and architecture of Mesoamerica and Peru before Ca. 1530.

2 0 4 Art of the Western Sudan and the Guinean Coast.

Same as 20.07.

2 0 8 Art of Central Africa

Art of the Equatorial Forest and the Southern Savannah. Same as 20.10.

2 0 9 Art of the Southwest and the Southern Southwest.

Same as 20.12.

2 1 0 Sculpture, painting, architecture, and minor arts in Greek and Roman Classical times in Egypt and Near East. Same as 20.10.

2 1 2 Art of Islam

Islamic architecture, painting, and minor arts in Syria, North Africa, Egypt, Turkey, Southwestern Asia, Iran, Afghanistan, and India 650-1500 A.D. Same as 20.17.

2 1 4 Buddhist and Hindu Iconography

Historical development of religious images of Buddhism and Hinduism in South and Southeast Asia, China, and Japan. Same as 20.10.

2 1 7 Art and Architecture of India

Art and architecture of India from the period of the Scramble through the period of Mahayana Buddhism and Hinduism. Same as 20.17.

2 1 8 Art of South Asia

Art and architecture of South Asia, including India, Pakistan, Bangladesh, Sri Lanka, Thailand, and Indonesia. Same as 20.18.

2 1 9 Painting of India

Indian painting and monumental painting of India in the periods of the Mughal, Deccan, Mysore, and Marathas. Same as 20.19.

2 2 0 Art of China

Art and architecture of China in relation to philosophy, religion, and Buddhism. Same as 20.19.

2 2 3 Chinese Painting I

Chinese painting from the fourth century B.C. through the thirteenth century A.D. focusing upon the development of brush style and the continuing importance of landscape. Same as 22.03.

2 2 4 Chinese Painting II

Latter Chinese painting, stressing landscape of the fourteenth through eighteenth centuries. Same as 22.04.

2 2 5 Art of Japan

Art and architecture of Japan in the period of Shinto, Buddhism, and the Meiji period. Same as 22.05.

2 2 6 Japanese Painting

Japanese painting, focusing on both Chinese-influenced and original styles. Same as 22.06.

2 2 7 Classical and Modern Art

Classical and modern art in Greece from the Classical period (c. 480 B.C.) to the 16th century A.D. Same as 22.07.

2 2 8 Greek Vase Painting

Painting techniques and styles from the Protogeometric period through the Archaic period. Same as 22.08.

2 2 9 Holistic Art

Holistic art, focusing on the interaction of art and nature, and the relationship of art and nature. Same as 22.09.

2 3 0 Early Roman Art

Early Roman art and the influence of the Etruscans. Same as 23.00.

2 3 1 Roman Art

Roman art and the influence of the Etruscans on the provinces of the Roman Empire. Same as 23.01.

2 3 2 Latin Roman Art

Latin Roman art and the influence of the Etruscans on the provinces of the Roman Empire through the 5th century A.D. Same as 23.02.

2 3 3 Romanesque Art

Romanesque art in the Western and Eastern Mediterranean and Europe. Same as 23.03.

2 3 4 Gothic Art

Gothic art and the influence of the Romanesque on the Northern and Southern European medieval art. Same as 23.04.

2 3 5 Renaissance Art

Renaissance art and the influence of the Middle Ages on the Northern and Southern European art. Same as 23.05.

2 3 6 Mannerism

Mannerism and the influence of the Northern and Southern European art on the Italian Renaissance. Same as 23.06.

2 3 7 Baroque Art

Baroque art and the influence of the Northern and Southern European art on the 17th century. Same as 23.07.

2 3 8 Rococo Art

Rococo art and the influence of the Northern and Southern European art on the 18th century. Same as 23.08.

2 3 9 Neo-Classicism

Neo-Classicism and the influence of the Northern and Southern European art in the 19th century. Same as 23.09.

2 4 0 Romanticism

Romanticism and the influence of the Northern and Southern European art in the 19th century. Same as 24.00.

2 4 1 Impressionism

Impressionism and the influence of the Northern and Southern European art in the 19th century. Same as 24.01.

2 4 2 Symbolism and Art Nouveau

Symbolism and Art Nouveau and the influence of the Northern and Southern European art in the 19th century. Same as 24.02.

2 4 3 Expressionism

Expressionism and the influence of the Northern and Southern European art in the 20th century. Same as 24.03.

2 4 4 Dadaism and Surrealism

Dadaism and Surrealism and the influence of the Northern and Southern European art in the 20th century. Same as 24.04.

2 4 5 Pop Art

Pop Art and the influence of the Northern and Southern European art in the 20th century. Same as 24.05.

2 4 6 Post-Modernism

Post-Modernism and the influence of the Northern and Southern European art in the 20th century. Same as 24.06.

2 4 7 Contemporary Art

Contemporary Art and the influence of the Northern and Southern European art in the 20th century. Same as 24.07.
As an assistant professor of ASIA, I would like to introduce a few key concepts related to Asian Studies. Firstly, it is essential to understand the diversity and complexity of Asian cultures and their historical, political, and social contexts. This understanding is crucial for developing effective research methodologies and strategies.

In terms of the programs offered, both undergraduate and graduate degrees are available. The undergraduate program provides a broad foundation in Asian Studies, including courses in history, literature, culture, and politics. Graduates can choose from a variety of concentrations, such as Chinese, Japanese, or South Asian Studies.

For graduate students, there are several opportunities to specialize in specific areas of interest, such as Chinese history, Japanese literature, or South Asian politics. The Master of Arts degree in Asian Studies is designed to prepare students for careers in academia, government, or the private sector.

In conclusion, Asian Studies is a multidisciplinary field that offers numerous opportunities for academic and professional growth. Whether you are interested in undergraduate or graduate studies, there are programs available to suit your academic and career goals.
**Individual Study for Advanced Students**

290.11 Honors Tutorial
Offered on satisfactory basis.

290.15 Senior Honors Thesis

**290.30 Methods of Teaching Chemistry** 3 s.h.
Introduction to the methods of teaching chemistry. Prerequisites: 59.106 or equivalent.

**320.60 Methods of Teaching Japanese** 3 s.h.
Introduction to the selection of textbooks and teaching aids. Prerequisites: 32.106 or equivalent.

**321.51 Individual Studies for Advanced Students** 2 s.h.
Individually selected research problems of advanced level. Prerequisite: Consent of instructor. May be repeated for credit.

**321.52 Individual Joseph for Advanced Students**
Individually selected research and translation problems for chemical engineering majors. Prerequisites include Consent of instructor.

**321.70 Individual Seminar for Advanced Students**
Individual seminar for advanced students. Prerequisites: 32.106 or equivalent. May be repeated for credit.

**321.80 M.A. Thesis**
Offered fall, spring, and summer.

**321.90 M.A. Thesis**
Offered fall, spring, and summer.

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**Astronomy**

See "Physics and Astronomy."

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**Biochemistry**

Department Head: Edward C. Behr

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 fields of science, and promises to remain so for a considerable time to come.

Biochemists generally work in laboratories or teaching positions. 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 in secondary school teaching, for which certification is also required.

Biochemists with advanced degrees—usually the doctorate—pursue learning, research, and administrative careers in universities, medical schools, hospitals, pharmaceutical 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 degree 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 professions.

In addition to the College of Liberal Arts general requirements, the Bachelor of Science degree in biochemistry requires:

22M 25-26 Calculus II
8 s.h.

32M 35-36 Engineering Calculus I
8 s.h.

32M 10-18 Introduction to Physics I
8 s.h.

37 3 Principles of Animal Biology
5 s.h.

2 1 Introduction to Botany
4 s.h.

61 157 General Microbiology
3 s.h.

61 147 Survey of Immunology
3 s.h.

72 152 Mammalian Physiology
4 s.h.

Other biological areas

4 13 Principles of Chemistry I
3 s.h.

4 14 Principles of Chemistry II
3 s.h.

4 16 Principles of Chemistry Laboratory
2 s.h.

4 121-122 Organic Chemistry I
5 s.h.

4 131 Physical Chemistry I
3 s.h.

4 132 Physical Chemistry II
3 s.h.

6 135 Physical Biochemistry
4 s.h.

1 141 Organic Chemistry Laboratory
3 s.h.

99 100 Seminar: Undergraduate (three s.h. total required)
0-1 s.h.

99 120 The Chemistry of Biological Materials
3 s.h.

99 130 Metabolism
3 s.h.

99 132 Experimental Biochemistry
4 s.h.

99 150 Biochemistry of Informational Macromolecules
3 s.h.

99 153 Research: Independent Study
at least 6 s.h. (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:

22M 15-16 Mathematics for the Biological Sciences
4 s.h.

22M 16 Calculus for the Biological Sciences
3 s.h.

29 11-12 College Physics
8 s.h.

37 3 Principles of Animal Biology
5 s.h.

2 1 Introduction to Botany
4 s.h.

61 157 General Microbiology
3 s.h.

61 147 Survey of Immunology
3 s.h.

72 152 Mammalian Physiology
3 s.h.

Other biological areas

4 13 Principles of Chemistry I
3 s.h.

4 14 Principles of Chemistry II
3 s.h.

4 15 Principles of Chemistry Laboratory
2 s.h.

4 121-122 Organic Chemistry I
6 s.h.

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

99 100 Seminar: Undergraduate (three s.h. total required)
0-1 s.h.

99 120 The Chemistry of Biological Materials
3 s.h.

99 130 Metabolism
3 s.h.

99 140 Experimental Biochemistry
4 s.h.

99 150 Biochemistry of Informational Macromolecules
3 s.h.

Advanced science electives
9 s.h.

Additionally, B.A. students intending to go on to advanced degrees in the biological or health sciences are advised to include four semester hours of biological 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 99 140 Experimental Biochemistry or more usually in 99 155 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 99 100 Seminar: Undergraduate, or to a departmental seminar.

**Other Combined Programs**

It is possible, especially in the B.A. program, to include courses from other disciplines, such as pre-law, psychology, or journalism, permitting individualization of the curriculum as preparation for one of the following variety of vocations in which biochemistry is having an impact.

It is also possible for a B.A. student in biochemistry to complete the specified course requirements in three years and still retain the remaining advanced science electives during the first year of dental or medical school.

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**Graduate Programs, Facilities, Faculty, Courses**

See "Biochemistry" in the College of Medicine section of the Catalog for descriptions of the department's graduate programs and facilities, and for its faculty roster and course offerings.

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**Biology**

Coordinator: Eugene Speroni
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 article opportunity for this emphasis through the program in ecology and environmental science, and program's use of the Macbride Field Station.

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

The science requirements are identical for the Bachelor of 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.
37-129 Fundamental Genetics Laboratory 2 s.h.
37-131 Evolution 4 s.h.
37-155 Cell Physiology 4 s.h.
Electives in botany, microbiology, zoology, or geology (paleontology) 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 27-199 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 Principles of Chemistry I, II, 4-16 Principles of Chemistry Lab I, II 4-11 Organic Chemistry I 6 s.h.
99-120 The Chemistry of Biological Materials 3 s.h.
29-11-12 College Physics 8 s.h.
29-17-18 Introductory Physics I II 8 s.h.
22M-25 Calculus I 4 s.h.
22M or 25M Calculus for the Biological Sciences 3 s.h.
22-35 Engineering Calculus I 4 s.h.
8W-10 Expository Writing 3 (or equivalent)

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 4-161 Organic Chemistry Laboratory I 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 advisers in the College of Education concerning psychology, education, and American government courses required for teaching certification.
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 to enter careers in fields related to the plant sciences, such as agriculture, forestry, horticulture, plant breeding, microbiology, the chemistry of natural products, ecology, medicine, environmental law, and pharmacy.

Bachelor of Science

In addition to the general education requirements of the College of Liberal Arts, students seeking the B.S. degree are required to take:

Botany Requirements
- 22M:01 Introduction to Botany 4 s.h.
- 22M:02 Plant Diversity 4 s.h.
- 22M:13 Plant Anatomy 4 s.h.
- 22M:19 Fundamental Genetics 3 s.h.
- 22M:02 Algae and Fungi 4 s.h.
- or both
- 22M:102 Lichen and Bryophytes 4 s.h.
- 22M:05 Physiology 4 s.h.

A Taxonomy Course
- 22M:13 Biology of the Local Flora 3 s.h.
- 22M:101 Plant Taxonomy 4 s.h.
- 22M:19 Field Botany 3 s.h.
- 22M:05 Plant Taxonomy 5 s.h.

A Physiology Course
- 22M:19 Plant Physiology 4 s.h.
- 22M:10 Plant Physiology 4 s.h.
- 22M:13 Cell Plant Physiology 3 s.h.
- 32M:10 Cell Physiology 4 s.h.

An Ecology Course:
- 22M:121 Plant Ecology 4 s.h.
- 22M:122 Ecology 4 s.h.
- 22M:116 Field Ecology 4 s.h.

Special Topics
- 22M:13 Special Topics 2 s.h.

Zoology Requirement
- 32M:13 Principles of Animal Biology 5 s.h.

Chemistry Requirement
- 44M:13 Principles of Chemistry I 3 s.h.
- 44M:14 Principles of Chemistry II 3 s.h.
- 44M:16 Principles of Chemistry Laboratory 2 s.h.
- 44M:121 Organic Chemistry I 3 s.h.
- 44M:122 Organic Chemistry II 3 s.h.
- 99:120 The Chemistry of Biological Materials 3 s.h.
- 44M:141 Organic Chemistry Laboratory 2 s.h.
- 99:140 Experimental Biochemistry 4 s.h.

Mathematics Requirement
- 22M:13 Mathematics for the Biological Sciences 4 s.h.

or
- 22M:20 Elementary Functions 3 s.h.

A Statistics course
- 22M:102 Introduction to Statistical Methods or equivalent.

Bachelor of Arts

The B.A. curriculum provides a broad background in botany yet allows more electives than does the B.S. In addition to the general requirements of the College of Liberal Arts, students majoring in botany are required to take:

Botany:
- 22M:13 Biology of the Local Flora 3 s.h.
- 22M:101 Plant Taxonomy 4 s.h.
- 22M:19 Field Botany 3 s.h.
- 22M:05 Plant Taxonomy 5 s.h.

A Physiology Course
- 22M:19 Plant Physiology 4 s.h.
- 22M:10 Plant Physiology 4 s.h.
- 22M:13 Cell Plant Physiology 3 s.h.
- 32M:10 Cell Physiology 4 s.h.

An Ecology Course:
- 22M:121 Plant Ecology 4 s.h.
- 22M:122 Ecology 4 s.h.
- 22M:116 Field Ecology 4 s.h.

Special Topics
- 22M:13 Special Topics 2 s.h.

Zoology Requirement
- 32M:13 Principles of Animal Biology 5 s.h.

Chemistry Requirement
- 44M:13 Principles of Chemistry I 3 s.h.
- 44M:14 Principles of Chemistry II 3 s.h.
- 44M:16 Principles of Chemistry Laboratory 2 s.h.
- 44M:121 Organic Chemistry I 3 s.h.
- 44M:122 Organic Chemistry II 3 s.h.
- 99:120 The Chemistry of Biological Materials 3 s.h.

Mathematics (one of the following)
- 22M:15 Mathematics for the Biological Sciences 4 s.h.
- 22M:16 Calculus for the Biological Sciences 4 s.h.
- 22M:20 Elementary Functions 3 s.h.

22M:25 Calculus I 4 s.h.

Students preparing to teach in secondary schools should consult the "College of Education" section in the Catalog regarding requirements for teacher certification.

Honors

An undergraduate program leading to graduation with honors provides opportunities for participation in independent research projects guided by professional staff members. In addition to the regular requirements for the B.A. degree, honors students must complete 3 semester hours of research during the senior year, maintain the grade-point averages required for admission to the program, and pass an honors examination at the end of the senior year.

Minor

The botany minor requires 16 semester hours of credit in Botany. At least 12 of these semester hours must be earned in courses at the 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, physiology, cell biology, ecology, genetics, development and morphogenesis, mycology, paleobotany, physiology, pathology, 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 requirements necessary to meet them.

Master of Science in Botany

The botany department offers two distinct M.A. degree programs, one with thesis and one without. The M.S. with thesis places greater emphasis on independent research and less on formal course work. It is intended primarily for candidates entering with a strong course background in botany or biology.
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 writer 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 examination committee. Hours earned for the master's degree may be counted toward the 72 hour minimum. The examination committee may also allow that course work beyond the 72 hours be taken to meet specific proficiency requirements (e.g., language, statistics) or to make up for background deficiencies (e.g., chemistry, general botany, 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.

Satisfy all course work requirements of the program above. Changes may be made only with the formal (written) approval of the guidance committee.

Complete an initial Research Proposal within 2-3 semesters of admission to the Ph.D. program (i.e. post-M.S.). The proposal should outline the specific objectives, significance, and methodology of the chosen research project. This proposal should also include a written acceptance by members of the guidance committee. Subsequently, copies of the accepted proposal will be distributed by the candidate to all faculty members of the Botany Department.

Give an Oral Presentation of the proposed research work to members of the botany department within a six-month period following acceptance of the Initial Research Proposal. The candidate will thereby be eligible for one semester hour credit under 222 Seminar Botany (see also section on Botany Seminars).

Write a written and oral comprehensive examination when formal course work has been completed or nearly completed.

Submit a doctoral thesis based on original research to the final examination committee for review.

Present the results of the thesis research at a student in the Botany Seminar, preferably before the thesis defense.

Pass the final doctoral examination which is primarily a defense of the ideas, methods, and significance of the doctoral thesis.

Doctor of Philosophy in Biology

The degree program leading to a Ph.D. in biology is administered jointly by the botany and biology departments. See biology section of the Catalog.

Graduate Admission

University requirements

An application form for admission to the Graduate College must be completed and sent to the Director of Admissions, University of Iowa, Iowa City, Iowa 52242. Official transcripts from each undergraduate and graduate institution attended must be submitted with the application form. Scores on the Graduate Record Examination (GRE) Aptitude Test (verbal and quantitative parts) should be filed with the application. A valid B.S. or B.A. degree from an accredited institution is required.

Departmental requirements

Masters Degree Program:

- A cumulative grade-point average of at least 3.0 on all college level work attempted.
- A GRE Aptitude Test score (verbal plus quantitative) of 1100 or greater.

Three letters of recommendation.

Provision: The numerical requirements are not absolute. For example, a GRE Aptitude Test score slightly below 1100 may be compensated for by a high level of academic achievement.

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 biology or a Doctor of Philosophy in Biology.

Provision: The numerical requirements are not absolute. For example, a GRE Aptitude Test score slightly below 1200 may be compensated for by a high level of academic achievement, especially during the M.S. program.

Students applying for admission to the master's program in botany must have a bachelor's degree in one of the biological sciences. Students with bachelor's degrees in other areas will need to register as special students (AS) and make up the equivalent of our bachelor's degrees 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:
Botany/LIBERAL ARTS

Admission for foreign students is based on a quantitative score on the GRE Aptitude Test of 650 or greater and a Test of English as a Foreign Language (TOEFL) score of 550 or greater. These scores may be used in place of the total GRE requirement, as outlined above.

Financial 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. Application forms are reviewed by the faculty for teaching assistantships and by the Graduate College upon recommendation by the Department faculty for research assistantship and fellowships.

The kinds and amounts of support for graduate study in botany, as in other departments, vary from year to year depending on the availability of funds. The types of appointments and support are teaching assistantships and research assistantships (half-time or quarter-time); teaching-research fellowships (TRF); genetics research assistantships; and other sources of support.

Teaching and Research Assistantships. Appointment to an assistantship requires that the student provide approximately 20 hours of weekly service as a teaching assistant in resident tuition courses.

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. Faculty members render service to the department by: (1) serving as a teaching assistant in their major program or research assistant for two or three years; (2) making a contribution of 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 Intercampus Genetics Program from University funds. All students whose thesis project is primarily concerned with genetics are eligible to apply. Other sources of support
Summer appointments are few and depend upon the amount of the summer's 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 the National Science Foundation. 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 chairman 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 scientific 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, genecology, plant biochemistry, biochemical systematics, paleobotany, cytogenetics, ecophotobiology, polution biology, 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 Canadian prairies, and tropical countries, and a growing repository of fossil pteridaceous plants. Within a few miles of the campus, a forest preserve is available for field trips and experimental projects. A biological field station at Iowa Lakeside Laboratory (see "Iowa Lakeside Laboratory" in this section of the handbook) on West Lake Okoboji in northwestern Iowa affords excellent conditions for summer study in field biology, limnology, physiology, aquatic ecology, pollution biology, and plant taxonomy. Students frequently partake in field expeditions in Mexico, and Central America. Qualified graduate students may use the Weig Community Center in their research projects.

Courses

Primarily for Undergraduates

21 Introduction to Botany
Biology of plant life emphasizing structure, function, reproduction, and ecology. Requirements: prerequisite, Introductory Biology, and for those preparing to teach science.

32 Field and Laboratory Study of Vascular and Non-Vascular Plants, and flowering herbs found in the region. Identification, recognition, and reproductive biology emphasized.

33 Biology of the Local Flora
Identification, classification, and evolutionary biology of ferns, gymnosperms, and flowering plants found in the adjacent prairies and wooded habitat of native woodlands and prairie communities when feasible. Prerequisite: 21 or equivalent.

34 Plant Propagation
Study of vegetative and seed propagation techniques. cuttings, budding and grafting, and culture techniques. Seed quality, seed dormancy, and seedling culture. Prerequisite: 21 or equivalent.

49G Freshwater and Marine
Study of ways plants are used in man as food, for clothing and shelter, as a source of energy, and as a source of significance of plants.

49F Winter Botany
A course of plant life emphasizing the structure, reproduction, and growth of representative major plant groups. Prerequisite: 21 or equivalent.

For Undergraduates and Graduates

21 Plant Taxonomy
4.4
Biology and nomenclature of angiosperm and gymnosperm families within species, genera and families of ferns, seed plants, and flowering plants emphasizing integration of data from comparative morphology, systematics, and an evolutionary viewpoint. Identification and recognition of major plant families. Prerequisite: 21 or equivalent.

21 Geography of Fungi
Survey of algae, fungi, mycophytes, and phytophages with emphasis on mycorrhizal and mycoparasitic relations of major terrestrial groups. Lectures and laboratory experience with fungi and mycorrhizae in northwestern Iowa. Prerequisites: 21 or equivalent.

21 Introductory Genetics
4.4
Basic principles of genetics including methodology, chromosomology, molecular biology, and evolution.

32 Cytogenetics
4.4
Structural and functional organization of chromosomes, processes of recombination, chromosome aberrations, and the use of chromosome analyses in animal and plant genetics. Prerequisites: 21 or equivalent.

32 Physiology
4.4
Behavior and adaptation of algae, bacteria, fungi, protozoans, and plants to their environment. Prerequisites: 21 or equivalent.

32 Biochemistry
4.4
Lectures, laboratory, and field trips dealing with biochemical concepts and their applications to agriculture, nutrition, and human physiology. Prerequisites: 21 or equivalent.

32 Mycology
4.4
Morphology, taxonomy, and cytology of fungi with

...
study of representative groups. Prerequisites: 2/11 or equivalent.

2301 Plant Physiology
Experimental study of function in plants; cell physiology, water relations, and chemical processes. Prerequisite: 2/11 or equivalent.

2302 Plant Physiology
Experimental study of mineral nutrition, metabolism, growth, and development of seed plants. Prerequisites: 2/11 or equivalent.

2311 Plant Ecology
Interaction between organisms and their environments, topics include community succession, climax, history of a particular ecosystem, heredity, evolution, principles of ecology. Prerequisites: 2/10, 111, or consent of instructor.

2312 Plant Anatomy
Structure and organization of fundamental tissue systems of seed plants, including development and function of the leaf, stem, flower, and fruit. Prerequisites: 2/11, 101, or consent of instructor.

2314 Cellular Plant Physiology
In-depth course to study plant physiology emphasizing structure and function of plant cells and organelle, topics include photosynthesis, respiration, water relations, translocation, cell culture, and development. Prerequisites: 5/1, 4/3, or consent of instructor.

2315 General Plant Cell Structure and Function
Lectures, discussions, and seminars on selected topics in biology of plant cells and organelles. May be repeated. Prerequisites: 2/11, 213, 214, 215, or consent of instructor.

2316 Field Ecology
Correlation of natural and environmental factors, development of plant communities and populations, population dynamics and analysis of field data. Prerequisites: 2/11, 101, 111, or equivalent.

2317 Experimental Techniques in Plant Physiology
Lectures and laboratory work on initiation, experimentation, calibration, data collection, data analysis, and research in the field of plant physiology. Prerequisite: 2/11, or consent of instructor.

2318 Experimental Techniques
Combination of 2/11, 213, 214, 215, or any other course in plant physiology or related areas. Prerequisite: 2/11, or consent of instructor.

2319 Nutritional Entomology
Introduction to food web concepts, nutritional aspects of pest control and applications of entomological principles, effects of feeding practices, and nutritional status of pests. Prerequisites: 2/11, or consent of instructor.

2320 Plant Breeding
Lectures and laboratory work on plant physiology and genetics, selection and breeding for desired traits, plant improvement programs. Prerequisite: 2/11 or equivalent.

2321 Quailary Poultry Science
Normal and abnormal physiology of poultry; feeding and nutrition. Prerequisites: 1/10, 2/11, or 213 or equivalent.

2322 Poultry Pathology
Lecture and laboratory work on poultry diseases, including comparisons between poultry and mammals, pathology, and postmortem and epidemiological techniques. Prerequisite: 2/11, or consent of instructor.

2323 Poultry Biochemistry
Lectures on modern approaches to the biochemistry of plant physiology, including photosynthesis, cell biology, and biochemistry of plant tissues. Prerequisites: 2/11 or equivalent.

2324 Advanced Plant Pathology
3-1-0 cr.
Lectures covering current topics in plant pathology, including fungal diseases, bacterial diseases, virus diseases, and nematode diseases. Prerequisite: 2/11, or consent of instructor.

2325 Advanced Plant Physiology
3-0-0 cr.
Lectures covering current topics in plant physiology, including molecular biology, cellular biology, and developmental biology. Prerequisite: 2/11, or consent of instructor.

2326 Fundamental Genetics
3-1-0 cr.
Lectures and laboratory work on principles of genetics, including Mendelian genetics, gene mapping, and molecular genetics. Prerequisites: 2/10, 111, or consent of instructor.

2327 Fundamental Genetics Laboratory
1-0-0 cr.
Laboratory work on principles of genetics, including Mendelian genetics, gene mapping, and molecular genetics. Prerequisite: 2/10, 111, or consent of instructor.

2328 Evolution
4-0-0 cr.

2329 Ecology
3-1-0 cr.
Lectures on ecological principles, populations, communities, and ecosystems. Prerequisites: 2/11 or equivalent.

2331 Medical Mycology
3-3-0 cr.
Lectures and laboratory work on the fungi of medical importance and their relationships to man. Prerequisite: consent of the instructor. Same as 5/1.

2332 Field Botany
3-0-0 cr.
Field study of the general and applied botany. Prerequisites: 2/11 or equivalent.

2333 Readings and Research
3-3-0 cr.
Lectures, conferences, and written reports or classes on the selection of topics in plant physiology. Prerequisites: 2/11 or equivalent.

2334 Special Topics
3-3-0 cr.
Lectures, conferences, and written reports or classes on the selection of topics in plant physiology. Prerequisites: 2/11 or equivalent.

2335 Scanning Electron Microscopy and X-ray Microanalysis
3-2-0 cr.
Same as 12-156, 60-156.

2336 Genetics and Biogeography of Crop Organisms
Lectures on the genetics and function of genes in crop organisms, ecology of crop organisms, and the relation between the interaction of human and organismal genetics. Prerequisites: one course each in biology, genetics, and plant physiology.

2337 Advanced Genetics
3-1-0 cr.
Same as 1171, 21-171.

2338 Nuclear Laboratory Research
1-0-0 cr.
Lectures and laboratory work on laboratory techniques and procedures. Prerequisites: 2/11 or equivalent.

2339 Vascular Research in Botany
1-0-0 cr.
Lectures and laboratory work on laboratory techniques and procedures. Prerequisites: 2/11 or equivalent.

Primary for Graduates

2330 Advanced Plant Physiology
3-0-0 cr.
Normal and abnormal physiology of plants; feeding and nutrition. Prerequisites: 1/10, 2/11, or 213 or equivalent.

2331 General Ecology
Professional seminar with lectures, discussions, and literature reviews on selected topics in current ecological research. Prerequisites: 2/11 or equivalent.

2332 Ecological Writings and Criticism
2-0-0 cr.
Same as 3/212.

2333 General Seminar
2-0-0 cr.
Special topics selected each year. May be repeated for credit. Prerequisite: 2/11 or equivalent.

2334 Elective Microbiology Technique
3-0-0 cr.
Lectures and laboratory work on methods of tissue culture, isolation and identification of microorganisms, and other techniques. Prerequisites: 2/10, 111, or consent of instructor.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>20:1-2 Elementary Latin</td>
<td>8 s.h.</td>
</tr>
<tr>
<td>20:15 Latin Review</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>20:16-17 Intermediate Latin I-II</td>
<td>6 s.h.</td>
</tr>
<tr>
<td>20:81 Age of Cicero</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>20:82 Age of Augustus</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>20:171 Elementary Latin Composition</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>Two Latin, History courses, 100-level or above</td>
<td>6 s.h.</td>
</tr>
</tbody>
</table>

**Language for Nonmajors**

Students wishing to satisfy the College of Liberal Arts foreign language requirement for the B.A. degree by studying Greek should take 14:1-2 Elementary Greek and 14:11-12 Second-Year Greek. Students who wish to meet the requirement by studying Latin may elect 20:1-2 Elementary Latin or 20:15 Latin Review, and 20:16-17 Intermediate Latin I-II.

**Graduate Program**

For the general requirements of the Graduate College, including the comprehensive examinations, see the "Graduate College" section of the Catalog.

Graduate students in classics may include in their programs no more than six semester hours of courses numbered 101-189.

**Master of Arts**

The department offers the M.A. degree in Latin, Greek, or classics. The candidate must earn a minimum of 36 semester hours of major credit in courses numbered 101 and above. Normally, students in the Latin program who have had no Greek are also expected to take 101-189 at least elementary Greek in their program.

**Doctor of Philosophy**

**Required Courses**

A one-term course in Greek readings (3 s.h.)

A one-term course in Latin readings (3 s.h.)

Advanced Greek composition (3 s.h.) or equivalent.

Advanced Latin composition (3 s.h.) or equivalent.

Any two of the following three courses:  
  a. A 3 s.h. course in Indo-European philology—3 s.h.  
  b. A 3 s.h. course in Greek 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 departmental 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 ivories 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**

14:1 Elementary Greek  
  Fundamentals of 101-200 Greek. (3 s.h.)

14:2 Elementary Greek  
  Selections from Greek authors. Continuation of 14:1, which is prerequisite.

14:6 New Testament Greek  
  Reading knowledge of New Testament Greek, evidence of knowledge of Greek is not expected, copy is translated with an extra foreign-language, 4-credit summer sessions.
For Graduates

248 Advanced Reading 4 s.h. Open only to graduate students in the department.

246 Rapid Reading in Greek 2 s.h. Oral or written examination by the department.

246 Rapid Reading in Greek 2 s.h. Oral or written examination by the department.

246 Greek Philology 3 s.h. Study of Greek literature, grammatical, early printed, and classical texts. 246 Seminar Problems in Ancient Art 2 s.h. Same as Arts 226.

247 Roman 3 s.h.

247 Roman 3 s.h.

247 Roman 3 s.h.

247 Roman 3 s.h.

247 Roman 3 s.h.

247 Roman 3 s.h.

247 Roman 3 s.h.

247 Roman 3 s.h.

247 Roman 3 s.h.

247 Roman 3 s.h.

247 Roman 3 s.h.

247 Roman 3 s.h.

247 Roman 3 s.h.
Communication and Theatre Arts

Department Chair: John W. Bewley

Communication and Theatre Arts

14111 Classical Greek Art
Concentration of 14.111. Same as 111-127.

14112 Classical Greek Art
Lecture on classical myths and legends. For comparative purposes, traditional mythologies, including the Greek. 3 hrs.

14150 Comic Cinematography and Daily Cartoon Art
Same as 115/16, 321-32.

14244 Greek Drama for Performance
Survey of Greek drama with attention to the relationship of the dramatic form to modern times. Same as 141.18.

14160 Middle East Language Art
Same as 141.17.

14172 Spanish Literature
Same as 141.19.

14189 German for Ancient Civilizations
Supervised major changes annually. Required of majors in minor civilizations during senior year.

13130 Greek and Latin in Vocabulary Building
Emphasizes memorization of Greek and Latin stems, prefixes, and suffixes. Analysis of words, word parts, principles of language, and practical applications for students of other languages. 3 hrs.

13923 Medical and Technical Terminology
Concentrates on specific terminology in medical and scientific areas derived from Greek and Latin. No formal courses, students act their own pace and schedule, study guide with illustrations.

13915 Early Roman Art
Roman architecture, sculpture, painting, and mosaic of the Roman Republic and Empire. 3 yrs.

13911 Egyptian Art
Same as 139.10.

13912 Roman Mosaics
Same as 139.13.

13913 Religion and Dogma in Antiquity
Examination of the role of religion and other doctrines in the lives of early Greeks and Romans. Emphasis on Greco-Roman culture and its influence on modern society. 3 yrs.

14113 Ancient Novel
Introduction to the ancient prose writing in Greece and Rome. Students read several Greek romances and two Roman novels covering the transition from romance to novel in antiquity.

14114 Latin Romance
Same as 141.14.

13915 The Dating of the City State
Trace the political and social effects of the Roman Republic as it evolved into empire and as the consequences of the growth of the city. Readings in English, no Latin or Greek required.

13921 Comparative Roman Linguistics
Same as 139.28, 142.06, 158.06.

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 24 semester hours in the department, including at least two courses outside the division of concentration.

An undergraduate student may specialize in communication, theatre, or film, or may major in communication and theatre. The requirement for prerequisites for these emphases is 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 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 of the preceding year, for maximum probability of admission. The minimum cumulative undergraduate grade-point average required for admission is 3.75.

Master of Fine Arts in Dramatic Art

See "Theatre Arts" section.

Educational Specialist (for Jursor Creative Teaching)

Departmental requirements for the Educational Specialist degree are:

A minimum of 80 semester hours, including 36.300 Introduction to Research or its equivalent, 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 permission in an assigned teaching position.

Satisfactory performance on a nine-hour written examination covering areas of learning agreed upon by the student and his or her graduate committee.

Successful completion of such coursework and examinations as 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 with 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 area.

A substantial scholarly dissertation.

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 of the preceding year, for maximum probability of admission. Admission decisions are
105:211 Advances in Film Production

105:221 Political Economy of Mass Communication

105:231 Communication and Social Institutions

105:241 Communication and Theatre Practice

105:251 Communication and Theatre Practice

105:261 Communication and Theatre Practice

105:271 Communication and Theatre Practice

105:281 Communication and Theatre Practice

105:311 Communication and Theatre Practice

105:321 Communication and Theatre Practice

105:331 Communication and Theatre Practice

105:341 Communication and Theatre Practice

105:351 Communication and Theatre Practice

105:361 Communication and Theatre Practice

105:371 Communication and Theatre Practice

105:381 Communication and Theatre Practice

105:391 Communication and Theatre Practice

105:411 Communication and Theatre Practice

105:421 Communication and Theatre Practice

105:431 Communication and Theatre Practice

105:441 Communication and Theatre Practice

105:451 Communication and Theatre Practice

105:461 Communication and Theatre Practice

105:471 Communication and Theatre Practice

105:481 Communication and Theatre Practice

105:491 Communication and Theatre Practice

Bachelor of Arts

Required courses for the Bachelor of Arts degree in Theatre Arts include:

- Introduction to Theatre
- History of Theatre
- Theatre Criticism
- Theatre Production
- Acting
- Directing
- Playwriting
- Contemporary Theatre
- American Theatre
- World Theatre
- Shakespeare
- Restoration and Neo-Renaissance
- Modern and Contemporary Theatre
- Dramaturgy
- Directing Techniques
- Playwriting
- Technical Theatre
- Stage Management
- Costume Design
- Set Design
- Lighting Design
- Voice and Speech

Advising

All students interested in the Bachelor of Arts degree in Theatre Arts should contact the Department of Theatre Arts for advising.

Required courses for the Bachelor of Arts degree in Theatre Arts include:

- Introduction to Theatre
- History of Theatre
- Theatre Criticism
- Theatre Production
- Acting
- Directing
- Playwriting
- Contemporary Theatre
- American Theatre
- World Theatre
- Shakespeare
- Restoration and Neo-Renaissance
- Modern and Contemporary Theatre
- Dramaturgy
- Directing Techniques
- Playwriting
- Technical Theatre
- Stage Management
- Costume Design
- Set Design
- Lighting Design
- Voice and Speech

Advising

All students interested in the Bachelor of Arts degree in Theatre Arts should contact the Department of Theatre Arts for advising.
Comparative Literature/LIBERAL ARTS

347.302 Arts Management Seminar 2 s.h.
Coursework and techniques in managing the
management of performing and commercial arts
activities.

347.417 History of Criticism R/f to 170 3 s.h.
Same as 3 251; 42.581.

347.486 History of Green 138-189 3 s.h.
Same as 6 309; 42.952.

347.488 Heritage History 2 s.h.

347.545 Seminar: Domestic And Biblical Criticism 3 s.h.

Comparative Literature

Program Chair: J. Dudley Andrew

Faculty, professors: J. Dudley Andrew, Staten
Geisinger, Rolf Konig; associate professors: Charles F. Ahmann, Thomas E.
Lewis, Hannes Koppoff, William Robertson, Steven
Ungar, Geoffrey White, Daniel Weinstock

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, communication and theatre arts, English,
film, French and Italian, German, history, 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 a field of study and interdisciplinary
study designed to promote cultural awareness,
af increased speaking and
writing skills, and to develop capacities
for cross-national reasoning. Students who major in comparative literature may
expect to attain training in foreign
guage, 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 also provides suitable
preparation for graduate work in the
humanities.

The successful pursuit of comparative
literature requires that students study one
history, philosophy, or literature in
historical context. Familiarity with the
literatures and cultures of other nations
is afforded by course work that
oversees studies in literature and
among 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
time. Literature itself. Course work in comparative literature also emphasizes
interdisciplinary relations between
literature and other areas of study such as
literary theory, anthropology, anthropology,
ethnology, law, and psychology.

Majors in comparative literature do not
process 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, majors must take all 36
semester hours in courses distributed as follows:

Comparative Literature

48-40:41 Major Texts in World Literature I-II 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:
ine 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 language:
ine semester hour.

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
in the theory and study of literature in
general. In consultation with faculty
advisors, students combine courses in
the program and in the individual
areas of specialization to design a coherent
course of study.

Formal degree requirements may be
satisfied by a written examination on
reading lists agreed upon 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 45 semester hours of
graduate study with a grade-point average
of 3.50, and following successful
test preparation for the Ph.D.

Doctor of Philosophy

Students seeking the doctorate in
comparative literature study at least
three literatures (one is studied in
historical depth, and two or others in
limited departments of specialization).
An interdisciplinary area of concentration is
encouraged. All candidates devote a
portion of their programs to comparative
study that brings the several areas into
focus. Specific areas and interrelations of
these areas are selected by the student
in consultation with appropriate faculty
members.

Some typical critical and comparative
areas are:

European Renaissance
Renaissance
Structuralism and Poststructuralism
Narrative theory
Symbolic poetics and modern literature
Post-Kantian philosophy and literature
Renaissance, 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 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

Admission

A study of literature across linguistic
boundaries requires special training in
languages. The student must show
knowledge of at least one foreign
language is required for admission to the
M.A. course of study.

Further information, consult the
prospective guide for graduate students
in comparative literature, available by
request from the program office.

Courses

46100 Cooperative Education Internship 0 s.h.
46120 Major Texts in World Literature I 3 s.h.
46130 Reading and analysis of major literary texts from
home to the Renaissance in chronological sequence,
emphasizing the interrelationship of literature
and history. Same as 6 41.
46140 Major Texts in World Literature II 3 s.h.
46150 Reading and analysis of major literary texts from
the Renaissance to the Enlightenment and
emphasizing the interrelationship of literature
and history. Same as 6 41.
46200 Renaissance Poetry Tradition 3 s.h.
46300 Instruction in Film Analysis 3 s.h.
46400 Student Seminar: Discussing various kinds of
films, with emphasis on how various narrative
strategies and the film as an art form
interact. Includes film viewings (and
discussion) of film, television, and
video. Includes short- and wide-angle
camera, sound, editing, and
interpretation. Same as 660 43.
46320 Undergraduate Seminar 3 s.h.
46370 Seminar with focus on a single text in a unique
problem, course content varies to reflect current
interests of faculty and visiting faculty. Students
develop individual research projects. Same as 6 93.
46380 Seminar Tutorial 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:

223-25 Elementary Statistics and Inference

or

229-7 Quantitative Methods I

and

229-8 Quantitative Methods II

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 other than 6E-109 Principles of Economics and 6E-103 Principles of Microeconomics:

6E-1 and 6E-2 satisfy the general education requirement in social sciences.

Credit gained in 6E-100 Price, Employment, and Production Theory cannot be counted toward the 20 semester hours of 100-level economics course credit required for the B.A. degree.

Bachelor of Science

The B.S. program in economics requires these courses and electives:

224-25-26 Calculus I-III

225-12 Probability and Statistics

or

6E-183 Statistical Methods in Economics

Twenty semester hours of 100-level economics courses, including 6E-103 Microeconomics, 6E-105 Macroeconomics, and 6E-184 Methods of Quantitative Economics.

Credit earned in 6E-100 Price, Employment, and Production Theory or 6E-183 Statistical Methods in Economics cannot be counted toward the required 20 semester hours of 100-level course credit.

Minor

A student in the College of Liberal Arts may complete a minor in economics by earning at least 18 semester hours of credit in courses offered by the Department of Economics, including at least 12 semester hours in courses numbered 100 or above.

Students interested in an economics minor should obtain information concerning course selection from the department office.

Honors

Undergraduate students working toward the B.A. or B.B.A. degree with a major in economics are eligible to participate in the Honors Program in economics. The Honors Program offers the high-achieving student an opportunity to pursue special research interests. Honors students must complete four 100-level economics courses, including 6E-109 and 6E-105, before the senior year. They must also register for 6E-187 Senior Thesis in Economics and 6E-188 Senior Seminar in Economics for three semester hours of credit in each during the senior year, complete a senior thesis under direction of an economics faculty member of professional rank, and take (during the final semester of the program) an examination covering their departmental honors work. A student satisfactorily completing the Honors Program receives his or her degree "with honors.

Bachelor of Business Administration

The program for the B.B.A. degree is described in the "College of Business Administration" section of the Catalog.

Course Work for Nonmajors

Departmental course 6E-1-2 Principles of Economics satisfies the College of Liberal Arts general education requirement in social sciences. This provides an introduction to specialized topics of upper-division courses. Students with limited exposure to economics may find the courses behind the current policy issues in 6E-7 Contemporary Economics Problems and Policy.

Course work in economics can be related to majors in other fields—e.g., history majors might take 6E-101 American Economic History and 6E-103 Microeconomics, political science majors could elect 6E-118 Economics of the Government Sector and 6E-141 Economics of American Industries. A number of students combine related interests by pursuing double majors in economics and fields such as computer science, geography, history, mathematics, political science, sociology, or statistics.

Graduate Programs

The department offers Master of Arts and Doctor of Philosophy degree programs. Each program has a separate theory and quantitative core enhanced by a set of field courses. The M.A. degree program is designed to provide breadth in economic training without the requirement of specialization. The M.A. program can be completed within 18 months.

Within the M.A. program, the department offers concentrations in econometrics, economic history, health economics, history of economic thought, industrial organization, international economics, labor economics, economic theory and mathematical economics, monetary economics and policy, public finance, and regional and urban economics.

The Ph.D. program is designed to provide students with rigorous training in microeconomic theory, macroeconometric theory, mathematical economics, and econometrics. In addition, the student selects a major area for 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 economic scholars from government, the business community, and from other academic institutions. As part of the seminar, graduate students present research papers.

Courses

Primarily for Undergraduates

Note: 6E-1 and 6E-2 may be taken in either order or they may be taken concurrently. They satisfy the general education requirement in social sciences.

Computer Education Internship

4.0 h

Computer Education Internship

6E-1 Principles of Economics

3.0 h

Organization and operations of modern economic systems, with emphasis on information systems, international trade, monetary system, and public finance. Prerequisite: satisfactory performance in University mathematics requirements.

6E-2 Principles of Economics

3.0 h

National income and output, employment and prices, money and credit, government finances, monetary and fiscal policy, and economic growth and development. International finance. Prerequisite: satisfactory performance in University mathematics requirements.

6E-7 Contemporary Economic Problems and Policy

3.0 h

Current problems and policy issues in economics. Prerequisite: satisfactory performance in University mathematics requirements.

6E-8 Washington Internship

5.0 h

Opportunity for students participating in the Washington Center for Learning Activities. Participation fee basis. Prerequisite: current internship.
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 cooperation with the academic advisors, students for mature programs of study designed to satisfy their current interests and achieve their future goals. Normally they begin with courses in医护 miscellaneous reading of poetry, fiction, drama, and expository or argumentative prose. Later they study particular literary forces 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 book 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 dramatic or functional writing (exposition or argument) in the fields of journalism, business, science, or the arts.

To buttress their understanding of literature, English majors are encouraged to choose elective courses from such disciplines as history, classical or modern foreign languages, speech, film, and the fine arts. Students planning to teach in primary or secondary schools will find appropriate courses in education. Those seeking careers in the publishing field will elect courses in business, law, or the sciences.

As soon as students decide to undertake an English major, they should consult the director of undergraduate study in the English department office who will assign them a faculty adviser. In the English office, too, they may obtain a pamphlet on selecting your English Major, and other printed materials 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 courses (B8.11 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 criticism. During the junior year, an honors student takes a special honors prose seminar whose final examination qualifies the student to continue in the program; then the student uses the first semester of her or his senior year to complete an honors paper; either critical or creative, which is advised by any faculty member and evaluated by the honors committee. Honors plans in consultation with the chair of 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 honors as soon as possible.

Creative Writing

Many undergraduates come to The University of Iowa because of the experience of its creative writing program. The consent of his or her adviser, any student may elect the undergraduate courses in this program. These are BW-233 Creative Writing, BW-151 Fiction Writing, and BW-152 Poetry Writing.

Admission to the undergraduate workshops in fiction and poetry (BW-163 Undergraduate Writers' Workshop. Fiction and BW-166 Undergraduate Writers' Workshop. Poetry) is by permission of the director of the workshops. Students interested in taking part in these workshops must submit samples of their poetry or fiction to the Writers Workshop no later than the first week of each semester, or no later than the last day of registration.

English and Education

The department offers a flexible program for students planning to teach English in elementary and secondary schools. Students completing this program can satisfy the requirements for a general major in English and for teaching certification.

Students who wish to be certified to teach English in Iowa secondary schools should select courses 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, Shakespearean, Classical, and the literature of the eighteenth and nineteenth centuries; American literature, literature for children, literature of American ethnic groups, 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

Education

See "College of Education."
will have to work with details of expression in English.

They will need advanced training in writing—character, voice, and fiction—and be all-sure—because these courses will help students understand and utilize linguistic, rhetorical, and stylistic devices in various kinds of writing.

They will need to understand the nature of the English language, including syntax, phonology, and semantics, because this knowledge should help students understand language development and how language can be adapted to meet various speaking and writing situations.

Since communication also occurs visually, students should explore the relationships between written, oral, and visual media.

Finally, students should explore the processes of reading, from the first stages of learning to read through advanced stages when a reader comes increasingly to understand and respond to details of meaning and nuances of expression.

All these areas of study can be satisfied by courses within the department except the exploration of the process of reading. That area of study can be satisfied by courses in the College of Education.

Prospective English teachers should remember that an undergraduate degree in English also represents minimal training, so they should plan a program which will permit greater specialization. English majors seeking teaching certification must plan with their advisors appropriate education courses to be taken concurrently with courses in English. In addition, they must devote one semester of the senior year to professional training apart from any other course work.

The department also participates in a joint major in English and elementary education. Those interested in such a program should consult their advisors in elementary education.

Students who seek certification to secondary teaching in fields other than English may seek minor certification in English. This is particularly appropriate for students majoring in speech or journalism. Such a student must complete 20 semester hours of English, exclusive of secondary courses in rhetoric, speech, or writing.

The English minor certification program must include a course in each of these areas: advanced composition, linguistics, Shakespeare, American literature, and British literature of the nineteenth or twentieth century. In addition to 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 this program meets minimum requirements for certification, the department believes that anyone desiring to teach English should have considerably more training in the field.

Graduate Programs

Master of Arts (Literary Studies)

This program offers an introduction to the professional study of literature. It provides a general knowledge of the literature of English and American literary history, as well as a transfer sensitivity to artful language as a medium of expression. Each student in consultation with an adviser will plan a course of study that reflects his or her individual pattern of interests. Depending on the course of 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:

- English 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 do one of the following:

- Satisfactorily complete a 10,000- to 15,000-word thesis for 3- to 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 thesis 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 better. In addition to the 30 semester hours of course work, students will be required to complete at least three and no more than six semester hours of credit for the thesis.

In consultation with an adviser, the student will design an approved program of courses. The requirements of study may be highly individual, including courses from widely different areas of departmental study but must be coherent, organized around the student's interests and capabilities 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. In addition to being on the examination of the project, the finished thesis must receive the committee's final approval.

Students interested in this program should consult the director of the M.A. with emphasis in expository writing, or the director of advanced writing.

Master of Arts and Specialist in Education

This program is designed specifically for the person with a strong undergraduate degree in major in English who wishes to prepare to teach secondary English. Upon successful completion of the program the student will receive the Specialist in English degree. The student will complete 36 semester hours of study, which may be completed in the evening. The 36 semester-hour program of study includes nine semester hours of open electives; 4 semester hours of English (literature, expository writing, or creative writing), nine of advanced expository writing and language, and 14 in professional courses taught by specialists in English and in education. Each student spends one semester immersing 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 to 39 semester hours of graduate credit, earned chiefly in the Writers Workshop, a book-length collection of poems or a novel, and a satisfactory performance on an examination in modern poetry or fiction.
Master of Fine Arts with Emphasis in Translation

This alternative to the M.F.A. program in creative writing emphasizes the discipline of translation, viewed as a distinct literary genre. Student programs are individually structured and are designed to develop skills in source and target languages and cultures. The course also seeks to develop awareness of the traditional conception and the history of translation theory. The program normally requires 48 semester hours of graduate credit, including a minimum of 12 semester hours of "Translation Workshop; a collection of translated poetry, fiction, or drama; and an examination in proficiency 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.
- Demonstrated competence in specified historical areas, two seminars:
  - A part-written, part-oral comprehensive examination in major field 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 required and translation core courses of the College of Liberal Arts.

Interested students should write to the department in order to gain admission to the master's or doctoral programs.

Financial Aid

Aid is available to graduate students in the form of scholarships, fellowships, and teaching and research assistancies. 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.

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 a thesis chapter—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 established the first institution of higher education to accept creative dissertations for advanced degree programs. Founded in 1936, the Writers Workshop was a pioneer in the field of creative writing; it numbers scores of distinguished poets and novelists among its alumni. The workshop provides opportunities for students at all levels to work with outstanding teacher-authors and also brings numerous prominent authors to campus each year for lectures and readings.

The International Writing Program, founded in 1966, brings numbers of prominent foreign writers to campus each year.

The University of Iowa has also been a leader in the area of comparative 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.

Facilities

The University Library is strong in all areas of English and American literature. It is especially noteworthy for its collection of American periodicals, its holdings in nineteenth- and twentieth-century works, including the Liecht Host collection, and its manuscript collections of eighteenth- and nineteenth-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 edited by graduate students, which features creative and scholarly work of students in English and related areas. Students may also participate in conferences by working with The Iowa Review, Philological Quarterly, and the Whispered Press.

Students are welcome to participate in the activities of the English Graduate Student Society, the Humanities Society, the F.K.U. Old-Time Music, and the Midwest Modern Language Association. Writing workshops and readings on the campus almost every week, and various conferences and literary "festivals" complement the schedule of class work.

Courses

Individual descriptions for some of the English courses follow below but are not included because the contents and emphases of many courses vary considerably from one semester to another. Detailed course descriptions for all offerings in a specific semester are available in the English department office well in advance of the beginning of each semester.

General Education Literature

The general education course requirements in the humanities may be satisfied by the following literature courses: "Art" (7.5 hours of study or transfer). Interpretation of Literature, and two other appropriate humanities courses. "B" (at least 3 hours) or "A" (at least 6 hours) in English language and literature will be assigned. English majors need not register for BQ requirements for major work. English majors may not register for BQ courses to fulfill requirements for the major.

I.B. The Interpretation of Literature

4.5.

BIB. Biblical and Classical Literature

3.0.

Reading and Writing in the English Language

2.0.

BIB. Medieval and Renaissance Literature

3.0.

Reading and Writing in the English Language, Shakespeare, Milton, and others. Prerequisite: BQ 1.

BIB. Modern and Postmodern Literature

3.0.

Reading and Writing in the English Language, Victor Hugo, French, Romantic, Blake, Wordsworth and others. Prerequisite: BIB 1.

BIB. Ancient and Modern Literature

3.0.

Major representations of tragic vision of human existence in narrative prose and verse from classical times to present. Prerequisite: BQ 1.

BIB. Greek and Latin Thought

3.0.

Variables of comic view of the past and present, including satire, burlesque, lans, farciade, and verse. Prerequisite: BIB 1.

3.0.

BIB. English Language and Literature

Major representations of tragic vision of human existence in narrative prose and verse from classical times to present. Prerequisite: BQ 1.
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 20 Advanced Reading Comprehensive**
1 hr.

**OP 30 Special Reading**
1 hr.

**OP 40 Practical College Vocabulary**
1 hr.

**OP 105S Seminar: American Literature of the Nineteenth Century**
Same as 21-103 and 70-103.

**OP 210 Practicum: Teaching Composition**
Same as 70-217.

**OP 218 Writing for Professional Colleagues**
Same as 70-217.

**OP 220 Practicum: Teaching Literature**
2 hr.

**OP 225 Introduction to Teaching Literature**
2 hr.

**OP 230 Seminar: English in the Two-Year College**
2 hr.

**OP 231 Seminar: English in the Two-Year College**
2 hr.

**OP 310 Teaching in a Reading Laboratory**
3 hr.

**OP 410 M.A. Seminar: English Education**
Same as 70-410.

**OP 450 Seminar: English Education**
Same as 70-410.

**OP 450 Seminar: Teaching Freshmen Writing**
Same as 70-126.

**OP 240 Methods in Teaching Freshmen Composition**
2 hr.

**OP 340 Techniques in the Teaching of Writing**
2 hr.

**EM 231 Expository Writing**
2 hr.

**EM 230 Expository Writing**
2 hr.

**EM 230 Cognitive and Scientific Writing**
2 hr.

**EM 234 Practical Writing for the General Public**
2 hr.

**EM 232 Practical Writing Program**
2 hr.

**EM 233 Writing for the General Public and Professional Purposes**
2 hr.

**EM 234 Advanced Expository Writing**
2 hr.

**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.

**EM 111 Writing for the Humanities**
2 hr.

**EM 112 Writing for the Sciences**
2 hr.

**EM 113 Writing for Business and Industry**
2 hr.

**EM 114 Writing for the Social Sciences**
2 hr.

**EM 115 Writing for the Arts**
2 hr.

**EM 135 Extended Topics: New Journalistic Writing**
3 hr.

**EM 131 Forms of Writing**
3 hr.

**EM 150 Free-Lance Writing**
3 hr.

**EM 150 Free-Lance Workshop**
3 hr.

**EM 150 Free-Lance Workshop: Fiction**
3 hr.

**EM 150S Seminar Text Editing**
1 hr.

**EM 180 Undergraduate Project in Expository Writing**
3 hr.

**EM 280 Essay Writing Workshop**
3 hr.

**EM 280 Critical Writing**
3 hr.

Theory and Practice

These courses are designed to serve the interests and needs of advanced undergraduates and graduates who aim to become not only practitioners, but also critics or teachers of expository writing. They combine theory and analysis of expository writing with practical experimentation in writing.

**EN 121 Theories of the Essay**
3 hr.

**EN 124 Approaches to the Teaching of English**
3 hr.

**EN 125 Writing Workshop for Teachers**
2 hr.

**EN 220 History of Rhetoric**
3 hr.

**EN 226 Thematics of Style**
3 hr.

**EN 237 Reading in Rhetoric**
3 hr.

**EN 238 Philosophy of Language and the Nature of Writing**
3 hr.

**EN 239 Rhetorical Theory: Analysis and Application**
3 hr.

**EN 240 Thematics of Writing**
3 hr.

**EN 240 Approaches to Teaching College Writing**
3 hr.

**EN 240 Methods in Teaching Freshmen Composition**
2 hr.

**EN 240 Techniques in the Teaching of Writing**
2 hr.

**EN 240 Approaches to the Teaching of English**
3 hr.

**EN 240 Teaching in a Reading Laboratory**
2 hr.

**EN 240 Writing Program Requests**
2 hr.

**EN 240 Special Topics in Expository Writing**
2 hr.

**EN 240 Freshman Project in Teaching of Writing**
2 hr.

Creative Writing

These courses are designed to serve the general interests and needs of undergraduate and graduate students in the various departments of the University. They offer practice in various elements and forms of creative writing.

**EN 240 Creative Writing**
2 hr.

**EN 240 History and Theory of Translation**
2 hr.

**EN 240 Fiction Writing**
2 hr.

**EN 240 Poetry Writing**
2 hr.

**EN 240 Basic Reporting**
2 hr.

**EN 240 Advanced Fiction Writing**
2 hr.

Professional Workshop

These courses are designed to serve special needs and interests of undergraduate and graduate students who have substantial background and experience in a specific area of creative writing. They are open only to students who have received permission of the instructor or who have been admitted to work in the Writers Workshop.

**EM 140 Workshop for Fiction Writers**
2 hr.

**EM 140 Workshop for Fiction Writers**
2 hr.

**EM 140 Workshop for Fiction Writers: Fiction**
2 hr.
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 combining the study of French literature with a major in another area, such as English, comparative literature, cinema, or fine arts, the literature track requires a total of 35 semester hours of credit in French, including:

- 9:27-28 Second-Year Composition and Conversation 8 s.h.
- 9:11-112 Third-Year Composition 6 s.h.
- 9:126 French Conversation: Third Level 2 s.h.
- 9:126 French Conversation: Fourth Level 2 s.h.
- 9:175 Advanced French Pronunciation 2 s.h.

A minimum of four 100-level courses in literature (at least two of which must be above the 160 level), plus a fifth 100-level course in a choice of literature, advanced language, or civilization, totaling 15 semester hours.

Civilization Track

Designed for students interested in French history, politics and culture, and recommended for students wishing to combine a 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:

- 9:27-28 Second-Year Composition and Conversation 8 s.h.
- 9:111 Third-Year Composition 3 s.h.
- 9:112 Third-Year Composition 3 s.h.

A minimum of four 100-level courses in civilization and three 100-level courses in literature, totaling 21 semester hours and including at least one course in literature above the 160 level.

Teaching Track

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.
- 9:126 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 law, 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 Translaction 3 s.h.
- 9:157 Translation Project 2 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 3 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 4 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:

- 9:158 Honors Readings 3 s.h.
- 9:199 Honors Seminar 3 s.h.

An example of knowledge 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 Université Laval. 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'été pour non-francophones of the Université Laval, the program is designed to offer qualified students the opportunity to increase their command of French in a French-speaking environment 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 Française in the Foreign Language House at Westwood Residence Hall. Residents initiate cultural and educational programs with the participation of the French and Italian major 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 the final oral examination. The program must include 9:175 Advanced French Pronunciation, 9:209 Advanced Grammar and Lexicology, 9:210 Comparative Stylistics, and 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 beyond the MA degree towards the 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 one 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 in French does not necessarily qualify a student for doctoral studies. For students earning the M.A. at the University of Iowa, the M.A. comprehensive examination committee will make a recommendation concerning admission to the Ph.D. program. Students applying for doctoral candidacy with the M.A. earned at another institution are, when admitted, placed on conditional status, and this status is reviewed after one semester of residence.

In addition to the Graduate Record Examination (GRE) Aptitude Test scores required by the Graduate School, the department requires that all applicants for admission graduate programs in French submit scores from the GRE Advanced Test in French.

Appointments

Teaching and research assistantships and University fellowships and scholarships are available to qualified graduate students in 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 Picardy 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 as indicated. Courses numbered from 150-199 are intended primarily for advanced undergraduates; a graduate student should consult with his or her advisor before registering. Courses numbered 140-149 are given in English but are intended primarily to orient 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 coining of each form. A student may not repeat, for either credit or grade points, a course that is a prerequisite to, or whose equivalent is prerequisite to, a higher-level course the student has already completed.

Primarily for Undergraduates

5080 Cooperative Education Internship
51 Elementary French
52 Elementary French
55 Elementary French Intermediate Course
57 French for Travelers
60-62 Conversation French for the Traveler. Given on Saturday and Evening Class Program.
Italian Courses

Primary for Undergraduates

For Undergraduates and Graduates

Admission

Financial Aid

Medical Scientist Training Program

Departmental Ph.D. Programs

8.0208 Romance of Chivalry: Aristo to Tasso

Program chair: Gary Bushek
Faculty: professors Roger Cheekley (Biochemistry), Thomas Curran (Botanical Bio.), Irving Dowrntow (Microbiology), John Donovan (Biochemistry), Michael Faro (Microbiology), Joseph Furen (Pharmacology), Sanjiv Gambhir (Biochemistry), James Hackett (Pharmacology), James Hammond (Pharmacology), Vessel Iwatsables (Pharmacology), John A. Klein (Pharmacology), and Dennis Merkle (Pharmacology).

8.0209 Special Work

8.0203 Botany

8.0205 Botany

8.0202 Botany

8.0204 Botany

8.0207 Botany

8.0206 Botany
Courses

The following genetics courses are available to graduate students. Some are offered every year; others are offered periodically.

99:126 The Chemistry of Biological Materials 3 s.h.
99:130 Metabolism 3 s.h.
99:150 Biochemistry of Informational Macromolecules 3 s.h.
99:202 Topics in Molecular Biology 1-2 s.h.
99:204 Cytogenetics 3 s.h.
99:210 Genetics and Biogenesis of Cell Organelles 0-2 s.h.
61:175 Microbial Genetics Seminar 3 s.h.
61:175 Microbial Genetics Laboratory 1 s.h.
61:179 Comparative Microbial Genetics and Physiology 3 s.h.
61:270 Topics in Molecular Biology 3 s.h.
37:162 Population and Evolutionary Genetics 3 s.h.
37:163 Behavioral Genetics 3 s.h.
37:165 Quantitative Genetics 3 s.h.
37:170 Eukaryotic Molecular Biology 3 s.h.
37:171 Molecular Genetics 4 s.h.
37:175 Topics in Molecular Genetics 2 s.h.
37:175 Topics in Evolutionary Genetics 1-2 s.h.
37:175 Topics in Eukaryotic Molecular Biology 2 s.h.
37:176 Advanced Genetics 2 s.h.
37:256 Developmental Genetics 2 s.h.

Geography

Department Head: David R. Nunnally
Faculty professors: John W. Fuller, Andrew M. Kline, Barry L. Nunnally, Michael L. Nichols, David P. Reynolds, Daniel W. Freeman
professors emeritus: H. A. Flex, H. P. Kline, R. W. McManus, associate professor: Region D. V. Honey, J. L. Kentor, R. A. F. Krill, assistant professor: Mary Ann B. Lee, Glenan A. Tuck
Adjunct faculty: Marit P. Kugmacen
Degree offered: B.A., B.S., M.A., Ph.D.

Geography seeks to explain spatial organization and to determine patterns and processes which are inherent in the land-sea interactions. The discipline is concerned with the study of natural processes and environmental change, and the ways in which this change is reflected in historical development and cultural change. Geography is a composite science, in that it draws on many sources of information and uses a variety of methods and techniques to study the earth and its environment.

Students who elect courses in geography find their interests develop in one or more of the following areas: regional geography, economic geography, urban geography, and environmental studies.

Undergraduate Program

The geography major has a wide variety of courses available in his or her major area of interest. The major area of interest is determined by the student's choice of courses. The major area of interest is determined by the student's choice of courses. The major area of interest is determined by the student's choice of courses.

Requirements

All geography majors must complete a minimum of 26 semester hours of geography coursework, with at least 15 hours from the upper-division level. This includes one of the following courses:

- 225:101 Introduction to Geography
- 225:102 Applied Statistical Methods and Data Analysis
- 225:105 Elementary Statistics and Statistical Methods
- 225:106 Introduction to Statistical Methods

In addition, each student needs to complete a mathematics requirement consisting of one of the following courses:

- 225:10 Mathematical Techniques II
- 225:12 Fundamentals of College Mathematics I
- 225:15 Mathematics for the Biological Sciences

Undergraduate Majors

Students majoring in geography are advised to take at least two introductory level courses in a branch of geography and to select upper-division courses in the branch of geography which interests them.

- 225:10 Introduction to Physical Geography
- 225:12 Fundamentals of College Mathematics I
- 225:15 Mathematics for the Biological Sciences

With the consent of the geography faculty, students may substitute other courses which are acceptable to candidates for an undergraduate major. Students who are planning to major in geography should consult the department chairman or the undergraduate program director for further information.

Recommendations

Students majoring in geography are advised to take at least two introductory level courses in a branch of geography and to select upper-division courses in the branch of geography which interests them.

- 225:10 Introduction to Physical Geography
- 225:12 Fundamentals of College Mathematics I
- 225:15 Mathematics for the Biological Sciences

Take the introductory level courses in a branch of geography and to select upper-division courses in the branch of geography which interests them.
followed by 44-150 Undergraduate Seminar for Liberal Arts Majors during their senior year.

Take the statistical and mathematical requirements as soon as possible because many advanced-level geography courses assume prior knowledge of the subjects.

Students are also strongly recommended to take 22M:5 0 Calculus I or its equivalent in fulfillment of the mathematics requirement. Students equipped with these skills will find themselves with greater flexibility regarding further geographic study and later career opportunities.

Courses for the Nonmajor

Students in the College of Liberal Arts or other schools and colleges of the University may find geography courses meaningful to their own program of study. The beginning-level courses 44:1 Introduction to Human Geography. 44:11 Introduction to Social Geography, 44:19 Contemporary Environmental Issues, and 44:30 Introduction to Economic Geography are available for general education credit in social science, and 44:3 Introduction to Physical Geography in natural science, serve as part of a liberal education.

Other courses may also be attractive as individual electives. These include 44:15 Introduction to Political Geography, 44:35 World Cities. 44:115 Locational Conflict, 44:128 Drainage Basin. Form and Process. 44:157 Third World Development. 44:191 Energy in Contemporary Society.

Students in related disciplines may take groups of courses leading to a minor in geography. Bachelor of General Studies majors may select a group of geography courses as part of their degree. The possible course lists noted below under the different programs for the major in geography serve as a guide to course selection. Additional information on courses in geography is available in the department office.

Environmental Studies

The undergraduate program in environmental studies is designed for students with career expectations or professional interests in resource management or environmental protection, or who have interests in physical geography per se. The program provides a knowledge of the physical problems in landform development, atmospheric conditions, soil development, and biotic communities. It stresses the interrelationships among those processes and gives the student knowledge necessary to assess the impact of human activities on physical systems. Training in field observation, quantitative analysis, composition in land-use planning, and representation should be included in this concentration.

Students concentrating in environmental studies should take 44:2 Introduction to Physical Geography and 44:19 Contemporary Environmental Issues at the beginning of their program. They are advised to select additional geography courses from among the following:

44:1 Introduction to Human Geography
44:36 Introduction to Economic Geography
44:101 Weather and Climate
44:115 Locational Conflict
44:120 Natural Hazards
44:122 Environmental Conservation in the United States
44:123 Geography of Natural Resources
44:124 Introduction to Global Environmental Studies
44:125 Environmental Impact Analysis
44:126 Integrated Studies in Resource Management
44:128 Drainage Basin: Form and Process
44:129 Water Resources Management
44:180 Field Studies
44:191 Energy in Contemporary Society
44:197 Maps and Mapping: 44:105 Computer Methods in Geographical Analysis are strongly recommended.

Under the direction of an adviser, students should select courses (at least 12 semester hours) from among one of the following clusters:

Physical Systems

12:5 Introduction to Geology
12:108 Introduction to Oceanography
12:110 Introduction to Remote Sensing
12:166 Hydrogeology and Groundwater Quality
12:171 Geomorphology
53:150 Principles of Environmental Engineering
53:171 Water Resources Engineering
53:178 Hydrology
53:179 Water Resources Systems

Environmental Science

11:22 Ecology and Evolution
29:5 Chemistry and Physics of the Environment
4:5 Technology and Society
2:95 Parks and Human Affairs
2:100 Plant Diversity
2:111 Plant Ecology
2:115 Plant Animal Interactions
2:116 Field Ecology
2:121 Ecology
2:373 Topics in Ecology
2:375 Quantitative Field Ecology
2:376 Quantitative Methods in Biology

Environmental Management
8:1: Principles of Economics
8:2 Principles of Economics
8:3 Microeconomics
8:5:1 Microeconomics
8:1:1 Economics of the Government Sector
8:1:2 Natural Resources in the World Economy: Control and Conflict
8:1:3 Environmental Economics
8:1:0 Administrative Management
8:1:6 Individual Behavior in Organizations
8:1:3 Design and Management of Organizations

Urban and Regional Studies

Students with interests in urban and regional studies will find this concentration relevant, either as background training for graduate work or as preparation for entry-level positions in government and private businesses. This concentration focuses on the problems and potentials of towns, cities, and regions, and the decision-making processes of individuals and institutions. Dealing with such problems as assessing sites for development, potential, locating public facilities, and gauging neighborhood change helps the student understand the contemporary processes within the city. Requires skills in quantitative analysis, cartography, and computer usage are developed. Opportunities for experience in working with real problems are included.

Students concentrating in urban and regional studies are advised to select substantive courses (at least 21 semester hours) from among the following:

44:1 Introduction to Human Geography
44:3 Introduction to Physical Geography
44:11 Introduction to Social Geography
44:15 Introduction to Political Geography
44:16 Introduction to Economic Geography
44:18:1 Analysis of Cities
44:116 Locational Conflict
44:118 Urban Political Geography
44:125 Environmental Impact Analysis
44:128 Environmental Change and Change
44:130 Medical Geography: Health Services
44:132 Industrial Localization
44:134 Atlas of Urban Transportation
44:134 Methods of Transportation Analysis
44:135 Urban Geography
44:136 The Inner City
44:137 Urban Planning and Regional Modeling
44:139 Urban Problems
44:166 Contemporary Europe: Interaction and Change

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

13:11 Urban Anthropology
16:187 Afro-American History 1814–Present

16:173 Municipal Government and Politics
16:172 Social Dynamics of Urban Life
102:101 Introduction to Planning and Policy Development
102:102 Case Studies: Urban and Regional Planning
102:115 Regional Development Policy
102:131 Environmental Economics
102:133 Health Economics
102:134 Urban Economics
102:137 Projects in Urban Economics
63:136 Marketing Research

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 of 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:

44:1 Introduction to Human Geography
44:3 Introduction to Physical Geography
44:11 Introduction to Social Geography
44:19 Introduction to Political Geography
44:30 Introduction to Economic Geography
44:35 World Cycles
44:115 Local Conflict
44:114 Introduction to Global Environment
44:157 Third World Development Support
44:161 African Development
44:165 The Changing World
44:169 Contemporary Europe: Interaction and Change
44:170 Intercultural and International Society

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

30:60 Introduction to World Politics
30:127 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
16:69 Introduction to Colonial Latin America
16:90 Introduction to Modern Latin America
16:170 Modern African History
16:196 China: Opium War to Mao

Approaches to international studies might also be a part of the student's concentration.

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 26 semester hours of geography, at least 15 of which must be at the 100 level. They also must include the following courses:

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

The Cooperative Education Program

The Department of Geography is a participant in the University's Cooperative Education Program, which provides opportunities for both undergraduate and graduate students to secure cooperative training assignments related to their academic programs.

Graduate Program

The goals of the department at the graduate level are to prepare students to carry on creative and productive work in geography involving the use of theory, modeling, and formal-verification methods, and to prepare students for positions in research, teaching, or some area of applied geography. The achievement of these goals is demonstrated in large measure by the demand for University of Iowa graduates to fill positions on college and university faculties, in research-oriented institutions, and in government.

The department offers specialized instruction in the teaching of geography at the college level for those interested in academic careers. Opportunities are provided for graduate students to gain practical teaching experience through service as departmental teaching assistants or through other supervised teaching duties.

Master of Arts

The department offers an M.A. program designed for students seeking professional positions in community planning, health planning, market research, resource management, regional development, and transportation as well as for those whose ultimate goal is the Ph.D. The program emphasizes the acquisition of analytical skills and substantive knowledge in a primary and a secondary area of concentration. Areas of concentration include: Location Theory, Regional Development, Behavioral Geography, Political Geography, and Environmental Science. These areas cut across some of the more traditional breakdowns of the discipline and subdivide others. For example, topics of interest in urban geography are included in three subprograms: location theories, regional development, and political geography, while the traditional concerns of economic geography are covered in location theories and regional development. The environmental science subprogram lays stress on physical/ hydrological processes, biogeochemistry, and resource management. Courses which provide necessary training in oral and written communication, computer programming and graphics, statistics, mathematics, and research methodology are an integral part of the M.A. program.

The department is also a leading participant in three interdisciplinary programs at The University of Iowa: the Regional Science Program, the Transportation Program, and the Development Support Program.

It is possible to obtain the M.A. in Geography while pursuing study in the first two of these.

As soon as possible during the first year of residence, students, in close consultation with their advisor and other faculty members, develop a plan of study for the degree program. This should include a division of the student's interests and should identify clearly the general areas (or areas) within geography in which the student wishes to concentrate. The program of study should also emphasize relevant problem-solving methods, and philosophy and epistemology in geography.

The M.A. degree requires a minimum of 30 semester hours of graduate work, of which 15 semester hours must be 200- level or above. Minimum course requirements for the degree are: at least four semester hours chosen from among the mini-courses 44:201-202 Geographic Analysis A and B; satisfaction of the department's B.S. degree requirements in mathematics, statistics, and computer programming or their equivalents (see above); complete, with a grade of B or better, at least one three- semester-hour quantitative methods course at a level above that required for the B.S. degree from a list of courses approved by the faculty.

An additional 12 semester hours in geography.

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

Students who wish to complete the degree in one year study three courses in a four-year, or two courses in a two-year, curriculum.

The M.A. degree is available with or without thesis. A maximum of six...
Doctor of Philosophy

The Doctor of Philosophy degree in Geography is designed to prepare students for careers in college and university teaching and in advanced research. It provides courses of study leading to (1) a broad knowledge of the field of geography and its literature, and as (2) a specific field of competence and specialization. The former might represent the general area in which the Ph.D. holder seeks employment, whereas the latter would represent the area of active research involvement.

Students whose objective is the Ph.D. degree in geography are required to complete eight semester hours of 44-201-220 Geographical Analysis-I and a complete with grades of B or better at least two additional quantitative methods courses (six semester hours) at levels above that required for the B.S. degree from a list of courses approved by the faculty. The eight mini-courses comprising 44-201-220 should be taken within the first two years in residence, and must include mini-courses offered by at least six different faculty members. Courses to fulfill the quantitative methods requirement should be taken during the first year in residence.

All doctoral students must also complete two research seminars, preferably during the second year in residence, under the direction of different faculty members. Unless excused by the faculty, Ph.D. candidates are also required to register for 44-310 Research Seminar: Staff each semester while they are in residence.

The remainder of the Ph.D. program involves the thesis, dissertation, seminars, and independent research in geographical courses in disciplines closely related to the student's objectives and interests. These courses satisfy the tool requirements.

By their fourth semester in residence, doctoral students should submit a written report that includes an assessment of progress to date, an outline of the area within geography in which they intend to specialize, and a proposed plan of study for the following year.

Preferably during the second year in residence, doctoral students who have been admitted to the graduate program without advanced credit must take an original research paper to the faculty, with the approval of their advisors. Students who have been admitted with advanced graduate credit of 24 semester hours may be required to submit this paper earlier. The faculty will pass upon the advisability of recommending that the student proceed as demonstrated. Students become Ph.D. candidates when their qualifying papers have been accepted.

All doctoral candidates are expected to have supervised experiences as classroom instructors and research assistants before being awarded the Ph.D. degree.

Regional Science

The department also offers graduate study in regional science. In addition to the requirements for the M.A. or Ph.D. degree in geography, students selecting regional science as their field of study are required to take courses in location theory and analysis, regional economic development, methods of regional analysis, microeconomic theory, macroeconomic theory, and operational 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, provided that they complete the regional science requirements and satisfy most requirements for the master's in economics.

Transportation Specialty

The Geography Department of The University of Iowa offers the M.A. and Ph.D. degrees with specialization in transportation systems analysis. The transportation specialty draws on the resources of the school of engineering and the 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 also designed to provide students with a broad range of quantitative skills relevant to transportation and urban and regional analysis. It also aims to prepare students with an appreciation of political and organizational considerations affecting transportation planning 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 can complete the program in four semesters. Students who have not studied calculus as undergraduates or who have research or teaching assistantships may require an additional one-two semesters to complete the program. Upon completion of the M.A. program with specialization in transportation, students receive a transportation certificate in addition to their graduate degree.

Ph.D. students, in addition to taking the courses recommended for M.A. students, are encouraged to take advanced courses in areas such as economics, operations research, regional development and economics, and location theory and analysis. Ph.D. students also are required to undertake original research leading to the preparation of a dissertation.

Graduate Admission

In addition to general rules and regulations set forth in the Manual of Rules and Regulations of the Graduate College, the department considers the applicant's undergraduate grade point average, especially of his or her junior and senior years; scores on the Graduate Record Examination (GRE) Aptitude Tests: three letters of recommendation; and an essay in which the candidate sets forth the reasons for wanting to study geography at The University of Iowa.

An applicant with an undergraduate grade-point average between 2.3 and 2.75 will be admitted only for the M.A. degree and on the condition that he or she achieves a grade-point average of 2.75 or better in the first 12 semester hours of graduate work as approved by the department.

Foreign students, and those from undergraduate institutions that evaluate students on a basis other than grade point averages, are considered according to their relative academic standing in their respective institutions.

Financial Assistance

A number of graduate appointments as teaching or research assistants are available. Awards are based on merit and a student must ordinarily have achieved a combined score of 1100 on the GRE Achievement Test verbal and quantitative sections, and have a 3.0 undergraduate or graduate grade-point average, to be appointed to an assistantship. Applications for graduate appointments should ordinarily be received by February 15.

Facilities

The department possesses a unique complete graphics hardware system in the IMAG/PIX system-computer that supports a GRAF PEN GP-30 graphic display. The PIX system is a 24K system with a CRT for on-line editing and an accompanying software support package, DIGIT SERIES, developed locally that allows for a broad range of computer graphic applications. This system is linked to one of four PRIME 750 minicomputers, each supporting 48 terminals connected to the IBM 370/168. Complementary software systems are an increasing number of sophisticated software packages that will dramatically improve interactive computing capabilities.
Resources and 12.24 Introduction to Environmental Geology, a team-taught, laboratory-based 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 Field Methods 3 s.h.
12.53 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 23M/26 Calculus II or 23H/38 Engineering Calculus II. Computer science or statistics courses may be counted toward the 10-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 in 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.
12.51 Principles of Paleontology 3 s.h.
At least 12 semester hours (two sections) Geology electives 12 s.h.

Total 35 s.h.

(Note: The student may substitute 12.23 Earth History and Resources and/or 12.24 Introduction to Environmental Geology for 12.5 Introduction to Geology, but 12.5 is preferred for the major.)

The B.A. in geology requires at least ten semester hours of university-level mathematics, which may include computer science or statistics. Eight semester hours of chemistry are also required, and courses in other sciences and social sciences appropriate to the student's objectives are recommended.

Joint Programs

Joint programs can be arranged, typically with chemistry, physics, zoology, and anthropology.

Original Research

A junior or senior who is ready to pursue original research for credit in geology may assist a faculty member or graduate student with a research project, or initiate a small-scale project involving independent laboratory, field, and library investigation. Independent study in geology is possible, and undergraduates 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 1211 Geologic Orientation.

All graduate students in geology must perform research, 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 admissions and graduate study requirements.

Master of Science

The M.S. degree programs are designed to complete the student's broad fundamental background in geology and the supporting sciences. They prepare the student for a professional career in geology, or for more advanced and specialized studies—although in certain situations and with faculty approval the student may pursue an already specialized program at the master's level. Entering graduate students are assigned to a general graduate adviser. Before the end of the second semester, the student should have selected a research area and related thesis topic. The chair then approves a thesis 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 to or departmental approval.

The degree requires at least 30 semester hours of credit in graduate-level course work, including not more than eight semester hours of thesis and research credit, and at least 24 semester hours in residence at the University of Iowa.

Master of 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 dissertation hour requirement for the degree. To qualify for admission to the final master's examination, the student must have at least a 3.0 grade-point average over those course credit hours, which are being offered toward the 30 semester hours minimum requirement for the degree. Additionally, the grade-point average for 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 in an area of 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 it 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 30 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 student 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, geophysics, and zoology are not regarded as satisfying tool requirements, although they may provide indispensable background for the various areas of geological specialization.

Course work taken to satisfy language and tool requirements may not be applied to credit requirements for the degree. These are the minimum requirements:

- Satisfaction of course requirements for the M.S. degree in geology at The University of Iowa. Where appropriate, additional work in one area may be approved as satisfying requirements in another.
- An appropriate graduate course in another discipline. Courses crosslisted between geology and other departments are not generally considered to meet this requirement.
- At least 24 semester hours of graduate course work, exclusive of credits for dissertation research and beyond course work applied toward the M.S. degree.

The comprehensive examination covers, in depth, at subdivisions of one major field and one subdivision in each of three other major fields. It is also presumed that the doctoral candidate is proficient in the basic elements of general geology, as presented by current elementary textbooks. These are the major and minor fields:

- Economic Geology
- Petroleum
- Economic Geosciences
- Mineralogy
- Structural Geology
- Crystallotrophy
- Geochronology
- Determinative Mineralogy
- Geophysical Geosciences
- Chemical and Mineral Chemistry
- Igneous and Metamorphic Petrology
- Economic Geology
- Structural Geology
- Geochronology
- Remote Sensing
- Geophysics
- Exploration Geophysics
- Remote Geophysics
- Rock Properties
- Stratigraphy
- Physical Stratigraphy
- Biotrã¶nsy
- Depositional Environments
- Sedimentary Petrology
- Sedimentation
- Economic Geosciences
- Physical Stratigraphy
- Stratigraphic
- Sedimentary Petrology
- Sedimentation
- Economic Geosciences
- Physical Stratigraphy
- Stratigraphic
- Sedimentary Petrology
- Sedimentation
- Economic Geosciences
- Physical Stratigraphy
- Stratigraphic

Pleistocene Studies

Geology/LIBERAL ARTS 105
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 glaciations are represented in Iowa and each offers distinctive assemblages and fossil assemblages.
Spring Breaks provides 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
Primary for Undergraduates

2100 Cooperative Learning in Geology 0.5 h.
Practical experience in one or more phases of geology, will be noted on student's transcript. Permission: O or better in 12.10, 3.0 grade point average in geology, consent of instructor.

2110 Lecture in Earth History and Resources 2.0 h.
Ancient and modern environments on earth and oceans, the processes by which they evolved, evolution of organisms, must see evidence in field. Open only to students who have earned a 10.7, 12.2, or 12.3.

2110 Lecture in Introduction to Environmental Geology 2.0 h.
Continuation of 2110. Not open to students who have taken 12.10 or 12.2.

2120 Principles of Physical Geology 2.0 h.
Introduction - overview; processes that have generated and are currently shaping our physical environment; composition and evolution of the earth's interior; plate tectonics and mantle dynamics; evidence of plate tectonics; and earth scientists as a group. Open to all; not for non-physical courses in geology or earth science.

2130 Principles of Geology 2.0 h.
Introductory survey dealing on processes that have generated and are currently shaping our physical environment: composition and evolution of the earth's interior; plate tectonics and mantle dynamics; evidence of plate tectonics; and earth scientists as a group. Open to all; not for non-physical courses in geology or earth science.

2140 Lecture in Geology 2.0 h.
Investigation of the principles and procedures which geologists use to organize and interpret the earth's surface, subsurface, and the various internal structures. Open to all; except for non-physical courses in geology or earth science.

2150 Lecture in Geology 2.0 h.
Lectures, laboratory, and field trips include rocks and minerals, weathering, erosion, and sedimentation. Not open to students who have taken 12.10, 12.2, or 12.3.

2160 Lecture in Geology 2.0 h.
Lectures, laboratory, discussions, and field trips testing the classical and modern interpretation of the earth in historical perspective. Topics include origin of the earth, history of the earth and the Moon's relation to the earth's structure, dating geological events, nature of the

For Undergraduates and Graduates

2100 Lecture in Geology 2.0 h.
Practical experience in one or more phases of geology. Not open to students who have taken 12.10, 12.2, 12.3, 12.4, 12.6, or 12.10.

2150 Lecture in Geology 2.0 h.
Lectures, laboratory, discussions, and field trips testing the classical and modern interpretation of the earth in historical perspective. Topics include origin of the earth, history of the earth and the Moon's relation to the earth's structure, dating geological events, nature of the
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 Reading 3 s.h.
13:23 Four-Semester German: Elementary Composition and Conversation 3 s.h.

Humanities Track
Third Year
13:101 Introduction to Modern German Literature I 3 s.h.
13:102 Introduction to Modern German Literature II 3 s.h.
13:103 Intermediate Composition and Conversation 3 s.h.
13:104 Intermediate Composition and Conversation 3 s.h.

Fourth Year
13:105 German Cultural History 3 s.h.
13:111 Survey of German Literature 3 s.h.
13:117 Survey of German Literature 3 s.h.
13:118 Advanced Composition and Conversation 3 s.h.

Students who intend to go on for an advanced degree are encouraged to add 13:117 German Phonology (3 semester hours) to the above.

Applied German Track
Third Year
13:103 Intermediate Composition and Conversation 3 s.h.
13:104 Intermediate Composition and Conversation 3 s.h.
13:106 Principles and Techniques of Translation 3 s.h.
13:107 Translation: Projects and Colloquium 2-4 s.h.
13:114 Business German 3 s.h.
13:115 Contemporary German Civilization 3 s.h.

Fourth Year
13:110 Advanced Composition and Conversation 3 s.h.
13:114 Business German 3 s.h.
13:115 Contemporary German Civilization 3 s.h.

The student in applied German must also complete at least one additional German literature or culture course at the 100-level or above.

German majors, graduate as well as undergraduate, are urged to supplement their degree programs with relevant courses in German history, philosophy, business, etc.

A student with native proficiency in German may elect German only as a second major, and is expected to complete a full first major in a subject in which he or she has no such obvious advantage over fluency in his or her native language.

Certification for Teaching Minor
In addition to the basic program requirements for the first and second year, a student must take the following courses or their equivalents for certification of the teaching minor in German:
13:101 Introduction to Modern German Literature I 3 s.h.
13:106 Principles and Techniques of Translation 3 s.h.
13:108 Intermediate Composition and Conversation 3 s.h.
13:114 Contemporary German Civilization 3 s.h.
13:116 Advanced Composition and Conversation 3 s.h.

Honors in German
This program is open to junior and senior students who are majoring in German and have grade-point averages of at least 3.2 overall and 3.5 in German. During the junior and senior years the 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 periodicals in the University Library facilitates research in all 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 regents universities, this program is open to students in all disciplines.

A three-week session is held at St. Radegund, near Graz, Austria. Instruction in the 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.

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 courses, or prerequisites, in the department's undergraduate program, he or she may elect 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 either literary or linguistic, 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 6 semester hours 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.
The same course requirements outlined for the M.A. with thesis apply to candidates for the M.A. without thesis, however, students in the latter program should, with the approval of the graduate advisor, select those courses which will best prepare them for their chosen careers.

Doctor of Philosophy

The Ph.D. degree is awarded upon the satisfactory completion of a minimum of 72 semester hours of graduate credit, and fulfillment of other requirements of the Department of German and the Graduate College (see the "Graduate College" section of the Catalog), with a concentration in either Germanic linguistics or German literature. Credit received toward the M.A. degree is normally applied to the Ph.D. The student may earn up to 12 additional semester-hours of credit for satisfactory completion of the Ph.D. dissertation.

Graduate courses outside the department in related subjects may be counted toward the degree with the approval of the graduate advisor. A candidate concentrating in literature must demonstrate a reading knowledge of French and of another language which his or her adviser considers is pertinent to the student's research interests. For doctoral candidates in Germanic linguistics, a reading knowledge of Freytagi or Russian and of 3 modern languages is required. All language courses must be taken on a letter-grade basis. A grade of B or lower in any language course may be counted toward the degree with the approval of the graduate advisor.

Financial Aid

Teaching assistantships, research assistantships, graduate fellowships, and tuition scholarships are awarded on a competitive basis, usually on a full-time basis. The department awards the Wilson and the Funkes prizes to students of distinction.

Courses

Primarily for Undergraduates

For Undergraduates and Graduates

Doctor of Philosophy

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Global Studies/LIBERAL ARTS

1319 19th Century German Literature 3 s.h.
Contemporary literature of Willy and Gudrun Gerstenhauer. Focus on understanding the role of art and literature in society. Requires no knowledge of German. Same as 3519.

1320 Human Nature and the Impact of Globalization 3 s.h.
Interdisciplinary discussion course moderated by two instructors. Studies the relationship of power, politics, and economics. Requires no knowledge of German. Same as 3520.

1337 Opera as Drama 3 s.h.
Lyrical and opera as autonomous and interdependent forms of art. Focus on the relationship of opera as drama, but a knowledge of opera or drama is not required. Same as 2217.

1338 Leibniz 3 s.h.
Concentration on his major themes, which may be read in English translation.

1363 The Epic Tradition in Western Civilization 3 s.h.
Development of Epic theme in world literature, beginning with ancient: the historical Iliad, the Faust Steed, Matthew A. P. St. Patrick's epic adventure, and the English epic of the Tudor period. The course is open to all students, but a knowledge of opera or drama is not required. Same as 1373.

1391 Honors Region in Germany 3 s.h.
Language Courses for Graduate Nonmajors

1317 Advanced Elementary German 4 s.h.
Instructor varies. Description same as for 1313.

1318 Second Year German 4 s.h.
Instructor varies. Description same as for 1315.

For Graduates

1329 Advanced Studies 3 s.h.
Special problems of German literature and linguistics. Open to graduate majors in German.

1335 German Prosodic Structure 3 s.h.
Qualifying for 1335, a student must: a) possess a superior working knowledge of German literature and Germanic linguistics, proving his proficiency in research, historical and literary criticism, and writing, and other specific problems. 1335 The Modern Novel 3 s.h.
May be repeated.

1337 German Poetry 3 s.h.
May be repeated.

1347 The German Drama 3 s.h.
May be repeated.

1357 German Novel 3 s.h.
May be repeated.

1342 History of the German Language 3 s.h.
Same as 3142.

3120 Middle High German 3 s.h.
Prerequisites: concurrent enrollment in linguistics. Same as 3330.

3145 Middle High German Literature 3 s.h.
May be repeated.

3159 Old High German 3 s.h.
Same as 3359.

3161 Middle High German Literature 3 s.h.
May be repeated.

3171 German Literature 3 s.h.
May be repeated.

3172 German Literature of the Renaissance and the Baroque 3 s.h.
May be repeated.

3173 German Literature of the Enlightenment 3 s.h.
May be repeated.

3174 The Age of Classical Emphasis in the Early Period of German and the Enlightenment 3 s.h.
May be repeated.

Global Studies

Qualifying for: John McClellan (Religious Committee member); Steve Asin (Of Office of International Education and Services); Robert Fink (Philosophy); William Kirk (Psychology); Marc Allor (Psychology); John Margulis (Economics); Christopher Pevsner (Art); and Art History, David Johnson (History) Hume Johnson (History) Hume Johnson (History)

The Global Studies Program at The University of Iowa is designed to provide undergraduate students with an interdisciplinary study of major contemporary, international issues. Students complete requirements with: Peace, Human Security, Development, Environmental Concerns, and Cultural Understanding.

Undergraduate major in any department, no college, are eligible to enroll in the program. In any case, a student will complete all requirements for a departmental major and, in addition, the requirements of the Global Studies Program. Students completing the requirements of the program are awarded a certificate in Global Studies of the time they receive their bachelor's degrees. Students pursuing the certificates in Global Studies may also specify Global Studies as their minor.

Candidates for the Bachelor of General Studies (B.G.S.) degree may also be admitted to the program. However, because B.G.S. candidates have no departmental concentration, they will require only one year of academic advising by the program's faculty committee.

All students enrolled in the program, including B.G.S. students, are required to complete (or have the equivalent of two years' study of a foreign language and are encouraged to go beyond this minimal requirement.

Each student completing the program will be awarded a certificate, and the concentration in global studies will be noted on his or her transcript.

The Global Studies Program requires the completion, with at least a 2.0 grade-point average, of 24 semester hours of approved courses. Distribution follows:

Introductory Course
The student normally takes this course, 47:1 Global Interdisciplinary and Human Studies in the 1st semester of Sophomore year. It is designed to provide an introduction to the four basic problem areas of the Global Studies Program, basic information relative to each of the problems, clarification of their inter-connections, and identification of some current efforts to deal with them.

Multidisciplinary Senior Seminar
This course, 47:188 Global Studies Seminar is offered at least once a year and is required of all students in the program, normally in their senior year. It is designed to provoke an in-depth exploration of a particular global problem or geographic area. Content will vary from year to year, but in any case the program is multidisciplinary and will feature distinguished speakers from off and on campus.

Global Studies Courses
In addition to the introductory Course and the Senior Seminar, the student elects one course (three semester hours) under each heading, and two additional courses (six semester hours) under one of the headings, for a total of six courses (18 semester hours). These courses are mainly ones regularly offered by University departments, though several courses listed below are offered or listed by the Global Studies Program. (See the list of Global Studies courses below.)

I. War, Peace, and Security

This component of the Global Studies Program deals with the use of armed force for the pursuit of political ends on a continuum ranging from potential global warfare to the individual act of terrorism. The various approaches will cover causes, effects, limitations, and resolution of violence in the contemporary setting.

All students must take either:
30:164 Military Affairs
or
16:149 War and Society
Students who elect to take these courses in this area would, in addition, take one of the following:
III. Environmental Concerns and Global Resources

This component of the Global Studies Program is concerned with the availability, use, and disposal of global resources. Of special concern are the environmental problems arising from the transformation of these resources by humans using modern technology. All students must take either:

41:19 Contemporary Environmental Issues
41:124 Introduction to Global Environment

Students who elect to take three courses in this area would, in addition, take any two of the following courses:

41:19 Contemporary Environmental Issues
41:123 Geography of Natural Resources
41:124 Introduction to Global Environment
41:191 Energy in Contemporary Society
31:125 A Planet in Crisis

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 absolute, without careful examination, the perceptions, values, and beliefs of any one society or culture. The goals of this program component are to highlight cross-cultural differences themselves as a major contemporary global issue; to address some of the sources, dimensions, and policy implications of these value differences; to help foster the cross-cultural understanding and sensitivities required for dealing adequately with most global issues; and to encourage students to clarify their own values, as these bear on the analysis of global problems and proposals for their amelioration.

Two options are available for fulfilling the requirements of this program component.

Option 1

Students electing Option 1 must take:
31:123 Introduction to the Study of Culture and Society

Students who elect, though Option 1, to take three courses in this program component must also take two additional courses from the following list:
42:157 World Futures
30:165 Human Rights
81:193 Human Rights in the World Community: Problems of Law and Policy

(employment endorsement)
History

Department chair: Wray J. Reddy
Degrees: B.A., M.A., Ph.D.

The purpose of the Department of History is to increase knowledge of human experience and to provide opportunities for students with a background in history for their own specialized interests in other fields, and to participate in several interdisciplinary programs such as American civilization, the American studies, Latin American studies, and women's studies.

Undergraduate Program

Baccalaureate graduates in history go on to careers in law, business, public service, or journalism. Many plan further training in history, law, religion, library science, and other fields. 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 history and its place in the world in which we live. 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 interests.

The major is for students with a general interest in history and does not require the same level of concentration in history as the major. The 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 semester hours must be in non-U.S. history courses. This requirement is imposed to ensure exposure to the history of at least one other society besides our own.

Three semester hours in 16:51 Colloquium for History Majors. A colloquium consists of a small number of students collectively studying problems in a way that has given training and experience in group discussion, writing, analysis, and criticism. It is best taken after the student has finished a number of other History courses.

Of the 24 semester hours of history required for the major, 12 (including three hours of colloquium) must be taken in residence at the University of Iowa.

A minimum of 18 to 18 semester hours of course work in related areas, such as anthropology, economics, fine arts (excluding studio courses), geography, literature (including workshop courses), philosophy, political science, psychology, religion, and sociology, or a combination of these areas, will count toward the related-areas requirement.

Students majoring in history may waive three semester hours of the general education requirement in historical perspectives. They may not receive credit for this requirement by taking any of the following courses taught by members of the history faculty: 16:3-1 or 16:3-2, Problems in Human History, 16:3-4, Western Civilization to 1792, 16:3-8, Western Civilization Since 1792, and 16:5-4, Civilization of Asia. Only any of these courses must be included in the 24 semester hours of history required for the major in history.

Teacher Certification

Students majoring in history who wish to qualify for a teaching certificate must choose an area of concentration in history which is consistent with the requirements of the state of Iowa.

American History Concentration Courses in U.S. History 30 s.h. (including 16:51 Colloquium for History Majors)

Courses in related area: 24 s.h. Students must complete 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 an additional history course by taking one of 16:16, 16:16/17, or 16:110 (three semester hours). This course may be the course that counts for the related area requirement in world history if it is one of the two areas chosen.

World History Concentration Courses in U.S. History 30 s.h. (including 16:51 Colloquium for History Majors and one of 16:16, 16:16/17, 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. This requirement is imposed to ensure that the major in history and political science, 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 teaching 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).

Honor

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. If accepted, the honors major leads to the Bachelor of Arts degree with honors in history. Requirements are:

A minimum of 24 semester hours in courses offered by the Department of History of which at least 12 must be in courses numbered 16:16 to 16:16 semester hours in related courses (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 credits.

Students are defense of an honors essay.

Honors credits may be obtained in honors seminars, honors tutorial, and supervised research for the honors essay. The honors seminar fulfills the colloquium requirement of the general major.

The honors essay should be a 30 to 40 page paper based upon some research in primary sources. A committee of three faculty members will write a defense of the essay during the 12th week of the student's test 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 sites preparation and display. Some students enter the graduate programs with degrees in both law and history (see the "College of Law" section of the Catalog). Qualified graduate students are invited to apply for fellowships and assistantships. Inquiries should be directed to the departmental office.

Master of Arts

There are two M.A. programs in the history department. The first is for students who plan to work for the Ph.D. degree. It requires a minimum of 30 semester hours of credit, including the completion of a research essay. The candidate must earn at least 24 semester hours of credit in the history department, including at least two seminars or one seminar and one readings course. One seminar must be taken within the first two semesters of residence. Twelve semester hours must be in the area of the student's essay topic, and at least six semester hours must be in a second division, including either a seminar or a readings course.

The essay in the major division must be based on original research and should be in the vicinity of 10,000 to 15,000 words in length. Work on the essay will normally begin in the seminar in the major division and be continued with 16:219 individual Study. Graduate, in which rewriting will be the major portion 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 16:296.

Students who complete the M.A. under the alternative plan may not become candidates for the doctorate in history. The M.A. candidate must earn at least 30 semester hours of graduate credit, 24 semester hours of which must be in history. Of these, at least 12 must be taken in one division, and must include at least one readings or seminar course. The program must also include at least six semester hours in each of two other divisions in history, or six hours in one other division in history and 8 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 must submit a specimen of their writing, such as a seminar paper or an M.A. thesis. They must take a research seminar during their first two semesters in residence at Iowa.

The candidate must earn at least 72 semester hours of credit, including credit for work undertaken toward the master's degree. The 72 semester hours must include at least 32 semester hours (eight courses) in 200-level courses in history, apart from thesis credit. At least 20 of these 32 hours must be completed before the student takes the comprehensive examinations, and at least 20 of these 32 hours must be completed at The University of Iowa. Research seminars taken at the M.A. level may be counted towards this 32-hour requirement. The candidate must also earn two semester hours of credit in the philosophy of history, historiography, or methods of historical research.

The department has no common language requirement for the Ph.D., but the supervision 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 and the oral defense of the dissertation will cover four major divisions of the field of history. These fields in history must be chosen from at least two of these divisions:

- The Ancient World
- Medieval Europe
- Europe, including Great Britain, 1500 to 1615
- Europe, including Great Britain, 1615 to Present
- 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 test, separately for each field, the character of the written portion of the comprehensive examination, which may take the form of a syllabus, a critical bibliography, a topical paper, or any other form or combination of these or other forms that the committee deems suitable. The oral portion of the examination will focus on issues and problems arising from the examination papers.

Graduate Admission

All applicants for admission, whether for the M.A. or the Ph.D. program, must meet the general requirements for admission to the Graduate College. In addition, they must submit a specimen of their writing—such as a seminar paper, master's paper, or M.A. thesis—to the history department. All applications for graduate awards 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, to be offered in the following year, and the research interests of the members of the faculty, as well as degree requirements on which it varies from advanced degrees and other information of interest to prospective students.

Special Facilities

The University Library is strong in all areas of U.S. History. Among the rare books are the Henry A. Wallace papers and related collection of political and agricultural 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 16:1 through 16:6 are ordinarily available to freshmen to satisfy the General Education Requirements in Historical Perspectives. 16:65, 16:61, 16:62, 16:65, and 16:90 are open to freshmen. 16:51 and 16:90-104 are not open to freshmen. Other courses numbered below 200 are open to freshmen provided they have already satisfied the general education requirements in the above objectives. Most courses numbered below 200 are offered as occasion demands. Courses numbered 200 and above are offered as occasion demands.

16:1 Western Civilization to 1700 3 a.h.
15.123 American Working Class in 1900 3 s.h.
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4:10-14 Principles of Chemistry I-2
4:16 Principles of Chemistry Lab-2
4:121 Organic Chemistry I-3
4:141 Organic Chemistry Laboratory-3
61:157 General Microbiology-4
62:130 Medical Genetics-4
99:110 Biochemistry-3

Electives should be selected from home economics and the natural sciences.

A concentration in nutrition with emphasis in food service management, the registered dietetic program requires:

17:131 Food Study 2 s.h.
17:132 Food Study 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.

4:15-14 Principles of Chemistry I-3
4:16 Principles of Chemistry Lab-2
4:121 Organic Chemistry I-3
59:110 Biochemistry-3
6:1 Principles of Economics-4
6:158 Personnel Management-3
7:75 Educational Psychology and Measurement 3 s.h.
7:1-131 Educational Psychology-3
3:4-1 introduction to Sociology: Principles-3
3:4-1 Elementary Psychology-3
61:157 General Psychology-4
72:130 Human Physiology-4
11:3-3 introduction to the Study of Culture and Society-4

Electives should be selected, according to the student's professional objective, from the natural sciences, business administration, psychology, computer science, statistics, education, home economics, journalism and mass communication, instructional design and technology, counseling, social work, anthropology, sociology, or physical education.

This program follows minimum academic requirements of the American Dietetic Association, Plan IV. All students applying for internships should have their progress centrally scrutinized 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 and recreational 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.
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.
17:114 Parent-Child Relationships 3 s.h.
17:121 Curriculum: Home Economics 3 s.h.
17:128 Evolution: Home Economics 2 s.h.
17:133 Meal Management 2 s.h.
17:165 housing: Planning and Structural Aspects 3 s.h.
17:166 Housing: Social and Psychological Aspects 3 s.h.
17:170 Custom and Contemporary Tailoring 3 s.h.

17:171 Fitting Problems and Flat Pattern Design 3 s.h.
18:1 Elements of Art 2-3 s.h.
18:2 Elements of Art 2-3 s.h.
6:1 Principles of Economics 4 s.h.
6:1 Principles of Economics 4 s.h.
3:1-1 Elementary Psychology 3 s.h.
3:4-1 introduction to Sociology: Principles 3 s.h.

In addition, students must complete the course work generally required for teacher certification. The methodology course required in home economics education is 75:125 Methods: Home Economics (3 semester hours).

In addition to the general requirements to be eligible for student teaching (see the "College of Education" section of the Catalog), the student in home economics education must have an overall grade-point average of 2.5, must have completed 28 semester hours of home economics courses with a 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 "Examination 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 centers, retail) for certification. This work experience can be through 17:00 Cooperative Education Internship or through certification of work experience.

Electives should be selected from education, journalism and mass communication, psychology, sociology, communication and theatre arts.

Interior Design, Textile Design, Housing

This program requires students to develop understanding and appreciation of concepts unique to design by drawing upon the humanities, the arts, and science.

A concentration in interior design, textile design, and housing prepares students to pursue careers in the following areas: residential and contract interior design, space planning, design consulting, merchandising, fabric design, and weaving. The requirements for this concentration are:

17:51 Interior Design Presentation 2 s.h.
17:53 Design Drawing 2 s.h.
17:54 Interior Design: Principles and Practices I 3 s.h.
17:55 Survey of Historic Interiors 4 s.h.
17:160 Textile Design: Printing and Dyeing 3 s.h.
17:165 housing: Planning and Structural Aspects 3 s.h.

Two of the following:

1:1 Understanding the Visual Arts 3 s.h.
1:3 Western Art and Culture before 1400 3 s.h.
1:6 Western Art and Culture after 1400 3 s.h.
1:16 Introduction to Asian Art 3 s.h.
1:3 Elements of Art 2-3 s.h.
1:2 Elements of Art 2-3 s.h.

An approved two-dimensional studio art course

1A:4 Basic Design 2 s.h.

An approved three-dimensional studio art course

6:1 Principles of Economics 4 s.h.
6:2 Principles of Economics 4 s.h.

One of the following, depending on program emphasis:

17:153 Interior Design: Principles and Practices II 3 s.h.
17:162 Textile Design: Weaving 3 s.h.
17:164 Textile Design: Forms and Fibers 3 s.h.
17:166 Housing: Social and Psychological Aspects 3 s.h.

Also, one other interior design, textile design, housing course (selected according to program emphasis)

Ejectives 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.
17:117 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 or A natural science-laboratory course 2-4 s.h.
6A:3 Introduction to Financial Accounting 3 s.h.
6E:1 Principles of Economics 4 s.h.
6E:2 Principles of Economics 4 s.h.
6M:100 Introduction to Marketing 4 s.h.
6L:100 Administrative Management 3 s.h.
6M: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 or A natural science-laboratory course 2-4 s.h.
6E:1 Principles of Economics 4 s.h.
6:7-8 Principles of Economics 6 s.h.
A two-course sequence in computer science 3 s.h.

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 wish to obtain breadth in the natural sciences, and for those interested in entering research positions in colleges and universities or in industrial, government, or medical research laboratories.

Food and Nutrition

The natural science base of this program provides excellent preparation for graduate work in food and nutrition.

In addition to the requirements for the B.A. degree emphasis 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 9 s.h.
4:130 Physical Chemistry for the Life Sciences 3 s.h.
or 99:140 Experimental Biochemistry 4 s.h.

For this program, enrollment in 99:120 and 99:130 is recommended in place of 99:110

Home Economics Education

Graduates can enter the careers described for the B.A. degree in home economics education. The B.S. program enables students to obtain greater depth and breadth in the natural and social sciences. In addition to the courses and work experience listed for the B.A. degree, the B.S. requires:

4:7-8 General Chemistry-I,II 6 s.h.
A course in statistics 3 s.h.
Two courses from the natural sciences 5-6 s.h.
and/or courses numbered 100 or above in anthropology, economics, psychology, or sociology

Textile Science

This program prepares students for positions in the textile industry and for graduate studies. In addition to courses specific 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.
28:11-12 College Physics 8 s.h.

Electives should be selected from chemistry, engineering, computer science, statistics, microbiology, and home economics.

Cooperative Education/Internship Program

The department participates in the University's Cooperative Education Program, which enables students to obtain work experience related to their professional goals and academic program. Majors who meet the department's requirements may apply to the department's cooperative education committee for participation in this program. Students register for 17:005 Cooperative Education in the fall of the year of their anticipated graduation.

The program of study includes a period at an employer's worksite at the same time of their work experience and for 17:180 Home Economics Internship during the subsequent semester.

Honors

To be eligible for honors, the student must have junior standing, 30 semester hours in residence at the University, an overall cumulative grade-point average of 3.2 or above, a grade-point average of 3.2 in all home economics courses, and at least 12 semester hours completed in home economics. Honors work consists of 17:181 Honors Seminar: Home Economics and 17:192 Honors Problems: Home Economics, in which students do creative work or a research project. A written report or honors thesis and an oral examination are required.

Graduate Programs

The demand for well-qualified professional home economists exceeds the number of graduates with advanced degrees. The master's degree graduate may qualify for positions in college-, secondary schools, business, industry, and government.

The graduate programs enable students to participate in specialization in one of five subject areas: family development and nutrition; home economics education; interior design, textiles, home, 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 30 semester hours of graduate work with a thesis, or 28 semester hours of graduate work without a thesis, in addition to adequate prerequisites for courses selected. Approximately one-third of the student's course work is offered in departments other than home economics. These courses must be taken for a letter grade. Students who lack 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 complement offerings in home economics. The graduate student should have an adequate background in social science. Graduates work with agencies concerned with family life in the family or prepare for college and university teaching. Required courses and family development concentration are:

17 211 Individual and Family Development: Life Stages 3 s.h.
17 212 Theory and Research in Human Development 3 s.h.
17 219 Research Problems in Family Relationships 3 s.h.
17 290 Seminar: Home Economics Research 2 s.h.
One course in statistics 3 s.h.
A course from at least two of the following 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, dietician, extension specialist, nutrition research specialist, food service manager, textile kitchen home economist, food and nutrition educational materials 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, physics, and microbiology.

Courses required for the M.S. degree with specialization in food are:
17 144-155 Experimental Food I-III 8 s.h.
17 238 Seminar: Food 2 s.h.
17 229 Research: Problems in Food and Nutrition 2 s.h.
17 241 Seminar: Nutrition 2 s.h.
17 238 Seminar: Home Economics Research 2 s.h.
99 120 The Chemistry of Biologically Important Materials 3 s.h.
99 135 Economics of Nutrition 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 and II 3 s.h.
17 145 Advanced Nutrition 3 s.h.
17 145 Nutrition Laboratory 2 s.h.
17 238 Seminar: Food 2 s.h.
17 238 Seminar: Problems in Food and Nutrition 2 s.h.
17 241 Seminar: Nutrition 2 s.h.
17 238 Seminar: Home Economics Research 2 s.h.
99 120 The Chemistry of Biologically Important Materials 3 s.h.
99 130 Economics of Nutrition 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.

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 bachelor's certificate. At least two of the courses outside the department in the thesis option and three in the nonthesis option must be from the same department.

The program's course requirements are:
17 225 Seminar: Readings in Home Economics Education 2 s.h.
17 229 Research Problems: Home Economics Education 2 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 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 2 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.
17 156 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.
One course in graphic 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 Textile Design: Printing and Dyeing 3 s.h.
17 162 Textile Design: Weaving 3 s.h.
17 164 Textile Design: Forms and Places 3 s.h.
17 181 Textile Finishing: Dyeing and Detergency 3 s.h.
17 269 Advanced Studio Problems in Textile Design 3 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
background courses in textiles, clothing, and home economics. Course requirements for the textiles and clothing concentration are:

12/27/12 Research: Problems in Clothing
12/28/12 Research: Problems in Textiles
12/29/12 Seminar: Home Economics Research
A course in statistics
Additional courses in textiles and clothing are required, based upon the student's educational background, professional needs, and career goals.

Master of Arts in Teaching
The M.A. T. program is designed for students with an undergraduate degree in home economics who have had few or no professional education courses. The program is nonresidential and requires written and oral comprehensive examinations. Graduates obtain a home economics teacher's certificate with vocational approval.

Applicants must have a bachelor's degree in home economics and a 3.0 minimum undergraduate grade-point average, and must be admitted to the M.A. T. program in the College of Education.

The program requires 20 semester hours of graduate course work in education and at least 18 semester hours of graduate work in home economics. In addition to the certification, the student must have completed (at the undergraduate and/or graduate level) a course in American politics or American government and two courses in each of the following: housing and interior design, family development, health and consumer economics and home management, and textiles and clothing.

Other courses required for the M.A. T. program:
17/121 Curriculum: Home Economics
17/128 Evaluation: Home Economics
TP 131 Educational Psychology
TS 125 Methods: Home Economics
TS 191-192 Observation and Laboratory Practice in the Secondary School
TF 107 History of Western Education
or
TF 117 Philosophies of Education
TF 170 Human Relations for the Classroom Teacher

Certification-Only Program
Students with the B.A. or B.S. degree in home economics may apply to the certification program in order to meet requirements for teaching vocational home economics in secondary schools. Courses for this program are selected according to the student's background and professional goals. See the "College of Education" section of the Catalog.

Financial Awards
Several annual departmental awards recognize undergraduate students for their outstanding qualities and performance. The Adeline M. Hoffman Writing Award is given to recognize excellent written work completed by majors in home economics courses. The Faculty Book Award recognizes the sophomore home economics major with the highest grade-point average. The student in each class with the highest grade-point average, provided the grade-point average is at least 3.7, is awarded grade-point average of outstanding Academic Achievement. The Margaret Foster Hoff Award is a full-in-state tuition scholarship given to a student for his or her senior year. Four H.H. M. Chattinan Wolf Sophomore Scholarship Awards are awarded to upperclassmen with financial need. The Myriell Lee Sprenger Memorial Award is given to an outstanding home economics senior. The Mary Goodykoontz Barnes Senior Scholaristic Achievement Award is given to the senior with the highest grade-point average during the junior and senior years. Other undergraduate awards include the Stokely-Van Camp Award, given to a senior for outstanding achievement in food and nutrition, and the Returning Student Award. Four scholarships are for graduate students. The Mary Campbell Tow Scholarship is given to a student beginning graduate study. The Mary Goodykoontz Barnes Graduate Scholarship is awarded to the graduate student with the highest grade-point average during the junior and senior years as a home economics major at The University of Illinois. The Illinois Home Economics Association provides five scholarships, and the Hasler Foundation Award is for a student majoring in textile design. Certificates of Outstanding Academic Achievement are given to graduate students who maintain a 4.0 grade-point average.

A limited number of assistanship are available to graduate students.

Courses
Primarily for Undergraduates
1378 Cooperative Education Internship
1378 Human Development and the Family
1378 Youth Development and the Young Child
1378 Study of the physical, cognitive, emotional, and social development of the young child, and the relationships between children and families. Offered spring semester.
1378 Introductory Food Study
1378 Basic scientific principles in the preparation of standard food products, includes laboratory.

1381 Food, Nutrition, and You
1381 Food, nutrition, and health, emphasizing the importance of good nutrition to health, well-being, and the prevention of disease. Foods for the lifetime. Credits transferred from Community Colleges are accepted.
1381 Diet for the Home
1381 Dietary principles, applications, and planning for effective weight reduction and health promotion. Students planning careers in nutrition, dietetics, and related fields are encouraged to take this course.
1381 Interior Design Presentation
1381 Principles and techniques of designing, selecting, and arranging interior residential environments and materials to suit the resident's needs and preferences.
1381 Interior Design Combination
1381 Basic clothing construction—cut and selection of sewing equipment, materials, and techniques. Study of modern design and the influence of fashion trends. Preparation for the entrance examination in major interior design schools. Credits transferred from Community Colleges are accepted.
1381 Apparel Design
1381 Textiles for Consumers
1381 Textiles, fibers, and garment care. Specific structural and functional requirements and regulations concerning cover materials and design.

1381 Household Economics
1381 Introduction to the home, home management, and business occupations, including the occupational, economic, and social aspects of family life. Special emphasis on homemakers' responsibilities. Preparation for entrance examination in major home economics schools.
1381 Basic Areas of Aging
1381 Basic aging, social, and psychological aspects of aging. Special emphasis on aging in the home, neighborhood and housing, and clothing and nutrition needs of older adults.
1381 Consumer Family Resource
1381 Goods, planning, implementation, and control, home management, methods of education, research, evaluation, and community resource development. Special emphasis on the elderly, families with young children, and families with disabilities.
1381 Personal Financial Management
1381 Principles of family financial planning. Preparation for entrance examination in major home economics schools.
1381 Marriage and Family Interaction
1381 Marital and family interactions, including role and gender relationships, including stress in family interaction. Preparation for entrance examination in major home economics schools.
1381 Parent-Child Relationships
1381 Synthesis and application of research in child rearing and parent-child interactions.
1381 Parent-Child Relationships in the Exceptional Family
1381 Theoretical and practical application of research related to parent- child interactions in the functional family situations. Preparation for entrance examination in major home economics schools.
1381 Adolescent Sexuality
1381 Sexually transmitted diseases and psychological aspects of sex in society. Same as 121111, 427111, 7211112. All home economics courses are approved for credit in certification programs. See the College of Education Bulletin, Home Economics, for course equivalencies.
17:307 Session: Clothing
Reading, reports, and discussion of current literature endin...
students in all sequences must fulfill the following School requirements:
19:100 Introduction to Journalism Writing 3 s.h.
19:102 The Social and Ethical Issues in Mass Communication 7 s.h.
19:199 Graduate 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-prequired 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 the news profession through discussions and critiques of student work. The advanced reporting and editing course in some semesters may focus on such topics as public relations, economics, business, public relations and advertising, as well as broadcast or print journalism. These are the required journalism courses:

Pre-major Courses (19:90 and 19:91)
- School Required Courses (19:100, 19:102, and 19:199) 6 s.h.
- 19:101 Introduction to Visual Communication 7 s.h.
- 19:102 News Reporting and Editing 3 s.h.
- 19:103 Advanced Reporting and Editing 3 s.h.
- Journalism electives 6 s.h.
- Total 30 s.h.
- Maximum journalism credits allowed toward graduation: 36 semester hours

Mass Communication Laboratory Sequence
This sequence offers students an opportunity to develop their proficiency as professional communicators who can identify and analyze problems that need communication strategies and media products for solutions. The sequence is designed so that students can combine writing, reporting, production, and conceptual courses within the context of their intellectual, media, and career interests. Seniors in the 19:1-7 Mass Communication Lab work in teams to develop independent or client projects. These projects may include the development of slide-tape productions, brochures, newsletters, audio or video documentaries, or communication campaign plans. Students in the sequence can develop entry-level skills for a variety of careers including independent media production, public relations, advertising, public information, as well as broadcast or print journalism. These are the required journalism courses:

Pre-major Courses (19:90 and 19:91)
- School Required Courses (19:100, 19:102, and 19:199) 6 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.
  - 19:111 Photocommunication II 3 s.h.
  - 19:112 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.
- Maximum journalism credits allowed toward graduation: 36 semester hours

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)
- 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.
  - 19:172 Special Topics in Communication 3 s.h.
- Journalism electives 8 s.h.
- Total required 30 s.h.
- Maximum journalism credits allowed toward graduation: 36 s.h.

Two Degree Programs: B.A. and B.S. Degrees
B.A. Requirements
Four semesters of a foreign language;
Pre-major Courses: School Required Courses; School Pre-requisites;
- Fulfillment of the School’s second area of concentration requirement in one of two ways:
  - A full B.A. major in another department;
  - A 24 semester hour concentration beyond the general education level;
- The concentration should be designated by the student and the advisor.
B.S. Requirements
Two semesters of a foreign language;
Pre-major Courses: School Required Courses; School Pre-requisites;
- Sequence Courses;
- Six semester hours of social or natural science methods;
- 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 designated by the student and the 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.
Carry out additional work under the guidance of an instructor in the context of one of the advanced conceptual courses in journalism or mass communication.

Enroll in 19-191 Honors Colloquium, 3 s.h.

Write an honors thesis under the supervision of a faculty member; prepare a formal presentation of the honors thesis to a committee consisting of a faculty adviser, the coordinator of the Honors Program, and a third faculty member of the student's choice.

Minor in Journalism

To meet the requirements for a minor in journalism and mass communication, a student must complete at least 16 semester hours in journalism and mass communication. The following courses are strongly recommended:

19-90 Social Scientific Foundations of Communication 3 s.h.
19-91 Cultural and Historical Foundations of Communication 3 s.h.
19-95 Media and Consumers 3 s.h.

The minor is not intended to be sufficient preparation for a career in journalism or mass communication. The minor should be regarded only as a preparatory introduction.

Transfer work in introductory courses will be considered toward the minor but must be approved by the School of Journalism and Mass Communication. No courses for the minor requirement may be taken pass-fail. All work taken to fulfill the minor must carry at least C level grades. At the time students apply for a degree, they must inform the Office of the Registrar of their desire to have a minor listed on their transcript.

Transfer Students

All transfer students will be classified initially as pre-majors. They may apply for major status after earning at least 55 credit hours (excluding those from both the UI and other institutions) and completing 19-90 Social Scientific Foundations of Communication and 19-91 Cultural and Historical Foundations of Communication. Neither of these courses will be waived on the basis of work taken at other institutions. Thus, a transfer student will be a pre-major for at least one semester.

The school's policy is to accept journalism transfer credits from another institution for up to, but not more than, 30 percent of the student's total number of credits toward a major in journalism at Iowa. Other course work taken elsewhere might be approved toward fulfilling elective and/or second area of concentration requirements. Any transfer credit intended to meet School of Journalism and Mass Communications requirement must be approved by the student's journalism adviser at Iowa.

Graduate Programs

Master of Arts

The School of Journalism and Mass Communication offers a Master of Arts program with three separate emphases: professional journalism, communication, and mass communication, or development support communication. Applicants should indicate the emphasis to which they are seeking admission.

Each emphasis requires 30 semester hours of approved course work, the completion of a master's project or thesis, and the successful completion of the final examination. The specific requirements of each emphasis are listed below.

Professional Journalism Emphasis

This emphasis is intended for students seeking to improve their technical and analytical skills and begin 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.
19-120 News Reporting and Editing 3 s.h.
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 15 s.h.)
Electives in other departments up to 15 s.h.
19-299 Master's Research 3 s.h.

Final examination, last period of enrollment.

The student must complete a major professional project (19-299) 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 adviser.

Communication and Mass Communication Emphasis

This emphasis offers a specialization in the study of communication phenomena with special emphasis upon theory and methodology. Qualified individuals may petition the graduate admissions committee of the School of Journalism and Mass Communication for admission to the Ph.D. program after successful completion of their M.A. work.

Program requirements:

19-220 Master’s Seminar (two offerings) 2 s.h.
19-221 Approaches to the Study of Communication: Issues and Concepts 3 s.h.
19-460 Communication Research: Critical and Appraisal 3 s.h.
19-241 Communication Research: Behavioral Approaches 3 s.h.

Electives in communication and mass communication and in other departments 16 s.h.
19-299 Master's Research 3 s.h.

Final examination, last period of enrollment.

All students are expected to take course work outside the School of Journalism and Mass Communication with the nature and extent of the work to be determined by the student and faculty adviser.

Development Support Communication

Program focuses upon problem-solving procedures aimed at activating and accelerating third world development. Students planning careers in this area develop the conceptual expertise to identify those development problems requiring communication solutions as well as the professional skills to design and test appropriate communication strategies. This interdisciplinary program, involving the cooperation of the Departments of Geography and Political Science, offers two alternative tracks:

A professional track for development support communication students intending to terminate their studies at the M.A. level. Such students complete a major professional project (19-299) emphasizing the design, testing or evaluation of development-related communication strategies.

A philosophical track for students intending to pursue a Ph.D. program upon completion of 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.
Since 1947, The University of Iowa has cooperated with Iowa State University and the University of Northern Iowa in the lab program. Representatives of the three schools make up the advisory board which determines the scientific and educational policies of the lab.

The Iowa Lakeside Laboratory offers course work in two five-week terms during the summer session. Enrollment is limited to one course, for 5 semester hours of credit, per term.

The laboratory gives advanced undergraduate and graduate students the opportunity to study plant and animal life in its natural setting. Study supplements, and does not replace, regular course work given formally by accredited colleges.

Students working for advanced degrees will find excellent opportunities for development of thesis projects at the laboratory.

Teaching and research facilities include five laboratories, a library, and a lecture hall. Living accommodations include cottages, dormitories, and a large mess hall.

Financial Aid

The University of Iowa has established several Thomas H. Macbride Scholarships in Natural Science for undergraduate and graduate students attending the laboratory. The scholarships cover Iowa Lakeside Laboratory tuition and support applications close April 1.

Registration

Current or former students of The University of Iowa, the University of Northern Iowa, and Iowa State University should ask their registrars for particulars. Students not now attending institutions must apply for admission to one of the three cooperating universities; each has a provisional admission policy for students who wish to register for summer work only.

Early registration is advisable. All applications should be submitted before May 1 for the following summer session.

Courses

Permission of the instructor is required for all courses. Enrollment is limited to six students in all courses. Classes meet all day, every day. Courses vary from year to year (see annual Iowa Lakeside Laboratory Bulletin) the following are representative.

Latin American Studies Program/LIBERAL ARTS

L130 Aquatic Ecology 5 sh.
Local aquatic plants and animals, including analyses of interrelationships; field and laboratory work, including sample collection; and morphological and physiological aspects of plants and animals. Laboratory course and a technical seminar intended for students with biological backgrounds including some ecology, chemometry, and physics.

L134 Aquatic Ecology Projects 1 sh.
Independent project work.

L135 Plant Taxonomy 1 sh.
Basic principles of classification and evolution of higher plant taxa. Terminology for flora examined. Field collections and group taxonomic study.

L136 Biology of Threatened and Endangered Species 2 sh.
Survey studies of individual species, comparing rare and common forms in all aspects of their biology. General concepts of taxonomy and analysis, with emphasis on flowering plants of the report and observations and measurements. Appropriate discussion and detailed study. Project work. For graduate or advanced undergraduate students with demonstrated understanding in biology.

L137 Field Paleobotany 1 sh.
Structure, life cycles, and fossil proterozoic relationships of representative higher plants. Methods of collecting and identifying fossil plants. Study of species of the Triassic and Jurassic formations from Iowa, field techniques for research in paleobotany. For students with some knowledge of wettawas anatomy and stratigraphy sequence.

L138 Fresh Water Algae 1 sh.
Daily collections for laboratory examination; determination and comparison with standard observations of living material. For graduate and advanced undergraduate students with demonstrated understanding in biological science.

L139 Synecology 1 sh.
Field and laboratory investigation of natural communities, excluding aquatic and airborne forms. Field studies of the vegetation of the region; individual or group projects. For graduate or advanced students of biology.

L171 Research 1 sh.

L172 Research 1 sh.

L173 Independent Study 1 sh.

L174 Field Mycology 1 sh.
Identification and taxonomy of the common fungi. Techniques for identification and preservation will be practiced with members of the common genus. Laboratory course.

L175 Field Invertebrates Ecology 2 sh.
Systematics, distribution, ecology, and adaptations in invertebrates and parasites. emphasis on field and laboratory study of living forms. Laboratories on dissecting a variety of the invertebrates and their field relationships. Current projects and course projects will be presented. Standard for all students.

L177 Ecology and Evolution of Species 2 sh.
Field and laboratory experience in the study of freshwater species to gain familiarity with most of the genera and some of the species, including techniques in identification, preparation and description of field specimens and collections. Emphasis on techniques of field work, growth, distribution, taxonomy, project design and execution. Microscopic study of algae, protozoa, and of course, with student with high quality of research involves microcosmic microscope is encouraged to bring in.

L178 Insect Ecology and Behavior 2 sh.
Patterns and principal of insect ecology and behavior using the morphological, physiologists, ethological, and systematic approaches. With emphasis on field techniques. Basic biology of arthropods for advanced undergraduate and graduate students who are versed in techniques in biology, ecology, and entomology and were field experience in insect biology.

L179 Field Biology of Bryophytes and Pteridophytes 5 sh.
Fieldwork dealing with conditions and morphology of species, analysis of their habitats. For graduate and advanced undergraduate students with knowledge of botany.

L182 Marine Ecology 1 sh.
Study of the basic patterns and underlying physical and biological processes of both coastal and regional distributions of plants and animals of North American, field and laboratory exercises, projects, intensive for advanced level with basic principles in marine biology.

L184 Aquatic Botany 2 sh.
Introduction to aquatic plants and their role in freshwater communities. Emphasis on algal and macrophyte identification and field collections. Study with emphasis on macrophytes of a community. Laboratory studies of field collections and algae of major groups.

L186 Field Ornithology 2 sh.
Study of avian taxonomy and their role in natural communities. Emphasis on bird behavior and adaptation. Identification and field collections. Study with emphasis on bird behavior of many groups. Laboratory studies of field collections and birds of major groups, bird identification, and behavior. Intensive for advanced level with basic principles in ornithology.

L187 Fish Ecology 2 sh.
Basic principles of fish interactions with the stocks and abiotic elements of the environment. Feeding, migration, and reproduction are involved in students. Field and laboratory instruction in taxonomy and behavior of freshwater fish. Emphasis on the fish of the northwestern Iowa lakes and streams.

L188 Field Entomology 2 sh.
Field and laboratory investigation of representative vertebrates, the roles structure, function, and behavioral characteristics. Characteristics are investigated in terms of anatomy, ecological, evolutionary, and physiogenetic importance.

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, if they are taught by the Latin American Studies Adviser.

Senior Seminar

Seniors in the program enroll in Latin American Studies Seminar 35.159, 35.158, 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 course work, 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 Latin American studies courses. The couc. curriculum may be taken in any of the five participating departments. 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 Catalogue.

Anthropology

113.115 Ethnology of South America
113.116 Ethnology of Mesoamerica
113.118 Social Anthropology of the Caribbean
113.121 Latin American Economy and Society
113.122 Latin American Studies Seminar
113.116 Ethnology of Mesoamerica

Archaeology

113.105 Art of Pre-Columbian America
114.90 Introduction to Colonial Latin America
114.92 The Mexican Revolution
114.914 Latin American Government
114.145 Major States of Latin America
114.163 Inter-American Relations

Portuguese

113.103 Modern Brazilian Fiction I: Short Story
114.103 Modern Brazilian Fiction II: Novel
114.102 Brazilian Literature I
114.106 Brazilian Literature II
113.108 Nineteenth-Century Brazilian Fiction
113.104 Culture and Civilization of the Portuguese-Speaking World

Spanish

35.6 Contemporary Latin American Narrative
35.100 Readings in Hispanic Literature
113.103 Contemporary Spanish American Fiction
113.104 Spanish American Poetry
113.105 Spanish American Drama
113.106 Short Story of Spanish America
113.107 Spanish American Literature of Fantasy
113.110 Survey of Pre-Twentieth Century Spanish American Literature
113.111 Literature of the Discovery and Conquest of Spanish America
113.112 Contemporary Latin American Novel and Short Story
113.115 Spanish American Civilization
113.159 Latin American Studies Seminar

Liberal and Information Science

Bette A. Colgin, Chair

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 set 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 and the student's basic professional program, and so that people 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 society and the library's importance in the communication process.
2. Articulate 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.
to the richness of life, and the ability to convey that appreciation to others.

Articulate an understanding of management theory sufficient to plan library and information services and perform the professional responsibilities of identifying needs, setting goals, analyzing problems, formulating programs and evaluating results;

Gather and evaluate research that helps in the advancement of the profession and cite and evaluate the contributions to librarianship made by related disciplines;

Plan for personal and professional career growth.

Research Objectives

To engage in research on library problems and areas related to library service which advances both the theoretical and practical knowledge of librarianship.

To give emphasis to research which directly supports the instructional program of the School of Library and Information Science or which may have special relevance to library service in the state of Iowa.

Public Service Objectives

To offer library personnel and library trustees opportunities for continuing education and professional advancement and update their awareness of current developments in library operations and services.

To provide consulting services to individuals, libraries, and organizations in order to promote better library service for the citizens of Iowa and surrounding areas.

To participate in professional organizations at local, state, regional, and national levels in the pursuit of common goals within the profession.

Undergraduate Study

Although there is no undergraduate major in library science, juniors and seniors may enroll in the introductory library science courses (100-level). No courses numbered 100 or above may be taken by freshmen or sophomores. No courses numbered 200 or above may be taken by undergraduates. 21-90 Information Handling is open to all undergraduates.

Graduate Students Not Admitted to Master of Arts in Library and Information Science

Graduate students not yet admitted to the master's program may be 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. The student must have 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, 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.

Electives

It is strongly recommended that the student's electives include a bibliography course and a course in information science.

Elective courses in other departments of the University must be shown to be an integral part of the student's preparation for library and information science. Although many disciplines offer cultural and intellectual support to preparation for librarianship, they cannot be shown to warrant displacement of needed courses in a brief one-year program. Electives outside the department must be earned following admission to the School of Library and Information Science, and shall not exceed six semester hours for students having no previous courses in library science, nine semester hours for those with such previous courses. Only courses taken for graduate credit may be counted towards the 33-hour requirement.

The thesis option is not intended to replace courses in a student's basic program. 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 completes 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 expand current competence and to provide one means of independent study for a student with extensive preparation in library and information science. A maximum of nine semester hours of graduate credit may be accepted in Indiana courses 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 A.A.S.-accredited program;

The work was not applied toward a previous degree;

The grade received was A or B;

The director evaluates the elapsed time since the course work was done and determines the relevance of the work to the student's program.

An examination may be required on the subject matter as further evidence of competence in the course subject. The normal program requires two semesters of and one summer of resident study. All of the student is allowed to take only a minimum of four summer sessions. Maximum graduate course load is 15 semester hours in regular sessions, 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 challenging 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
21:222 Multi-Media Concepts in Libraries
21:246 Introduction to Information Science
21:247 Information Storage and Retrieval
21:248 Research Methods
21:251 Advanced Reference
21:252 Advanced Cataloging and Classification
21:282 Practice in Libraries

Bibliography courses
Courses relating to service to children and young adults.
21:123 Literature for Children I 12 s.h.
21:124 History of Books for Young People
21:226 Literature and Storytelling for Children
21:253 Literature for Adolescents
21:234 Library Services to Children and Young Adults
21:244 Bibliography of Library Materials for Children and Young Adults
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.
21:322 The College and University Library 3 s.h.
Suggested Electives 18 s.h.
21:246 Introduction to Information Science
21:247 Information Storage and Retrieval
21:249 Research Methods
21:251 Advanced Reference
21:252 Advanced Cataloging and Classification
21:255 Government Publications
21:256 Medical Librarianship and Bibliography
21:265 Law Librarianship, Bibliography, and Research Techniques
21:282 Practice in Libraries

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 libraries than in more traditional libraries.

Required Courses
Core courses 12 s.h.
21:326 Special Libraries 3 s.h.
Suggested Electives 18 s.h.
21:232 The College and University Library
21:246 Introduction to Information Science
21:247 Information Storage and Retrieval
21:249 Research Methods
21:251 Advanced Reference
21:252 Advanced Cataloging and Classification
21:255 Government Publications
21:264 Medical Reference
21:265 Law Librarianship, Bibliography, and Research Techniques
21:282 Practice in Libraries

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 mailing 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 to work in Iowa are encouraged to follow the program listed below. Students who do not hold a valid teaching certificate need to consult with their advisor before pursing this program.
The program given below is designed to prepare students for the Iowa endorsement, 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
21:233 School Library Media Center Administration
21:262 School Library Media Center Practice
Suggested Electives 12 s.h.
21:233 Literature for Children I
21:124 History of Books for Young People
21:125 Literature and Storytelling for Children
21:193 Literature for Adolescents
21:234 Library Services to Children and Young Adults
21:244 Bibliography of Library Materials for Children and Young Adults

Iowa School Library Media Certification, K-12
The school offers approved programs for the state certification in these areas: school librarian for kindergarten through grade 3 (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 completing 30 semester hours of undergraduate and graduate course work approved by the advisor. Twenty of these hours must be earned here. Included in the 20 semester hours must be 21:151-152, 21:222, 21:233, and 21:282 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 associate of arts degree in the visual and performing arts. Students receiving this endorsement upon completion of the A.A. degree are offered admission to the University of Iowa and the State University System of Iowa, and the University of Iowa. The certificate is not required for the certification program.

Students wishing to pursue community college work in another state may want to take the A.A. degree. The Community College is 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 are 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 vary from student to student, will be a matter of common agreement. 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 may choose to pursue 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 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 School of Library and Information Science and up to nine toward the M.S.A. or twelve hours to the J.D.

In no case can a student receive 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, videocassette production, super-8mm film production, 16mm film production, and simple film editing. A darkroom includes equipment for film developing, enlarging, and dry-mounting.

Computer Facilities

An online lab includes three CRT terminals, one printing terminal, one printer, and a personal computer. This equipment provides local computer 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 on one unit of a statewide network of academic and public libraries. Students purchase book-rental 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 1,000,000 volumes and 200,000 periodical titles related to the study or practice of library and information science. It 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 12 departmental branches. An average of 60,000 volumes is acquired annually. The serials collection is extensive, with more than 22,000 current subscriptions. The third floor of the Main Library houses the government publications map, and special collections rooms, as well as all bound periodicals. The location of the School of Library and Information Science on this floor gives quick access to these frequently used collections.

Other Libraries

Students have access to a variety of libraries through field trips, practicum experience, and personal use: the State Historical Society Library in Iowa City; the Iowa City and Cedar Rapids public and school libraries; the Coe, Cornell, and Grinnell college libraries; and the Herbert Hoover Presidential Library in West Branch. The Iowa City Public Library, located only four blocks from the Main Library, was one of the first public libraries in the nation to convert to a totally computerized catalog. Its service philosophy and contemporary management practices provide students with an innovative public library model.

Other Resources

Lindquist Center, located across the street from the Main Library, houses the Learning Resources Center of the College of Education and the Weeg Computing Center. The resource center consists of the Video Lab, Computer Resource Lab, Audiovisual Production Unit, and Center for Information Retrieval. The Curriculum Resources Lab contains an extensive collection of books and nonprint materials. The collection is especially valuable for students interested in school or public library work.

Weeg Computing Center provides instructional and research computing facilities and services for the University community. All University students, staff, and faculty may use the Center's computers for research, thesis preparation, and coursework. Each graduate student is provided with a room-sized account by the Graduate College.

Faculty Advising

The School of Library and Information Science has a low student-faculty ratio, a faculty actively involved in research and service, and an atmosphere of heavy student-faculty interaction. Adviser assignments are made when students enter the program, and students are encouraged to discuss career objectives and problems with other faculty members as well. The relatively small number of students in the school allows faculty members to get to know students personally and to take an interest in their professional development.
Student Activities

Students have a variety of activities available to them in their academic and professional development. Conferences, short courses, workshops, seminars, field trips, and receptions 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 (LISOC) 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 personal counseling. The University's Vocational Placement Office issues a weekly listing of job openings and provides a credential life service.

Iowa graduates find positions in all types of libraries. The placement distribution for the past five years was public libraries 16 percent, school libraries 27 percent, academic libraries 31 percent, and special libraries 16 percent. Iowa graduates have been employed in libraries in 44 states. Strong personal and community connections 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 mean grade point average of 2.6 on a 4.0 scale, and at least 85 semester hours of study in the liberal arts and sciences;

A combined verbal/quantitative score of 950 on the Graduate Record Examination (GRE) Aptitude Test.

Personal qualifications and aptitude for library work are assessed by means of letters of recommendation and a personal interview with the director of the school or the director's assistant, and another member of the faculty. In the case of extreme distance, an alternate interview may be provided nearer the applicant's home. The school does not accept every applicant who meets the minimum admission requirements, an admissions committee selects each class on a competitive basis.

Foreign students are encouraged to apply if they attain a score of 560 or higher on the Test of English as a Foreign Language (TOEFL). Persons with slightly lower TOEFL scores may be considered for conditional admission with the understanding that they receive remedial assistance in English at the University.

Applicants are requested to write to the School of Library and Information Science for a preliminary information form. If the information provided on the form indicates that the applicant satisfies the basic admission requirements, the school will schedule a personal interview. Prospective students are urged to begin application procedures early enough to complete all requirements by the deadlines given below. The applicant needs to allow more time if he or she has not already taken the Graduate Record Examination (GRE) Aptitude Test. Completed applications should be received by the school by March 1 for fall-term 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-scholarship scholarships, as well as 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. Those who do not meet these requirements when enrolling may apply for a grant following completion of 12 semester hours of graduate work with a grade point average of 3.0. Propective students are urged to apply for these awards before March 1. For information, please call the Office of Student Financial Aid, Colvin 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

190: Information retrieval 3.0
215: History of Books for Young People 3.0
219: History of Books 2.0
315: Library Theory 2.0
316: Library and Information Science 3.0
325: Information Science 3.0
335: Teaching of Library Science 3.0
345: Library Administration 3.0
355: Library Practice 3.0
365: Library Service 3.0
385: Library Planning and Development 3.0
395: Library Research 3.0
415: The Library and the Community 3.0
425: The Library and Society 3.0
435: Special Projects 3.0
445: Library Administration 3.0
455: Library and Information Science I 3.0
465: Library and Information Science II 3.0
475: Library and Information Science III 3.0
485: Library and Information Science IV 3.0
495: Library and Information Science V 3.0

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 strong English for foreign students, including conversation, pronunciation, listening comprehension, reading, vocabulary development, grammar, and writing. Prerequisite: permission of department.

103.1 Iowa Intensive English Communication Skills 5 hrs.
103.2 Iowa Intensive English Listening Comprehension 5 hrs.
103.3 Iowa Intensive English Reading 5 hrs.
103.4 Iowa Intensive English Grammar 5 hrs.
103.5 Iowa Intensive English Writing 5 hrs.
Prerequisite: permission of department.

103.6 Conversion Study Skills for Foreign Students 3 hrs.
Practice in communication, with the goal of comprehensive competence. Basic procedures with written and oral language.

103.9 Pracuice and Oral Fluency For Foreign Students 3 hrs.
Practise on the day-to-day operation of persistent pronunciation problems and the correct use of stress and intonation in daily oral English.

103.10 Grammar for Foreign Students 3 hrs.
Practice in the patterns of English sentence structure.

103.11 Written English for Foreign Students 3 hrs.
Emphasis on oral, written, and creative compositions, grammar, and spelling. Prerequisite in useful patterns of organization in writing.

103.12 Composition of Spoken English for Foreign Students 3 hrs.
Focus on learning to recognize English sound patterns, spoken English, and the usage of formal vocabulary, practice in learning to classroom speech and in oral reading.

103.13 Composition of Written English for Foreign Students 3 hrs.
Focus on extending the comprehension of the written word and improving written by university practice, in taking notes on reading materials.

103.14 Special Instruction in ESL for Foreign Teaching Assistants 3 hrs.
Instruction and practice in language skills, cross-cultural differences in educational systems, and cultural activities. Special consideration given to students having special instructional needs, in simulated classroom situations.

Primarily for Undergraduates

103.11 Language and Society 3 hrs.

103.12 Language and Formal Reasoning 3 hrs.
Introduction to language study and logic. Study of logic used to present arguments. Prerequisite: permission of instructor.

103.13 Special Project 3 hrs.
Independent study on a linguistic topic directed by member of staff.

For Undergraduates and Graduates

103.101 Introduction to Linguistics 3 hrs.
Variety of topics in general linguistics. Same as 103.13.

103.102 Language, Society, and Education 3 hrs.
Concerned with the study of the relationship of language use and development of psycholinguistic, sociolinguistics, and cultural aspects of language and society or a language. Same as 103.13.

103.103 Teaching English as a Foreign Language 3 hrs.
Domains of classroom analysis, teaching foreign language, language and society, cultural differences, and research. Prerequisites: 103.101, 103.110, and 103.141.

103.104 Practice in Teaching English as a Foreign Language 3 hrs.
Practical experience in teaching English as a second language under supervision. Prerequisite: 103.103.

103.105 English for Academic and Professional Purposes 3 hrs.
Teaching and learning strategies, academic and research writing, reading, and speaking. Prerequisites: 103.101 and 103.110.

103.111 Preparatory English 3 hrs.
Introduction to general English courses with a wide range of systematic problems in natural languages. Prerequisites: 103.101.

103.112 Preparatory English 3 hrs.
Solution of problems in phonological analysis in the framework of generative theory. Prerequisites: 103.101 and 103.110.

103.121 Linguistic Field Methods 3 hrs.

103.124 Language Data Processing 3 hrs.
Introduction to computer use, interactive text editing, use of existing programs, computer aided phonological language analysis. Same as 103.114.

103.125 Language Processing 3 hrs.
Studies of language behavior in the context of the complexity of data. Emphasis on problems of data and sources of data. Prerequisite: 103.101.

103.126 Grammar and Syntax of Spanish, French, and Italian 3 hrs.
Emphasis on pronunciation and sentence structure; personal experience and cultural understanding. Same as 103.112.

103.127 Grammar and Syntax of Spanish, French, and Italian 3 hrs.
Emphasis on pronunciation and sentence structure; personal experience and cultural understanding. Same as 103.112.

13.2119 Secretarial Skills for Foreign Students 3 hrs.
Practice in the basic use of the computer, the word processor, and the printer. Prerequisites: 103.101 and 103.110.

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Practice in the basic use of the computer, the word processor, and the printer. Prerequisites: 103.101 and 103.110.
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 Proof with Euclid and 22M:55 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 considering employment in government or industry upon completion of the S.A. degree should consider 22C:17 Programming Techniques and Data Structures and courses in numerical analysis, applied statistics, and operations research.

Actuarial Science
The student who plans to enter the actuarial profession should be guided in course selection by the program of examination and examinations carried on by the provincial actuarial organizations.


Additional courses of direct professional interest to actuaries include 225:183 Demography and Life Table Construction, 225:184 Risks Theory, and 225:185 Theory of Pension Funding.

Students are encouraged to take at least one course in computer science and a substantial program of courses from the College of Business Administration. If a student is unable to complete such a program as an undergraduate, he or she may be advised to take a year of graduate work.

Applied Mathematics


Students in applied mathematics should be familiar with computer programming (22C:16 introduction to Programming with Pascal and 22C:17 Programming Techniques and Data Structures, can be taken early along with calculus) and with the basic ideas of probability and statistics (the student should take 225:153 Introduction to Probability and 225:164 Introduction to Mathematical Statistics or 225:169 Probability and Statistics are appropriate).

To acquire an understanding of how mathematics is used in other areas, it is recommended that the student take a selection of courses involving mathematics that has significant meaning outside the discipline of Mathematical Sciences. Students who plan to do graduate work in applied mathematics should take 22M:115 Introduction to Analysis I and 22M:116 Introduction to Analysis II.

Mathematics Education

Pure Mathematics

Probability and Statistics
The basis for this program is the calculus sequence 22M:25-26 Calculus I-II or 22M:45-46 Accelerated Calculus I-II, 22M:27 Introduction to Linear Algebra, or 22M:27-28 Engineering Calculus I-II, 22M:103 Foundations of Set Theory, and 22M:115-116 Introduction to Analysis I-II. Students may substitute for any of these courses a 100-level course in the same subject area. This requirement (section 4.25.70) must be satisfied before taking 75:135 Methods in 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:94 Calculus in Three Dimensions, 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, 22M:125-126 Probability and Statistics I-II, 22M:148 Mathematical Probability and Statistical Inference, and/or the sequences 225:153 Introduction to Probability and 225:154 Introduction to Mathematical Statistics. Students in mathematics education must also have proficiency in one computer programming language, this requirement is usually met by completing 22C:16 Introduction to Programming with Pascal.
Applied Mathematical Sciences Option

This option is designed to reflect the increasing diversification of applications of mathematics and statistics to the social, biological, and physical sciences, and to management, business, ecology, linguistics, and engineering. The student electing this option must include the following among the seven courses he or she takes beyond the first year of calculus:

- At least three Division of Mathematical Sciences courses numbered 22M:50 or above (excluding 22M:80-R and including at least one course numbered 100 or above) or 225:105 or above.
- At least three additional quantitative courses taken from two closely related departments.

In addition to the above, the Bachelor of Science degree requires two one-semester courses from the division, each carrying at least two semester hours of credit.

A student taking this option must include an area of concentration in his or her program, and must acquire some experience in the use of the computer. Students electing this option are assigned specially-designated program advisors.

Transfer Students

Undergraduate transfer students in mathematics must earn at least nine semester hours of credit in Division of Mathematical Sciences courses beyond the first year of calculus or 22C: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 purposes of satisfying the minor field requirement in the Division of Mathematical Sciences are those that have been approved for the satisfaction of the seven-course requirement for a major in the Division of Mathematical Sciences. Students majoring in either Computer Science or Statistics and Actuarial Science may not use courses in their major department to satisfy the minor field requirement. Further information on the approved courses can be obtained from the division office.

Double Majors

See the divisional offices for information on double majors within the division.

M.B.A. Preparation

An undergraduate student majoring in mathematics and wishing to earn a Master of Business Administration degree in one year of graduate study should consult with his or her advisor and with the associate dean of the College of Business Administration prior to the senior year concerning business courses which should be included in the undergraduate program.

Applied Mathematical Sciences

Program chair: Herbert W. Hethcote
Faculty: Melvin L. Adler (Statistics), Edward J. Althaus (Discrete Mathematics), Stephen R. Chappell (Computer Science), Donald J. M. Davis (Operations Research), Kenneth J. Kuehn (Statistics), Omar P. Wilkins (Operations Research), Stanley J. Wozniak (Operations Research), George K. Yip (Mathematics), Karl E. Lorenz (Statistics), Thomas D. Myers (Computer Science), Leonid G. Chirico (Computer Science), Roger R. Shaf (Computer Science), George Woodworth (Statistics)
Degree offered: Ph.D.

Applied mathematical scientists formulate scientific concepts and problems in mathematical terms; solve the resultant mathematical problems; discuss, interpret, and evaluate the solutions; and explore ideas for and areas of mathematical application; and develop mathematical theories in new areas. Career opportunities include faculty positions in colleges and universities, research positions in industrial and governmental laboratories, and professional consulting positions.

The Program in Applied Mathematical Sciences at The University of Iowa is of 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 (behavioural, biological, environmental, medical, or social). The program is flexible so that a student can concentrate on applied mathematics such as differential equations and numerical analysis or on other applicable techniques in mathematics, statistics, or computer science.

Applicants are expected to have a strong background in a mathematical science, together with a desire to apply a mathematical science to relevant scientific problems in another science. Students may enter with either a bachelor's or master's degree.

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

For the Ph.D., comprehensive examinations are required in each of the three areas: theoretical foundations in the mathematical science, methods of application, and 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 February 1. Applications for fall semester admission and for financial support should be made by February 1.

Courses

122-208 Seminar in Applied Mathematical Sciences
Prerequisite: consent of instructor
122-209 Reading and Research
Prerequisite: consent of instructor

Computer Science

Department chair: Arthur C. Flick
Faculty: professors Donald A. Alonso, Donald L. Eppley, Arthur C. Flick, and professors W. S. Blaise, H. E. N. B. McCollum, and M. J. Fisk
Associate professors Robert J. Flinn, Robert W. V. Blaye, and H. E. N. B. McCollum
Teaching Assistants
Pre-Computer Science

Entering students who desire to become computer science majors are given the designation of pre-computer science until they have met the requirements of entry into the computer science major. These requirements are generally based on both overall grade-point average and grade-point average in the four required courses listed below (or their equivalents by transfer). The specific requirements for a given year will be announced in the fall semester of that year. The requirements will be based on an assessment of the available educational resources and projected student enrollments for that year, in no case will the requirements be set higher than 3.0 overall grade-point average and 3.0 grade-point average in the four courses shown below.

22C:16 Introduction to Programming with Pascal
22C:17 Programming Techniques and Data Structures
22C:18 Computer Organization and Assembly Language Programming
22M:25 Calculus I

After admission to the major pursuing successful completion of the pre- computer science science requirements, students must maintain a grade-point average of 2.25 or better in the courses required for the B.A. in computer science in order to remain in the major (see Bachelor of Arts below).

Bachelor of Arts

Undergraduate students majoring in computer science need a strong background in mathematics and in programming languages and computer systems. For the B.A. degree, these courses and science core courses are required:

22M:25 Calculus I 4 s.h.
22M:25 Calculus II 4 s.h.
22M:27 Introduction to Linear Algebra 4 s.h.
22C:16 Introduction to Programming with Pascal 4 s.h.
22C:17 Programming Techniques and Data Structures 3 s.h.
22C:18 Computer Organization and Assembly Language Programming 4 s.h.
22C:19 Discrete Structures 3 s.h.
22C:21 Data Structures 3 s.h.
22C:22 Programming Language Concepts 3 s.h.
22C:31 Digital Systems and Computers 3 s.h.
22C:32 Introduction to Systems Software 3 s.h.
Total 36 s.h.

Bachelor of Science

For the B.S. degree, the student must complete the computer science requirements for the B.A. degree plus two additional one-semester courses (each having at least two semester hours of credit) from the list below. At least one course must be from the Department of Computer Science.

Computer Science courses
22C:35 Elementary Numerical Analysis
22C:99 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 Computer Organization and Architecture
22C:145 Digital Design of Information Systems
22C:145 Artificial Intelligence I
22C:145 Computer Vision and Robotics
22C:153 Design and Analysis of Algorithms I
22C:167 Theory of Graphs
22C:179 Computer Communications
22C:198 Individual Programming Projects

Mathematics courses
22M:50 Elements of Group Theory
22M:55 Fundamental Properties of Spaces and Functions
22M:70 Foundation in Geometry any 100-level course except 22M:100
Statistics courses
22S:108 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.

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 a field of potential career application such as business, engineering, physics, or any field in which the student plans to apply the computer science degree. These courses must be approved by the student adviser beforehand and cannot be taken pass/fail. They may also be used to satisfy the college electives requirement.

Minor
For a minor in computer science, a student must complete:
22C:16 Introduction to Programming with Pascal
22C:17 Programming Techniques and Data Structures
22C:18 Computer Organization and Assembly Language Programming, and two more courses from among: 22C:99 Programming with COBOL, and/or any computer science courses numbered higher than 22C:18 except those numbered 22C:109. These courses cannot be taken pass/fail.

Master of Science

A candidate for the M.S. degree in computer science must have completed the following courses or acquired equivalent proficiency in the minimum of 30 semester hours of coursework.

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:135 Introduction to Computation Theory 3 s.h.
22M:100 Introduction to Computer Organization and Architecture 3 s.h.
Approved courses outside of computer science 6 s.h.
Total 30 s.h.

Outlines courses must be selected to support the student's career objectives and must be approved by the student's adviser. The outlines courses must either broaden the student's knowledge and understanding and through a study of a new area or extend the student's earlier work outside of computer science.

Computer science courses should be selected according to the student's specific area of interest and should provide a broad range of experience and competence in computer science. In particular, some experience with projects involving extensive programming should be included.

Any M.S. candidate may elect to write a thesis, and with the adviser's consent may apply up to eight semester hours of credit toward the minimum total of 30 semester hours of credit required for the M.S. degree.

The M.S. final examination consists of either an oral defense of the thesis or a written examination which assumes completion of 22C:116 Operating Systems and Concurrent Programming, 22C:122 Advanced Computer Organization and Architecture, 22C:123 Programming Language Foundations, and 22C:135 Introduction to Computation Theory. The written examination attempts to confront the interfaces among these four courses as well as the major fields in the individual courses. Students should consult the Graduate Handbook for further information.

It is strongly recommended that the applicant for admission to the M.S. program in computer science have a B.A. or B.S. in computer science, or equivalent course work. In special cases, a student lacking one or more of the undergraduate requirements may be
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 doctorate include:

22C:16 Operations Systems and Current Programming
3 s.h.

22C:10 Advanced Computer Organization and Architecture
3 s.h.

22C:13 Programming Language Foundations
3 s.h.

22C:13 Data Abstractions, Types, and Structures
3 s.h.

22C:17 Compiler Construction
3 s.h.

22C:13 Introduction to Computer Theory
3 s.h.

22C: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 coursework in addition to 22C:399 Research for Dissertation.

In addition to the course work in computer science, the student must complete at least three courses, with grades of A or B, 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 200 (advanced) level, except in statistics and probability, where the advanced course may be at the 100 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 that 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 coursework.

Examinations are described in the Graduate Handbook. The student prepares a written proposal for research and defends the proposal in an oral examination administered by the dissertation committee. The student must demonstrate expertise in the area of proposed research, and must justify the proposal in terms of originality and significance.

The student must make an oral defense of the dissertation. The department is highly selective in admitting doctoral students, and normally considers only applicants with a grade-point average above 3.3.

Graduate School 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 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:150 Introduction to Computing with FORTRAN or 22C:158 Programming with C more appropriate.

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The student must complete at least 18 semester hours of 200-level computer science coursework in addition to 22C:399 Research for Dissertation.
220.12 Computer Vision and Robotics 3 a.h.
Visual edge detection, determining object flow and shape, image segmentation, pattern recognition, computer vision, robotics, object recognition, recognition of shapes, stereo, pattern recognition, machine learning, artificial intelligence, computer vision, robotics, pattern recognition, machine learning.

220.13 Design and Analysis of Algorithms 3 a.h.

220.17 Theory of Games 3 a.h.
Games, including both two-person and multiperson games. Games of strategy, games of chance, and games of perfect information. Strategies, equilibrium points, and Nash equilibria. Cooperative games and noncooperative games.

220.54 Artificial Intelligence 3 a.h.
AI, expert systems, natural language processing, machine learning, neural networks, genetic algorithms, and robotics.

220.56 Information System Design 3 a.h.
Advanced topics in database design, languages, and modeling. Information systems design and implementation. Database design, database systems, and database management systems.

220.61 Theory of Science 3 a.h.
Science, natural philosophy, the history of science, scientific method, and the philosophy of science.

220.62 Design and Analysis of Experiments 3 a.h.
Experimental design, analysis of variance, regression analysis, and nonparametric statistics. Design of experiments, statistical methods, and statistical inference.

220.27 Digital Logic Design 3 a.h.
Design, simulation, and testing of digital logic circuits. Digital logic design, computer architecture, digital logic design, and computer systems.

220.33 Advanced Operating Systems 3 a.h.
Operating systems and computer architecture, computer hardware, computer networks, and computer operating systems.

220.34 Design of Experiments 3 a.h.
The design of experiments, the analysis of data, the interpretation of results, and the application of statistical methods to the analysis of data.

220.35 Introduction to Computer Vision 3 a.h.
Introduction to computer vision, computer vision, and machine learning. Computer vision, image processing, computer vision, and pattern recognition.

220.36 Introduction to Computer Graphics 3 a.h.
Computer graphics, computer vision, and computer graphics. Introduction to computer graphics, computer vision, and computer graphics.

220.37 Information Systems 3 a.h.
Introduction to information systems, information systems, and computer science. Introduction to information systems, information systems, and computer science.

220.39 Database Systems 3 a.h.
The design and implementation of database systems, database management systems, and database systems.

220.40 Theory of Computation 3 a.h.
Formal languages, automata theory, computability theory, and complexity theory. Formal languages, automata theory, computability theory, and complexity theory.

220.41 Information Systems 3 a.h.
Introduction to information systems, information systems, and computer science. Introduction to information systems, information systems, and computer science.

220.42 Data Structures 3 a.h.
Data structures, algorithms, and computer science. Data structures, algorithms, and computer science.

220.43 Advanced Software Engineering 3 a.h.
Advanced software engineering, computer science, and computer science. Advanced software engineering, computer science, and computer science.

220.44 Computer Architecture 3 a.h.
Computer architecture, computer organization, and computer systems. Computer architecture, computer organization, and computer systems.

220.45 Computer Networks 3 a.h.
Computer networks, computer science, and computer science. Computer networks, computer science, and computer science.

220.46 Database Systems 3 a.h.
Database systems, computer science, and computer science. Database systems, computer science, and computer science.

220.47 Computer Vision 3 a.h.
Computer vision, computer graphics, and computer science. Computer vision, computer graphics, and computer science.

220.48 Advanced Operating Systems 3 a.h.
Operating systems, computer science, and computer science. Operating systems, computer science, and computer science.

220.49 Database Systems 3 a.h.
Database systems, computer science, and computer science. Database systems, computer science, and computer science.

220.50 Computer Networks 3 a.h.
Computer networks, computer science, and computer science. Computer networks, computer science, and computer science.

220.51 Computer Systems 3 a.h.
Computer systems, computer science, and computer science. Computer systems, computer science, and computer science.

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220.68 Computer Networks 3 a.h.
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220.69 Computer Networks 3 a.h.
Computer networks, computer science, and computer science. Computer networks, computer science, and computer science.

220.70 Computer Networks 3 a.h.
Computer networks, computer science, and computer science. Computer networks, computer science, and computer science.
Students are required to take two comprehensive examinations: one covering the context of ZM170, 2M1/171, and 2M1/135; the other covering the context of ZM1/101, 2M1/102, and 2M1/109.

Two from the following:
2M1/118 Complex Variables
2M1/150 Matrix Theory
2M1/151 Discrete Mathematical Models
2M1/152 Theory of Graphs
2M1/116 Operating Systems and Concurrent Programming
2M1/153 Design and Analysis of Algorithms
2M1/153 Introduction to Probability
2M1/154 Introduction to Mathematical Statistics
2M1/167 Introduction to Statistical Processes
2M1/154 Introduction to Mathematical Statistics
2M1/167 Introduction to Stochastic Processes
Or any mathematics course having any of these three as a prerequisite.

Program II
This program is designed for secondary school teachers. The requirements are the same as those in Program I, except that the mathematics education courses are required.

Program III
This program is oriented toward applied mathematics. Students in this program must take these required courses:
2M1/101 Introduction to Linear Algebra
2M1/102 Intermediate Differential Equations
2M1/106 Continuous Mathematical Models
2M1/170 Numerical Analysis: Nonlinear Equations and Approximation Theory
2M1/171 Numerical Analysis: Differential Equations and Linear Algebra

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 one at The University of Iowa. Each graduate student in mathematics is expected to gain experience, while at the University, in the oral communication of mathematics; this requirement is usually fulfilled by "teaching classes or seminar lecturing."

The comprehensive qualifying examination for the Ph.D. in mathematics covers three of these areas: algebra, analysis, and topology. The student selects the three areas on 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 either passing a language test administered by the appropriate foreign language department or earning a grade of B 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. program, in mathematics education, consult the advisor, 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 and are usually special arrangement with the chair of the department.

200/1: Basic Mathematical Techniques
200/2: Algebraic techniques, equations and inequalities, functions and graphs, coordinate geometry, and trigonometry. Prerequisite: ZM1/16 or an equivalent course.
210/1: Basic Mathematical Techniques
210/2: Algebraic techniques, equations and inequalities, functions and graphs, coordinate geometry, and trigonometry. Prerequisite: ZM1/16 or an equivalent course.
212/1: Mathematical Methods
212/2: Basic mathematical methods including: differential equations, linear algebra, and probability and statistics. Prerequisite: ZM1/16 or an equivalent course.
213/1: Quantitative Methods
213/2: Quantitative methods including: differential equations, linear algebra, and probability and statistics. Prerequisite: ZM1/16 or an equivalent course.
214/1: Quantitative Methods
214/2: Quantitative methods including: differential equations, linear algebra, and probability and statistics. Prerequisite: ZM1/16 or an equivalent course.
215/1: Basic Mathematical Techniques
215/2: Algebraic techniques, equations and inequalities, functions and graphs, coordinate geometry, and trigonometry. Prerequisite: ZM1/16 or an equivalent course.
216/1: Basic Mathematical Techniques
216/2: Algebraic techniques, equations and inequalities, functions and graphs, coordinate geometry, and trigonometry. Prerequisite: ZM1/16 or an equivalent course.
Elementary Topics of General Interest

These courses are not open to graduate students except by special arrangement with the chair of the department.

Elementary Topics of General Interest

1. Introduction to Logarithms

The vector algebra and geometry of three-dimensional Euclidean space, including tangents and normals to planes and curves, reduction of vectors to components, properties of lines and planes, and equations of cones and spheres. Emphasis is on applications to kinematics, engineering, and physics. Prerequisite: MATH 254. May not be taken by students with credit for MATH 354. Credit may not be given for both MATH 252 and MATH 254.

2. Introduction to Linear Algebra

The vector space and linear transformations over finite-dimensional vector spaces, including solutions to systems of linear equations, linear independence, eigenvalues and eigenvectors, and other related topics. Credit may not be given for both MATH 252 and MATH 254.

3. Linear Algebra

The theory of linear transformations and matrices. Prerequisite: MATH 254 or consent of instructor.

4. Calculus

The real number system, functions, sets, and graphs. Prerequisite: MATH 254 or consent of instructor.

5. Calculus Laboratory

Use of computer as aid to understanding concepts and techniques of calculus. Prerequisite: MATH 254 or consent of instructor.

6. Calculus with Applications

One-semester course covering differential and integral calculus, including applications to business, economics, and social sciences. Prerequisite: three or more years of high school mathematics or consent of instructor.

7. Calculus with Engineering Applications

One-semester course covering differential and integral calculus, including applications to engineering and mathematics. Prerequisite: MATH 254 or consent of instructor.

8. Calculus for Business

One-semester course covering differential and integral calculus, including applications to business, economics, and social sciences. Prerequisite: three or more years of high school mathematics or consent of instructor.

9. Introduction to Ordinary Differential Equations

One-semester course covering differential equations, including solutions to linear and non-linear differential equations, curves, equations, and series. Credit may not be given for both MATH 252 and MATH 254.

10. Ordinary Differential Equations

One-semester course covering differential equations, including solutions to linear and non-linear differential equations, curves, equations, and series. Credit may not be given for both MATH 252 and MATH 254.

11. Vector Calculus

One-semester course covering vector calculus, including solutions to linear and non-linear differential equations, curves, equations, and series. Credit may not be given for both MATH 252 and MATH 254.

12. Introduction to Partial Differential Equations

One-semester course covering partial differential equations, including solutions to linear and non-linear differential equations, curves, equations, and series. Credit may not be given for both MATH 252 and MATH 254.

13. Introduction to Numerical Analysis

One-semester course covering numerical analysis, including solutions to linear and non-linear differential equations, curves, equations, and series. Credit may not be given for both MATH 252 and MATH 254.

14. Introduction to Linear Algebra

One-semester course covering linear algebra, including solutions to linear and non-linear differential equations, curves, equations, and series. Credit may not be given for both MATH 252 and MATH 254.

15. Introduction to Linear Programming

One-semester course covering linear programming, including solutions to linear and non-linear differential equations, curves, equations, and series. Credit may not be given for both MATH 252 and MATH 254.

16. Introduction to Cryptography

One-semester course covering cryptography, including solutions to linear and non-linear differential equations, curves, equations, and series. Credit may not be given for both MATH 252 and MATH 254.

17. Introduction to Number Theory

One-semester course covering number theory, including solutions to linear and non-linear differential equations, curves, equations, and series. Credit may not be given for both MATH 252 and MATH 254.

18. Introduction to Algebra

One-semester course covering algebra, including solutions to linear and non-linear differential equations, curves, equations, and series. Credit may not be given for both MATH 252 and MATH 254.

19. Introduction to Logic

One-semester course covering logic, including solutions to linear and non-linear differential equations, curves, equations, and series. Credit may not be given for both MATH 252 and MATH 254.

20. Introduction to Set Theory

One-semester course covering set theory, including solutions to linear and non-linear differential equations, curves, equations, and series. Credit may not be given for both MATH 252 and MATH 254.

21. Introduction to Topology

One-semester course covering topology, including solutions to linear and non-linear differential equations, curves, equations, and series. Credit may not be given for both MATH 252 and MATH 254.

22. Introduction to Real Analysis

One-semester course covering real analysis, including solutions to linear and non-linear differential equations, curves, equations, and series. Credit may not be given for both MATH 252 and MATH 254.

23. Introduction to Complex Analysis

One-semester course covering complex analysis, including solutions to linear and non-linear differential equations, curves, equations, and series. Credit may not be given for both MATH 252 and MATH 254.

24. Introduction to Functional Analysis

One-semester course covering functional analysis, including solutions to linear and non-linear differential equations, curves, equations, and series. Credit may not be given for both MATH 252 and MATH 254.

25. Introduction to Measure Theory

One-semester course covering measure theory, including solutions to linear and non-linear differential equations, curves, equations, and series. Credit may not be given for both MATH 252 and MATH 254.

26. Introduction to Probability Theory

One-semester course covering probability theory, including solutions to linear and non-linear differential equations, curves, equations, and series. Credit may not be given for both MATH 252 and MATH 254.

27. Introduction to Statistics

One-semester course covering statistics, including solutions to linear and non-linear differential equations, curves, equations, and series. Credit may not be given for both MATH 252 and MATH 254.

28. Introduction to Mathematical Statistics

One-semester course covering mathematical statistics, including solutions to linear and non-linear differential equations, curves, equations, and series. Credit may not be given for both MATH 252 and MATH 254.

29. Introduction to Numerical Linear Algebra

One-semester course covering numerical linear algebra, including solutions to linear and non-linear differential equations, curves, equations, and series. Credit may not be given for both MATH 252 and MATH 254.

30. Introduction to Numerical Analysis

One-semester course covering numerical analysis, including solutions to linear and non-linear differential equations, curves, equations, and series. Credit may not be given for both MATH 252 and MATH 254.

31. Introduction to Numerical Methods

One-semester course covering numerical methods, including solutions to linear and non-linear differential equations, curves, equations, and series. Credit may not be given for both MATH 252 and MATH 254.

32. Introduction to Numerical Computation

One-semester course covering numerical computation, including solutions to linear and non-linear differential equations, curves, equations, and series. Credit may not be given for both MATH 252 and MATH 254.

33. Introduction to Numerical Linear Algebra

One-semester course covering numerical linear algebra, including solutions to linear and non-linear differential equations, curves, equations, and series. Credit may not be given for both MATH 252 and MATH 254.

34. Introduction to Numerical Analysis

One-semester course covering numerical analysis, including solutions to linear and non-linear differential equations, curves, equations, and series. Credit may not be given for both MATH 252 and MATH 254.

35. Introduction to Numerical Computation

One-semester course covering numerical computation, including solutions to linear and non-linear differential equations, curves, equations, and series. Credit may not be given for both MATH 252 and MATH 254.

36. Introduction to Numerical Linear Algebra

One-semester course covering numerical linear algebra, including solutions to linear and non-linear differential equations, curves, equations, and series. Credit may not be given for both MATH 252 and MATH 254.

37. Introduction to Numerical Analysis

One-semester course covering numerical analysis, including solutions to linear and non-linear differential equations, curves, equations, and series. Credit may not be given for both MATH 252 and MATH 254.
Statistics and Actuarial Science

Department chair: John J. Beach
Faculty: professors Richard L. DiDonato, Robert V. Mogg, Donald T. Tucker; associate professors John J. Beach, James S. Bortnik, Kevin G. Brown, Carolyn D. Curve, Charles R. Couch, T. U. Lee, Russell E. Leaf, George G. Woodworth; assistant professors, George C. Ranger, Ralph P. Rusek, Jason Wong

Joint appointments: professors Leonard S. Feld, Heman D. Vatter, Penn A. Latchford, Paul D. Mather, Brian J. Wodon

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

Statistics and actuaries build mathematical models for processes that involve random quantities, so that they may better understand and perhaps control these processes. For example, statisticians help design and analyze controlled experiments and scientific samples for industry, research, and government. Actuaries work in the insurance industry or as consultants dealing with the risk and uncertainty of potential financial losses. Statisticians and actuaries serve in academic institutions, not only in statistical teaching and research, but 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 and mathematics courses numbered 225-228 and 35-36.

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

Actuarial Science

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

225: 7 Introduction to Computing with FORTRAN
225: 16 Introduction to Programming with Pascal
225:26-28 Calculus III
225:35-36 Engineering Calculus III
225:45-46 Accelerated Calculus III
225:52-54 Introduction to Linear Algebra
225:55 Engineering Calculus III
225:58 Fundamental Properties of Spaces and Functions
225:150 Introduction to Probability
225:152 Actuarial Principles of Life Insurance
225:177 Numerical Analysis for Actuaries
225:180-182 Actuarial Theory I
66:1-2 Principles of Economics

At least two from the following:
65:1 Introduction to Financial Accounting
65:100 Introductory Financial Management
65:102 General Insurance
65:100 Introduction to Marketing
65:47 Introduction to Law
66:100 Administrative Management
Suggested additional courses:
225: 156 Actuarial Ethics and Standards
225: 153 Introduction to Probability
225:183 Demography and Life Table Construction
225:184 Risk Theory
225:185 Theory of Pension Funding
66:121 Property and Liability Insurance
66:122 Life and Health Insurance
66:275 Operations Research M.B.A.
56:170 Deterministic Operations Research
56:173 Stochastic Operations Research

It is recommended that the required and elective courses be taken in the following order. Students should note that in order to complete the program in four years, 225:153 Introduction to Probability must be taken no later than the fall semester of the junior year.

Freshmen: Fall
225:25 Calculus III
225:35 Engineering Calculus I
225:45 Accelerated Calculus I
10: 1 Rhetoric
Freshman: Spring
225:26 Calculus II
225:36 Engineering Calculus II
225:46 Accelerated Calculus II
225:52-54 Introduction to Linear Algebra
10: 2 Rhetoric
Sophomore: Fall
225:27 Introduction to Linear Algebra
66:1 Principles of Economics
225:58 Fundamental Properties of Spaces and Functions
Sophomore: Spring
225:28 Calculus III
225:37 Engineering Calculus III
66:2 Principles of Economics
225:29 Introduction to Computing with FORTRAN
225:26 Introduction to Stochastic Processes
225:150 Probability Theory
225:152 Actuarial Principles of Life Insurance
225:180 Actuarial Theory I
225:184 Risk Theory
225:185 Theory of Pension Funding

Applied Statistics

This program is designed to prepare the student for a career in applied statistics or for graduate study in applied statistics or another discipline that incorporates statistical tools. The required courses in the program are:

225:17 Introduction to Computing with FORTRAN
225:16 Introduction to Programming with Pascal
225:25-26 Calculus I-III
225:35-36 Engineering Calculus I-III
225:45-46 Accelerated Calculus I-III
225:27 Introduction to Linear Algebra
225:28 Calculus III
225:125 Regression Analysis
225:150 Introduction to Probability
225:154 Introduction to Mathematical Statistics
225:158 Analysis and Design of Experiments I
225:173 Statistical Computation and Consulting

and at least two of the following:
63:163 Introduction to the Design of Sample Surveys
225:156 Applied Time Series Analysis
225:181 Application of Multivariate Statistical Techniques
225:183 Nonparametric Statistical Methods
225:154 Introduction to Stochastic Processes
225:158 Analysis and Design of Experiments II

Statistics and Actuarial Science/LIBERAL ARTS

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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 Accelerated Calculus I-II
- 22M:57 Introduction to Linear Algebra
- 22M:58-59 Multivariable Calculus I-II
- 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:156 Regression Analysis
- 22M:158 Applied Time Series Analysis
- 22M:158 Anlysis and Design of Experiments I
- 22M:154 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 final recommendation is usually based upon written examinations on topics covered in the required courses. For thesis programs, the committee's final recommendation is usually based upon an oral defense of the thesis, although it may be based upon a single written examination over the topics covered in the candidate's program of study.

A student who chooses to earn the M.S. degree with thesis may earn 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.

**Doctor of Philosophy**

To satisfy the course requirements for a Ph.D. in statistics, a student must successfully complete:

- 22M:211 Analysis II
- 22M:156 Regression Analysis
- 22M:158 Analysis and Design of Experiments I
- 22M:157 Statistical Computation and Consulting

and at least two of the following:

- 22M:156 Applied Time Series Analysis
- 22M:187 Introduction to Mathematical Statistical Techniques

The remainder of the program will consist of at least two additional courses numbered 22M: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 a specific 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 a particular application area is strong, a program in another department may be more appropriate, for example, educational measurement and statistics (education), operations research (industrial and management engineering), and sociostatistics (preventive medicine and environmental health).

**Applied Statistics (with thesis)**

- 22M:153 Introduction to Probability
- 22M:154 Introduction to Mathematical Statistics
- 22M:156 Introduction to Mathematical Statistics
- 22M:153 Probability
- 22M:154 Introduction to Stochastic Processes
- 22M:154 Analysis and Design of Experiments I
- 22M:156 Regression Analysis
- 22M:158 Analysis and Design of Experiments II

The remainder of the program will consist of at least two additional courses numbered 22M: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 22M: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:241: Analysis
- 22M:156 Regression Analysis
- 22M:158 Analysis and Design of Experiments I
- 22M:157 Statistical Computation and Consulting
- 22M:201-202 Theory of Statistics I-II
- 22M:253 Advanced Regression
- 22M:264-265 Theory of Probability I-II

The remainder of the program will consist of at least two additional courses numbered 22M: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 a specific 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 a particular application area is strong, a program in another department may be more appropriate, for example, educational measurement and statistics (education), operations research (industrial and management engineering), and sociostatistics (preventive medicine and environmental health).
statistical inference, linear models, and probability. These topics are generally covered in 225-201, 225-202, 225-255, 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 problem is to permit the student to demonstrate an area of strength; the format is at the discretion of the student committee. Study guides for the core examination are available from the departmental secretary.

Special Features

Because statisticians are often trained with other backgrounds in research projects, it is important that students gain experience in groups 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 the majority of Statistical Consulting Center projects involve statistical problems arising in these departments, the center also seeks involvement in larger research projects and in the writing of proposals.

Courses for Undergraduates

No student may receive credit for a Department of Statistics and Actuarial Science course numbered 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: 225-225, 225-226, 225-102, 225-103, 225-104.

125 Statistics and Probability

Statistical ideas and their applications in politics, business, and the social, health, and physical sciences. This course is to serve as the technical foundation for the introductory probability course 225-254 or equivalent. 3 Cr.

125 Quantitative Methods

Partial correlation; regression analysis, analysis of variance, linear equations, and computer packages. Prerequisite: 225-254 and 125 Statistics and Probability. 3 Cr.

125 Elementary Statistics and Intensive

Intensive review of study skills, computer packages, and descriptive and inferential statistics. Prerequisite 225-254 or equivalent. Same as 125 Statistics and Probability. 3 Cr.

125 Statistics and Probability

Prerequisite: 125 Statistics and Probability. 3 Cr.

125 Applied Time Series Analysis

Prerequisites: 125 Statistics and Probability, or equivalent. 3 Cr.

125 Business Statistics

Prerequisites: 125 Statistics and Probability, or equivalent. 3 Cr.

125 Multiple Regression

Prerequisites: 125 Statistics and Probability, or equivalent. 3 Cr.

125 Introduction to Probability

Prerequisites: 125 Statistics and Probability, or equivalent. 3 Cr.

125 Introduction to Mathematical Statistics

Prerequisites: 125 Statistics and Probability, or equivalent. 3 Cr.

125 Probability and Statistics

Prerequisites: 125 Statistics and Probability, or equivalent. 3 Cr.

125 Actuarial Probability

Prerequisites: 125 Statistics and Probability, or equivalent. 3 Cr.

125 Life Insurance

Prerequisites: 125 Statistics and Probability, or equivalent. 3 Cr.

125 Statistical Analysis

Prerequisites: 125 Statistics and Probability, or equivalent. 3 Cr.

125 Introduction to Statistical Methods

Prerequisites: 125 Statistics and Probability, or equivalent. 3 Cr.

125 Advanced Statistical Methods

Prerequisites: 125 Statistics and Probability, or equivalent. 3 Cr.

125 Statistical Methods in Business

Prerequisites: 125 Statistics and Probability, or equivalent. 3 Cr.

125 Introduction to Business Statistics

Prerequisites: 125 Statistics and Probability, or equivalent. 3 Cr.

125 Business Statistics and Computers

Prerequisites: 125 Statistics and Probability, or equivalent. 3 Cr.

125 Introduction to Business Analytics

Prerequisites: 125 Statistics and Probability, or equivalent. 3 Cr.

125 Introduction to Business Research

Prerequisites: 125 Statistics and Probability, or equivalent. 3 Cr.

125 Introduction to Business Statistics

Prerequisites: 125 Statistics and Probability, or equivalent. 3 Cr.

125 Introduction to Business Analytics

Prerequisites: 125 Statistics and Probability, or equivalent. 3 Cr.
microbes in stabilization of the biosphere by recycling, and altering waste products and the general metabolism and regulation of the intra-cellular response, including interaction of hybrid cell lines able to produce antibodies of single type (monoclonal antibodies).

Microbiology is an excellent major for undergraduate students who want a good general education, with emphasis on an important and interesting branch of biology. For the graduate with a bachelor's degree in microbiology positions are available in government, hospitals, public health laboratories, research laboratories, and industrial laboratories (food, dairy, chemical, pharmaceutical, and genetic engineering companies).

Students who continue the bachelor's degree have career opportunities in these same areas, plus college and university teaching, with greater responsibilities and commensurately higher salaries.

Bachelor of Science

An undergraduate student majoring in microbiology at The University of Iowa must meet general education requirements of the College of Liberal Arts. Students who become microbiology majors before the summer session of 1988 must complete a minimum of 16 semester hours in microbiology to obtain a B.S. degree. Students who become microbiology majors after spring 1984 must complete a minimum of 20 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 61:163 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 61:157 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 became microbiology majors prior to summer 1984 include the following:

- 4:13 Principles of Chemistry I 3 s.h.
- 4:14 Principles of Chemistry II 3 s.h.
- 4:16 Principles of Chemistry Lab I 2 s.h.
- 4:101 Elementary Quantitative Analysis 4 s.h.
- 4:121 Organic Chemistry I 3 s.h.
- 4:122 Organic Chemistry II 3 s.h.
- 4:141 Organic Chemistry Laboratory 3 s.h.
- 59:120 The Chemistry of Biological Materials 3 s.h.
- 59:120 Metabolism 3 s.h.
- 22M:15 Mathematics for the Biological Sciences 4 s.h.
- 22M:20 Elementary Functions 3 s.h.
- 29:11-12 College Physics 8 s.h.
- 37:5 Principles of Animal Biology 5 s.h.

The course requirements for students who become microbiology majors after spring 1984 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 that are recommended include the following:

- 8W:10 Expository Writing 3 s.h.
- 8W:112 Writing for the Sciences 3 s.h.
- 22C:7 Introduction to Computing with FORTRAN 3 s.h.
- 22C:16 Introduction to Programming with Pascal 3 s.h.
- 22G:17 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 qualifies the B.S. degree with honors.

Graduate Study, Faculty Roster, Courses

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

Military Science

(Military ROTC)

Department Head: Lieutenant Colonel Roger W. Lienhard
Faculty: Professor Roger W. Lienhard, Lieutenant Colonel. Assistant professor Olle G. Winder (Major), Bruce J. Denzel (Captain), Michael J. Hall (Captain), Bradley T. Carpenter (Captain), Andrea M. Bailey (Ensign), Richard A. Chorovers (GSM)

The Department of Military Science is the academic unit authorizing the Army Reserve Officers' Training Corps (ROTC) program at the University of Iowa. ROTC is co-sponsored by the U.S. Army and the university. The program is designed to promote military science as a concept and to develop the leadership potential of students who wish to make military service a career.

Students who successfully complete the Advanced Course receive a commission as a second lieutenant in the U.S. Army Reserve or the Iowa Army National Guard, and the university will pay military training expenses. Students who qualify may be admitted to the advanced course by taking 23:99 Fundamentals of Military Science and Operation.

Credit for Prior Training

Students with prior military training or experience may qualify for Basic Course credit and be allowed entrance into the Advanced Course. Prior service personnel are given advanced placement within the ROTC program and are eligible for a commission within two years.

Although the U.S. Army ROTC program normally spans four years, it can be completed in two, three, or four years, with departmental approval.

Graduate School

Students by admission as lieutenants upon graduation from The University of Iowa only apply for a delay of entry on acti duty to attend graduate school. No
additional time is required on active duty for such delays. Delays of up to three years to attend medical, dental, and law schools are normally granted.

Special Programs

The Black Berets is a fraternal organization, engaging in collegiate military activities. They compete for individual local and national awards in areas such as calisthenics, team spirit, and academic excellence. They also sponsor an annual military ball, a formal dance called Cadet Corp's Ball, and an awards ceremony.

Special Facilities

The department uses several areas near Iowa City for practical field problems and military skills instruction. It includes a variety of military equipment, such as helicopters and FM radio, in practical leadership exercises and in support of Field Training. Cadets visit Rock Island Arsenal, Rock Island Corps of Engineers District, and Camp Dodge, near Des Moines, to observe army operations and review equipment. Cadets also use the Camp Dodge leadership reaction course, orienteering course, and rappelling facilities.

Financial Aid

Reserve Officers Training Corps scholarships, providing tuition, allowance for books, laboratory fees, and a $1000 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 $300 per-month subsistence allowance. Cadets attending summer camp receive a $300 per-month 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 Simultaneous Membership Program (SMP) with the U.S. Army Reserve or National Guard. SMP cadets earn approximately $5,600 per year and serve as staff for the university and reserve units in the local area while attending the University.

Courses

221 Introduction to the Military 5.5 hrs.

Based on the role of the military in American society and as an element of American foreign policy, this course reviews the history of the military establishment, organization of the Department of Defense, current defense

at The University of Iowa is the oldest of more than 75 university and college-based curricula in the United States. The museum field is expanding, and graduates of the university occupy positions of responsibility as directors, curators, and exhibit specialists in museums throughout the United States and Canada. A major in one of the natural science disciplines (biology, geology, or botany), anthropology, science education, art, or history is recommended for students preparing for museum careers. Courses are offered during the annual eight-week summer session as well as during the regular academic year. These elective college courses count toward the B.A. or B.S. degree.

For graduate work, courses may be credited as a formal museology minor concentration on a master’s degree in anthropology or science education, or a Ph.D. degree in science education. Inquiries regarding program details should be directed to the appropriate major department.

Courses presented in the department are of value not only to those intending to pursue careers in science museums, but also as supplemental instruction to students with majors or specialized interests in the arts and humanities. Advanced high-school students can gain practical working experience by participating directly in The University of Iowa Museum of Natural History’s artifact program and through formal internships with other museums.

Museum Training

Department chair and curator, George D. Schroeter, faculty; assistant professor George D. Schroeter, and associate professor George D. Schroeter.

The Museum of Natural History offers courses which provide a fundamental background in the history, philosophy, and management of museums; their functions and operational processes; and the conceptual, design, and technical aspects of exhibition development. Courses have been offered continuously since 1910; the summer instructional program at The University of Iowa is the oldest of more than 75 university and college-based curricula in the United States. The museum field is expanding, and graduates of the university occupy positions of responsibility as directors, curators, and exhibit specialists in museums throughout the United States and Canada. A major in one of the natural science disciplines (biology, geology, or botany), anthropology, science education, art, or history is recommended for students preparing for museum careers. Courses are offered during the annual eight-week summer session as well as during the regular academic year. These elective college courses count toward the B.A. or B.S. degree.

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Music

School director: Marilyn Sonshine

Academic advisor: John D. Hill


Professor emeriti: Robert Deutman, Albert T. Leiter, Thomas Muehle, Regis Hebert, Charles B. Glaister, Helen Starks, Mary L. Taft, Thomas Turner, Mina F. T. Weich, F. Venable, David S. Washburn, J. Goodwin


A primary element in a fine arts community of international repute, the University of Iowa has long been recognized as one of the most outstanding schools of music in the United States. The school’s on-campus enrollment of 800 students majoring in music is large enough to sustain strong programs in all areas of specialization, yet small enough to ensure the individual attention essential to each student’s development.

The faculty consists of highly trained artist-teachers in each area of specialization. Faculty members in residence include the Stradlman String Quartet, Iowa Woodwind Quintet, Iowa Brass Quintet, Percussion Quartet, Vocal Quartet, and the Baroque Players. Faculty members and faculty members are offered in all band and orchestra instrumental and performance opportunities. At the undergraduate level, the school’s curriculum is designed to provide an opportunity for the further study of music toward either professional or avocational goals. The graduate curricula are designed primarily as preparation for teaching in secondary schools, colleges, and universities, and for careers in performance.

The school is a charter member of the National Association of Schools of Music.

Undergraduate Programs

The school offers the Bachelor of Arts and the Bachelor of Music. Courses are the same for both, except that candidates for the B.M. degree may, and candidates for the B.A. may not, count more than 50 semester hours of course work in music toward the 124 semester hours required for graduation; and the foreign language requirement for the B.A. is one year of college-level study, while the requirement for the B.A. is two years. Areas of concentration offered in both programs are performance, music education, music history, composition, theory, and music history.

General Requirements

All undergraduate enrollments require School of Music approval. Entering undergraduate students planning to major in music are expected to audition either in person or by tape recording in advance of registration. All transfer students must audition to pass the advisory examination in music theory (see ’Graduate Programs’ below). Students with deficiencies in theory must register for 25:11 Review Theory.

Bachelor’s candidates in music must satisfy all College of Liberal Arts general requirements except the historical perspectives requirement (see the ’College of Liberal Arts’ section of the Catalog for these requirements). The following course requirements of the School of Music:

25:1-2 Literature and Theory I
25:3-4 Aural Skills I
25:5-6 Literature and Theory II
25:7-8 Aural (ALHS III-IV)
25:9-10 History of Music I
25:11-12 Orchestration in music II
25:12-13 Advanced Composition I
25:13-14 Advanced Composition II
25:14-15 Graduate Research Seminar

Four semester hours of electives from the following:

25:15 Undergraduate Composition
25:17-18 Arranging for Band
25:19-20 Jazz Improvisation
the B.A. or B.M. requirements in music and liberal arts, certificating to teach music in Iowa schools requires satisfactory completion of specific requirements in the area of concentration. Requirements in the instrumental and voice areas are listed below.

**String Majors**
Instrumental in performance 2 s.h.
(Viola and viola majors take one year of 25:23 Cello, and loses majors take one year of 25:21 Violin)
25:100 Cello Strings 1-2 s.h.
(Violinists take viola and bass; violists take violin and bass; cellists take viola and bass passists take viola and cellos.
75:143 Instrumental Techniques 2 s.h.
(2nd clarinet or cornet)
25:107 Instrumental Conducting 1 s.h.
25:108 Instrumental Conducting II 1 s.h.
25:70 String Methods and Materials 4 s.h.
75:144 Methods and Materials: Elementary School Instrumental Music 2 s.h.
75:171 Observation and Laboratory Practice in the Secondary School 6 s.h.
75:192 Laboratory Practice in the Elementary School 6 s.h.
75:187 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 adviser and the Director of Bands.

75:143 Instrumental Techniques 8 s.h.
25:197-108 Instrumental Conducting 3 s.h.
75:144 Methods and Materials: Elementary School Instrumental Music 2 s.h.
75:136 Practice Band Instrument Care and Repair 1 s.h.
75:140 Band Methods and Materials 3 s.h.
75:191 Observation and Laboratory Practice in the Secondary School 6 s.h.
75:192 Laboratory Practice in the Elementary School 6 s.h.
75:187 Seminar: Curriculum and Student Teaching 1 s.h.

**Vocal and Keyboard Majors**
75:148 Choral Methods and Conducting 3 s.h.
75:187 Seminar: Elementary Literature and Conducting 3 s.h.
25:115-116 Dixon for Singers I- II 4 s.h.
75:145 Methods and Materials: Elementary School General Music 3 s.h.
75:142 Methods and Materials: Secondary School General Music 3 s.h.
75:191 Observation and Laboratory Practice in the Secondary School 6 s.h.
75:192 Laboratory Practice in the Elementary School 6 s.h.
75:187 Seminar: Curriculum and Student Teaching 1 s.h.

**Keyboard Majors**
Keyboard majors preparing for music teacher certification must pass the proficiency examination of 25:71-72 Group Instruction in Piano I-II, Keyboard majors taking satisfactory competence in voice also must pass for 25:17 Voice for two semesters.

**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:
75:119 Beginning Guitar 3 s.h.
75:145 Methods and Materials: Elementary School General Music 3 s.h.
75:192 Laboratory Practice in the Elementary School 2 s.h.
Applied music (chorus, band, or orchestra) 2 s.h.
25:15 Literature and Theory I 3 s.h.
25:16 Literature and Theory II 3 s.h.
25:10 Fundamentals of Music 3 s.h.
25:13-14 Musicianship of Music 8 s.h.
A student who wishes to complete an area of specialization in music without teacher certification may substitute other courses for 75:192 with the adviser's approval.

**Music Therapy**
Admission to the music program is based on demonstrated minimum keyboard skills and successful completion of 25:11 Orientation to Music Therapy. The number of students admitted to the program is limited by the types and amounts of clinical experience available on campus. In addition to the specific courses in music therapy listed below, specific courses are required in biology, psychology, 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 also are strongly encouraged to complete the music teacher certification requirements.
Complete information on the program is available in the music education office. Course requirements for the major in music therapy are:
25:94 Music Therapy 1-2 s.h.
25:95 Recreational Music Therapy 2 s.h.
25:114 Orientation to Music Therapy 2 s.h.
25:114 Psychology of Music 2 s.h.
75:149 Behavioral Research in Music Therapy 2 s.h.
25:138 Music Therapy Techniques 3 s.h.
25:139 Music Therapy Techniques: Adolescent Children 3 s.h.
25:140 Internship in Music Therapy 2 s.h.

**Composition/Theory Major**
Students are not admitted to this program earlier than the end of the sophomore year. Upon application for admission to the program, the candidate will be assigned a faculty 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 and recital attendance requirements are those of the B.M. degree; course requirements are those of the B.M. degree plus an additional eight semester hours or theory courses.
The thesis replaces the senior recital required of all other music majors, and consists of one or more original compositions, to be composed/Thesis faculty and presented 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, students must take private lessons in voice or on their major instrument. Following admission, the student undertakes applied music study as recommended by the advisor.
Ensemble participation is that required of the B.M. candidate.

**Honors**
A student with junior or senior standing may undertake honors work in music with the approval of the director of the College of Liberal Arts Honors Program, and provided a School of Music faculty member sponsors the student. Students are encouraged to carry a minimum grade-point average of 3.2 on all previous work undertaken at the University.
A student maintaining the minimum grade point average qualifies for graduation "with honors" by completing satisfactorily from six to eight semester hours in 25:97
Music/LIBERAL ARTS

Honors in Music. Types of honors projects for which credit is given in 25:97 and honors performances, solo and/or ensemble; honors composition, orchestrations, arrangements, and honors essays, research papers, editing, translations, etc.

A combination of at least two of these types of projects is required. None of the projects may relate to 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 theory, music theory, and languages is particularly recommended. An honors committee of at least three faculty members is appointed by the honors approval to evaluate the student's work.

Financial Aid
A number of music activity scholarships are available to qualified undergraduate music majors. For information, write to Finance of Music.

Graduate Programs
The entering graduate student must take the School of Music's examination in music history (theorology, ear training, forms, and counterpoint) and history and literature, before his or her first registration. The examination is given each session on the two days (excluding Sunday) before registration. A subject list describing the general content of these tests may be obtained at the advice office. School of Music. For general graduate admissions, degrees, and examination requirements, see the Graduate College section of the Catalog.

Theory Minor
Candidates for graduate degrees in music may elect a minor in music theory pedagogy by completing the following courses:
25:145 Contrapuntal Form 3 s.h.
25:147 Tonal Forms (unavailable for 3 s.h.
25:234 Observations and Practice Teaching in Theory 2-3 s.h.
25:238 Method and Practice Teaching in Theory 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 instrumental or vocal pedagogy (including accompanying). Both require a minimum of 36 post-baccalaureate semester hours. Information about specific admission and curricular requirements for each degree is available from the School of Music. All curricula must include the requirements listed below:

General
25:231 Introduction to Graduate Study in Music 3 s.h.

Music Theory
25:240 Introduction to Contemporary Analysis and Theory 3 s.h.
One elective from:
25:11 Review Theory as determined by advisory exam.

Music History
25:301-302 (Advanced History) and Literature of Music 3 s.h., or equivalent, or satisfactory advisory examination score.

Ensemble Participation
Students shall participate in a major ensemble each semester of residence (see previous list of the major 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 this requirement must be submitted in writing to a reviewing committee consisting of the ensemble directors, the advisor, the major, teacher, and a representative from the Dean's Office. This committee will meet regularly at the end of each year's 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, theses
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 area 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 (25:403 M.F.A. Thesis), for which a maximum of eight semester hours of credit will be granted. The student may earn a Master of Arts degree while working toward the Master of Fine Arts degree, but all requirements for each degree must be met separately, including two 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 sequence, 25:148-152 or equivalent:
One or more additional courses in the history of music chosen from those listed in the master's degree requirements, 25:295 Musical Aesthetics or equivalent:
Reading proficiency in at least one foreign language (must be completed before comprehensive examination; music education students may substitute computer skills 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 advisers.

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
Theorization or research papers
Music education—research papers
Music literature—research papers and audition
Performance (including conducting)—audition
Music history and musicology—research papers, theses

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; 25:159 Late Eighteenth-and Nineteenth-Century Composers; 25:140 Early Eighteenth-and Twentieth-Century Composers; the sequence 25:102-104 World Music 1-3; for students interested in non-Western music; and 25:10 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 student orchestras is open to all music 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 works by known young composers and works using electronically produced sounds, as well as compositions by neglected modern composers. The Center for the New Performing Arts is an interdisciplinary and linking the University's school of Music and Art and its 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 all practice and seminar rooms, the Music Building includes 55 teaching studios, 75 practice rooms, a large library, two electronic music laboratories, an eight-student laboratory, a full-scale recording studio, a fine arts computer studio with six terminals and five microcomputers, eight practice and music rooms, and the 720-seat Iowa Recital Hall. Harman Auditorium seats 2,860 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 2,000 titles, nearly 10,000 LP records, and 120 periodicals in several languages. The admission program gives particular attention to a strong reference collection, emphasizing resources for musical research and performance. The library's quarters in the Music Building provides 24 study carrels, a microreader room, a typing room, a seminar and rare books room, a large reading area, and a separate area for the Gehman Band Library, one of the world's most famous collections of band music.

Courses

General
25:10 Masterpieces of Music 3-4 sh.
25:11 Masterpieces of Music 3-4 sh.
Theory and Composition
25:11 Literature and Theory I 3 sh.
25:12 Literature and Theory II 3 sh.
25:13 Literature and Theory III 3 sh.
25:14 Literature and Theory IV 3 sh.

Writing and Analysis Pre-32:20, 32:21, or equivalent.
32:18 Essay
32:19 Essay
32:20 Essay
32:21 Essay
32:22 Essay
32:23 Essay
32:24 Essay
32:25 Essay
32:26 Essay
32:27 Essay
32:28 Essay
32:29 Essay
32:30 Essay
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34:16 Essay
34:17 Essay
34:18 Essay
34:19 Essay
34:20 Essay
Graduate Major
25.161 Voice
25.162 Piano
25.164 Organ
25.166 Viola
25.167 Violin
25.168 Cello
25.169 String Bass
25.170 Flute
25.171 Oboe
25.172 Clarinet
25.173 Bassoon
25.174 Saxophone
25.175 Horn
25.176 Trumpet
25.177 Euphonium
25.178 Trombone
25.179 Tuba
25.181 Percussion

Ensembles
No fee is charged for ensemble courses. Courses may be repeated. Prerequisite: consent of instructor.

Undergraduate Non-Major
25.171 Voice
25.172 Oboe
25.173 Piano
25.174 Harp
25.175 Violin
25.176 Viola
25.177 Cello
25.178 String Bass
25.179 Flute
25.180 Oboe
25.181 Clarinet
25.182 Bassoon
25.183 Saxophone
25.184 Horn
25.185 Trumpet
25.186 Euphonium
25.187 Trombone
25.188 Tuba
25.189 Timpani
25.190 Percussion

Nuclear Medicine Technology
See "Division of Associated Medical Sciences" in the "College of Medicine" section of the Catalog.

Philosophy
Department chair: Land Adam
Faculty: professors Laury Adams, Parvati Bhardwaj, Philip Gahagan, Artho D Rain, professors emeriti: Judith Bergmann, Mary Lee Cantor, James Overholtzer, Janet Fales, Phoebe Turchin, administrative assistant: Phoebe Turchin
Degrees granted: 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 25.102 to 26.199, and must include
25.110 Introduction to Symbolic Logic
26.115 Ancient 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 excused from 4 semester hours of the Liberal Arts general education requirement in Historical Perspectives.
Physical Education/LIBERAL ARTS

Physical Education

Department chair: Dave M. Agnew
Full-time faculty: Dave M. Agnew, Ahmad R. Cassady, Gary S. Gupta, Jenny A. Hayard, Charlie H. Yoder

Programs

Bachelor of Science in Teaching
Program requirements include:
1. Successful completion of the core requirements and the skill requirements listed for the Bachelor of Science in Physical Education and the courses required for teaching certification in physical education.
2. These include:
   - 7E:72 Methods and Materials in Elementary School Physical Education
   - 7P:73 Educational Psychology and Measurement
   - 7W:91 Introduction to Teaching I
   - 7W:92 Introduction to Micro-Computing for Teachers
   - 7S:100 Issues in Education
   - 7S:149 Methods and Materials in Secondary Physical Education
   - 7X:119 Human Relations for the Classroom Teacher
   - 7S:157 Seminar: Curriculum and Student Teaching
   - 7S:191 Observation and Laboratory Practicum in the Secondary School
   - 7E:106 Laboratory Practice in Elementary School

Bachelor of Science in Physical Education
Core requirements include:
- 211 Orientation to Physical Education
- 53 Human Anatomy
- 53 Administration and Curriculum in Physical Education
- 107 Biomechanics, coaching athletic teams, and careers in business and professional enterprise. In addition, the department has prepared a Bachelor of Science degree program in Exercise Science. Subject to approval by the Bachelor's degree, program requirements will be available.
- Bachelor of Science in Physical Education
- Red Cross Certification in First Aid
- Certification in Cardiopulmonary Resuscitation
- 105 Physical Education for Special Students
- 107 Biomechanics of Motor Skills
- 109 Psychology and Social Dynamics of Sport
- 110 Growth and Development
- 120 Human Physiology
- 121 Contemporary issues of Health Education
- 27-57 Introduction to Athletic Training
- 27-86 Special Projects
- 27-107 Biomechanics of Physical Education
- 27-108 Teaching Motor Skills
- 27-110 Growth and Development
- 27-112 Physical Activity and Aged (or equivalent)
- 27-141 Elementary Exercise Physiology
- 24 Human Nutrition, and You
- 27-120 Human Physiology
- One of the following:
  - 27-106 Recreation Program
  - 27-108 Administration of Recreation
  - 27-150 Park and Recreation Facility Management
  - 27-142 Principles of Outdoor Education
- 5-10 semester hours of approved electives such as:
- 27-99 Leadership Training I
- 27-103 Administration and Curriculum in Physical Education
- 27-105 Physical Education for Special Students
- 27-147 Knowledge and Testw Plans in Physical Education
- 28-56 Fitness and Weight Training
- 28-132 Administration of Physical Fitness/Wellness Programs
- 28-142 Contemporary Issues of Exercise Science
- 27-106 Child Development
- 7P:133 The Adolescent and Young Adult
- 31-15 Psychology in Business and Industry
- 31-15 Psychology in Management
- 71-120 Drugs: Their Nature, Action, and Use
- 19-155 Mass Media and Society
- 104-160 Aging and Leisure
- The department also recommends that the student obtain the background for certification as an exercise leader by the American College of Sports Medicine.

Minor in Physical Education

The minor requires completion of 16 semester hours from the following courses:
- 27-86 Special Projects
- 27-107 Biomechanics of Physical Education
Endorsement for Coaching
The Iowa Department of Public Instruction has provided for the endorsement of certified teachers for the coaching of athletic teams in schools. This endorsement is intended for teachers who have majors in subjects other than physical education but who wish to coach interscholastic athletic teams. The purpose is to permit 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 2 s.h.
*May be waived on the basis of appropriate coaching experience.
Endorsement for Athletic Training
This endorsement is provided for students who want to be certified as trainers for athletic teams at the professional level, the secondary school level as a part of their regular teaching duties, or at the college and university level. The requirements designed to meet the standards for certification set by the National Athletic Trainers Association include:
17:41 Food, Nutrition, and You 3 s.h.
31:11 Elementary Psychology 4 s.h.
27:120 Human Physiology 4 s.h.
28:143 Emergency Issues of Health Education 3 s.h.
27:52 Human Anatomy 3 s.h.
27:56 First Aid (or equivalent) 0 s.h.
Cardiopulmonary Resuscitation Certification 3 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.
27:141 Elementary Exercise Physiology 3 s.h.
27:171 Medical Supervision of Athletics 2 s.h.
27:182 Clinical Sciences in Athletic Training I 3 s.h.
27:183 Clinical Sciences in Athletic Training II 3 s.h.
27:184 A Seminar in Athletic Training 3 s.h.
The curriculum also includes selected courses in mathematics, chemistry, physics, and the biological sciences.
Graduate Programs
Master of Arts in Athletics
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 some specialization in an area of particular interest to them.
Because the M.A. degree with thesis is regarded as the first step toward the Ph.D. in one of nine areas of specialization, the undergraduate 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. Courses specific to each of the Ph.D. programs in mathematics, chemistry, physics, zoology, physiology, 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 major professor.
Candidates who intend to terminate their graduate study with the M.A. degree with thesis should consult one of the undergraduate major in physical education.
These 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 2 s.h.
27:202 Physiology of Exercise Laboratory 2 s.h.
27:255 Advanced Physical Education Special Topics and Research 3 s.h.
27:242 Supervision of Physical Education 3 s.h.
27:257 Biomechanics of Human Motion 4 s.h.
27:257 Advanced Measurement and Evaluation in Physical Education 3 s.h.
27:308 Human Perceptual-Motor Performance 3 s.h.
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Physcal Education/LIBERAL ARTS

27:337 Seminar: Research in Physical Education Curriculum 3 s.h.

These tools of research:

7P:143 Introduction to Statistical Methods 3 s.h.

or 63:161 Introduction to Biostatistics 3 s.h.

22C:100 Introduction to Computing with FORTRAN 3 s.h.

or 7P:246 Data Processing Specialization Area 3 s.h.

27:401 Seminar in Scientific Writing 1 s.h.

27:404 Thesis: M.A. 4 s.h.

Courses approved by advisor 5-7 s.h.

Electives 4-5 s.h.

Total 30 s.h.

Doctor of Philosophy

A Ph.D. candidate in physical education should have a general knowledge of all areas of physical education, a working knowledge of the research techniques applicable to problems in physical education and athletics, and knowledge in depth in at least one area of specialization in physical education.

The areas of specialization offered in physical education are adapted physical education, administration and supervision in physical education, anatomy, biomechanics, curriculum in physical education, exercise physiology, measurement and evaluation in physical education, motor behavior, and therapeutics.

The thesis program for the M.A. degree in physical education, together with the Ph.D. core courses, provide the required background for the Ph.D. candidate’s specialization. The candidate must complete at least 30 semester hours of graduate study in the specialization of his or her choice, must write a thesis on a problem in that area, and must submit the thesis to an approved professional journal for publication.

Most of the courses in the areas of specialization are offered by departments other than the Department of Physical Education—Field House. Professors from these departments participate in writing and evaluating the comprehensive examinations, serve on their committees for the oral presentation of the proposed problem, and participate in the final examination in which the candidate defends his or her thesis.

In addition to writing a comprehensive examination in physical education, the candidate specializing in exercise physiology writes a comprehensive examination prepared and evaluated by faculty members of the Department of Physiology, Biophysics, and the College of Medicine. Such candidates graduate with minors in physiology.

The Ph.D. core requirements include:

27:405 Thesis: Ph.D. 12 s.h.

7P:342 Selected Applications of Statistical Techniques or

7P:343 Intermediate Statistical Methods 3 s.h.

or 63:162 Design and Analysis of Experiments in Biomedical Sciences 3 s.h.

27:202 Pracitcum in College Teaching 2 s.h.

The foreign language requirement differs for each area of specialization. All candidates not required to demonstrate proficiency in a foreign language must satisfactorily complete 7P:248 Data Processing or 22C:100 introduction to Computing with FORTRAN.

1. The candidate must complete a minimum of 30 semester hours of required and elective courses in his or her area of specialization. The courses required by area of specialization are:

Adapted Physical Education

70:130 Exceptional Persons 3 s.h.

27:201 Research 3-6 s.h.

27:205 Adapted Physical Education: Special Topics and Research 3-4 s.h.

60:108 Human Anatomy 4 s.h.

60:109 Human Anatomy and Neuroanatomy 4 s.h.

Administration and Supervision in Physical Education

27:202 Division of Physical Education 3 s.h.

70:301 Foundations of School Administration 3 s.h.

70:211 Research 1-4 s.h.

70:217 Advanced Administration of Physical Education 3 s.h.

70:217 Advanced Administration of Athletics 3 s.h.

Anatomy

60:203 General Human Anatomy 3 s.h.

60:205 General Human Anatomy for Graduate Students 3 s.h.

60:108 Human Anatomy 4 s.h.

60:109 Human Anatomy and Neuroanatomy 4 s.h.

37:112 Cell, Tissue, and Organ Biology 5 s.h.

70:153 Advanced Anatomy and Kinesiology 5 s.h.

70:265 Electrophysiology in Kinesiology and Biomechanics 3 s.h.

Biomechanics

58:100 Readings in Mechanical Engineering (kinesics or kinesiology) 3 s.h.

58:100 Readings in Mechanical Engineering (kinesics or kinesiology) 3 s.h.

58:155 Intermediate Dynamics 3 s.h.

51:150 Biomechanics 3 s.h.

60:108 Human Anatomy 4 s.h.

70:202 Pracitcum in College Teaching 2-4 s.h.

70:265 Electrophysiology in Kinesiology and Biomechanics 3 s.h.

27:317 Research Techniques in Biomechanics 4 s.h.

Curriculum in Physical Education

7E:300 Design and Organization of Curriculum 3 s.h.

7S:291 Secondary School Curriculum 3 s.h.

7P:181 Introduction to Theories of Learning 3 s.h.

27:201 Research 3 s.h.

27:338 Seminar: Models and Theories in Curriculum 2 s.h.

28:243 Philosophical Bases of Curriculum Construction 3 s.h.

Exercise Physiology

37:112 Cell, Tissue, and Organ Biology 5 s.h.

or

60:205 General Human Anatomy 5 s.h.

or

70:301 Foundations of School Administration 3 s.h.

70:217 Advanced Administration of Physical Education 3 s.h.

27:274 Exercise Physiology Seminar 2 s.h.

27:303 Advanced Exercise Physiology Laboratory 3 s.h.

99:130 Metabolism 3 s.h.

Measurement and Evaluation

7P:246 Intermediate Statistical Methods 4 s.h.

7P:244 Correlation and Regression 3 s.h.

22C:153 Introduction to Probability 3 s.h.

and

22C:154 Introduction to Mathematical Statistics I 3 s.h.

7P:246 Design of Experiments 4 s.h.

70:205 General Human Anatomy and Use of Evaluation Instruments 3 s.h.

70:265 Electrophysiology in Kinesiology and Biomechanics 3 s.h.

27:367 Seminar: Research in Measurement and Evaluation in Physical Education ARR.

Motor Behavior and Learning

27:312 Selected Issues in Information Processing and Motor Control 3 s.h.

27:314 Seminar in Motor Behavior Research 2 s.h.

27:315 Seminar in Motor Behavior Research 2 s.h.

60:110 Medical Neuroanatomy 3 s.h.

7S:285 Central Nervous System Physiology 2 s.h.

101:275 Evaluation of Selected Neurological Disorders 1 s.h.

101:272 Medical Instrumentation ARR.

These courses, a graduate-level seminar, must be selected from the Department of Psychology in any combination of the following areas: memory, information processing, perception, neuropsychology, mathematical psychology, and child development.
Therapeutics
All Students
101:214 Advanced Seminar in Physical Therapy
ar.
101:525 Analysis of Scientific Literature
2 s.h.
101:307 Research in Therapeutics
3 s.h.
101:280 Teaching Practicum or
101:282 Clinical Educational Practicum
ar.
101:284 Practicum in Research
ar.
79:262 Facilitating Learning in Health Sciences Education
3 s.h.
101:214 Advanced Seminar in Physical Therapy
3 s.h.
101:327 Research in Therapeutics
3 s.h.
101:328 Analysis of Scientific Literature
2 s.h.
101:280 Teaching Practicum or
101:282 Clinical Educational Practicum
3 s.h.
or
101:284 Practicum in Research
79:262 Facilitating Learning in Health Sciences Education
3 s.h.
Cardiopulmonary Emphasis
72:215 Medical Physiology
8 s.h.
72:274 Exercise Physiology Seminar
2 s.h.
72:290 Special Topics
ar.
99:130 Metabolism
3 s.h.
and
99:120 The Chemistry of Medical Students
3 s.h.
or
99:183 Biochemistry for Medical Students
6 s.h.
Musculoskeletal Emphasis
37:181 Neurophysiology
2 s.h.
72:281 Physiology of Muscle
2 s.h.
101:265 Electromyography in Kinesiology and Biomechanics
3 s.h.
60:205 General Histology for Massage Therapists
5 s.h.
or
53:196 Principles of Kinesiology
5 s.h.
or
53:196 Principles of Kinesiology
5 s.h.
and
53:196 Principles of Kinesiology
5 s.h.
Neuromuscular Emphasis
90:110 Medical Neuroanatomy
3 s.h.
72:282 Central Nervous System Physiology
2 s.h.
101:265 Electromyography in Kinesiology and Biomechanics
3 s.h.
37:180 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 be a licensed physical therapist, must hold a master's degree, and must have had calculus. (Note: The master's degree, need not be in physical therapy.) Program entry is limited to the fall semester. Deadlines for receipt of applications for admission are February 15 for notification by April 1 and May 15 for notification by July 1.
Facilities
The Recreation Building and Field House provide excellent facilities for use in the physical education skills program, in the undergraduate and graduate instructional programs, and for student participation in intramural sports, recreational activities, and athletics.
Research laboratories for physiology of exercise, stress, motor behavior, and biomechanics are located in the Field House and provide excellent facilities for instruction and research at both the undergraduate and graduate levels.
Because of our cooperative efforts with other departments to facilitate specialization, physical education students utilize additional special facilities in other departments on the campus.
Courses
Prerequisites for Undergraduates
20:1 Elective Physical Education 0 s.h.
20:1 Elective Physical Education 0 s.h.
29:1 Elective Physical Education 1 s.h.
29:1 Elective Physical Education 1 s.h.
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Physical Education and Dance/LIBERAL ARTS

21:310 Administration of Athletics 2 h.
Offered spring semesters.

21:411 Elementary Exercise Physiology 2 h.
Offered fall semesters. Prerequisite: 72:100.

21:417 Knowledge and Performance Tests in Physical Education 2 h.
Offered fall semesters.

21:448 Psychology of Sport 3 h.
Psychological principles and man in athletic applications. Offered summer sessions.

21:453 Advanced Anatomy and Kinesiology 2 h.
Emphasis on the principles of teaching primary and remedial knowledge of the undergraduate level. Offered spring semesters.

21:456 Sports and Movement for Dancers 1 h.
May be repeated for credit.

21:458 The Qualitative Analysis of Human Motion 3 h.
Prerequisite: 27:197. Offered summer sessions.

21:460 Physical Education for Elementary Schools 3 h.
Offered fall semesters. Same as 72:146.

21:461 Measurement and Evaluation in Physical Education 3 h.
Offered spring semesters. Prerequisite: 21:147.

21:471 Medical Supervision of Athletics 3 h.
Offered spring semesters.

21:472 Clinical Sciences in Athletic Training 3 h.
Offered fall semesters. Prerequisite: 27:147.

21:473 Clinical Sciences in Athletic Training I 3 h.
Offered spring semesters. Prerequisite: 27:146.

21:485 Seminar in Athletic Training 1 h.

Primarily for Graduates

21:230 Proseminar ex.

21:301 Research 3 h.
Consult individual head before registration.

21:302 Practicum in College Teaching ex.

21:420 Advanced Physical Education Education Special 3 h.
Topic and credit to be arranged. Prerequisite: 27:550 and 27:143.

21:489 Tracking the Powers on the Mind 3 h.
Exploration of the faculty’s influence on the students through a series of mental training exercises.

21:497 Advanced Administration of Physical Education 3 h.
Offered fall semesters.

21:498 Advanced Administration of Athletics 3 h.
Offered fall semesters.

21:520 Principles of Physical Education 2 h.

21:522 Public School Curriculum in Physical Education 3 h.
Offered spring semesters. Same as 72:227, 72:243.

21:548 Professional Preparation in Physical Education 2 h.

21:549 Scientific Principles of Physical Conditioning 1-3 h.
Offered summer sessions. Prerequisite: 72:135 or 72:141.

21:542 Supervision of Physical Education 3 h.
Offered fall semesters. Same as 72:242, 72:245.

21:552 Laboratory in Advanced Anatomical 6 h.

21:553 Biomechanics of Human Movement 4 h.
Offered spring semesters. Prerequisite: 21:187.

21:554 Seminar: Current Developments in Biomechanics 2 h.

21:560 Advanced Measurement and Evaluation in Physical Education 3 h.
Offered spring semesters.

21:565 Electromyography in Kinesiology and Biomechanics 3 h.
Introduction to electromyographic techniques for the

Physical Education

Physical Education and Dance

Chair: N. Peggy Burke

Physical Education and Dance offers a broad range of courses in physical education and dance. The courses include, but are not limited to, sports and physical education, dance, and physical education for people with disabilities.

The Department of Physical Education and Dance offers a Bachelor of Science degree in Physical Education and Dance. The degree program is designed to provide students with a strong foundation in physical education and dance, as well as an understanding of the role of physical education and dance in society.

The program requires a minimum of 120 credits, including 30 credits of general education and 90 credits of major coursework. The major coursework includes courses in physical education, dance, and physical education for people with disabilities.

The program is designed to prepare students for careers in physical education and dance, as well as for entry into graduate programs. The program also provides students with opportunities to develop skills in leadership, communication, and critical thinking.

Undergraduate Programs

Graduate Programs

The Department of Physical Education and Dance offers a Master of Science degree in Physical Education and Dance. The program is designed to prepare students for careers in physical education and dance, as well as for entry into doctoral programs. The program also provides students with opportunities to develop skills in leadership, communication, and critical thinking.

The program requires a minimum of 30 credits, including 12 credits of general education and 18 credits of major coursework. The major coursework includes courses in physical education, dance, and physical education for people with disabilities.

The program is designed to prepare students for careers in physical education and dance, as well as for entry into doctoral programs. The program also provides students with opportunities to develop skills in leadership, communication, and critical thinking.

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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 30. 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 0.5 s.h.
or
27.56 First Aid 0.5 s.h.
or
Red Cross Certifications in First Aid and CPR 0.5 s.h.
17.41 Food, Nutrition, and You 3 s.h.
7E.71 Growth and Motor Development 2 s.h.
or
17.19 Growth and Development of the Young Child 3 s.h.
or
7P.101 Child Development 3 s.h.
or
7C.112 Human Sexuality 3 s.h.
or
71.120 Drugs: Their Nature, Action, and Use 2 s.h.
or
46.56 Non-Prescription Drugs 2 s.h.
or
72.130 Human Physiology 4 s.h.
or
28.195 Psychological Implications for Teaching Physical Education 3 s.h.
28.142 Contemporary Issues of Special Education 3 s.h.
7S.156 Methods and Materials of Teaching School Health Programs 3 s.h.
Prerequisite: 28.142

Honors
The Honors Program is designed to serve the interests of superior students. It gives the participant some research experience and a perspective on certain aspects of graduate work. The honors student in physical education takes 28.934 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 department was one of the pioneers in providing graduate physical education programs for women, especially at the doctoral level. It has awarded over 400 master’s degrees and over 150 doctoral degrees during the past half century. These graduates have provided distinguished service through teaching, coaching, research, administration, and other leadership roles in physical education, dance, and athletics. This department’s proud heritage of producing leaders has been furthered by recent graduates, and we continue to encourage high aspirations of the young women and men we serve.
The curricular assume previous education in the respective fields. A program is planned with the individual with consideration given to his or her previous education and anticipated future career. Completion of the graduate degree usually leads to teaching, research, coaching, administration, or supervision in the schools or in a university.
The outstanding characteristics of the graduate programs are the flexibility of program planning for the individual student and the diversity of areas of 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 recreation education, methods and supervision, coaching, measurement and evaluation, sociology of sport, psychology of sport, and sports communications.
Internships are available in many areas and are strongly encouraged for specializations with a fieldwork emphasis, administration, supervision, coaching, and communication specialties.
The graduate student group is community and international in nature.
A research laboratory equipped for physiological, psychological, and motor learning research is available in the department. Other equipment needs may be met on an interdepartmental shared-resource basis. Computer terminals are available throughout the department, and complete university computer services are available to students for 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, coaching certification, or preparation for advanced degree work. Students must demonstrate competency in the following seven areas: anatomy, kinesiology, measurement and evaluation or assessment; methods and administration of physical education; history and philosophy of physical education; and psychosocial dimensions of sport. Competency may be demonstrated by completion of a course or satisfactory performance on a written examination.

Required Courses
28.205 Techniques of Research 3 s.h.
28.302 Seminar in Human Movement 2 s.h.
(For students on thesis option) 1 s.h.
Statistics 3 s.h.

Program Options
The M.A. student may elect either a general curriculum or a specialization in adaptive physical education, administration of athletics and recreation education, coaching, dance, measurement and evaluation, supervision, and philosophy of sport/physical education; psychology of sport, supervening sport, communication, or women in sport. Students desiring other specializations are encouraged to submit a course of study, to the graduate committee for consideration.

Students in both the general curriculum and in an area of specialization work with an advisor in developing their program according to guidelines that have been set by the departmental graduate committee.

Doctor of Philosophy
All doctoral students must complete a minimum of 72 semester hours of graduate work. The requirements for the master’s degree and credit for the dissertation.

Preparation
Competency in the areas noted under the M.A. program is also required for doctoral programs. Any deficiencies in these areas must be remedied at the earliest possible time.

Tools of Research
All doctoral students are required to take a technology course at an appropriate level at The University of Iowa. As their second-year course at an appropriate level at The University of Iowa. As their second-year course at a university, students may choose either the foreign language or computer science.

The language requirement may be satisfied by taking two semesters of a foreign language language or passing the Graduate Record Examination (GRE) English Language Test in a foreign language, or by passing a Ph.D. language examination.

The computer skills requirement may be satisfied by taking three semester hours as approved by the departmental graduate committee.

Required Courses
28.205 Seminar in Physical Education 0.5 s.h.
28.301 Seminar in Research 2 s.h.

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Physical Education and Dance/LIBERAL ARTS
Dance Bachelor of Arts

Required
- 28D:26 Dance Production 3 s.h.
- 28D:29 Rhythmic Analysis of Dance 2 s.h.
- 28D:73 Composition II 2 s.h.
- 28D:74 Composition II 2 s.h.
- 28D:80 Anatomy 3 s.h.
- 28D:81 Kinesiology 3 s.h.
- 28D:114 Dance History: Primitive Nineteenth Century 3 s.h.
- 28D:115 Twentieth-Century Dance 3 s.h.
- 28D:117 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 1-3 s.h.
  - 28D:111 Methods and Materials of Teaching Children's Dance 3 s.h.
  - 28D:113 Ballet Pointe 1-2 s.h.
  - 28D:117 Ballet Pedagogy 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 adviser shall set the date of the examination which is conducted according to the policies established by the departmental graduate committees. The program of study and dissertation topic must be filed and the oral 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 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 further work toward a dance career.

Prerequisites
- Audition
- 28D:73-74 Composition III 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:170 Dance Electro-Mechanical Systems 2 s.h.
- 28D:175 Dance Theory 3 s.h.
- 28D:176 Criticism of Dance 3 s.h.
- 28D:176 Laboratory 3 s.h.
- 28D:181 Dance Performance 0-1 s.h.
- 28D:191 Independent CHOR 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 in the credit 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:

Courses
- Physical Education

Courses for Undergraduates
- 28D:101 Hip-Hop Physical Education 1 s.h.
- 28D:102 Hip-Hop Physical Education 1 s.h.

Enrollment rules are subject to change. Students should consult the appropriate curriculum guide for current course offerings.
Undergraduate Major in Physics

The Bachelor of Science program provides preparation in physics and related sciences or for employment in research laboratories. The Bachelor of Arts program is designed for students who wish to gain a considerable knowledge of physics but do not plan on a research-oriented career in physics. This degree 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 the physical sciences 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:

23M:25-26 Calculus I-II
8 s.h.
and
23M:27 Introduction to Linear Algebra
4 s.h.
and
23M:28 Calculus III
4 s.h.
or
23M:35-37 Engineering Calculus I-III
12 s.h.
and
23M:38 Differential Equations for Engineers
4 s.h.

In addition to the above, 24 semester hours must be in the College of Science.
purpose of this program is to prepare the
student for a career or advanced study in
astrophysics, radio astronomy, or space
astronomy.
The Bachelor of Arts degree program is
designed for students who wish to gain a
considerable knowledge of astronomy
but who do not plan a research-oriented
career in astronomy. This degree program
is appropriate for those planning careers in
secondary school science teaching, technical writing, and science-
related administration. The B.A. program requires fewer courses in physics and
mathematics than the B.S. program, and
thus provides for a wider choice of
electives.

Bachelor of Science
The following courses or their
equivalents are required for the Bachelor
of Science degree with a major in
astrophysics:
22M:25-26 Calculus I-II
8 s.h.
and
22M:27 Introduction to Linear
Algebra
4 s.h.
and
22M:28 Calculus III
4 s.h.
or
22M:35-37 Engineering Calculus
I-II
12 s.h.
and
22M:38 Differential Equations for
Engineers
4 s.h.

29:17-19 Introduction Physics I-
II
12 s.h.
29:61-62 General Astronomy
8 s.h.
29:115 Intermediate Mechanics
3 s.h.
29:116 Introduction Quantum
Mechanics
3 s.h.
29:119-120 Introduction to
Astronomy I-II
6 s.h.
29:128 Mechanics and
29:129 Electricity and
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
Astronomy III
3 s.h.
29:137 Astronomical Laboratory
(additional semester)
2 s.h.
29:177-178 Mathematical
Methods of Physics
6 s.h.
29:193 Plasma Physics
3 s.h.

Bachelor of Arts
The following courses or their
equivalents are required for the Bachelor
of Arts degree with a major in
astronomy:
22M:25-26 Calculus I-II
8 s.h.

22M:27 Introduction to Linear
Algebra
4 s.h.
or
22M:35-37 Engineering Calculus
I-II
12 s.h.
29:17-19 Introduction Physics I-
II
12 s.h.
or
29:112 College Physics
8 s.h.
and
29:15-16 Introductory Physics II
4 s.h.
29:61-62 General Astronomy
8 s.h.
29:115 Intermediate Mechanics
3 s.h.
29:117 Optics
3 s.h.
or
29:118 Statistical Physics
3 s.h.
29:118-120 Introduction to
Astronomy I-II
6 s.h.
29:126 Electronics
4 s.h.
or
29:129 Electricity and Magnetism
3 s.h.
29:120 Intermediate Laboratory
2 s.h.
29:137 Astronomical Laboratory
2 s.h.

Undergraduate Minor in Astronomy
The 16 semester hours of coursework
required by the college include six semester
hours selected from the following list of
courses:
29:119-121 Introduction to Astrophysics
6 s.h.
29:137 Astronomical Laboratory
and an additional six semester hours of
courses of or 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
wish to complete their degree 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 in 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 degree, 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.
Physics, theoretical physics, or astrophysics; and
Preparation and defense of a written dissertation based on this work.

A major experimental space physics program is conducted in the department. Extensive facilities are available for construction of equipment for satellites and spacecraft. It is the reception of solar X-radiation, and for computerized decoding and analysis of data.

An unusual versatility of Ge-offer Van de Graaf accelerators, which have been modified for energies up to 1.1 MeV, used in studies of nuclear reactions, produced by hydrogen, helium, lithium, and carbon nuclei. Experiments on fundamental thermodynamic, electrical, and magnetic properties of materials, alloys, and compounds are included in the experimental solid-state program, as are studies of surfaces and semiconductors. Several experimental double plasma devices are used to study confinement, nonlinear waves, and turbulence effects in low-temperature, steady-state plasmas. A variety of laser spectroscopy and molecular beam studies are carried out at the Iowa Laser Facility.

The department is well equipped for research in observational astronomy. The primary optical instrument, a 24-inch reflector with a combined-controlled photocathode, is used for astrophysical research in the laboratory. Research programs in gas-discharge, diagnostic, and astrophysical radioastronomy are being developed using an 18.4-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 studies include studies of extragalactic radio sources and OH masers. Students and faculty also conduct research programs at the Very Large Baseline Array Radio Observatory and the Arecibo Observatory.

Theoretical research is devoted to elementary particle, high-energy physics; plasma physics; astrophysics; atmospheric, solar, and planetary physics; solid-state physics, nuclear physics, and atomic and molecular physics.

Courses

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 interest is to be in experimental or theoretical research.
- Comprehensive examinations.
- Participation in advanced seminars.
- Original research in experimental physics, the thesis, the dissertation, or the Ph.D. degree.
29.31 Seminar: Plasma Physics  
Discussion of current research.

29.30 Seminar: Solid State Physics  
Discussion of current research.

29.32 Seminar: Theoretical Physics  
Discussion of current research.

29.33 Seminar: Quantum Physics  
Discussion of current research.

29.35 Seminar: Nuclear Physics  
Discussion of current research.

29.36 Seminar: Nuclear Physics  
Discussion of current research.

29.37 Special Topics in Nuclear Physics  
Nuclear scattering theory; optical model; direct and compound nucleus reactions; heavy-ion reactions; short range correlations.

29.371 Theoretical Solid State Physics I  
Central principles of the quantum theory of solids; kinetic energy; electron-phonon interaction; electron-phonon instabilities; superconductivity; electron-phonon interaction and current space investigations; observational work with telescopes and problem work. Open to treatment, theory, and experiments. Open to seniors and graduate students. May be taken for two separate hours as a sequel to 29.50.

29.31 General Astronomy  
Structure and properties of stars and other systems, stellar evolution. Classes meet in the evening. The course consists of a modern cosmology, recent astronomy research presentation. Permission of the instructor. Prerequisites: at least one year each of high school algebra and geometry. May be taken for two separate hours as a sequel to 29.50.

29.31 General Astronomy  
Structure and properties of stars and other systems, stellar evolution. Classes meet in the evening. The course consists of a modern cosmology, recent astronomy research presentation. Permission of the instructor. Prerequisites: at least one year each of high school algebra and geometry. May be taken for two separate hours as a sequel to 29.50.

For Undergraduates and Graduates  
29.144 Healing and Astronomy  
29.146 Introduction to Astrophysics I  
Fundamentals of astrophysical processes in solar system objects, stars, galaxies, the interstellar medium, and galaxies. Topics include stellar origins, supergiant stars, interstellar gas and dust, and the intergalactic medium. Open to seniors and graduate students. May be taken for two separate hours as a sequel to 29.50.

29.215 Introduction to Astrophysics II  
Continuation of 29.146. Prerequisites: 29.146 and 29.214, or equivalent. Some computer programming experience is recommended.

29.210 Introduction to Astrophysics II  
Continuation of 29.146. Prerequisites: 29.146 and 29.214, or equivalent. Some computer programming experience is recommended.

29.117 Atmospheric Laboratory  
Introduction to laboratory techniques in atmospheric and radio astronomy. Radio astronomy is concerned with the radio emissions of the earth, magnetic field, and solar system objects. Prerequisite: completion of all requirements of 29.146.

Primary for Graduates  
29.331 Theoretical Astrophysics I  
Theory of stellar and galactic evolution. The formation, structure, and evolution of stars. Prerequisite consent of instructor.

29.332 Theoretical Astrophysics II  
Interstellar medium, reduce, radio and gamma, and X-rays. "The Evolution of the Milky Way." Prerequisite consent."  

29.344 Hostel Structure and Evolution  
Structure of galaxy, star clusters, and interstellar medium in stars and evolution of stars. Prerequisite consent of instructor.

29.35 Special Topics in Astrophysics  
Advanced topics in galaxy evolution topics. "The Evolution of the Milky Way." Prerequisite consent of instructor.

29.36 Seminar: Astrophysics  
Discussion of current research.

29.37 Research: Astronomy  
Original research in observational and theoretical astronomy.

Astronomy  
Primary for Undergraduates  
29.06x Modern Astronomy  
3.0, 4.0, 5.0  
Survey of astronomy, special attention given to topics of current interest such as planetary nebulae, planetary rings, space shuttle, extraterrestrial life, black holes, quasars, black holes.

29.07 Modern Astronomy  
Survey of astronomy, special attention given to topics of current interest such as planetary nebulae, planetary rings, space shuttle, extraterrestrial life, black holes, quasars, black holes.

Political Science  
Department: Political Science  
Professor: Michael C. Kestenbaum, Ph.D. 
Professor: Barbara J. Scott, Ph.D. 
Professor: William M. L. Trefler, Ph.D. 
Professor: Peter D. Bowie, Ph.D. 
Professor: Anthony J. C. K. Leung, Ph.D. 
Professor: Douglas K. Mauro, Ph.D. 
Professor: Benjamin A. Almeida, Ph.D. 
Professor: John S. Nelson 
Assistant Professor: Cory M. Conley, Ph.D. 
Assistant Professor: Sameem A. Khan, Ph.D. 
Assistant Professor: Sarah E. Kline, Ph.D. 
Assistant Professor: Todd S. Kline, Ph.D. 
Assistant Professor: William B. Van Slyke, Ph.D.

Undergraduate Programs  
Bachelor of Arts  
A student seeking the B.A. degree with a major in political science must complete 27 semester hours of coursework in political science and 12 in one of these departments: economics, geography, history, journalism, philosophy, psychology, sociology, anthropology. Courses used to satisfy the general education requirement may not be used to satisfy the related field requirement. The course work in political science must include:

30.1 Introduction to American Politics  
30.2 Introduction to Politics  
It must also include two of these:

30.30 Introduction to Political Thought and Political Action  
30.40 Introduction to Comparative Politics  
30.50 Introduction to Political Behavior  
30.60 Introduction to World Politics  
It must include at least 18 semester hours in political science courses numbered 100 or above. Course 30.102 Washington Internship cannot be included in this total. At least 12 of the required 18 hours must be taken in regularly scheduled classroom work. Transfer students must take at least 9 of the 27 semester hours of work in political science at the University of Iowa. Students must maintain at least a 2.0 grade-point average in all political science courses taken. The course must be taken in political science courses numbered 100 or above. All courses in the related departmental areas of concentration.

Bachelors of Science  
Major requirements for the B.S. in political science are the same as for the B.A., except that at least two semesters of college-level courses (or the equivalent) in a foreign language are required and the student must take three seminars in mathematics or statistics. Courses recommended for the mathematics/statistics requirement.

252.56-266 Calculus II  
252.102 Introduction to Statistical Methods  
252.148 Intermediate Statistical Methods  
Other courses may be used, with the written approval of the director of undergraduate studies in political science.
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 honors 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 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 seminars of work in the 30-182-183 Honors Seminar, with a grade of B or better each semester. Students may substitute a 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 civic 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 catalog, elective opportunities make possible several areas of specialization. Students are encouraged to take their electives in a single subfield (but not necessarily in a single department). Among those available are international relations, personnel management and labor relations, public policy analysis, and quantitative methods in management. Planning the elective program should be undertaken in consultation with the director of the M.A. in public affairs program.

The M.A. in public affairs is a nonthesis program. The student must complete at least 38 hours of course work with at least a 3.0 grade-point average, and must pass a final final examination. Although the Wahid 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 Public Policy Analysis I 3 s.h.
30-229 Introduction to Administrative Computing 1 s.h.
30-229 Introduction to Social Research Methods 3 s.h.
66-119 Economics of the Government Sector 3 s.h.
Electives 5 s.h.

Spring Semester

30-229 Administrative Theory and Public Policy 3 s.h.
30-221 Urban Administration 3 s.h.
30-223 Public Policy Analysis II 3 s.h.
Electives 4 s.h.

Summer Session

30-391 Internship in Public Policy and Administration 3 s.h.
30-392 Practicum in Public Policy and Administration 3 s.h.
Elective 3 s.h.
Total 36 s.h.

Master of Arts with Thesis

except for the M.A. in public affairs and the M.A. offered under a joint program with the College of Law (see the "College of Law" section of the Catalog), the department normally offers the M.A. only as a preliminary step toward the Ph.D.

The student usually obtains the M.A. degree by completing at least 30 semester hours with a grade-point average of at least 3.0, 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 theses and course work.

Master of Arts without Thesis

If a student's first-year evaluation committee finds that his or her course work and research <add missing words> provide sufficient evidence of the research and writing skills ordinarily demonstrated in a major's thesis, it may recommend that the student be allowed to proceed with a doctoral program without writing a thesis. The requirements for the M.A. without thesis include completion of at least 30 semester hours of graduate work with a grade-point average of at least 3.0, and review of the student's record by a final examination committee, which may waive the final oral examination.

The same requirements apply where a first-year evaluation committee finds the quality of a student's work inadequate for recommending continuation toward the Ph.D. but adequate for proceeding with the master's program, and recommends that the student be permitted to seek the 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 the appropriate social science methodology and an applied multivariate statistics which is demonstrated by taking 30-221 Advanced Research Methods and receiving a grade no lower than B. Any special knowledge is needed, but the research design is not required. Students interested in conducting dissertation research—e.g., foreign languages, econometrics, or experimental design—must be acquired in consultation with their advisors. Students interested in conducting dissertation research should discuss this with their faculty advisor in the first year of study.

Comprehensive Examination

Students must take the comprehensive examination after completing the sixth semester of residence, or in the last examination period following their attainment of 45 hours of graduate credit, whichever comes later. Candidates for the Ph.D. must write examinations in three of these areas: American Politics and Public Policy Comparative Politics International Politics theoretical. Before taking the written examinations, candidates for the Ph.D. must present a written dissertation proposal. They must then defend the proposal in an oral examination, which may be granted with any matter relevant to the written examination.

Each Ph.D. candidate in political science must acquire at least four semesters of supervisory training in teaching and/or research. This instruction is
36.46 Politics of Man and Peace 3.0 h.
36.49 Politics of War and Peace 3.0 h.
36.52 Social Policy Analysis 3.0 h.
36.61 Political Science and Political Economy 3.0 h.
36.63 Political Science and Peace 3.0 h.
36.64 Political Science and Security 3.0 h.
36.65 Political Science and Social Change 3.0 h.
36.66 Political Science and Technology 3.0 h.
36.67 Political Science and Urban Development 3.0 h.
36.68 Political Science and Women 3.0 h.
36.69 Political Science and the Environment 3.0 h.
36.70 Political Science and International Law 3.0 h.
36.71 Political Science and International Relations 3.0 h.
36.72 Political Science and International Organizations 3.0 h.
36.73 Political Science and International Law 3.0 h.
36.74 Political Science and International Institutions 3.0 h.
36.75 Political Science and International Economics 3.0 h.
36.76 Political Science and International Politics 3.0 h.
36.77 Political Science and International Security 3.0 h.
36.78 Political Science and International Development 3.0 h.
36.79 Political Science and International human Rights 3.0 h.
36.80 Political Science and International Conflict 3.0 h.
36.81 Political Science and International Cooperation 3.0 h.
36.82 Political Science and International Governance 3.0 h.
36.83 Political Science and International Diplomacy 3.0 h.
36.84 Political Science and International Finance 3.0 h.
36.85 Political Science and International Trade 3.0 h.
36.86 Political Science and International Energy 3.0 h.
36.87 Political Science and International Humanitarian Action 3.0 h.
36.88 Political Science and International Security Studies 3.0 h.
36.89 Political Science and International Peace Studies 3.0 h.
36.90 Political Science and International Conflict Resolution 3.0 h.
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37.91 Political Science and International Peacekeeping 3.0 h.
37.92 Political Science and International Conflict Resolution 3.0 h.
37.93 Political Science and International Peacebuilding 3.0 h.
Psychology

Undergraduate Programs

The B.A. and B.S. degree programs in psychology both are designed to contribute to a student's general liberal education and to provide a foundation for postbaccalaureate training not only in psychology and closely-related disciplines but also in other areas such as business, medicine, law, and communications. Students who intend to enter the job market immediately after completing an undergraduate degree are well-advised to complement their psychology major with substantial preparation in another program more closely linked to the world of work, e.g., education, social work, journalism, nursing. 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 be able to enrich his or her major in the B.A. program with courses in statistics and experimental psychology.

Students in either program begin with a general introductory course; followed by or more courses in methodology and electives in several broad areas of psychology: animal, developmental, social, personality, perception and psychophysiology, 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 26 semester hours in psychology. At least 15 semester hours of the major must be completed in this department.

Satisfactory completion of the psychology 311-312 introduction to psychology automatically satisfies three semester hours of the general education requirement in social science.

The B.A. program must include the following courses, or equivalents: 311 Elementary Psychology or 313 General Psychology; 314 Experiments in Psychological Research; one elective course from four of the five area groupings given below with at least two of these four area electives being 100- level courses. The 314-431 requirement may be satisfied by a distinction in section 31421 introduction to Statistics in Psychology and 312-120 Experimental Psychology I, or equivalents. This alternative is strongly recommended to students in the B.A. program who plan to pursue graduate work in psychology or a related area.

Bachelor of Science

The student must satisfy the general College of Liberal Arts requirements for the B.S. degree and must complete at least 26 semester hours of course credit in psychology. At least 15 semester hours of the major must be completed in this department.

The B.S. program must include the following courses, or equivalents: 313 General Psychology or 311 Elementary Psychology and 312-120 Introduction to Statistics in Psychology; 312-120 Experimental Psychology I, or equivalents; 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 chemistry or physics, one semester of each of chemistry and physics, or one semester of one area of the natural sciences.

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 endeavor, whether in academic settings or in industrial, governmental, or medical institutions. The intent is to produce graduates who are deeply committed to the study of 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 their primary and to follow a program which develops through understanding of the comprehensive area, but also includes 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 allow a student who wishes to do so to develop substantial complements in the second training area. Several such joint programs have been formulated and others can be developed as student interest dictates. Joint programs involve a mix of course work in the two areas, and research supervision or co-supervision by faculty members from both areas. The department also is prepared to help students develop additional expertise in any of the following important areas: human factors, behavioral medicine, aging, organizational and consumer behavior, communications, and neuropsychological science. Preparation in one of these interest areas will involve some special broadened seminars. Within the department, selected courses in other departments of the University, and participation in one or more research projects in the interest area.

Doctor of Philosophy

The Ph.D. degree requires satisfactory completion of at least 72 semester hours of graduate work in psychology, including at least 33 semester hours in this department. All students must satisfactorily, through one of several options, requirements in statistics and research methods, and in learning, in courses 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 also depends on the individual student's background and interests.

During each of the first three semesters, each graduate student ordinarily takes three courses, some of which are general core courses, some of which are courses in the training areas, and some of which are outside area electives. The student also becomes familiar with the literature, strategies, and special techniques in one or more research areas through engagement in individually-supervised research projects. This participation, which may be with one faculty member or with a different faculty member each semester, is designed to help the student develop by the end of the third semester a reasonably detailed plan for the masters research project.

Before the beginning of the fifth semester in the fourth year, the student is expected to complete the masters project and defend the thesis. A comprehensive examination covering material in the primary training area and in the secondary area, if any, is given early in the fifth semester. Admittance to Ph.D. candidacy is based on a faculty-wide review of the student's overall record of performance on the M.A. comprehensive examination, in course work, in research, and in research service activities.

During the third year, while continuing selected course work in the training area, 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 other 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 M.A. program. The Master of Arts degree with thesis is a required step for students on the Ph.D. objective. This degree requires:

Honnors

The department has an active honors program open to majors with at least a 3.5 grade-point average in psychology courses and at least 3.2 overall. The program includes research seminars and individual research collaboration with faculty members. Students ordinarily are selected to participate in this program during the spring semester of the junior year. Interested majors should contact the department honors advisor early in the junior year.
satisfactory completion of at least 30 semester hours of graduate course work in psychology, including at least 18 semester hours in the major 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 28 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 pass successfully a written examination covering the area of specialization.

Graduate Training Areas

Animal Learning and Biopsychology

The focus of the program in animal learning and biopsychology is on the animal learning models in psychology, primarily in nonhuman subjects, through the principles of behavioral psychology. This program will have the opportunity to learn the-learn techniques in computer-controlled experimentation and electronic instrumentation, and modern analytic and laboratory methods in neurosurgery, 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 collaborative activities provide excellent research and training opportunities for students interested in such emerging interdisciplinary fields as behavioral medicine and neurobehavioral science.

Child and Developmental Psychology

Students in the 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 preemphasis in any of the six core 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 time span but a number of faculty members in the department are involved in research on aspects of aging and hence can provide some supervision for students interested in this area. Faculty members have close contacts with colleagues in the Department of Speech Pathology and Audiology, the College of Education, and the Department of Pediatrics, and these relationships can be utilized by students who wish to gain additional background in developmental aspects of communication or of behavioral medicine.

Clinical Psychology

The clinical training program, fully approved by the American Psychological Association, strongly emphasizes a scientific approach to the study of psychopathology. It is designed 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 practice with research experiences.

Students in the clinical program are required to complete a minimum of 18 hours of supervised research experiences. Students in the clinical program may develop special competencies in such areas as psychophysiology, personality, psychological assessment, the effective disorders, behavioral and cognitive therapy, sex, and child psychology. Faculty members are collaborating both within the department, and with colleagues from departments such as psychiatry, psychiatry, psychology, and the School of Social Work Gerontology Program, and from nearby Professional Education agencies. In addition, as a result of such collaboration, behavioral medicine and aging are areas in which a number of clinical faculty members are prepared to offer research supervision. Within the department, joint training programs in clinical 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 the College, social, and University agencies. Students in the clinical program who wish to have the designation "clinical psychology" on their official transcript must satisfactorily complete a one-year internship at an approved agency before receiving the doctoral degree. The internship ordinarily comes after completion of all course work and of most, if not all, of the dissertation project.

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 followings 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 experience in a variety of interest areas, including human factors, communications, aging, organizational behavior, and system psychology. Collaborative research is undertaken with faculty members from the College of Business Administration, the Health Sciences Research Center, and from several departments including industrial and management engineering, speech therapy and Audiology, Neurology, and anesthesia.

Social Psychology

The social psychology program offers a variety of perspectives on social processes. Students develop some familiarity with all of the approaches but may focus their graduate training in any of the fields. Areas of social psychology, including social cognition, social learning, social development, social interaction, and social influence, as well as the clinical psychology, psychiatry, psychology, and the School of Social Work Gerontology Program, and from nearby Professional Education agencies. In addition, as a result of such collaboration, behavioral medicine and aging are areas in which a number of clinical faculty members are prepared to offer research supervision. Within the department, joint training programs in clinical 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.

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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 applying.

The deadline for applications is February 1. For all materials to be on file by that date, the Graduate Record Examination (GRE) Aptitude Test should be taken in October, certainly no later than in December. Applications may be submitted at any time but are considered only once per 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 analytical 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, is desirable but not required. Students may have had other backgrounds but who are strongly qualified on other grounds may be admitted, but will be expected to remedy deficiencies in psychology and the natural sciences by additional work or independent study prior to enrolling on the regular graduate program.

A student with completed substantial graduate work at another institution at the time of admission to this program will be expected to present documents, such as transcripts, to demonstrate such work, which reflect significant engagement in research and scholarly writing. This requirement applies to the receipt of previous 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 instance will a student be permitted to complete substantial research or writing for a master’s degree at another institution while a regular full-time student in the graduate program at The University of Iowa. A foreign language is not required for admission, and there are no foreign language requirements for 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, traineeships, tuition sanctions, 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 faculty of the department 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 authors, editors, and regular-reviewing 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, observation booths with remote audiovisual control and recording equipment, soundproof viewing boxes, and closed circuit TV systems, electrophysiological recording rooms, conditioning laboratories, the Carl E. Seashore Psychodrome, and well-equipped electronic, mechanical, and woodworking shops. Specialized equipment research laboratories are available for use in studies conducted at schools and other locations.

The University’s Weig Computing Center has an IBM 3033, three PRIME 850 and two PRIME 750 computers. Students and faculty have ready access to these systems through terminals in the department and through a satellite computer facility in Seashore Hall. Office space for graduate students and faculty is provided in Seashore Hall, and the psychology branch of the University’s Main Library is conveniently located in the west wing of Seashore Hall.

The research and teaching activities of the department are greatly benefited by the facilities and staff of other University and local agencies, including the University’s Hospitals and Clinics Psychiatric Hospitals; The Mental Health Administration; Medical Center; the University Counseling Service; the Child Development Clinic; the Women’s Health Research Clinic; and the Health Services Research Center, and the School of Social Work Research Program.

Courses

For Undergraduates

Either 311 or 313 are 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 314-43 area open to freshmen who have satisfactorily completed an introductory psychology course, e.g.,

311 or 313.

311 Elementary Psychology

Overview of psychology as behavioral science, with consideration of different faculty members, present topics in research and of student interests. Students are required to become familiar with the course outline and to take part in class participation in demonstration assignments and in current research studies, or through preparation of a research report. 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 preparatory work. Recommended for B.S. majors in psychology, open to all honors students, and to other qualified students as permission of instructor. May not be taken pass-fail.

311/313 Introduction to Clinical Psychology

Survey of present and historical developments in clinical psychology, including sociocultural, historical, experimental, psychological, and psychiatric approaches. Prerequisite: 311 or 313 or equivalent.

311/313 Introduction to Child Psychology

Survey current research and theories in child psychology including theories of development, environmental, cognitive, emotional, learning, training, guidance, socialization, morality, child rearing, play, sex roles, and sex differences. Prerequisite: 311 or 313 or equivalent.

311/313 Introduction to Social Psychology

Research relating behavior of individual human beings to cultural setting, environmental, developmental, and social influences on personal and social processes, social expectations, contributions by sociologists and anthropologists. Prerequisite: 311 or 313 or equivalent.

311/313 Introduction to Mental Processes

Survey of the study of individual human characteristics: attention, memory, thinking, learning, problem solving, decision making, and thought, considered from information-processing viewpoint. Prerequisites: 311 or 313 or equivalent.

311/313 Introduction to Comparative Psychology

Comparative psychology as applied to the study of communicative behavior, me no, attention, language, and consciousness; areas of new research activity in the fields of communication, perception, motivation, evolution, and neurophysiology. Prerequisite: 311 or 313 or equivalent.

311/313 Psychology in Business and Industry

Applications of psychology in the workplace: emphasis on personnel selection, training, attitude adjustment, and human relations. Prerequisites: 311 or 313 or equivalent.

312/313 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 the study of behavior, the nature of scientific research, and the role of science in society. May not be repeated for credit. Prerequisite: 311 or 313 or equivalent.
Internship Opportunities
The recreation education program places special emphasis on practical experience and student involvement with the profession and practitioners. Students are encouraged to attend local professional conferences, and every class in the professional core includes lectures by working professionals, as well as opportunities for paid experience related to course content.

The practical emphasis is climaxcd by a professional internship for a full semester in an agency and setting of the student's selection. The internship is designed to lead to professional involvement with more than 150 local, state, and national departments, agencies, and services provide needed and internship opportunities for students in the program.

Honors
Admission to the honors program in recreation education requires a formal application, completion of at least 32 semester-hour courses at the University, a minimum of at least 3.0 of the 32 semester-hour of required major course work, and a 3.0 grade-point average on all college work attempted and on all work attempted in recreation education.

To graduate with honors in recreation education, the student must successfully complete a written thesis or research. The honors committee, the student may take three semester hours of honors work in any department.

Master of Arts
The master's program is designed to prepare students for administrative, supervisory, and teaching positions in recreation and related fields. It offers two areas of specialization: Public, Private, and Community Recreation and Therapeutic Recreation Administration. The program may be taken with thesis (33 semester hours) or without thesis (33 semester hours). An introduction to scholarly activities and research is provided through 101-106, Leisure Research. The research will result in a written report to knowledge, a review of a report, or a synthesis of the course material that is taught in the park and recreation field.

Public, Private, and Community Recreation
This area focuses on the development and administration of recreational programs in settings, such as municipal departments, schools, voluntary agencies, churches, the armed forces, state and federal agencies, industries, private organizations, etc. The emphasis within these programs may be on special population groups, such as inner-city and minority groups, the aged, children and youth, or upon the meaning of leisure as a social phenomenon, with study of the historical, philosophical, and social bases of issues. Public administration and urban social planning are particular aspects of this area. To provide this emphasis on special population groups, the program draws heavily from other disciplines such as public administration, social work, urban and regional planning, sociology, anthropology, and psychology.

Therapeutic Recreation Administration
Therapeutic recreation relates to the development and administration of programs serving the mentally retarded, physically disabled, emotionally disturbed, and aged in both institutional and community settings. The program is directed toward understanding recreation's role in a comprehensive rehabilitation process, including both clinical and community fac- tors, and thus prepares the student to work with a broad range of disability areas in a variety of settings. Through the use of related area courses, strengths in specific disability areas may be developed.

It is recommended that the student have 12 to 12 semester hours of therapeutic recreation credit in courses such as abnormal psychology, psychology of adjustment, psychiatry, the mentally retarded, and aged. The student should also have skills in at least two program fields.

Financial Aid
Assistance is available in the form of graduate assistantships, research assistantships, teaching assistantships, and post-master's assistantships for doctoral candidates. The student may obtain this assistance through the department, or through a special program in Therapeutic Recreation Service for Handicapped Children.

Facilities
Students majoring in recreation education have the opportunity to gain extensive experience, paid or voluntary, through independent research in these and other locations. The University of Iowa. Psychiatric Hospital and Hospital School, University Hospital Recreation Services, Iowa City Parks and Recreation Department, Systems Incorporated, various retirement and convalescence homes, and the Coralville Department of Parks and Recreation.

Courses
Primarily for Undergraduates

16000 Cognitive Science I 3 s.h.
16100 Foundations of Recreation 3 s.h.
16130 Issues in Recreation Planning 3 s.h.
16200 Foundation Leadership 3 s.h.
16210 Introduction to Measurement 3 s.h.
16600 Orientation to Professional Practice 3 s.h.
16610 Orientation to Professional Practice 3 s.h.
16620 Orientation to Professional Practice 3 s.h.
16630 Orientation to Professional Practice 3 s.h.
16640 Orientation to Professional Practice 3 s.h.
16650 Orientation to Professional Practice 3 s.h.
16660 Orientation to Professional Practice 3 s.h.
16670 Orientation to Professional Practice 3 s.h.
16680 Orientation to Professional Practice 3 s.h.
16690 Orientation to Professional Practice 3 s.h.
16700 Orientation to Professional Practice 3 s.h.
16710 Orientation to Professional Practice 3 s.h.
16720 Orientation to Professional Practice 3 s.h.
16730 Orientation to Professional Practice 3 s.h.
16740 Orientation to Professional Practice 3 s.h.
16750 Orientation to Professional Practice 3 s.h.
16760 Orientation to Professional Practice 3 s.h.
16770 Orientation to Professional Practice 3 s.h.
16780 Orientation to Professional Practice 3 s.h.
16790 Orientation to Professional Practice 3 s.h.
16800 Orientation to Professional Practice 3 s.h.
16810 Orientation to Professional Practice 3 s.h.
16820 Orientation to Professional Practice 3 s.h.
16830 Orientation to Professional Practice 3 s.h.
16840 Orientation to Professional Practice 3 s.h.
16850 Orientation to Professional Practice 3 s.h.
16860 Orientation to Professional Practice 3 s.h.
16870 Orientation to Professional Practice 3 s.h.
16880 Orientation to Professional Practice 3 s.h.
16890 Orientation to Professional Practice 3 s.h.
16900 Orientation to Professional Practice 3 s.h.
16910 Orientation to Professional Practice 3 s.h.
16920 Orientation to Professional Practice 3 s.h.
16930 Orientation to Professional Practice 3 s.h.
16940 Orientation to Professional Practice 3 s.h.
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, nine 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 three additional hours: Religion in India, Religion in China, Religion in Japan.

Requirements for languages and other research tools are to be determined by the student's committee. All M.A. students must pass that part of the Ph.D. qualifying examination (see below) in their major area.

Master of Arts in Religion and Health

Study of the role of religion in 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 earned overseas. A maximum of six semester hours may be transferred from another accredited graduate or professional school.

The program includes required courses in religion and health, and in related fields of ethics, religion in America, and other relevant fields outside the School of Religion. The student expedites 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 receives 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 having the comprehensive examination.

Each of the programs is supervised by a faculty committee. Beginning with the third semester of graduate work and continuing up to the 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 relates only to 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 institutional financial aid: a teaching-research fellowship, teaching assistantships, and research assistantships. Awards are made annually on a competitive basis. Full-time students are ordinarily appointed only as research assistants.

Graduate Admissions

All applicants for admission to graduate study must meet the general requirements of the Graduate College. In addition, the School of Religion ordinarily requires a combined verbal-quantitative score of 1030 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 Judges-Chlees Theology 3 sh.
Study of the nature of religion and analysis of the biblical Senses and Judahism as well as the New Testament and Christianity.

212 Religion and Society 3 sh.
Studies in contemporary patterns of religious expression, including expressions of religion in daily life, and non-religious fields.

223 Secret for behind the scenes 3 sh.
Provides opportunities for clinical experience in areas of personalized and devotional knowledge, including ability to manage, supervise, and evaluate them.

224 Service of the Dead 3 sh.
Studies of formal and practical activities of religious life and death, including the service of the dead.

225 Laymen's Religious Education 3 sh.
Religious education as a part of the student's own education.

226 Introduction to Religion Studies 3 sh.
Introduction to the study of the history of religion through analysis of general themes in which religion has been studied, including the role of religion in social change or social order.

227 Self Treatment in a one-week residential program through an evening course.
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 syllabi and philosophy are designed for all University students, on a voluntary basis (see the "Services for Students" section of the Catalog).

Courses

151 Rhetoric 4 hrs.

Instruction and practice in speaking, writing, and critical reading, with the focus on exposition and composition. Themes centered on Internet culture, world literature, and composition. May be taken more than once using library resources for amplifying and supporting ideas, adopting disciplines to readers and listeners.

162 Rhetoric 4 hrs.

Continued instruction and practice in oral and written communication with the focus on critical thinking, research, and argumentation; develops competence in research procedures including locating and evaluating information and developing points of view, analyzing and responding to ideas of others, preparing and presenting written essays, communicating in business and public speaking situations, and research projects.

181 Rhetoric 4 hrs.

Instruction and practice in speaking, writing, and critical reading. With the focus on an understanding of rhetoric. The course teaches students the significance of rhetoric in their lives, develops competence in research procedures, preparing effective presentations, evaluating information and ideas through a critical lens, responding to others' ideas, engaging in research projects, analyzing and synthesizing complex information, and writing and oral presentations.

185 Rhetoric 4 hrs.

Instruction and practice in written communication only; see 151 Rhetoric for oral and multimedia components.

186 Rhetoric 4 hrs.

To improve reading proficiency, regular assignments containing critical reading, interpretation, and analysis of materials not current literature courses, and library resources: develop efficient study skills, vocabulary growth; reading speed/timing; testing ability, enjoyment of reading books. Open to students having major difficulties in reading. Placement exams are not admitted in another remedial course.

188 Rhetoric 3 hrs.

After an initial sequence of writing, instruction focuses on a particular writing task. Open to students not enrolled in another remedial course.

188R Rhetoric 4 hrs.

Russian

Department chair: Roy J. Parrott, Jr.

Faculty: professors Norman Luxenburg, Harry B. Reva.

associate professors Nadia Soboleva

associate professor Tanya L. Puchta, J. Christopher A. Hoerl

instructor Michael J. Orchard

Degree offered: B.A., M.A.

The purposes of the Russian program is to give students training in both the written and spoken Russian language and in Russian literature. An important secondary objective of the program is to provide students with an understanding and appreciation of Russian civilization and culture. A knowledge of Russian is seldom an end in itself but rather a complement to some other vocation. Accordingly, the department encourages all of its students to pursue a joint major and to develop their interests in related or complementary fields.

With the increasing importance of Russian as a language of science and commerce, many students find that training in the language is an important asset to careers in the natural and physical sciences, engineering, medicine, business. Students of journalism, library science, and the social and military sciences also have strengthened their career preparation through the study of Russian. Some students major in Russian before going into international relations, or another profession; others study Russian as preparation for graduate work in Slavic languages and literatures, comparative literature, English, or other humanistic disciplines.

Russian majors with the B.A. and the required education courses occasionally seek teaching careers in secondary schools. A number of governmental agencies annually interview job candidates who have advanced training in Russian; these agencies give preference to applicants who couple strong language proficiency with a well-rounded background in 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:

411:109 Intensive Conversation 3 s.h.

411:110 Intensive Conversation 3 s.h.

411:111-112 Intermediate Russian I- II 6 s.h.

411:113-114 Fourth-Year Russian I-II 6 s.h.

Three of the following:

411:151 Russian Literature in Translation 1800-1860 3 s.h.

411:152 Russian Literature in Translation 1860-1917 3 s.h.

411:155 Tolstoy and Dostoevsky 3-4 s.h.

411:181 Soviet Literature in Translation 3 s.h.

411:186 Russian Culture 3 s.h.

411:187 Russian Civilization 3 s.h.

Students majoring in Russian are strongly urged to include related courses in economics, geography, history, or political science among their electives. Nearly every avenue of professional training and employment available requires a solid background in Russian area studies. For example, a recent statement on the criteria for U.S. government employment cites as requisite a "substantive knowledge of the area in history, economics, political science, sociological disciplines, scientific specialties, demography, military related skills, and in some cases cultural and religious background." Moreover, an "in-depth knowledge of literature or science without other substantive background may be viewed as over-specialization in a field of limited practical use."

For seniors in Russian the student must complete a minimum of 12 semester hours in the department beyond the second year, including two semester sequences 411:111-112.

Honors

Russian majors of junior or senior standing with a grade-point average of at least 3.2 both in Russian and overall may enroll in the honors program in Russian. An extensive reading program with discussions, regular reports, and a semester paper constitute each honors work unit of these semester hours. Students may take up to nine semester hours of honors in Russian.

Summer and Study Abroad Programs

The department vigorously encourages undergraduate and graduate students to participate in language study programs at 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 ratio) have studied in summer, semester, and academic year programs at the University of Wisconsin State University under the auspices of the American Council of Teachers of Russian programs at the Pusan University in Moscow. Other students have participated in study-abroad Russian language study 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 studies.

The focus in literary studies is on the development of Russian literature, both as a national phenomenon and as a part of European culture. Students are expected to analyze writers' styles, perceive literary techniques, recognize literatures, and develop their ability for 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 Westwold 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

411 Pre-First Year Russian
Prerequisite: 411 or equivalent. 4 h.
412 First-Year Russian I
Prerequisite: 411 or equivalent. 4 h.
413 Second-Year Russian
Prerequisite: Second-year course, recommended for students attending foreign language preparation for 2 A. Degree and seeking further training in active use of the language. Prerequisite: 412 or equivalent. 4 h.
414 Second-Year Russian II
Prerequisite: 412 or equivalent. 4 h.
415 Russian for Reading
Prerequisite: 411 or equivalent. 2 h.
Exams on reading scientific and technical Russian materials for students, especially those majoring in science, who need to develop a reading ability for research purposes.
416 Russian for Reading II
Prerequisite: 415 or equivalent. 2 h.
417 Readings in the Soviet Press
Prerequisite: 16 semester hours of language instruction or equivalent. 2 h.
419 Special Readings
Prerequisite: 10 semester hours of language instruction. May be repeated to maximum of eight semester hours. 1-4 h.
419 Special Seminar
Prerequisite: 414 or equivalent. 1-4 h.
419 Intensive Conversation
Prerequisite: 414 or equivalent. 1-4 h.
419 Intensive Conversation
Prerequisite: 415 or equivalent. 1-4 h.
419 Russian Literature
Prerequisite: 411 or equivalent. 4 h.
419 Third-Year Russian I
Prerequisite: 411 or equivalent. 4 h.
419 Third-Year Russian II
Prerequisite: 411 or equivalent. 4 h.
419 Fourth-Year Russian
Prerequisite: 411 or equivalent. 4 h.
419 Peninsular and Precival Culture
Prerequisite: 412 or equivalent. 4 h.
419 Russian Literature in Translation I
Course, 1900-1980
Prerequisite: English 190. 3 h.
419 Russian Literature in Translation II
Course, 1980-1997
Prerequisite: English 190. 3 h.
419 Russian Civilization
Prerequisite: 411 or equivalent. 3 h.
419 Russian Civilization
Prerequisite: 411 or equivalent. 3 h.
419 World Writers
May be repeated to maximum of nine semester hours. Prerequisite: consent of department.

Primarily for Graduates

421 Russian Literature in Translation I
Prerequisite: 411 or equivalent. 3 h.
422 Russian Philosophy
Prerequisite: 411 or equivalent. 3 h.
424 Reading in Russian Linguistics
Prerequisite: 411 or equivalent. 3 h.
425 Russian Syntax and Stylistics
Prerequisite: 411 or equivalent. 3 h.
421 Russian Eroticism
Prerequisite: 411 or equivalent. 3 h.
421 Russian Modernism
Prerequisite: 411 or equivalent. 3 h.
421 Russian Poetry
Prerequisite: 411 or equivalent. 3 h.
421 Soviet Literature
Prerequisite: 411 or equivalent. 3 h.
424 Problems in Russian Literary Criticism
Prerequisite: 411 or equivalent. 3 h.
4250 Research: Research Methods
Prerequisite: 411 or equivalent. 3 h.
4251 Reading in Russian History
Prerequisite: 411 or equivalent. 3 h.
4261 History of the Russian Language
Prerequisite: 411 or equivalent. 3 h.
4262 Russian Mythology
Prerequisite: 411 or equivalent. 3 h.
4270 Independent Research
Prerequisite: 411 or equivalent. 1-3 h.
Science education is a discipline concerned with the interface between science and society. The academic programs in science education therefore include preparation in more than one discipline of science, a consideration of science from a philosophical, historical, and sociological perspective, an introduction to applied science (technology), and a sequence in education.

Because science education is transdisciplinary, program planning requires the cooperation and involvement of a variety of University departments and colleges. Most of the formal requirements are drawn from courses offered in a variety of departments.

The Science Education Program has attracted national and international attention. The program has received over $6 million in federal support since 1963. This support has helped establish a specific program for gifted and talented secondary school students, model teacher education programs, an extensive program of instruction and services for in-service teachers across Iowa, a skills program for 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 rather than an area of specialization while providing an appropriate option for students interested in education as it pertains to science teaching, the medical professions, allied health fields, or such areas as scientific journalism and law.

The science education major is not intended to prepare students for advanced study in one area of science. With the cooperation of 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 ones).
- A view of science from a historical, philosophical, cultural, or societal perspective.
- Experience with the application of scientific knowledge in a technological sense.

Outlines for the five areas of emphasis offered in science education are as follows:

### Biology Emphasis

- 2-3: Introduction to Botany 4 s.h.
- 57: Principles of Animal Biology 5 s.h.
- 21: Introduction to Zoology 4 s.h.
- 14: Principles of Chemistry 2 s.h.

### Chemistry Emphasis

- 1: Principles of Chemistry I 2 s.h.
- 1: Principles of Chemistry II 2 s.h.

### Geology Emphasis

- 1: Introduction to Geology 3 s.h.
- 2: Principles of Geology 2 s.h.

### Physics Emphasis

- 1: Principles of Physics 2 s.h.
- 2: Principles of Physics 2 s.h.

### Environmental Studies Emphasis

- 13-14: Principles of Chemistry I 5 s.h.
- 13-14: Principles of Chemistry II 5 s.h.

### Mathematics Emphasis

- 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

- 10-12: History of Science 3 s.h.
- 10-12: Historical Geography 3 s.h.

### Earth Science Emphasis

- 1: Principles of Physical Geography 2 s.h.
- 2: Principles of Physical Geography 2 s.h.

### Environmental Studies Emphasis

- 1: Principles of Chemistry I 2 s.h.
- 1: Principles of Chemistry II 2 s.h.

### Chemistry Emphasis

- 13-14: Principles of Chemistry I 5 s.h.
- 13-14: Principles of Chemistry II 5 s.h.

### Mathematics Emphasis

- Mathematics course at the level of 22M:11 or 22S:8 or higher 3-4 s.h.
Chemistry Electives 6 s.h.
29 11-12 College Physics 8 s.h.
Physical and Earth Science Electives 8 s.h.
29M: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
29:11-12 College Physics 8 s.h.
29:17-18 Introductory Physics I & II 8 s.h.
29:19 Introductory Physics III 4 s.h.
Physics Electives 6 s.h.
29M:35-36 Engineering Calculus I & II 8 s.h.
4:13:14 Principles of Chemistry I & II 6 s.h.
4:16:17 Principles of Chemistry Lab I & II 2 s.h.
4:12:13 Organic Chemistry I & II 3 s.h.
4:13:13 Physical Chemistry I & II 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:
7P-75 Educational Psychology and Measurement 3 s.h.
7S:91 Introduction to Teaching 1 s.h.
7S:100 Issues in Education 2 s.h.
7S:151 Science Methods I: Individualizing Instruction in Science (taken with 3 s.h. of 7S:191) 2 s.h.
7S:191 Observation and Lab Practice in Secondary School 3 s.h.
7S:152 Science Methods II: Resources and Teaching Strategies (taken with 1 s.h. of 7S:192) 2 s.h.
7S:190 Individual Projects in Lab Practice (taken with 2 s.h. of 7S:152) 1 s.h.
7S:167 Seminar: Curriculum and Student Teaching 2 s.h.
7S:190 Individual Projects in Lab Practice (taken with 3 s.h. of 7S:191 and 4 s.h. of 7S:192) 2 s.h.
7S:191 Observation and Lab Practice in Secondary School (taken with 3 s.h. of 7S:190 and 3 s.h. of 7S:192) 2 s.h.
7S:192 Observation and Lab Practice in Secondary School 4 s.h.
7V:92 Introduction to Microcomputing for Teachers 3 s.h.
7X:170 Human Relations for the Classroom Teacher 3 s.h.

Minors in Science Teaching
Six science teaching minors are available for persons with teaching majors in other academic areas. All require 31 semester hours of credit. Students who wish to pursue a science teaching minor and to qualify for University of Iowa recommendation for teaching certification should consult a faculty member in Science Education. All science teaching minors must include:
7S:151 Science Methods I: Individualizing Instruction in Science 2 s.h.
7S:152 Science Methods II: Resources and Teaching Strategies 2 s.h.
7S:191 Observation and Laboratory Practice in the Secondary School 3 s.h.
97:128 Meaning of Science 2 s.h.
7S:130 Science in Historical Perspective 2 s.h.
Other basic requirements:
Biology
2:1 Introduction to Botany 4 s.h.
37:3 Principles of Animal Biology 5 s.h.
7S:103 Societal and Educational Applications of Biological Concepts 3 s.h.
Botany and Zoology Electives 9 s.h.

Chemistry
4:13:14 Principles of Chemistry I & II 6 s.h.
4:16:17 Principles of Chemistry Lab 2 s.h.
97:106 Societal and Educational Applications of Chemical Concepts 3 s.h.
Physics Electives 10 s.h.
97:106 Societal and Educational Applications of Selected Concepts of Physics 3 s.h.

General Science I
2:1: Introduction to Botany 4 s.h.
28:61 General Astronomy 4 s.h.
12:3 Principles of Physical Geography 2 s.h.
12:4 Principles of Historical Geography 2 s.h.
4:13:15 Principles of Chemistry I 3 s.h.
29:11 College Physics 4 s.h.

General Science II
(Enrollment Studies Emphasis)
2:1 Introduction to Botany 4 s.h.
37:3 Principles of Animal Biology 5 s.h.
37:132 Ecology 2 s.h.
4:13:15 Principles of Chemistry I 3 s.h.
Electives in Environmental Engineering 3 s.h.
97:140 Problems in Integrating the Teaching of Environmental Science 3 s.h.

Earth Science
12:3 Principles of Physical Geography 2 s.h.
12:4 Principles of Historical Geography 2 s.h.
28:61 General Astronomy 4 s.h.
97:102 Societal and Educational Applications of Earth Science Concepts and Topics 10 s.h.

Special Rules
Since the Science Education Program involves large numbers of students heading for a variety of professional and graduate areas, large numbers of faculty advisors, and several colleges and departments, some special rules and regulations have been approved by the Science Education Advisory Committee of the College of Liberal Arts (consisting of the department executive officers of biochemistry, botany, chemistry, geology, physics-astronomy, microbiology, zoology, and science education). These special rules include:
At least ten semester hours of graded credit in science must be earned at The University of Iowa.
Transfers students using any of the
Graduate Programs

The Science Education Program offers graduate studies leading to the degrees Master of Arts in Teaching, Master of Science, Educational Specialist, and Doctor of Philosophy.

The Master of Arts (M.A.) 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 0 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 0 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 Directed 10 s.h.
Science Specialization 28 s.h.
Correlative Studies 8 s.h.
Minimum Total (beyond master's degree) 70 s.h.

*Includes intensive 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 workbook materials for awareness conference and workshops.

In addition, Iowa-ASSIST administers a fall Science and Education Conference that attracts more than 300 teachers and students from Iowa schools; sponsors a spring Science and Humanities Symposium, jointly with the U.S. Army Research Branch, for about 400 high-ability students and their teachers; sponsors several conferences for the improvement of science teaching and public awareness of science-society issues; and each summer sponsors special workshops utilizing national authorities and 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
- Evaluation of science teaching
- Educational technology
- Computer-assisted learning
- Simulation systems
- Classroom interaction studies
- Quickwrite
- Paigten development psychology
- Cross-cultural experience
- Health education
- Instructional psychology
- Teacher behavior
- Mathematic's 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 exchanges. A sizable number of foreign students is enrolled. The faculty has been involved for extended periods in international programs and projects as well.

Facilities

The physical facilities for science education programs at The University of Iowa are exemplary.
The Science Education Center is located in the modern 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 IWS-ASSIST, a model in-service program for assisting schools in implementing new national curriculum programs in Iowa schools; a suite of offices for student program activities; space for the elementary school focus of the program; laboratory for the elementary school methods course; and two large teaching laboratories.

The seventh floor includes central offices for the history and philosophy of science faculty of the science education and secondary school teacher education programs; a self-instructional laboratory in science education and a library; a large seminar room usable for teaching, a library of the secondary teacher education sessions, including many facets of the Iowa-UPSTE* model, multiple offices or graduate assistants; a common area for small group discussions and individual work, and two large areas for small group and committee work.

Courses

The following are special courses offered by the Science Education Program to supplement the undergraduate emphasis areas in science education and to provide science options for elementary and special education majors.

Primary for Undergraduates

9712 Cooperative Education Internship 3 h.s.
9717 Fundamentals of Science 4 h.s.
9718 Special topics scientific investigations drawn from physical, life, and earth sciences; focus on problem solving and research skills. Applicable to natural sciences general education requirement.
9719 Investigations in Science 4 h.s.
9716 Science Survey 4 h.s.
Consideration of broad conceptual schemes comprising science; scientist to student instruction of scientific research and modern technology.

Bachelor of Arts

The major in social studies education is an interdisciplinary, nonprofessional major. It provides an excellent foundation for careers in law, social work, religion, urban planning and development, and government service at all levels. Its major purpose, however, is to provide a general education for students preparing to teach in secondary schools. Together with the professional requirements for certification, this major meets the standards for teaching social studies established by the North Central Association of Colleges and Secondary Schools.

Major requirements for the B.A. degree in social studies education total 69 semester hours of credit earned in departments cooperating in the social studies education program. Distribution of the course work is as follows: 12 semester hours in either U.S. or world history; 12 semester hours each in economics, political science, and sociology; at least 3 semester hours in geography; and 9 semester hours in geography, anthropology, U.S. history, or world history.

Students pursuing a social studies education major will take survey courses introducing them to the various social sciences. Many of the departments also offer independent study and readings as alternatives to formal classes.

There is no separate honors program in social studies education. Students who qualify are encouraged to do honors work in the social science department in which they wish to concentrate their given.

A Global Studies certificate may be obtained in conjunction with a social studies major.

Admission Requirements

Transfer students must have earned a minimum grade-point average of 2.7 on all work done in the subjects of the cooperating departments in order to be admitted to the program. Approval of candidacy for the bachelor's degree will mean that the student must complete at least 27 grade-point average in all college work undertaken in the cooperating departments.

Master of Arts

Some of this program's courses are open to teachers and chairs of social studies departments in junior and senior high schools. Students also have a curriculum consultative for school districts, while others are staff members in community colleges. A few have found the day we expected preparation for their
professional work in various correctional and penal institutions. For a small number, the Master's degree in social studies education has provided access to civil service positions at various levels of government.

The student may elect to take the master's degree with or without thesis, under either of two plans, both requiring 38 semester hours of credit in graduate courses.

In one plan the student completes at least ten semester hours of course work in the cooperating departments, and may complete the remaining eight semester hours in one or among all of the cooperating departments. In the other plan the student completes at least twenty semester hours of course work in the cooperating departments and not more than ten in education, and may complete the remaining eight semester hours in either or both of his or her related departmental areas.

Both plans require at least nine semester hours of credit earned in courses numbered 200 or above, including one such course in each of the student's fields of emphasis.

All candidates must also complete 98:201 Individual Instruction in Social Studies Education and/or 98:202 Seminar; Social Studies Education.

The candidate must pass an oral and written comprehensive examination.

The program offers a wide variety of educational experiences, depending on the candidate's fields of study. Possibilities include small group instruction, independent study and dependent study and reading, computer experience, internship, and laboratory work.

Admission Requirements

A student wishing to major in social studies education for a master's degree must have earned at least 20 semester hours of graduate credit in one area of social studies at an accredited institution, and must have a minimum grade point average of 3.0 on all work undertaken in the social sciences at the time of application. After declaring a social studies education major, the M.A. candidate must maintain at least a 3.0 grade point average.

Doctor of Philosophy

Some graduates of the social studies education-opinion program have gone into administration in institutions of higher education and are serving as presidents, provosts, or deans of faculty or graduate studies. Some are department chairs in colleges of education or curriculum directors in large school systems. Others are engaged in teacher education programs in colleges and universities, while others are college instructors in their areas of academic concentration.

The program consists of a minimum of 90 semester hours of course work and dissertation credit beyond the bachelor's degree, exclusive of field requirements established by the College of Education. These credits are to be distributed among the cooperating disciplines and professional education. Depending upon the background and needs of the candidate, the work in the disciplines chosen will comprise approximately 50 percent of the total 90 semester hours, work in education approximately 50 percent.

Depending upon the areas of study he or she chooses, the candidate will have an opportunity for regular classroom, small group instruction, limited independent study, fieldwork, and laboratory and computer experience. Seminar and advanced work in courses numbered 200 or above is required in each of the areas of study. All candidates must complete 98:201 Individual Instruction in Social Studies Education and/or 98:202 Seminar; Social Studies Education.

After completing most of his or her course work, the candidate must take a qualifying examination covering each of his or her fields of emphasis.

The candidate must complete and orally defend a dissertation based on original research in either of his or her academic fields of study or on some aspect of social studies education.

Admission Requirements

Admission to doctoral study in social studies education requires a bachelor's degree in social science or in an accredited institution, a master's degree in history, a social science, or education; satisfactory performance on the Graduate Record Examination; and an academic record showing promise of scholarly success.

Facilities

Students in social studies education have access to the facilities and faculty of the cooperating departments and the College of Education. Special agencies and services are also available, such as the University Hospital School, the Iowa Center for Education in Politics, the Bureau of Educational Research, the Institute of Public Affairs, the Iowa Education Information Center, the Curriculum Laboratory, the Statistical Consulting Center, the computer laboratory, and the Weig Programming Center.

The faculty members who serve as social studies education advisors and coordinators are experienced classroom teachers whose advanced degrees have been earned in history, the social sciences, and education. They are active in professional organizations, consultative work, and in working with schools in curriculum revision.

Courses

After an introductory look at social studies education, these courses are offered in several fields: teacher education, human development, social change, and educational psychology.
social work or allied professions; and to prepare students for informed community participation in social welfare issues. The program is accredited by the Council on Social Work Education.

Undergraduate students majoring in social work must satisfy the general College of Liberal Arts requirements, excluding the general education requirement in social sciences. For general education requirement in natural sciences include 11.21 Human Biology. The following courses are required for the major:

Freshman/Sophomore Years
30.1 Introduction to 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 Any basic economics course 3-4 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.
42.1-171 Social Work Practice II 3 s.h.

Junior/Senior Years
42.119 Social Work and Discrimination 2 s.h.
42.127 Social Work and Madness or
Approved course from another department (e.g. School of Social Work for this
42.1-141 Social Welfare Program and Policy 3 s.h.
42.144 Social Work Research 3 s.h.
42.193 Field Experience 1 s.h.
42.193 Field Experience 8-12 s.h.

A minimum of 12 semester hours of coursework 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; or at least a 2.5 grade-point average on a 4-point scale; and
Completion of the application process.
For more information, contact the coordinator of the undergraduate program in social work.

Master of Social Work
The M.S.W. program prepares social workers for leadership in the profession and for advanced social work practice either 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, to commit themselves to making human service organizations responsive to people, and to understand the linkages between the societal and the individual; and to 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 advisers, they may 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/or 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 for admission generally complete the program the spring semester of their senior 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 at least an examination project in at least the comprehensive examination the Graduate College generally requires. The student may be awarded a thesis option for credit, and the final examination is the oral defense of the thesis. Either the advanced research requirement and 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:
42.140 Human Behavior in the Social Environment 3 s.h.
42.141 Social Work Practice I 3 s.h.
42.143 Social Welfare Program and Policy 3 s.h.
42.144 Social Work Research 3 s.h.
Other required courses:
42.202 Social Change, Social Development, and Social Work 2 s.h.
41.127 Social Work and Racism or
42.119 Social Work and Discrimination 3 s.h.
42.196 Advanced Practice 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:
6-9 s.h.
Concentrators (individual, Family, and Small Group Services; Human Services Administration; Social Development); three additional courses in the concentration selected
Generalists: one course in each of three concentrations
Practicum 12 s.h.
Practicum Seminar 2 s.h.
Final Exam Theses 6-8 s.h.
Electives 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. Concentrators 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 sum a variety of functions within
Satellite Centers

In addition to offerings on the Iowa City campus, the school offers both classes and practical 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 major purposes: to (1) give educational programs of full-time students, (2) provide a wider variety of educational opportunities, and (3) to provide continuing education opportunities for the city and surrounding areas.

For full-time students, the general plan is to begin the program in the fall semester in Iowa City. Depending on the student's requirements, the student will be assigned to the Des Moines or Quad Cities centers. The general plan involves the student's relocation.

The Des Moines Center, 115 miles north of Iowa City, is the location of the state capital. It is also the largest city in the state. Many full-time programs are available in state government offices, child and family agencies, mental health programs, and a variety of other settings.

The Radio City Center is located on the Mississippi River in Davenport, 60 miles north of Iowa City. As part of the Quad Cities metropolitan area of 874,000 people, the radio center provides both practical opportunities and practical opportunities available in Iowa City. Regular social workers, planning agencies, serving social and human service agencies, and programs for the elderly are just a few examples. Students relocating in the Quad Cities have opportunities to commute to Radio City for some classes and special events.

Graduate Admission

The criteria for admission for the full-time and part-time program in the M.S.W. program are:

- A bachelor's degree from an accredited college or university with a reasonable distribution of courses in the social sciences and humanities.
- At least a 3.0 grade-point average for the junior and senior years of undergraduate study, or for 12 semester hours of upper division 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.
Sociology

Chair: Edward J. Lawler
Faculty: professors: Thomas G. Alex, Edward J. Lawler, Charles W. Mersh, David A. Patton, James L. Price, Leo M. Stachel
associate professors: Carl A. Coase, Marion D. Kline, Franz C. Pfeffer, Henning Knoke, John R. Street, Stephen D. MacBook
assistant professors: Robert Finney, Linda A. Jacobsen, Barry Marder, Elizabeth Murdock, Robert Noah Parker
Ph.D. in Sociology
Degrees: A.B., A.B.S., B.M.A., Ph.D.

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 a baccalaureate study in sociology may provide a desirable background for employment in several fields, such as social services, criminal justice, personnel, applied social research, community organizations, and social science teaching in secondary schools. The program also provides a good background for graduate or professional study in social work, urban planning, law, criminal justice, social policy, and similar areas. Finally, the degree prepares the students for work toward advanced degrees in sociology which qualify them for college or university teaching and academic, private, or governmental research positions.

Undergraduate students majoring in sociology should plan their programs in joint consultation with a sociology advisor to be named 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.
34:13-11 Theory, Research, and Statistics 6 s.h.
Electives 15 s.h.

The student should complete the two-semester sequence in research and statistics course work early, to maximize his or her capacity to benefit from the other sociology courses.

In addition to the sociology requirements listed above, the degree in sociology requires the following:
25:112 Introduction to Symbolic Logic 3 s.h.
28:104 Introduction to Philosophy of Science 3 s.h.
25:25 Elementary Statistics and Inference 3 s.h.
One of these three combinations:
25M:10 Fundamentals of College Mathematics I 4 s.h.
25M:11 Fundamentals of College Mathematics II 4 s.h.
25M:10 Fundamentals of College Mathematics III 4 s.h.
26M:20 Elementary Functions 3 s.h.
22C:6 Introduction to Programming with PASCAL 4 s.h.
22C:17 Programming Techniques and Data Structures 4 s.h.

Students with exceptionally strong high school backgrounds in mathematics may substitute 25M:26 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 three departments: anthropology, economics, geography, political science, or psychology. A list of complete requirements for a sociology major is available in the department office.

Departmental requirements are the same for transfer students as for other students. While some courses taken at other colleges are applicable toward the major, the department requires that transfer students majoring in sociology take at least 12 semester hours in sociology at The University of Iowa.

Minors

In addition to its major programs, the department provides supportive course work and several clusters of courses of value to undergraduate students who want to combine a minor in sociology with a major in another field, particularly another social science, business administration, elementary education, or nursing. A brochure describing minors in sociology is available in the department office.

Sociology Teaching Major

To major in sociology and qualify for a teaching certificate, students must complete the following:
All departmental requirements for either a B.A. or a B.S. degree.
Two related 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 (26 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.

Honor

The Honor Program provides a stimulating and integrated educational experience for undergraduate majors who perform at a high level. To qualify for the Honor Program, students must have a grade-point average of 3.35 overall and in sociology courses. The Honor curriculum consists of limited-enrollment classes in which students are able to more thoroughly explore issues of mutual interest with faculty and other honors students. The special requirements for an honors degree in sociology are completion of the honors senior seminar (34:105), one upper level honors course (see 34:195), and an honors thesis. The honors thesis provides students with an opportunity to do sociological research in consultation with a faculty member of their choice. As an option, honors students may take the honors section of 34:1 and, thereby, waive the general requirement of 34:2 Introduction to Sociology: Principles, introduction to Sociology: Problems for a degree in sociology.

Graduate Programs

The graduate programs in sociology are directed toward professional careers. Depending upon which program the student chooses, the master's programs prepare the student for doctoral studies or for professional positions applying sociology. The doctoral program has a research component which prepares sociologists for positions in colleges and universities or for work 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 of 38 semester hours without a 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 Masters Theory, 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 specific functions, but in the curricular plan students, 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 their adviser, considerate choice in selecting those courses that will best enable them to achieve their career goals.

A limited number of students enter the program each year. For a low-faculty-student ratio is maintained. Minor/applied areas are available with local criminal justice agencies. Successful completion of this program requires a minimum of 36 graduate credits, a 3.0 grade-point average on all work taken, and a master's paper (not a thesis).

Joint Program in Sociology and Law

A student may obtain a Master of Arts in sociology and a Juris Doctor by fulfilling the basic requirements of both programs. The College of Law will credit up to 12 hours of graduate work taken after fulfilling the first two years of the College of Law's requirements with 90 hours required for the J.D., even though those hours are also credited toward an M.A. in sociology.

At the discretion of the student, the M.A. course work in sociology and the J.D. course work may be completed in any sequence. The M.A. course work may credit up to 12 hours of law course work toward the M.A. degree. This cross-credit allowing a student to complete the J.D. and the M.A. by taking less course work than the two programs requires the two degrees were taken concurrently. 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 two topics 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 his personal reference forms in obtaining three letters of recommendation.

Applications are 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 specific minimum requirements for undergraduate course requirements for admission, but a background in the social sciences with some mathematical training is useful. A foreign language is not required for admission and there are no foreign language requirements for either the M.A. or Ph.D. degrees in sociology. Inquiries concerning the admission should be directed to the chair, Admissions Committee, Department of Sociology, 1401 University Hall, M.A. in criminal justice and corrections requires a B.S. or a 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 new students 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 fellowships. Resident tuition is charged to out-of-state students who receive assistantships. Students who receive assistantships with a binary contract must be available for work each week for faculty members on teaching or research assignments. The department may also offer tuition scholarships to some students.

Facilities

Departmental facilities include a research laboratory, research project rooms, and the Iowa Urban Community Research Center (UICRC). The Research Laboratory consists of 18 rooms specially designed for social and psychological research. The facilities include a small-group laboratory complex with audio and video equipment; two IBM PC computers controlling eight subject terminals; and an apparel shop. The UICRC maintains a research library and data bank. 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: 24:1, 24:2, 14:13, 14:30, and 34:120. All other undergraduate courses are open to freshmen with stated prerequisites.

34:00 Cooperative Education Internship

Sociology students in the Cooperative Education Program register during work assignment periods in order to have a permanent record of their internships. Open only to majors. May be repeated. Prerequisites: sociology 1010, 2001A, program and College approval.

34:10 Introduction to Sociology: Principles

Examination of how individuals are organized into social groups, ranging from intimate groups to world communities. Race, gender, family, religion, ethnicity, social structure, social change, social theory, social inequality, and social specialization.

34:11 Sociology in Social Problems: Principles

Examination of the role that social structure plays in social problems, including socialization, deviant behavior, and social movement. Topics selected from deviance, social inequality, urbanization, poverty, prejudice, and discrimination.

34:19 Theory, Research, and Statistics

Introduction to basic statistical techniques employed in sociological research. Emphasis on statistical procedures and the logic and meaning of research design. Open to sociology majors and nonmajors.

34:21 Theory, Research, and Statistics

Introduction to social research. Emphasis on statistical procedures and the logic and meaning of research design. Open to sociology majors and nonmajors.

34:22 Theory, Research, and Statistics

Introduction to social research. Emphasis on statistical procedures and the logic and meaning of research design. Open to sociology majors and nonmajors.

34:26 Field Work in Sociology

Introduction to the study of society on women, urban; aspects of international, structural, and institutional perspectives. Prerequisites: introductory sociology or equivalent, or consent of instructor.
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 literature 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 translation.

**Undergraduate Programs in Spanish**

First and second semester Spanish courses intercalate the four performance objectives: listening, speaking, reading, writing—through a four-skil course and a proficiency exam. Students thereby acquire a broadly based evaluation of their strengths and weaknesses and can calculate and plot their progress in preparation for future work. Third and fourth semester courses are conducted on a dual-track basis, allowing students to enroll in sections having either a speaking orientation or an emphasis on reading, writing, and content analysis.

**Major in Spanish**

The undergraduate major in Spanish consists of 30 semester hours of required course work, according to the following program:

**Language (12 s.h.)**

3:117 Third-Year Spanish
Language I 4 s.h.
3:118 Third-Year Spanish
Language II 4 s.h.
3:137 Fourth-Year Spanish
Language I 4 s.h.

**Literature (9 s.h.)**

Three of the following: (both the Peninsular and the Spanish America areas must be represented):
3:101 Renaissance and Golden
Age Literature 3 s.h.
3:102 Modern Spanish
Literature 3 s.h.
3:103 Contemporary Spanish
American Fiction 3 s.h.
3:104 Spanish American Poetry 3 s.h.
3:105 Spanish American Drama 3 s.h.
3:106 Short Story of Spanish
America 3 s.h.
3:107 Spanish American
Literature of Fantasy 3 s.h.
3:110 Survey of Pre- Twentieth
Century Spanish American Literature 3 s.h.
3:111 Literature of the
Discovery and Conquest of
Spanish America 3 s.h.
3:112 Contemporary Latin
American Novel and Short
Story 3 s.h.
3:116 Representative Spanish
American Novels 3 s.h.
3:444 Survey of Twentieth
Century Puerto Rican
Literature 3 s.h.
3:150 Twentieth-Century
Spanish Women Writers 3 s.h.
3:151 Nineteenth-Century
Spanish Writers 3 s.h.
3:180 Representative Spanish
Writers Since the Civil War 3 s.h.
3:181 Spanish novelists Since
the Civil War 3 s.h.
3:182 Masterpieces of Modern
Spanish Literature 3 s.h.
3:180 Representative Works of
Golden Age Fiction 3 s.h.
3:151 Representative Works of
Golden Age Poetry and Drama 3 s.h.
3:192 Representative Works of
the Porcelain Genre 3 s.h.

**Civilization (3 s.h.)**

One of the following:
3:114 Spanish Civilization 3 s.h.
3:115 Spanish American
Civilization 3 s.h.

**Electives (4 s.h.)**

The electives may include one course in Portuguese (with exception of 3:11 and for those who have more than four semester hours credit, or any course numbered 3:100 or above). Each course has more than four semester hours may be elected in civilization courses—two semester hours of 3:108 Spanish Conversation: Junior Level and 3:155 Spanish Conversation: Senior Level—no more than three semester hours may be elected in Special Work courses and the following courses may not be elected to fit the four-hour requirement: 3:126 Spanish Language Practicum 3:129 Basic Program for Foreign Language Computer-Assisted Instruction 3:131 Language Laboratory Equipment Practicum 3:136 Spanish Language Teaching Practicum 3:154 Advanced Elementary Spanish 3:155 Accelerated Intermediate Spanish.

One course given in English may be taken to fill the four semester hours of this requirement, provided add-ons/cal readings are done in Spanish.

**High School Certification**

Spanish majors who wish high school certification must complete the requirements listed above for the major in Spanish. Several courses in the College of Education are also required, as is one semester of practice teaching, taken in the senior year.
Minor
A minor in Spanish requires 16 semester hours of course work in Spanish taken at The University of Iowa or at a University of Iowa foreign study program including 12 semester hours at the 100-level. The seven courses listed above are not applicable toward the elective requirements for the Spanish major. Placement in the minor 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 Quixote 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 I or its equivalent, and to elect additional courses in Spanish phonology and Hispanic literature and civilization.

Transfer Credit
A maximum of 12 semester hours of credits in approved courses 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 credit earned in these and other foreign study programs may be applied toward the requirements for the major or minor in Spanish.

Honors
Admission to the honors program in Spanish requires a minimum 3.5 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, two electives in the 300-level Honors Literature sequence, one 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:

Prerequisites
- 35:1 Elementary Portuguese I 4 s.h.
- 35:2 Elementary Portuguese II 4 s.h.
- 35:100 Accelerated Portuguese 0-5 s.h.
- 35:11 Portuguese I 3 s.h.
- 35:12 Intermediate Portuguese I 3 s.h.
- 35:14 Intermediate Portuguese II 3 s.h.

Required Courses (15 s.h.)
- 35:12 Topics in Portuguese Language (upper-division language) 3 s.h.
- 35:14 Culture and Civilization of the Portuguese-Speaking World 3 s.h.
- 35:105 Brazilian Literature I 3 s.h.
- 35:106 Brazilian Literature II 3 s.h.
- 35:107 Introduction to Portuguese Literature 3 s.h.

Two of the Following Courses (6 s.h.)
- 35:127 Portuguese for the Professions (upper-division language) 3 s.h.
- 35:109 Nineteenth-Century Brazilian Fiction 3 s.h.
- 35:110 Twentieth-Century Brazilian Fiction 3 s.h.
- 35:112 Women in Luso-Brazilian 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 (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 and Sciences and foreign civilization and culture general education requirements with 33:5 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. Deficiencies may be completed with the appropriate coursework.

Required Course Work
Spanish phonology (either 35:157 Spanish Phonology or phonology component of 35:208) 3 s.h.
35:208-209 Graduate Spanish Linguistics (4) 8 s.h.
35:226 Cervantes's Don Quixote 3 s.h.
35:233 Seminar in Teaching 3 s.h.
35:951 Medieval Spanish Literature I 3 s.h.
35:253 Historical Ibero Romance Language 3 s.h.
35:255 Corso in Golden Age literature 3 s.h.
35:305 Medieval Spanish Literature II 3 s.h.
35:306 Spanish-American literature 3 s.h.
35:325 Electives bringing student's total to required minimum of 36 semester hours in the M.A. program 6 s.h.
The student is also responsible for the works listed in the departmental reading list.

**Maximum Study Loads**

Maximum course registration is 15 graduate credit hours per quarter in fall or 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 not for 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**

Exclusive 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 two of these three areas: (a) Spanish and Hispanic-American literature must be represented; (b) Medieval or Renaissance language or Golden Age literature; and, (c) Modern Spanish literature, Latin American literature, or Luso-Brazilian literature.

**Doctor of Philosophy in Spanish**

"Two doctoral programs are available. One is dedicated to Hispanic literatures. Beyond the comprehensive examination the candidate must become well-acquainted with another Romance language and 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 by all students, will be taken when 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 quarters 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 also be met by independent reading and examination. The candidate is encouraged to pursue further studies in these areas and other ones 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**

35:251 Medieval Spanish Literature 1 s.h.

One additional course in Medieval Spanish literature 2 s.h.

35:253 Historical Spanish Language I 2 s.h.

One additional course in Spanish or Romance linguistics

**Golden Age Literature**

35:295 Drama of the Golden Age 3 s.h.

35:226 Cervantes' Don Quixote 3 s.h.

One of the following:

35:227 Fiction of the Golden Age 3 s.h.

35:228 Masterpieces of Renaissance and Baroque Literature 3 s.h.

35:258 Lyric Poetry of the Golden Age 3 s.h.

35:256 Medieval, Renaissance and Golden Age Spanish Poetry 3 s.h.

35:262 The Picarosque Novel 3 s.h.

**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):

35:229 Nineteenth-Century Spanish Novel 3 s.h.

35:221 Nineteenth-Century Spanish Poetry and Drama 3 s.h.

35:233 Twentieth-Century Spanish Poetry 3 s.h.

35:254 Twentieth-Century Spanish Novel I 3 s.h.

35:230 Lorca, Alexandre and the Generation of '27 3 s.h.

35:234 Twentieth-Century Spanish Novel II 3 s.h.

35:231 Modern and Contemporary Spanish Poetry 3 s.h.

35:238 Twentieth-Century Spanish Essay 3 s.h.

35:240 Generation of '88 3 s.h.

35:241 Twentieth-Century Spanish Drama 3 s.h.

35:247 Latin American Literature 3 s.h.

35:271-273 Spanish American Novel of the Twentieth Century 1-3 s.h.

**Area A**

35:246 Novel of the Mexican Revolution 3 s.h.

35:248 Novelle 3 s.h.

**Area B**

35:252 Spanish American Essays and Thinkers 3 s.h.

35:242 Spanish American Literature of the Nineteenth Century 3 s.h.

35:266 Images of Woman in Latin American Literature 3 s.h.

**Area C**

35:253 Post-Modernist Spanish American Poetry 3 s.h.

35:254 Latin American Poetry of the Twentieth Century 3 s.h.

35:257 Modernism 3 s.h.

35:300 Recent Currents in Spanish American Poetry 3 s.h.

35:276 Spanish American Love Poetry 3 s.h.

35:251 Spanish American Drama 3 s.h.

35:245 Spanish American Short Story 3 s.h.

35:246 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

**Literary Theory**

35:284 Types of Modern Consciousness 3 s.h.

**Professional Training**

35:211 Research Methods and Bibliography 2 s.h.
35:233 Seminar in Teaching 1 s.h.

Seminars
Two 300-level seminars in literature taken at The University of Iowa 4 s.h.

Specialization
Students in program desiring to specialize in medieval literature, Golden Age literature, Modern Spanish literature, Latin American literature, or another approved area substitute courses in that area for one non-required course in each of the other areas. However, it is strongly recommended that, whenever possible, these courses be taken in addition to those in the basic program, as initial employment opportunities are enhanced by strong preparation in several areas.

Program II: Emphasis on Linguistics

History of the Spanish Language and Medieval Literature
35:251 Medieval Spanish Literature 3 s.h.
One additional course in Medieval Spanish literature 2 s.h.
35:253 Historical Ibero-Romance Language 3 s.h.
One additional course in Spanish or comparative linguistics excluding courses listed below 3 s.h.

Comparative Linguistics
35:259 Comparative Romance Linguistics 3 s.h.

Golden Age Literature
35:225 Drama of the Golden Age 3 s.h.
35:226 Cervantes’ Don Quixote 3 s.h.

Modern Peninsular Literature
One of the following:
35:220 Nineteenth-Century Spanish Novel 3 s.h.
35:221 Nineteenth-Century Spanish Drama and Drama 3 s.h.
One of the following
35:223 Twentieth-Century Spanish Poetry 3 s.h.
35:224 Twentieth-Century Spanish Novel I 3 s.h.
35:226 Cervantes and the Generation of ’37 3 s.h.
35:234 Twentieth-Century Spanish Novel II 3 s.h.
35:238 Twentieth-Century Spanish Drama 3 s.h.
35:240 Generation of 1918 3 s.h.
35:241 Twentieth-Century Spanish Drama 3 s.h.

Latin American Literature
Three courses from at least two of the Latin American literature areas listed in Program II 9 s.h.

Contemporary Linguistics
35:157 Spanish Phonology I 3 s.h.
35:208 Graduate-level phonetics/phonology 2 s.h.
35:208-209 Graduate Spanish in Linguistic areas 8 s.h.
Additional graduate linguistics excluding seminars below 2 s.h.

Literary Theory
35:284 Types of Modern Criticism 3 s.h.

Professional Training
35:323 Seminar in Teaching 1 s.h.

Seminars
Two 300-level seminars in Spanish linguistics taken at The University of Iowa 4 s.h.

Ph.D. Comprehensive Examinations
The doctoral comprehensive examinations for Program I (Literary Track) assume a general knowledge of Spanish peninsular and Spanish American literature 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 linguistics courses.
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 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 test (60 minutes).

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 studies and performance meet departmental standards, he or she will continue to receive support over a five-year period of time, but usually not over five years. A broad assistance of 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 short-wave radio, tape recorders, record players, soundproof recording rooms, and two dual channel tape recorders providing a simultaneous master duplicate and student record, an electronic classroom, a soundproof work room, 15mm and 8mm projection equipment and facilities, and a library of tape and disc recordings. The department offers to its majors a specific course in 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 an intermediate or fourth-semester class. Prospective entering students should consult a departmental adviser. Students wishing more advanced placement may take the placement test. Transfer students who have taken college Spanish at other institutions will be placed according to courses previously completed.
A student may not, except with the approval of the chair, take for credit an elementary course after having completed a higher-level course for which the elementary course or its equivalent is a prerequisite.

30:240 Latin American History 8 s.h.
30:241 Elementary Spanish I 6 s.h.
30:242 Elementary Spanish II 6 s.h.
30:144 Remedial Spanish 4 s.h.
35:220 Graduate Peninsular 6 s.h.
35:221 Graduate Spanish 6 s.h.
35:222 Graduate Ibero-Romance 6 s.h.
35:223 Graduate Romance 6 s.h.
35:224 Graduate Spanish 6 s.h.
35:225 Graduate Drama 6 s.h.
35:226 Graduate Cervantes 6 s.h.

35:333 Advanced Spanish 6 s.h.
35:334 Advanced Spanish 6 s.h.
Portuguese Courses

301 Elementary Portuguese I 4 kh

302 Elementary Portuguese II 4 kh

Preq: Portuguese 301 or equivalent.

301 Intermediate Portuguese I 3 kh

Preq: Portuguese 302 or equivalent.

302 Intermediate Portuguese II 3 kh

Preq: Portuguese 301 or equivalent.

113 Advanced Intermediate Portuguese 4 kh

Preq: permission of instructor.

114 Intensive Intermediate Portuguese 4 kh

Preq: permission of instructor.

115 Advanced Portuguese I 4 kh

Preq: permission of instructor.

116 Advanced Portuguese II 4 kh

Preq: permission of instructor.

117 Advanced Portuguese III 4 kh

Preq: permission of instructor.

118 Advanced Portuguese IV 4 kh

Preq: permission of instructor.

119 Advanced Portuguese V 4 kh

Preq: permission of instructor.

122 Modern Brazilian Fiction I 3 kh

Preq: permission of instructor.

123 Modern Brazilian Fiction II 3 kh

Preq: permission of instructor.

134 Brazilian Literature I 3 kh

Preq: permission of instructor.

135 Brazilian Literature II 3 kh

Preq: permission of instructor.

136 Brazilian Literature III 3 kh

Preq: permission of instructor.

137 Introduction to Portuguese Literature 3 kh

Preq: permission of instructor.

144 Black Literature of Portuguese Expression 3 kh

Preq: permission of instructor.

145 Brazilian and Portuguese Folklore: Oral Traditions and Oral Poetry 3 kh

Preq: permission of instructor.

147 Twentieth-Century Brazilian Fiction 3 kh

Preq: permission of instructor.

230 Elementary Brazilian Drama 3 kh

Preq: permission of instructor.

231 Brazilian Dialects and Popular Prose 3 kh

Preq: permission of instructor.

232 Brazilian American Studies 3 kh

Preq: permission of instructor.

233 Special Work 1-3 kh

Preq: permission of instructor.

234 20th Century Brazilian Theatre 2 kh

Preq: permission of instructor.

Speech Pathology and Audiology/LIBERAL ARTS

Speech Pathology and Audiology

Department chair: John M. Davis

FACULTY: Jon R. Allen; John M. Davis; James C. Green; T. L. Kerr; A. J. Levenson; Arama M. Seid; Carol S. Stephen; Frank C. Titze; John Turner; Brian W. Van der Heide; Robert W. White.

The Department of Speech Pathology and Audiology offers undergraduate training in speech-language pathology and audiology. The program is approved by the American Speech-Language-Hearing Association. Students seeking to become speech-language therapists must also complete the requirements for the Bachelor of Arts degree in Communication Disorders. Students seeking to become audiologists must also complete the requirements for the Bachelor of Science degree in Communication Sciences.

The Department of Speech Pathology and Audiology offers a comprehensive program in speech-language pathology and audiology, including courses in anatomy and physiology, audiology, communication disorders, speech-language pathology, and the use of assistive technology. The program is designed to prepare students for entry-level positions in speech-language pathology and audiology. Students who complete the program will be well-prepared for careers in speech-language pathology and audiology, including employment in schools, hospitals, clinics, and other settings.

The Bachelor of Science degree in Communication Sciences and Disorders is approved by the American Speech-Language-Hearing Association. The program is designed to provide students with a strong foundation in the sciences underlying speech-language pathology and audiology, as well as practical experience in the field. Students who complete the program will be well-prepared for careers in speech-language pathology and audiology.

Students who complete the program are eligible to take the American Speech-Language-Hearing Association's national certification exam, which is required for entry-level positions in the field.

The program is designed to provide students with a strong foundation in the sciences underlying speech-language pathology and audiology, as well as practical experience in the field. Students who complete the program will be well-prepared for careers in speech-language pathology and audiology.

The Bachelor of Science degree in Communication Sciences and Disorders is approved by the American Speech-Language-Hearing Association. The program is designed to provide students with a strong foundation in the sciences underlying speech-language pathology and audiology, as well as practical experience in the field. Students who complete the program will be well-prepared for careers in speech-language pathology and audiology.

The Bachelor of Science degree in Communication Sciences and Disorders is approved by the American Speech-Language-Hearing Association. The program is designed to provide students with a strong foundation in the sciences underlying speech-language pathology and audiology, as well as practical experience in the field. Students who complete the program will be well-prepared for careers in speech-language pathology and audiology.
### 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:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>31:186 Abnormal Psychology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>31:185 Behavior Disorders in Children</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>31:170 Behavior Modification or a course of comparable content</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

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 sound, 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 practicums. This requirement is satisfied by completion of 31:190 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 classification in the major field of Liberal Arts and in this department by recommendation of the departmental honors advisor. For graduation with honors, the student must be classified as an honors student in the College of Liberal Arts, and complete both 3.07 Honors Seminar and 3.58 honors Thesis.

### Graduate Programs

**Master of Arts**

The M.A. program in speech pathology and audiology may be a professional program to prepare the student for immediate placement in clinical service positions, or it may be a general program of graduate study leading to additional study for the Ph.D. degree. The student's program of study for an M.A. with professional emphasis is designed to ensure that upon graduation the student will meet the requirements for immediate professional employment.

The M.A. candidate usually has a background of undergraduate courses in speech and hearing science, psychology of language, and human behavior essentially equivalent to an undergraduate major in this field at The University of Iowa. Before his or her first registration in the program, the entering M.A. degree candidate must take proficiency examinations covering the speech and hearing course work considered prerequisite to graduate study. The results of these examinations provide the student and faculty advisor with a basis for developing a plan of study.

The M.A. program with professional emphasis is designed to prepare clinicians in speech-language pathology or audiology who will be able to function independently in a variety of clinical settings. The M.A. program with professional emphasis will meet the requirements for clinical certification by the American Speech-Language-Hearing Association. The department offers the M.A. with various emphases. Each requires a minimum total of 38 semester hours of graduate credit for a master's degree in this department.

All M.A. students must complete at least four semester hours of research registration. This may be accomplished by any combination of involvement in seminars or in reading courses of up to 2 s.h. each and/or research hours. Completion of the research hours registration may consist of 11 work toward a thesis, or 2 preparation of a paper involving any of the following alone or in combination: literature review, prospective development, and presentation of data.

A written product is required at the end of each semester's enrollment. An exception to this requirement can be made in the case of research hours leading to a thesis.

Candiates 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 are required to take final written comprehensive examinations.

A typical M.A. program with professional emphasis is two years in length but may be longer or shorter depending on the background of the individual students and their personal interests.

**A. M. with Research Emphasis (General Program)**

The general M.A. program for the student intending to continue to the Ph.D. degree usually includes a substantial portion of the courses in the professional M.A. program. Additionally, the 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 fulfill requirements under item 1 below, and, depending on specific interests, the courses listed under 2, 3, 4, or 5 below.

1. Offered only: 31:116 Neural Processes of Speech and Language 3 s.h.
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:

- 72:170 Human Relations for the Classroom Teacher
- 76:104 Remedial Methods in Speech and Hearing
- 76:106 Laboratory Practice in Elementary School

Education electives: 8 s.h.

Doctor of Philosophy
The Ph.D. program provides flexible, comprehensive training for the scholar-researcher interested in communication processes and disorders. Students with diverse backgrounds in the natural and behavioral sciences are encouraged to apply and develop their skills in an atmosphere of interdisciplinary research.

The program offers the broad interests and diverse backgrounds of the faculty. Knowledge in speech, language, hearing, engineering, physiology, physics, psychology, linguistics, and communication sciences are committed to an interdisciplinary approach to questions at every level of the speech and language production/interpretation system. The objective of the doctoral program is to provide the integrated knowledge necessary for a productive career in the field of speech-language pathology and audiology, communication science, and related areas.

The department encourages 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, art, sociology, physiology, neurology, anatomy, and others), and special reading and research experiences.

The courses offered by this department primarily for the Ph.D. student include the following. (Students interested in the specific areas of research and selected publication citations of the faculty are encouraged to write this department directly.)

1. Fundamentals of Laboratory instrumentation: 3 s.h.
2. Principles of Voice Production: 3 s.h.
3. Language Acquisition: 3 s.h.
4. Psycholinguistics: 3 s.h.
5. Advanced Laboratory instrumentation: 3 s.h.
6. System and Signal Theory for Speech and Hearing Sciences: 3 s.h.
7. Speech Perception: 3 s.h.
8. Acoustics and Biomechanics of Speech: 3 s.h.
9. Physiology of Speech: Production: 3 s.h.
10. Psychoacoustics: 3 s.h.
11. Psychoacoustics Laboratory: 4 s.h.
12. Physiological of Hearing: 4 s.h.
13. Psycholinguistics: 3 s.h.
15. Seminar: Slurring: 2 s.h.
16. Seminar: Speech and Language Skills of the Mentally Handicapped: 2 s.h.
17. Seminar: Voice: 2 s.h.
18. Seminar: Cleft Palate: 2 s.h.
19. Seminar: Rehabilitation Audiology: 2 s.h.
20. Seminar: Neurophysiology of Speech and Language: 2 s.h.
21. Seminar on Communication and Auding: 2 s.h.
22. Seminar on Speech Science: 2 s.h.
23. Seminar: Psycholinguistics: 2 s.h.
25. Seminar: Experimental Audiology: 2 s.h.
26. Seminar: Clinical Audiology: 2 s.h.
27. Seminar: Auditory Research: 2 s.h.
28. Research: 2 s.h.

Students in the Ph.D. program are normally expected to register for research credit during each semester of residence. The minimum course load is 2.5 credit hours per semester.

Knowledge in each of the areas of hearing, speech, language, mathematics, statistics, computer science, and instrumentation is required of all students. Decisions regarding the extent of this knowledge and the means by which it is obtained (for example, course work or independent study) are made jointly by the student and the student's 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. Students may elect to write the doctoral thesis 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 prospective graduate students in speech pathology and audiology must complete the departmental information form, which can be obtained from the department chair.

Admission to M.A. Program
The department bases M.A. admissions on the applicant's credentials relative to those presented by other applicants for the same term. While an undergraduate grade-point average above 3.0 does not amount to a minimum, the department admits few applicants with undergraduate grade-point averages below 3.3.

Completed applications must be received no later than February 1 for placement in the next summer session or fall semester. Applicants will be considered only under special circumstances and only if they have received no later than the preceding November 1.

Applicants to Ph.D. Program
Completed applications should be received at least two months prior to the beginning of the term for which application is made. Application materials must be received by approximately 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. Applicants will usually be notified of their admission within six weeks after their applications are complete.

Applications for Graduate Appointments
The department offers appointment to all financial aid provided 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 Record Test are routinely required for consideration for financial assistance.

Appointment applications must be received by February 1 to insure consideration for an appointment beginning the following fall semester. Initial appointment offers are generally made between April 1 and June 1; however, the department continues to make offers after this time.

Clinical Facilities
The clinical training program derives great benefit from the fact that Iowa City is the health center of the state and that its health services facilities are easily available for the clinical training of students in speech-language pathology and audiology.

The University of Iowa Affiliated Speech and Hearing Services include the University of Iowa Speech and Hearing Clinic; the division of speech and hearing in the Department of Otology-Neurology—Head and Neck Surgery, Speech Pathology Service in the Department of Neurology; Speech and Hearing Services, University Hospital School; Pediatrics, Regional Child Health Specialty Clinic, Speech Pathology Service, Child Psychiatry, Audiology and Speech Pathology, Veterans Administration Medical Center. Directions of these programs are the Council on Speech Pathology and Audiology at The University of Iowa.

The University of Iowa Speech and Hearing Clinics serve the University and the general public. Included in its services are outpatient evaluation and rehabilitation programs in speech, language, hearing, and language problems, and a 5½-week summer residential program for children. These clinical programs give students supervised clinical experience with a wide variety of speech, hearing and language disorders.

In addition to the clinical training in the University Speech and Hearing Clinics, training may be acquired in supervised clinical practice with elementary school children as arranged with the various Iowa Area Education Agencies; and in supervised clinical practice in speech and hearing services provided by the Department of Otology-Neurology—Head and Neck Surgery, Department of Pediatrics, Department of Neurology, Regional Child Health Specialty Clinics, University Hospital and School; Veterans Administration Medical Center, and St. Luke's Methodist Hospital in Cedar Rapids.

Public and private departments and programs in addition to those mentioned above often contribute to the cooperative professional training, research, and service programs.

Research Facilities
The Wernicke Johnson Speech and Hearing Center offers an excellent array of audiometric and audiologic services, diagnostic and remediation skills, equipment for diagnostic and therapy, a closed-circuit television system, and laboratories and equipment for acoustic, physiologic, and perceptual studies of speech, and for audiological, psychophysical, and neurophysiologic studies of hearing. Mechanical and electronic shops and trained technical personnel are available for assistance in research instrumentation.

Cooperation of various departments of the University Hospitals and the College of Dentistry makes additional laboratory facilities available for research on problems in speech and hearing. The participation and cooperation of specialists from various fields, including psychology, child development, education, engineering, statistics, and medicine, further broaden the scope of research activities in speech and hearing.

Courses
300 Speech Pathology and Audiology Cooperative Education Assignment
301 Speech Pathology and Audiology Cooperative Education Assignment
310 Introduction to Hearing and Hearing Processes
315 Horns Seminar
316 Hearing Tests
323 Counseling Techniques and Techniques
330 Anatomy of Speech and Hearing Mechanisms
331 Fundamentals of Speech Science
332 Normal Speech: Physiology and Psychology of the Normal Speech and Hearing Mechanisms
339 Noise Abnormalities of Language
339 Noise Abnormalities of Language
Statistics and Actuarial Science

See "Division of Mathematical Sciences."

Urban and Regional Planning

Program chair: David J. Fowles
Professor: John W. Fuller, James L. Harris, Andrew M. Appleyard
Instructor: Max S. Elder, David J. Fowles, James W. Shin
Adjunct professor: Andrew A. Jackson
Degree offered: M.A., 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 employed in a wide variety of issues 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 is unusual in that it covers all branches of the field within the same framework (represented by the core curriculum). It also includes study in public administration, public planning, community development, environmental planning, and land use planning. The program is designed to be effective for planners, regardless of their chosen areas of specialization.

An independent academic unit administratively located within the Graduate College, the program has benefited from the contributions both of faculty and public interest organizations 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 provide a unique blend of skills required within the field, on the basis of previous training, including planning, architecture, public policy, economics, urban studies, 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 settings.

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 positions in all geographic and policy areas of the United States and in several foreign countries.

Curriculum Structure

The planning curriculum comprises a 48-semester-hour, four-semester-plus-internship program encompassing two academic areas. 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 planning skills (e.g., report writing, presentations and briefings, team management) that allow them to function effectively in various organizational 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 perspective among the various social, economic, political, administrative, and legal systems that provide the context for policy analysis and constrain public choices; a capability for recognizing social goals and normative criteria for organizing society's resources, and analytic skills, both quantitative (e.g., statistics, forecasting, systems analysis), and nonquantitative (e.g., scenario writing, impact assessment). As a result, the core accounts for 27 semester hours.

Core Courses

First Semester
102/205 Economics for Policy Analysis
102/206 History and Theories of Planning
102/209 Urban Law and Legislation
102/210 Introduction to Analytic Methods

3 s.h.
Second Semester
102:204 Collective Decision Making 3 s.h.
102:218 Economics for Policy Analysis 4 s.h.
102:220 Intermediate Analytic Methods 3 s.h.
102:300 Information Presentation 2 s.h.

Third Semester
102:301 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 course, increasing reliance is placed on real or realistic planning problems. The intent here is to develop critical judgment and insight in the application of theory through case studies and extended field problems. Students may request a waiver of any core course on the basis of previous training and experience.

The Sectoral Major

The second year of the program is 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.

Sectoral 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, specialize knowledge to enhance entry-level employment prospects, and to enter other specialties within the planning discipline.

Other Requirements

A core examination is required for all students. The exam measures skills and concepts with understandings placed on the ability to synthesize material from the various core courses. A sectoral major examination is also required. A variety of options for meeting this requirement exist, including a major paper, several shorter papers, or a written examination. The paper(s) may have been written to meet specific course requirements. A thesis is not required, although a student may petition to write one for up to six semester hours of sectoral major credit, in which case successful completion of the thesis satisfies the sectoral major examination requirement. Each student is encouraged to complete an internship in a planning or related agency or organization and to submit a brief paper summarizing and evaluating the experience. Program faculty take an active role in advising students to secure these internships. Alternatively, the student may elect to complete an additional two semester hours of credit, bringing the total to 50 hours.

Joint Programs

Law

The Urban and Regional Planning Program and the College of Law cooperate in administering a four-year program which satisfies the degree requirements leading to an 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. Joint admissions to both academic units are required.

Engineering

A special program involving the College of Engineering and the Urban and Regional Planning Program enables a student to acquire a B.S. in Engineering and an M.A. or M.S. in planning in a total of 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 obtained by undergraduate students in engineering.

Preventive Medicine and Environmental Health

A joint master's option exists between the Urban and Regional Planning Program and the Department of Preventive Medicine and Environmental Health in the College of Medicine. This option results in an M.A. or M.S. in planning and an M.S. in Preventive Medicine and Environmental Health. Separate admissions to both academic units are required.

Hospital and Health Administration

The Urban and Regional Planning Program and the School of Health Administration in the College of Medicine jointly administer a program for students interested in health policy planning and administration. This three-year program leads to an M.A. in hospital and health administration, reduced by one year from the separate requirements of these two programs. Separate admissions are required for 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 issues involved in social service delivery. Twelve semester hours of credit in planning are accepted toward an M.S.W., and 16 semester hours of credit in social work are accepted toward an M.A. in planning. 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 program is offered in conjunction with the College of Civil Engineering and the College of Architecture, subject to the admission of students with sectoral majors in transportation engineer.

Financial Aid

Opportunities for students in the Urban and Regional Planning Program to receive financial support exist through a variety of sources, including tuition scholarships, program teaching assistantships, contract grants, and 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. Interested students are required to apply for the support early and be ready to provide evidence of need. Some of these programs have been successful in providing support to a majority of enrolled students.
Transportation Studies/LIBERAL ARTS

102.101 Location Theory 2 s.h.
Economics of location: location of the firm, transportation cost and location; urban spatial structure; and market theory. Same as EC 295. 44.295.

102.102 Regional Development: Theory and Policy 3 s.h.
Theories of regional growth and development; factors contributing to regional problems and solutions; regional economics and demographic trends and their policy implications; strategic, and evaluation of regional policy. Same as EC 296. 44.296.

102.106 Regional Development: Mathematical Models 2 s.h.
Mathematical models of regional growth and development; capital and factor proximate systems and systems of states: spatial diffusion. Same as EC 296 44.296.

102.360 Information Presentation 2 s.h.
Fundamentals of presenting information effectively; emphasis is placed on project display techniques and the development of a formal presentation, planning, and delivery. 44.296.

301.101 First Problems in Planning 3 s.h.
Principles from professional practice, park and recreation planning, public works management, a special improvement district, urban renewal, and housing. Projects various emphasis work programmed. (Offered alternate years.) 44.296.

102.323 Project Design and Evaluation 3 s.h.
Techniques for evaluating social policy projects in actual projects in various administrative areas in housing, health services, transportation, and welfare. 44.296.

193.311 Transportation Program Seminar 1 s.h.
Seminar conducted by faculty and guest speakers. Topics include transportation planning, transportation regulatory problems, and political issues in the federal, state, and local governments. May be repeated. 44.296.

102.105 Program Seminar 1 s.h.
Applications of research efforts by faculty, students, and guests. Topics include theoretical, methodological, and applied aspects of planning problems and issues.

Transportation Studies

Transportation is among the most vital needs of modern society. In the U.S., as in other nations, numerous critical transportation problems and issues exist. The transportation system, reaching an advanced stage of its life cycle, public transit operating deficits are burgeoning, the quality of transportation systems is not available to all citizens, and traffic congestion is extensive. Extensive changes in transportation and traffic management are occurring.

Transportation planners and analysts increasingly will need to draw on a number of somewhat disparate skills in order to meet the challenges that they 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 appropriately, 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, which can supply 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 to obtain a certificate in these academic units that will provide 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 courses, 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 thesis or non-thesis basis. A thesis must consist of 72 semester hours of credit, or through a 30-semester-hour non-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 during 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
52263 Urban Transportation Planning 3 s.h.
102-260 Transportation Policy and Planning 3 s.h.

44.134 Methods of Transportation Analysis 3 s.h.
102.311 Transportation Analysis Seminar 3 s.h.

Second Semester
52263 Transportation Systems 3 s.h.
102.361 Systems in Transportation and Land Use 3 s.h.
44.135 Traffic Demand Modeling 3 s.h.
One of the following courses:
52263, 52265, 52265, 52265
Environmental Engineering
M.S. Thesis 3 s.h.
Planning Elective 3 s.h.
Transportation Course 3 s.h.

Third Semester (normally summer)
53.198 Individual Investigations: Civil and Environmental Engineering 3 s.h.
53.199 Internship: Civil and Environmental Engineering 3 s.h.
Technical Elective 3 s.h.

Geography

The Department of Geography offers the M.A. and Ph.D. degrees in regional and urban and regional analysis. The M.A. degree 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 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 require additional courses in research methods may require an additional one or two semesters to complete the program.
A typical master's level program includes the following courses:

**First Semester**
- EE183 Statistical Methods in Econometrics 3 s.h.
- 44-201 Geographical Analysis I 2 s.h.
- 102-260 Transportation Policy and Planning 3 s.h.
- 44-350 Research Seminar Staff 1 s.h.

**Second Semester**
- 66-184 Methods of Quantitative Economics 3 s.h.
- 102-261 Problems in Transportation and Land Use 3 s.h.
- 44-202 Geographical Analysis II 2 s.h.
- 44-350 Research Seminar Staff 1 s.h.

**Third Semester**
- 66-203 Microeconomics 3 s.h.
- 53-262 Urban Transportation Planning 3 s.h.
- 44-134 Methods of Transportation Analysis 3 s.h.
- 44-350 Research Seminar 1 s.h.

**Fourth Semester**
- 44-236 Travel Demand Modeling 3 s.h.
- 56-170 Deterministic Operations Research 3 s.h.
- 44-295 Regional Development: Theory and Policy 3 s.h.

P.H.D. students, in addition to taking the courses recommended for master's students, are strongly encouraged to take advanced courses in areas such as economics, operations research, regional development, and location theory and analysis. P.H.D. students also are required to undertake original research leading to the preparation of a dissertation. All dissertations 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 sectorial 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 sectorial 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 a variety of workable options, evaluate these optional courses of action, and work toward implementation of policy solutions.

Planning students complete a total of 48 semester hours and an internship. Twenty-seven semester hours are accounted for by the core. The sectorial major constitutes a minimum of new semester hours; and electives are taken to complete the remaining hours. If the thesis option is selected, up to six semester hours of sectorial major credit are awarded. Students may elect to complete an additional two semester hours of course work in lieu of an internship, bringing the total to 50 semester hours.

A typical transportation sectorial major program includes the following courses:

**First and Second Semesters**

Core Courses (See "Urban and Regional Planning")

**Third Semester**
- 102-301 Field Problems in Planning 3 s.h.
- 102-280 Transportation Policy and Planning 3 s.h.
- 102-311 Transportation Program Seminar 1 s.h.

Two of the following courses:
- 44-134 Methods of Transportation Analysis 3 s.h.
- 53-262 Urban Transportation Planning 3 s.h.
- Planning Elective 3 s.h.

**Fourth Semester**
- 102-261 Problems in Transportation and Land Use (one of the following courses): 3 s.h.
- 102-245 Transportation Regulation and Finance 3 s.h.
- 53-163 Transportation Systems Analysis 3 s.h.
- 44-236 Travel Demand Modeling 3 s.h.
- Planning Elective 3 s.h.

When of the optional transportation courses a student selects is dependent upon individual interest. Elective courses typically selected include:

- 102-228 Development Finance 3 s.h.
- 102-234 Project Impact Analysis 3 s.h.
- 102-241 Urban Public Services 3 s.h.
- 102-245 Energy and Public Utility Policy and Planning 3 s.h.
- 102-295 Regional Development: Theory and Policy 3 s.h.

Applications should be made through the Graduate College and the Graduate Program in Urban and Regional Planning.

**Women’s Studies**

Program chair: Florence L. Beal

Faculty professors: Florence Beal (Chair), Linda Keener (EH; Sociology, 1-2931-2); J. Kenneth Kuruc (Religious, 1-2931-2; Mathematics, 1-2931-2); and Christopher G. H. Warren (Religious, 1-2931-2; Mathematics, 1-2931-2); associate professors: Susan J. Sorensen (Physics Education and Career, 1-2931-2; Mathematics, 1-2931-2); and Mary K. Gralton (Religious, 1-2931-2; Mathematics, 1-2931-2); and Mary K. Gralton (Religious, 1-2931-2; Mathematics, 1-2931-2). Assistant professors: B. E. Taylor (Religious, 1-2931-2; Mathematics, 1-2931-2); and B. E. Taylor (Religious, 1-2931-2; Mathematics, 1-2931-2). Associate professors: B. E. Taylor (Religious, 1-2931-2; Mathematics, 1-2931-2); and B. E. Taylor (Religious, 1-2931-2; Mathematics, 1-2931-2).

For information on faculty members in various departments who will direct graduate study, contact the Women’s Studies Program, 335 English-Philosophy Building.

**Associated Courses**

The departmental courses listed below are associated with the Women’s Studies Program and may be applied toward a concentration or a minor in Women’s Studies. Some of these courses are being cross-listed with the Women’s Studies number. Please consult course schedules.
Honors

Students in the college-wide honors program may earn an honors degree in zoology by completing a total of at least 36 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 governmental laboratories; or service involving some planning or administrative functions. More than 90 percent of the doctoral students graduating from this department in the last two decades have been engaged in college or university teaching. A substantial number of these students have completed their training with an M.S. degree, 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 physiology, evolution, and ecology. On the basis of examination results, the students may be excused from further work in one or all of these 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 require modification of certain of the area requirements; the student's degree committee will decide whether the student may waive or complete 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 the M.S. degree student advisory, research in zoology is expected in a broad area, with involvement in one of the special areas, developmental biology, ecology and evolution, or parasitology. Each student selects one of these general areas for his or her concentration, and is advised by a committee of faculty members in that area.

Master of Science in Zoology

The M.S. degree with thesis requires 30 semester hours of graduate credit and a thesis based on original research. Ordinarily 8 to 9 semester hours are assigned to thesis research and writing. The remaining hours are to be selected in consultation with the student's advisory committee. The number 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 primarily on the work reported in the thesis and on related subject matter.

Ph.D. In the thesis, without thesis, requires 34 semester hours of graduate credit and a dissertation based on original research. The student must earn in graduate courses in zoology or cognate sciences; these courses are determined by the student's thesis committee and tailored to fit the student's background and career goals.

Credit received in courses at the 100- level or above, with the exception of courses in zoology required to make up deficiencies revealed by the diagnostic examination (see above), may be evaluated for graduate credit only if it is at least a minimum if approved by the advisory committee. On completion of the hours requirement and acceptance of the research report by the student's faculty sponsor, the student must pass a written examination covering his or her graduate program in zoology, including the area of the student's research.

Master of Science in Biology

The M.S. degree program with thesis requires 30 semester hours of graduate credit, including a thesis written on a topic apply to thesis research and writing, eight to 12 semester hours to graduate courses in zoology, eight semester hours
to graduate courses in botany, and the remaining semester in physics, or 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 thesis.

Doctor of Philosophy in Zoology

Each Ph.D. student’s formal course or proficiency requirements are determined by his or her departmental advisory committee. Students should take the comprehensive examination by the end of the fourth semester of their graduate career. The examination is intended to demonstrate a knowledge of the fundamental knowledge of zoology and a mastery of one or two specialized fields in zoology.

The student’s research culminates in his or her preparation of a dissertation. The dissertation, as the name implies, must precede the student’s 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 number from teaching assistantships, scholarships, and research assistantships, provided by the University or by individual research grants administered by faculty members. Stipends and full tuition are available through federally funded, interdisciplinary training programs in cell and molecular biology and neurobiology. These programs also support postdoctoral fellows. Support through interdisciplinary programs in genetics (predoctoral) and cancer (postdoctoral) is also available. The department also participates in the University-sponsored program of teaching and research assistantships. 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 coast, or in other appropriate field stations. Most students can obtain summer appointments for the following academic year by April 1, but opportunities occasionally exist for appointments at other times, including the beginning of the spring semester. Requests for appointments should include clear statements of research interest. If such interest has been defined at the time of application.

Admission

An applicant for graduate admission should have a grade-point average above 3.0 and a Graduate Record Examination (GRE) Aptitude Test (verbal and quantitative) score above 1230. The applicant should also take the Graduate Record Examination advanced biology test, and submit her or his score.

Although the department prefers applicants who have completed undergraduate programs much like its own, it will consider applicants with backgrounds in biophysics, biostatistics, biotechnology, 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, fish, 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 164 environmental chambers for special culture or animal care needs. There are three transmission electron microscopes, including one for teaching and student research purposes, and one with high-resolution capabilities.

The department is equipped to carry out research in all areas in which graduate teaching is conducted. Light microscopes of a variety of types are available, including those with fluorescence, phase contrast and polarizing capacities, and those with Nomarski optics. Special facilities exist for computed tomography, analysis. Computerized tomographs of various sorts, including refrigerated, high-speed, and ultra-high-speed, are also 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 liquid chromatography and gas-liquid detectors and recording equipment for radioisotope detection and analysis, in- and gas-liquid chromatography systems; controlled-temperature units for many types of microbial and growth studies; and microorganisms; tissue culture rooms and fields, and cold rooms. Laboratories and equipment are also equipped for advanced work which calls for specialized biochemical, biophysical, cytological, or chemical 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

For Undergraduates

Z 220 Cooperative Education 3 h.
Z 245 Introduction to Animal Biology 4 h.
Z 246 Biological Principles 4 h.
Z 360 Introduction to Zoology 4 h.
Z 390 Introduction to Animal Biology 4 h.
Z 391 Introduction to Zoology 4 h.
Z 392 Introduction to Animal Behavior 4 h.
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Z 437 Introduction to Animal Behavior 4 h.
52107 Seminar on Faculty Research 2 s.h.
No incoming graduate students required to attend. Undergraduate seniors and other graduate students welcome by permission of instructor.
52165 Field Biology 4 s.h.
Field experiments on plants or animals. Discussions, written reports. Prerequisite: consent of instructor.
52166 Developmental Neurobiology 2 s.h.
Lectures, discussions, readings, reports on development of nervous system and sense organs, development of behavior, neural growth and development. Corequisite: 37-103 or 37-174 or 37-168, or consent of instructor.
52167 Seminar: Cell Structure and Function 2 s.h.
Lectures, readings, and reports covering current topics in the area of cell biology, especially new organelle organization and composition of intracellular membranes and the role of vesicles in regulation of cell function constitute a central theme of investigation.
52168 Virus and Antibiotics Assembly 2 s.h.
Review of literature with emphasis on current problems. Major topics will include the invention of antiviral procedures, chemotherapy, virology, endocrinology, and immunology. Prerequisite: course work beyond 32-2.5, with some emphasis in virology or genetics.
52169 Protein in Cell Research 2 s.h.
A discussion, based on original research articles, of those areas in cell biology in which studies using proteins have contributed to the general understanding. Prerequisite: genetics and/or biochemistry or cell physiology.
52170 Topics in Developmental Biology 2 s.h.
Readings, reports, and discussions of selected topics in developmental biology with special current interest. Prerequisite: 37-124 or consent of instructor.
52171 Pattern Formation in Development 2 s.h.
Problems of patterning of parts and development of pattern in both multicellular and unicellular organisms. Prerequisite: consent of instructor.
5216838 Hours Laboratory Research 1 s.h.
For honors candidates.
5216748 Hours Reading in Zoology 1 s.h.
For honors candidates.
5216716 Hours Seminar in Zoology 1 s.h.
Discussions and readings centered on either single major topic or on regular lecture series in 32-237. May be repeated for credit.
52169 Introduction to Research 1 s.h.
Primary for seniors majoring in zoology. Prerequisite: consent of instructor.

Primarily for Graduates
52171 Seminar: Pharmacological Interaction 2 s.h.
52175 Seminar: Ecological Writings and Criticism 5 s.h.
Same as 22-150.
5216956 Genetics Seminar 5 s.h.
Lectures, discussions, seminars on selected topics in genetics. May be repeated. Prerequisite: 37-129 or consent of instructor. Same as 22-150.
52201 Seminar Zoology 5 s.h.
Weekly lecture on current research; invited speakers.
5216916 Electromyography Techniques 2 s.h.
Lecture and laboratory on methods of tissue fixation, embedding, ultra-thin sectioning and staining, theory, use, maintenance of electron microscope, associated photographic techniques, case project required. Prerequisite: a course in cell biology and consent of instructor. Same as 22-150.
5216952 Seminar: Embryology 5 s.h.
Selected topics of current research interest in basic physiology and biochemistry of hormone action. Prerequisite: 37-109 or equivalent.
5216926 Fundamentals of Tropical Biology: Ecological Approach 6 s.h.
A field course in Costa Rica sponsored by the Organization for Tropical Studies. Limited to 20 students; limited to senior status. Offered in the spring and summer sessions. Prerequisite: biology 200, intermediate Spanish. Same as 22-200.
5216930 Seminar: Ecology 2 s.h.
Current concepts in ecology. Prerequisite: 37-130 or consent of instructor.
5216934 Advanced Techniques in Light Microscopy 2 s.h.
Theory of modern techniques in light microscopy, with some demonstrations, including bright field, dark field, phase contrast, Nomarski, fluorescence.
5216936 Seminar: Evolutions 2 s.h.
Current topics in evolutionary biology. May be repeated. Offered spring semesters. Prerequisite: graduate standing and consent of instructor.
5216931 Seminar: Behavior 2 s.h.
Discussions, readings, reports on topics relating to behavior and behavior-ecology. Prerequisite: a course in behavior, or consent of instructor.
5216932 Developmental Genetics 2 s.h.
Lectures, readings, discussions on gene action in development. Offered irregularly. Prerequisite: 37-129 or equivalent.
5216933 Seminar: Behavioral Genetics 2 s.h.
5216931 Neurobehavioral Sciences Seminar 5 s.h.
Open student faculty discussion of current literature in the area of neurobehavioral sciences and behavior. Same as 22-150.
5216935 Seminar: Cell Physiology 1 s.h.
Current topics studied through critical reading of the scientific literature. May be repeated. Prerequisite: 37-130 or consent of instructor.
5216932 Seminar in Cellular and Molecular Biology 1 s.h.
Information transfer and integration, assembly and developmental processes, membranes and transport, presentation of research results by students, junior, senior, and graduate. Prerequisite: consent of instructor. May be repeated. Same as 22-150.
5216934 Seminar in Neurobiology 1 s.h.
Preparations for oral examination. May be repeated. Same as 22-150.
5216935 Seminar in Molecular Genetics 1 s.h.
Seminar reports in molecular genetics discussed with emphasis on current literature. Prerequisite: consent of instructor.
5216936 Seminar in Neurochemistry 1 s.h.
Presentations of current literature. Prerequisite: consent of instructor.
5216937 Advanced Techniques in the Neuroscience 1 s.h.
Experimental and interdisciplinary course presenting neurochemical techniques used by different laboratories throughout the university. Prerequisite: consent of instructor. Same as 22-150.
5216938 Problems in College Biology Teaching 1 s.h.
Expositions of philosophy, teaching modes, and examining in college-level biology courses. Prerequisite: graduate status.
5216939 Research: Zoology 1 s.h.
5216940 Independent Study in Zoology 1 s.h.
College of Business Administration

The college is organized into six academic departments: Accounting, Economics, Finance, Industrial Relations and Human Resource Management, Sciences, and Marketing.

The undergraduate and graduate programs of the college are accredited by the American Assembly of Collegiate Schools of Business.

Research, executive development, and continuing education activities are supported by the external 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 all six departments. The B.B.A. student completes background studies either in the College of Liberal Arts at The University of Iowa or in another institution, and usually enters the College of Business Administration as a junior.

The college’s B.B.A. curriculum requires 120 semester hours for graduation, with at least 46 semester hours in business courses and at least 68 semester hours in nonscience courses. Limited specialization is effected through the student’s designated major.

The last 30 (or 45 of the last 50) semester hours must be earned in residence following admission to the College of Business Administration. At least 24 semester hours of credit in courses offered by the College of Business Administration, and at least eight semester hours of credit in the student’s major must be earned at The University of Iowa.

To graduate, the B.B.A. candidate must have at least a 2.0 grade-point average in all course work attempted at the University, in all business and economics college courses attempted in all business and economics courses attempted at the University, 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:

- Rhetoric-communications
- Historical-cultural
- Literature

*Natural sciences (excluding mathematics) 3 s.h.
*Principles of psychology or sociology 3 s.h.
*Sociology 3 s.h.
*Quantitative methods 8 s.h.
6A:1 Introduction to Financial Accounting 3 s.h.
5A:1 Introduction to Managerial Accounting 3 s.h.
6E:1 Principles of Economics 4 s.h.
6E:2 Principles of Economics 4 s.h.
6F:156 Introductory Financial Management 3 s.h.
6M:150 Introduction to Marketing 3 s.h.
5L:47 Introduction to Law 3 s.h.
5L:100 Administrative Management 3 s.h.
6K:70 Computer Analysis 3 s.h.

One of these courses fulfilling the requirement for a course in administrative processes under uncertainty:

5L:165 Business Policy 3 s.h.
6K:165 Business Policy 3 s.h.
5F:128 Managing the Not-for-Profit 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 coursework listed below will satisfy all requirements for the minor in business administration:

Dear George Daly

Senior associate dean: William L. Berry

Associate dean: W. P. Howard

Assistant dean: Myron P. Hoitun

Degree offered: B.B.A., M.B.A., M.A. Ph.D.
A computer programming course 3 s.h.
A mathematics course 3 s.h.
(enumerated 324 and higher)
A statistics course 3 s.h.
(enumerated 225 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
*GM:100 Introduction to Marketing 3 s.h.
*GM:100 Introductory Financial Management 3 s.h.
*BL:100 Administrative Management 3 s.h.
*GL:47 Introduction to Law 3 s.h.
*Must be taken in junior or senior year
Interested students should complete or be registered for the first seven courses listed above before applying for admission to the business minor program. The first seven courses listed above may be used to satisfy elective hours toward a baccalaureate degree and in some instances Specific College of Liberal Arts requirements. Admission to the program is 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 credit hours for a semester or nine 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-nonpass basis with the consent of the advisor or director. However, a student may not count more than 16 semester hours of pass-fail or pass-nonpass credit in the last 60 semester hours of course work. Courses with grades of I, W, or S are not included in the student’s major. Pass-fail or pass-nonpass 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 doubtless 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 their upper year. Second-semester sophomores may be admitted if an accelerated program record has been established. Unconditional admission requires at least a 2.55 grade-point average in all college-level courses undertaken, including all courses undertaken at The University of Iowa and all business and economics courses. The student should also have satisfied the following common requirements: rhetoric, communication, psychology/sociology, quantitative methods, accounting and economics, and either historical-cultural or literature.

No more than 60 semester hours, or equivalent, of transfer credit will be accepted for a student transferring from a two-year institution. Transfer credits for business and economics courses taken during the freshman and sophomore years are counted toward the B.B.A. degree only if such courses are normally offered as lower division courses at The University of Iowa.

The college admission standards are set by the Undergraduate Program Committee. The admission standards are not the minimum requirements but do not ensure admission. Students who have minor deficiencies in meeting admission requirements may be granted conditional or probationary admission.

Interdepartmental Graduate Programs
The following interdepartmental graduate programs are offered by the College of Business Administration: Master of Arts (M.A.) in business administration, Master of Science 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, 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 400-level courses must be completed in residence at The University of Iowa after admission to the M.B.A. program.

Undergraduate students at any institution may take courses as part of their undergraduate degree program which are equivalent to one or more of the M.B.A. foundation courses. For advice on these equivalencies, contact the Graduate Programs Office, College of Business Administration. In particular, seniors in the colleges of Liberal Arts and Engineering at The University of Iowa may be granted conditional or probationary admission to satisfy elective requirements in their undergraduate degree programs. Strategically selected course work may allow such students to complete a bachelor’s major and the M.B.A. degree in the fifth year.

Foundation Courses (27 semester hours)

6A:192 Financial Accounting—M.B.A. 3 s.h.
6E:190 Consumer and Firm Behavior—M.B.A. 3 s.h.
6E:191 National Income Analysis—M.B.A. 3 s.h.
6M:143 Managerial Finance—M.B.A. 3 s.h.
6K:193 Computer Methods—M.B.A. 3 s.h.
6K:197 Quantitative Methods—M.B.A. 3 s.h.
6L:195 Management of Organizations—M.B.A. 3 s.h.
6L:198 Society, Law, and Business—M.B.A. 3 s.h.
6M:199 Marketing Management—M.B.A. 3 s.h.

In the M.B.A., integrated core courses, students continue the broad study begun in the foundation course lists above and pursue in greater depth more advanced study associated with their own career objectives.
Following are the integrated core course requirements:

**Integrated Core (18 semester hours)**

M.B.A.  
6E-251 Administrative Science  3 s.h.
6E-265 Administrative Policy  3 s.h.
6E-265 Administrative Policy—M.B.A.  3 s.h.
6E-271 Statistical Methods—M.B.A.  3 s.h.
6E-273 Managerial Economic Theory—M.B.A.  3 s.h.
6E-276 Operations Research—M.B.A.  3 s.h.

Electives (15 semester hours):  
The student's choice of electives must be approved by the Graduate Programs Office.

**Off-Campus M.B.A.**

Courses are offered during evening hours in Cedar Rapids and the Quad Cities. This program is sponsored jointly by the College of Business Administration and the Division of Continuing Education. In Cedar Rapids, these courses are offered in conjunction with the Continuing Education Association, and in the Quad Cities with the Quad Cities Graduate Study Center in Rock Island, Illinois.

A student pursuing the degree in the evening usually takes one or two courses each semester. The semester-long program is in three to five years.

A limited number of M.B.A. courses are offered in Iowa City during the evening.

**Executive M.B.A.**

A special program, the Executive M.B.A., and leads to the Master of Business Administration degree. Admission is limited to experienced executives who want to broaden their management skills without interrupting their professional careers. Course work is presented in two academic years. Classes begin with one full week in Iowa City followed by classes one day a week 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 the 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 common body of knowledge requirements of the American Assembly of 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 16 semester hours of course work must be taken at the 200 (graduate) level. Additional course work beyond the minimum semester hours may be required in order to meet the prerequisites for graduate courses in a major or minor area of study.

Students in the thesis program will be expected to defend the thesis in an oral examination and may be required to take a written and/or oral comprehensive examination over course work. A final oral examination is required in the non-thesis program.

A non-thesis M.A. degree in industrial relations and human resources which varies somewhat from those in other departments is also available.

Requirements for the Master of Arts degree without thesis in industrial relations and human resources include:

- Major area  18 s.h.
- Foundation courses  12 s.h.
- Research methodology  3 s.h.
- Research reports (two)  2 s.h.
- Total  35 to 41 s.h.

*Maximum—up to six semester hours may be waived with appropriate undergraduate preparation. The 35 to 41 hours 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.

Course work in the Ph.D. program consists of prerequisites (as necessary), the Ph.D. core, major and minor areas of study, and dissertation research. Most students (including all with master's degrees from AACSB accredited programs) take 80 semester hours of course work. Additional course requirements may be imposed to guarantee satisfaction of business knowledge prerequisites or the Graduate College minimum total credit hour requirement (72 semester hours of graduate credit, including course work taken 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, research methods and statistics, quantitative analysis, and the economic and legal environment pertaining to profit and nonprofit organizations.

**Core Courses**

Core courses are designed to develop competence, and they provide necessary background for study in more specialized courses. Graduate courses are required as follows: behavioral sciences (three semester hours), economics (six semester hours), issues in current policy (three semester hours), and research methods/statistics/quantitative analysis (12 semester hours). To reflect the background and interests of individual students, doctoral candidates choose with their advisors to establish satisfaction of core requirements.

**Major Area of Study**

A minimum of 12 semester hours of approved doctoral-level courses must be completed in major areas: accounting, finance, human resources management, industrial relations, insurance, management science, marketing, or organizational behavior.
Minor Area of Study
A minimum of nine semester hours of
doctoral-level courses beyond the Ph.D.
core course requirements must be taken.
Available areas include all major areas of
study listed in addition to concentrations
outside the College of Business
Administration.

Comprehensive Examinations
Students must successfully complete a
written examination in both the major
and minor areas of study.

Upon satisfactory completion of the
written comprehensive examinations,
students must pass an oral
comprehensive examination
comprising 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
opened to interested faculty and graduate
students as established by departmental
procedures. Students are required to
complete 15 semester hours of
dissertation credit. The completion of
research and writing associated with the
dissertation usually requires one year of
full-time effort.

Final Examination
The completed dissertation must be
defended in an oral examination attended
by the dissertation committee members.

It is also open to interested faculty and
graduate students.

Graduate Admission
Applicants seeking admission to
graduate study in business must submit
the Graduate College application form and
two official transcripts of all course
work taken, and official Graduate
Management Admission Test (GMAT)
scores to the Admissions Office, Calvin
Hall. Three letters of recommendation
from recent employers should be
submitted to the Graduate
Programs Office, College of Business
Administration.

Graduate Record Examination (GRE)
Applicants applying to the M.B.A.
should submit GRE scores to the
Admissions Office. See Graduate
Programs Office, College of Business
Administration.

Application Information
A graduate application packet may be
obtained from the Admissions Office,
Crawford 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 fall semester,
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.

U.S. citizens and permanent residents
applying for the M.A. in accounting
degree programs should see the
"Application for Admission to the
Graduate College" form for deadlines.

Foreign nationals applying for the M.A. in
accounting degree program should see the
"International Application for
Admission" form for deadlines.

A complete application file requires the
following:
A completed application form and fee
submitted to the Admissions Office,
Crawford Hall, The University of Iowa,
Iowa City, Iowa 52242.

Official transcripts of all undergraduate
and graduate work submitted to the
Admissions Office by each institution
attended.

Official Graduate Management
Admission Test (GMAT) or Graduate
Record Examination (GRE) scores
submitted to the Admissions Office.

At least three references from former
instructors or employers submitted to the
Graduate Programs Office, College of
Business Administration, The
University of Iowa, Iowa City, Iowa
52242.

Foreign nationals (for whom English is
not the primary language) must submit
an official score of 550 or more on the
Test of English as a Foreign Language
(TOEFL).

Joint Programs
Joint programs allow students to pursue
courses concurrently in M.A. or M.B.A. in
the College of Business Administration and
a J.D. in the College of Law, an M.A. in
library and information science in the
School of Library and Information Science,
or an M.A. in hospital and
health administration in the College of
Medicine.

Such programs allow students to earn
degrees more rapidly by counting a portion of
their graduate course work toward both degrees.

These joint degree programs carry an exchange of
degree requirements each semester
between the J.D. and the M.B.A.,
M.A., and M.B.A., and 15 semester hours each between
the M.A. in hospital and health administration
and the M.B.A.

Other Graduate Programs
M.A. in Accounting

See "Department of Accounting" in this
section of the Catalog.

and Ph.D. in Economics

See "Department of Economics" in this
section of the Catalog.

Facilities
The College of Business Administration
is located in Phillips Hall, an
air-conditioned high-rise building designed
especially for programs of the college.
The building contains seminar and
conference rooms, a computer
laboratory, an auditorium, and the
Business Library, in addition to a wide
range of classroom facilities.

Extensive research facilities for
economics and business are maintained in the
Main Library, and the facilities of the
Weyer Computing Center are available to
all students. Additionally, students have
direct access to a complete computer
laboratory within the college.

The laboratory serves the instructional
programs of the college, and the staff
maintains a current library of
computational programs and data tapes
to service user needs.

Industrial Relations Institute
The Industrial Relations Institute is
designed to bring faculty and students
together with people in industrial
research for the purposes of curriculum
cutters and research, and to conduct
continuing education seminars and
workshops for practitioners in the field of
industrial relations.

Institute for Economic Research
The Institute for Economic Research
engages 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
and to carry on continuous research and
to promote and enhance
academic research and teaching in
economics.
Institute for Insurance Education and Research

The Institute for Insurance Education and Research is the college's continuing education arm in the field of insurance. The institute conducts schools and seminars throughout the year at The University of Iowa campuses 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 Career 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.

6020 Cooperative Education Internship M.B.A. 3-6 s

6320 Written Communication Skills M.B.A. 4 s

Writing for business careers. Recommended for M.B.A. candidates.

6920 Oral Communication Skills M.B.A. 4 s

One presentation skills to improve. Restricted to M.B.A. candidates.

Accounting


Associate professors: Richard A. Gruver; Albert A. Schmierer

Assistant professor: Rebecque Sue Campbell; Staff: Hugh V. Du Journo, Trena A. Masters

Degrees offered: B.B.A., M.B.A., M.S., 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 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 and research skills in conceptual, analytical, and communication skills required in the accounting profession. Students who wish only undergraduate-level preparation to sit for the Certified Public Accountant (CPA) or Certified Management Accountant (CMA) examinations may meet this requirement by 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 by the College 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 applies for admission to the Professional Program in Accounting after completing 60 semester hours must complete all the common requirements for the B.B.A. and M.B.A. First year: 1.1 Statistical Analysis (3 s)

1.2 Introduction to Managerial Accounting and 1.3 Introduction to Accounting, or equivalent, upon acceptance of their application to the Professional Program in Accounting, such students are designated accounting majors.

After successful completion of the first two years of the Professional Program in Accounting students 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:192 Managerial Accounting—M.B.A.
- 6A:115 Introduction to Taxation
- 6K:176 Managerial Decision Models
- 6K:47 Introduction to Law

Second Year
Fall Semester
- 6A:130 Cost Accounting for Management Analyzes and Control
- 6C:103 Microeconomics
- 6A:141 Advanced Tax Topics (or elective)
- 6A:144 Auditing
- 6E:232 Spring Semester
- 6A:145 Financial Accounting II
- 6L:148 Law and Business
- Policy elective
- Electives

Third Year
Fall Semester
- 6A:220 Accounting Theory I
- 6A:221 Auditing, Accounting Information Systems (or elective)
- Electives

Spring Semester
- 6A:221 Accounting Theory II
- 6A:231 Research in Taxation (or elective)
- 6A:230 Audit and Regulation of Accounting Practice (or elective)
- 6A:232 Control and Evaluation Systems (or elective)

These are the typical second-year courses. Additional courses needed are those required for admission to the professional degree program to enable students to graduate in two years. Students who do not meet the requirements for admission to the professional degree program may be required to take additional courses.

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 required to take only the third year of the Professional Program (Program 1 above) to complete the M.A. degree.

Program 4
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 required to take only the third year of the Professional Program (Program 1 above) to complete the M.A. degree.
Primarily for Graduates

M.E. 241 Managerial Accounting—M.B.A. 3.0
Internal financial management systems: accounting concepts; internal systems to manage financial decisions; cost systems, market economics, financial and cash flow; demand analysis; and final exams are to be prepared for by students.

M.E. 241 Accounting Theory 3.0
Auditing and control of capital budgeting, variance investigation, and personnel measurement. Offered in Fall semesters. Prerequisite: M.E. 241.

M.E. 251 Accounting in Non-Profits 3.0
Attention is given to the procedures and methods of accounting for non-profit organizations, with emphasis on the tax aspects of these types of organizations. Prerequisite: M.E. 241.

M.E. 262 Accounting for Information Systems 2.0
An introduction to the principles of computerized accounting systems. Offered in the Spring semester. Prerequisite: M.E. 241.

M.E. 263 Auditing and Accounting of Regulatory Practices 3.0
An in-depth look at the role of the auditor in ensuring the integrity of financial statements. Offered in the Summer semester. Prerequisite: M.E. 241.

M.E. 264 Contemporary Issues in Accounting 3.0
The impact of technology on the accounting profession, including the role of information technology in decision making. Offered in the Fall semester. Prerequisite: M.E. 241.

M.E. 265 Advanced Tax Accounting for Graduate Students 2.0
A graduate-level introduction to taxation and taxation of business organizations (individuals, partnerships, and corporations). Offered in the Spring semester. Prerequisite: M.E. 241.

M.E. 266 Accounting Issues Series 1.0
Through brief papers and case studies, accounting issues will be analyzed. Prerequisite: M.E. 241.

M.E. 270 Advanced Financial Accounting Problems 3.0
An analysis of advanced financial accounting topics and contemporary problems, such as nonrecourse and non-means accounting. Prerequisite: M.E. 241.

M.E. 281 Seminar in Financial Accounting Theory 3.0
Focus on current and future developments of financial accounting and implications of the regulatory environment. Open to students only. Prerequisite: M.E. 241.

M.E. 291 Seminar in Managerial Accounting Thought 3.0
General topics include measurement, research concepts, strategic analysis, and ethical implications of accounting and management. Offered in the Fall semester. Prerequisite: M.E. 241.

M.E. 292 Seminar in Accounting Research 3.0
Research by faculty in the area of current research topics in accounting and related disciplines. Written papers by faculty and student presentations. Prerequisite: M.E. 241. Open to students only. Prerequisite: M.E. 241.

M.E. 295 Thesis 3.0
Prerequisite: consent of instructor.

M.E. 296 Thesis 3.0
Prerequisite: consent of instructor.

Economics

Department Chair: Thomas F. Frake. Faculty: professors and lecturers in the field of economics. The program is designed to provide a broad understanding of the principles of economics.

M.E. 103 Microeconomics 3.0
Prerequisites: M.E. 241.

M.E. 104 Macroeconomics 3.0
Prerequisites: M.E. 241.

Master of Arts in Business Administration

The department offers a three-semester M.A. program in applied economics, with opportunities to specialize in microeconomics and regional economics, international economics, and financial and monetary economics. The program is designed to provide a broad understanding of the principles of economics.

M.E. 183 Statistical Methods in Economics 2.0
Prerequisites: M.E. 103, M.E. 104.

M.E. 202 Price Theory 3.0
Prerequisites: M.E. 103, M.E. 104.

M.E. 184 Methods of Quantitative Economics
In addition to the above core courses (15 semester hours), the student has the option of taking 13 hours of electives and writing a thesis (four semester hours) for a minimum total of 32 semester hours of graduate credit, or taking 19 hours of electives and writing a research paper in each of two 200-level economics courses, for a minimum total of 34 semester hours of graduate credit.

A student who performs well in the first semester of the M.A. program may apply to transfer into the Ph.D. program at that time, without loss of credit.

journalism, political science, and statistics.

The department offers three undergraduate degrees in economics—the B.A. and B.S. degrees in the College of Liberal Arts and the B.B.A. in the College of Business Administration.

The B.A. and B.S. programs are designed for a wide range of liberal arts education. Requirements for the B.B.A. degree emphasize instruction in the business fields of accounting, finance, management, and marketing.

For descriptions of the B.A. and B.S. degrees in economics, see the "College of Liberal Arts" section of the Catalog.
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 students take 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 Econometrics I
Fourth Semester
EE 222 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 residency. Written examinations in microeconomics and macroeconomics before the second year and a substantial research paper before the beginning of the third year complete the core requirements.

Field Component
Each student chooses a major area of study in addition to the core courses. The requirement for the major area is a minimum of 24 semester hours of intensive study of a field and in courses that enable the student to understand the relationship between his or her specialty and related fields. The student must achieve at least a 3.2 grade-point average in these major area courses.

Dissertation
The student must pass and defend a dissertation proposal 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

Primary 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 104 Comparative Economic Systems 3-4 hrs.
EE 218 Principles of Economics 3-4 hrs.
EE 220 Principles of Economics 3-4 hrs.
EE 221 Principles of Economics 3-4 hrs.
EE 229 Principles of Economics 3-4 hrs.
EE 301 Principles of Economics 3-4 hrs.
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EE 407 Principles of Economics 3-4 hrs.
68.11 National Income Analysis 3.6.1
Model of interdependent national economies; determination of national income: investment and business fluctuations, money, prices, and income: monetary and fiscal policy. Prerequisites: permission of the Graduate Programs Office.

For Undergraduates

68.15 Senior Thesis in Economics 3.6.1
Preference to honors students. Prerequisite: consent of instructor.

68.19 Senior Seminar in Economics 3.6.1
Survey of current problems. Prerequisite: consent of instructor.

68.196 Readings and Independent Study in Economics 3.6.1
Preference of consent of instructor.

Primarily for Graduates

With the consent of the department chair, qualified undergraduate students are permitted to work in classes courses for graduate students.

68.203 Price Theory 3.6.1
Theories of demand: theory of firm: theory of markets, general equilibrium and welfare economics.

68.204 Macroeconomics I 3.6.1
Money theory: open economy models and theory of growth. Prerequisite: consent of instructor.

68.206 Macroeconomics II 3.6.1
Analytical approach to open economy models and theory of growth. Prerequisite: consent of instructor.

68.208 Development Analysis of Markets in the Twentieth Century 3.6.1
Analysis of structural change and inquire of effects with particular attention to development and economic growth. Prerequisites: Economics 185B and 186, or equivalent.

68.177 Military Organization 3.6.1
Survey of various aspects of military organization issues and impacts: political, military, and social. Prerequisites: Economics 185A and 185B, or equivalent.

68.179 Economic and Legal Issues in Criminal Justice 3.6.1
Evaluation and interpretation of empirical articles of crime and criminals. Prerequisite: consent of instructor.

68.261 Mathematical Economics for Business I 3.6.1
Introduction to mathematical economics and applications: matrix algebra, linear and non-linear functions, optimization, cost functions, and economic model. Prerequisite: consent of instruction.

68.262 Mathematical Economics for Business II 3.6.1
Introduction to linear programming, optimization, cost analysis, and decision making. Prerequisite: Economics 185B, or equivalent.

68.263 Statistical Methods in Economics 3.6.1
Analysis and computer analysis computer systems and their providing distribution, applications in economics, hypothesis testing and parameters and inferences. Prerequisite: Economics 185B.

68.431 Methods of Quantitative Economics 3.6.1
Introduction to econometric models and equations models: introduction to time series analysis. Prerequisite: Economics 185A or 220 I or consent of instructor.

68.433 Consumer and Firm Behavior 3.6.1
Models of consumer and firm behavior with emphasis on the analysis and market structure. Prerequisite: permission of the Graduate Programs Office.

68.117 History of Economic Thought 3.6.1
Economic concepts and theories organized against the background of evolving urban-industrial society, classical, neoclassical, marxian, and modern economic thought. Prerequisites: Economics 15, and Economics 150C, or equivalent.

68.119 Economic Growth and Development 3.6.1
Evolution of economic thought and contemporary models of economic growth and contemporary models of economic growth. Prerequisites: Economics 15, and Economics 150C, or equivalent.

68.120 Advanced International Economics 3.6.1
Two-classical models of international trade: theory of comparative advantage, gain in trade, balance of payments, and international economic activity. Prerequisites: Economics 15, and Economics 150C, or equivalent.

68.121 Money, Interest, and Discounting 3.6.1
Nature and causes of money: money market. Interest rates, and the demand for money and the supply of money. Prerequisites: Economics 15, and Economics 150C, or equivalent.

68.122 Money, Banking, and Financial Institutions 3.6.1
Nature and causes of money: money market, interest rates, and the demand for money and the supply of money. Prerequisites: Economics 15, and Economics 150C, or equivalent.

68.123 International Finance 3.6.1
Nature and causes of money: money market, interest rates, and the demand for money and the supply of money. Prerequisites: Economics 15, and Economics 150C, or equivalent.

68.124 Money, Banking, and Financial Institutions 3.6.1
Nature and causes of money: money market, interest rates, and the demand for money and the supply of money. Prerequisites: Economics 15, and Economics 150C, or equivalent.
Doctor of Philosophy

Doctoral students seeking a Ph.D. in industrial relations and human resources management must file degree requirements specified under "Interdepartmental Graduate Programs" at the front of this section of the Catalog.

Courses

Primary for Upper Division Undergraduates

E.09 Cooperative Education Internship 3 h.

E.11 Introduction to Law 3 h.

E.13 Business Administration 3 h.

E.15 Management 3 h.

E.17 Basic principles of management, organizational structures, decision-making, leadership and administration of organizations.

E.19 Directed Readings in Industrial Relations and Human Resource Management 3 h.

E.21 Individual guided readings in selected topics.

E.23 Labor Law and Business 3 h.


E.27 Organizational Behavior 3 h.

E.29 Principles of organizational behavior related to the selection of persons for positions, training and development, employee motivation and work relationships. Preparatory: consent of advisor.

E.31 Strategic Management 3 h.

E.33 Business Administration 3 h.

E.35 Contract law, agency, and other topics of law applied in business, chiefly for majoring majors. Preparatory: E.L.7 and junior standing.

E.37 Employment Law 3 h.

E.39 Regulative aspects of business and government practice in labor disputes, insurance policies, and public policy, and that control the truthfulness, and derelict behavior of labor unions. Preparatory: E.L.7 or senior standing.

E.41 Petroleum Labor Legislation 3 h.

E.43 Comprehensive treatment of legislation governing safety and health in business and industry, employment discrimination, and the nature of human relations and their benefits as well as other work-related statutes.

E.45 Employment Rights 3 h.

E.47 Regulation of sex, age, religion, nationality, and age and race discrimination under state and federal law. Preparatory: industrial relations human resource core courses.

E.49 Labor Relations Legislation 3 h.

E.51 Collective Bargaining 3 h.

E.53 Labor dispute resolution, negotiation, and collective bargaining in labor-management relations.

E.55 Employee Relations in the Public Sector 3 h.

E.57 Politics of public policy regulating workers, costs, and social and other issues of labor management relations, legislative, legal, political, and social considerations; cooperate in groups in education, training and government activities. Preparatory: industrial relations human resource core courses.

E.59 Women's Policy and the Development of Human Behavior 3 h.

E.61 Study of national and comparative policies in industrial relations. Examinations on variations in federal, regional, and local levels. Preparatory: industrial relations human resource core courses.

E.63 Administrative Compensation 3 h.

E.65 Training and Development 3 h.

E.67 Research methodology, evaluating the methods of human resources, training, education, and development activities within organizational settings. The course will include: training needs; methods of training; and the evaluation of training within organizational development programs. Preparatory: industrial relations human resource core courses.

E.69 Personnel Management 3 h.

E.71 Application of social science research and concepts to decisions and processes involved in managing personnel in organizations. Preparatory: consent of instructor.

E.73 Current Issues in Industrial Relations 3 h.

E.75 Specialist topics in industrial society, different topics offered each term, e.g., management development and training, personnel selection, statistical techniques, quantitative methods in industrial relations.

E.77 Personnel Selection 3 h.

E.79 Industrial Relations 3 h.

E.81 Comparative Labor Movements 3 h.

E.83 Business Policy 3 h.

E.85 Labor in the Workplace 3 h.

E.87 Industrial human relations and the workplace: human resource development, management, and the organization of activities.

E.89 Labor Market 3 h.

E.91 Industrial Relations of Organizations—WBA. 3 h.

E.93 Fundamental concepts, research, and applications used in analyzing organizational processes through collective; decision-making, organizational design and change, staffing techniques, and control and selection of personnel. Preparatory: permission of the Graduate Program Office.

E.95 Society, Law, and Business—WBA. 3 h.

E.97 Introduction to the management of business—the role, costs and benefits of modern management. Preparatory: permission of the Graduate Program Office.

Primary for Graduates

E.99 Directed Reading in Industrial Relations and Human Resource Management 3 h.

E.100 M.A. Research Report 2 h.

E.102 M.A. Research Report 2 h.

E.104 M.A. Research Report 2 h.

E.106 M.A. Research Report 2 h.

Industrial and Human Resource Management 3 h.

E.108 Current Issues in Industrial Relations 3 h.

E.110 Industrial Relations 3 h.

E.112 Collective Bargaining 3 h.

E.114 Personnel Management 3 h.

E.116 Personnel Management 3 h.

E.118 Personnel Management 3 h.

E.120 Personnel Management 3 h.

E.122 Personnel Management 3 h.

E.124 Personnel Management 3 h.

E.126 Personnel Management 3 h.

E.128 Personnel Management 3 h.

E.130 Personnel Management 3 h.

E.132 Personnel Management 3 h.

E.134 Personnel Management 3 h.

E.136 Personnel Management 3 h.
Management Sciences

Chair: Wayne J. Bea

Faculty: professors Charles E. Bell, William L. Berry (Stratton Professor, Ed.); Anthony C. Kokes, William L. Rhee; associate professors Steven L. Birch, Warren J. Sorensen, Larry C. Venters, Richard L. Whittington; and national scholars, such as "management sciences major research topics." Management sciences majors participate in a variety of team research projects that develop and evaluate complex organizational systems and processes. These projects involve data collection, analysis, and presentation, as well as the application of quantitative and qualitative methods to real-world problems. The major is designed for students who are interested in pursuing careers in management consulting, business analytics, or related fields.

Administrative Studies Track

Corporate Finance

This track focuses on corporate finance, investments, and capital markets. Students will gain an understanding of financial management, including how firms raise capital, manage financial risks, and evaluate investment opportunities. The track covers topics such as financial statement analysis, capital budgeting, and dividend policy.

Financial Management

This track provides a deep understanding of the principles and practices of financial management, including financial planning, forecasting, and control. Students will learn how to make effective financial decisions in a variety of business environments, including investment, financing, and dividend policy.

Corporate Accounting

This track covers the principles of corporate accounting, including financial statement analysis, cost accounting, and taxation. Students will learn how to design and implement effective accounting systems, as well as how to prepare and interpret financial statements.

Managerial Economics

This track focuses on the application of economic principles to managerial decision-making. Students will learn how to use economic theory to analyze and solve managerial problems, as well as how to make effective decisions in a variety of business environments.

Entrepreneurship

This track covers the principles of entrepreneurship, including startup development, new venture creation, and business planning. Students will learn how to identify and evaluate business opportunities, as well as how to develop and implement effective business plans.

Contemporary Issues in Management

This track covers contemporary issues in management, including leadership, ethics, and social responsibility. Students will learn how to apply ethical principles to business decision-making, as well as how to address social and environmental challenges in the workplace.

Management Information Systems

This track provides a deep understanding of the principles and practices of management information systems, including information systems planning, analysis, and design. Students will learn how to design and implement effective information systems, as well as how to evaluate and manage information systems in a variety of business environments.
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

1200 Cooperation Education Internship 3 s.h.

1205 Computer Analysis 3 s.h.

1211 Statistical Analysis 3 s.h.

1216 Production Management 3 s.h.

For Undergraduates

1210 Directed Readings 1-6 s.h.

1610 Organizational Behavior 3 s.h.

1615 Individual Behavior in Organizations 3 s.h.

1620 Organizational Behavior 3 s.h.

1625 Management Information Systems 3 s.h.

1630 Management Information Processing and Decision Behavior 3 s.h.

1640 Design and Analysis of Organizations 3 s.h.

1650 Business Policy 3 s.h.

1652 Business Policy and Administration 3 s.h.

1655 Executive Management Science 3 s.h.

1657 Business Policy 3 s.h.

1680 Operations Analysis 3 s.h.

Primarily for Graduates

16110 Directed Readings 1-6 s.h.

Management Sciences/BUSINESS ADMINISTRATION

241
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 applicable to the flow of services, not just products. They are relevant in the marketing of 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, business decision making, statistical analysis, and computer methods.

Students graduating with majors in marketing may find opportunities for employment in jobs such as market analyst, merchandise manager, buyer, community action agent, purchasing agent, advertising agency, 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:

6.71 Statistical Analysis
6M.134 Marketing Research
6M.135 Consumer Behavior
6M.135 Advertising Theory and Planning
6M.136 Marketing Communications
6M.136 Sales Management
6M.141 Senior Seminar in Marketing
6M.147 Marketing Management

For full-time Ph.D. programs requiring:
Prerequisite: consent of instructor.

Undergraduate Program (Cont.)
In-depth study of selected topics of interest in operations management such as capacity planning, forecasting, inventory management, production scheduling. Prerequisite: consent of instructor.

6M.280 Logistics Management and Analysis

Distribution strategies and models, inventory systems, inventory and component control, physical distribution, material management. Prerequisite: consent of instructor.

6M.280 Research Seminar in Operations Management
In-depth study of selected topics of interest in operations management such as capacity planning, forecasting, inventory management, production scheduling. Prerequisite: consent of instructor.

Graduate Programs
See "Interdepartmental Graduate Programs" at the front of this section of the Catalog.

Courses
Primarily for Upper-Division Undergraduates
6M.292 Cooperative Ed-Academic Internship
6M.292 Internship in Marketing
6M.292 Introduction to Social Marketing: 
Marketing environment for an organization and its strategies within social marketing decisions and client interactions. Prerequisites: 6M.1 and 6M.2 may be a prerequisite.

For Undergraduates and Graduates
6M.151 Directed Readings in Marketing
6M.152 Directed Research in Marketing
6M.153 Consumer Behavior
6M.157 Advertising Theory and Planning
6M.158 Sales Management
6M.159 Marketing Communications
6M.161 Senior Seminar in Marketing
6M.162 Experimental Courses
6M.163 Marketing Management- MBA

For full-time Ph.D. programs requiring:
Prerequisite: consent of instructor.

Marketing

Chapter: Peter C. Reza
Professor, University of Illinois
Howe, University of Illinois
Jr., Cornell University
Lee, University of Illinois
Jr., University of Illinois
M., University of Illinois
Jr., University of Illinois

Ph.D., University of Illinois
Jr., University of Illinois
Jr., University of Illinois

Graduation Programs
See "Interdepartmental Graduate Programs" at the front of this section of the Catalog.

Courses
Primarily for Upper-Division Undergraduates
6M.292 Cooperative Ed-Academic Internship
6M.292 Internship in Marketing
6M.292 Introduction to Social Marketing: 
Marketing environment for an organization and its strategies within social marketing decisions and client interactions. Prerequisites: 6M.1 and 6M.2 may be a prerequisite.

For Undergraduates and Graduates
6M.151 Directed Readings in Marketing
6M.152 Directed Research in Marketing
6M.153 Consumer Behavior
6M.157 Advertising Theory and Planning
6M.158 Sales Management
6M.159 Marketing Communications
6M.161 Senior Seminar in Marketing
6M.162 Experimental Courses
6M.163 Marketing Management- MBA

For full-time Ph.D. programs requiring:
Prerequisite: consent of instructor.
Primarily for Graduates

6N.211 Advanced Reading in Marketing
Individually guided readings in selected topics in marketing. Prerequisite: consent of instructor.

6N.215 Contemporary Topics in Marketing
Special topics in contemporary areas of marketing. Prerequisite: consent of instructor.

6N.216 Marketing Management "M.A." Special topics in contemporary areas of marketing. Prerequisite: consent of instructor.

6N.217 Marketing Research Methods
Methods of design and analysis of marketing research studies. Including survey and laboratory and field experiments, primary and secondary data sources, sampling, methods of data analysis, and statistical analysis. Prerequisite: consent of instructor.

6N.220 Master's Essay
Study of behavior of consumers and industrial buyers, examination of research methods and findings from behavioral sciences. Prerequisite: consent of instructor.

6N.222 Product Management
The strategic and tactical aspects of product management. The role of the product manager in the organization as well as implementing marketing plans will be considered. Prerequisite: consent of instructor.

6N.223 Marketing Communications
Examination of marketing communications as an integral part of the marketing process. Promotion and personal selling are explored along with advertising, sales promotion, and public relations. Prerequisite: consent of instructor.

6N.224 Business Methods in Marketing
Brief overview of business methods and computer applications. Prerequisite: consent of instructor.

6N.230 Marketing Models
Examination of empirical and operational models in marketing. Prerequisite: consent of instructor.

6N.241 Psychological Scaling in Marketing
Applications of psychological scaling techniques in marketing research. Prerequisite: consent of instructor.

6N.252 Senior Seminar in Marketing
Examination of current seminar literature and current research projects by faculty and students. Prerequisite: consent of instructor.

6N.253 Research in Marketing
Individually guided research projects on appropriate topics in marketing. Prerequisite: consent of instructor.

6N.254 Thesis in Marketing
Prerequisite: consent of instructor.

6N.261 Field Study in Marketing
Studies under faculty supervision. Prerequisite: consent of instructor.
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 correlated between the basic and clinical sciences.

### Community Dentistry
- Ethics, epidemiology, nutrition; preventive dentistry; community health; principles of human behavior; dental economics; dental jurisprudence; genomics.

### 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 "cankins" 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 College Academic and Professional Performance Committee appointed by the dean from the basic preclinical and clinical sciences, and from the other academic areas of the college. The performance committee may recommend to the dean that a student withdraw from the college or repeat specific courses when the student is deemed generally unprepared to be promoted or to enter the dental profession.

**Committee for Appeals**

When a student has been asked to withdraw from the college, or desires special consideration on problems concerning promotion or graduation, he or she may appeal this decision to the dean. All appeals shall be heard by an ad hoc committee appointed by the dean. The ad hoc committee is charged to investigate new information that has not been available before, or for some reason has not been discussed as fully as the student feels it should have been, and to determine whether this new information (or important new insights that may have gained) could have influenced the College 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 Examiners
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 the agency's website. Successful completion of requirements of the Central Regional Dental Testing Service will be accepted by the member states for a five-year period in lieu of their individual state's examination requirements.

Facilities
The Dental Science Building, a major unit in an expanded health center, enables the college to accelerate its research activities, and facilitates the development of interdisciplinary communication in health center teaching, research, and patient-care activities. The health center includes the colleges of Medicine, Nursing, and Pharmacy; the Dental Science Building; University Health and Clinics; and a Health Sciences Library. The Health Sciences Library houses all of the University's special health science academic programs, a total of 184,000 volumes, including the College of Dental Science's library of more than 18,000 volumes on dentistry and allied sciences subjects, and the more than 38,000 dental journals the college currently receives. The library received a total of 2,600 journals from the combined health profession.

The Dental Science Building consists of two connected four-story wings located on either side of a main hall. The north wing is devoted to clinical teaching, with various teaching and clinical 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, administrative area, an audiovisual production center, and the programs in community dentistry.

Student Organizations
All dental students are eligible for membership in the Student American Dental Association through their local organization, the American Dental Association. In addition, there are local chapters of The American Association of Women Dentists and the American Society of Dentistry for Children. Students who rank in the upper 12 percent of their class are eligible for election to Omicron Kappa Upsilon, national honor society of dental society. Two national dental professional organizations, Delta Sigma Delta and the Omegae, have chapter houses at both schools, and both have sponsored organizations.

Expenses
The College of Dentistry maintains a Supply-Instrument Management System (S.I.M.S.) that provides the student with most of the instruments and supplies necessary throughout dental training. The instrument usage fee for the program leading to the D.D.S. degree is payable in installments over the first three years of the program. A fee for expedient laboratory supplies is charged each of the first two years. A $100 breakage fee must also be deposited; the deposit is refundable upon graduation or termination of enrollment.

Financial Assistance
Financial assistance for dental students is based on need. Eligibility is established by completion of the College Scholarship Service Financial Aid Form which includes an evaluation of parents' income and assets. Merit dental students are eligible for the Arkansas University National Direct Student Loans, state grants and Student Financial Aid. Students who are interested in these loans must apply at the same time as the FAFSA using the appropriate form at time after completion of the course of study. Short-term loans are available to assist 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 updates on financial assistance available to dental students.

Admission
Each applicant must submit to the American Association of Dental Schools Application Service a completed application form. The forms are available from the University Office of Admissions.

Applications are accepted beginning June 1 of the year prior to the year for which application is made. The end of the application cycle is November 30. Applications missing this deadline will still be processed for this year; however, admitted applicants will be notified starting December 1. Applications are urged to be completed as early as possible and not delay, for example, until after the Dental Admission Test (DAT) is taken. Early application is usually 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 bachelor's degree upon completion of the freshmen year in dentistry (see Combined Bivocal 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 the student 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 quality of a bachelor's degree at the college of engineering.

Physic
One year (equivalent to eight semester hours) of 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 include organic chemistry, and of which one-fourth must be laboratory work.

Biology
One year (equivalent to eight semester hours) which must include appropriate laboratory work; requirement may be satisfied by a one-year course in either general biology and anatomy or botany (not both together).

Electives
Select course work in the social sciences, philosophy, psychology, history, foreign languages, and mathematics to provide a well-rounded educational background.\n
DENTISTRY

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 3.0 or higher. 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 for admission to the College of Dentistry. After the initial evaluation of applications, an 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 sponsored 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. Applicants may not take the test more than once in any two-year period. Tests are given in February and in September. The 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 their notification of admission. This deposit is not refundable but is credited toward the final tuition 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 of 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, Pediatric Dentistry, and Preventive and Community Dentistry, and Removable Prosthetics.

Admission to any of the graduate programs requires application in 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 Microbiology 4 s.h.
65:203 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.

Nondegree Instruction

111:161 Turin Credits Accepted 2 s.h.
111:163 First Year Combining Session 0.5 s.h.
111:164 Introduction to General Dentistry 2 s.h., indicated in a chart of required courses from various social, psychological and cultural subjects. Reviews charnges procedures in the elderly who affect dental treatment as well as normal aging and pathological changes in the elderly patient that affect treatment and patient management.
111:165 Second Year Combining Session 0.5 s.h.
111:169 Minicourse Options 0.5 s.h.
111:170 Mini-Course in Basic Sciences to emphasize the educational basis of dental practice.
114:160 Dental Therapeutics 1 s.h.
Clinical experience with drugs for sedation, analgesia, antimicrobial agents and prophylactic agents; pain control, perception, writing, drug interactions, emergency drugs.
111:171 Third Year Combining Session 0.5 s.h.
111:172 Prodigy-Aided 0.5 s.h.
Opportunities for foreign dental studies are reviewed with the faculty of dental colleges abroad.
111:174 Fourth Year Options 0.5 s.h.
111:176 Continuum Learning Days Topics 0.25 s.h.
Required fourth-year course covering special topics in clinical management, conducted in a continuing education setting.
111:178 Advanced Clinical Comprehensive Dentistry 0.75 s.h.
Comprehensive clinical management of dental emergencies and advanced operative dentistry.
111:180 Introduction to Digital X-Ray Monitors 3 s.h.
Lectures and laboratory work dealing with fundamentals of electron optics, electron beam interaction with film and radiographic film. Basic understanding of wavelength and energy dispersive data analysis, qualitative and quantitative morphometric analysis and sample preparation techniques.
111:184 Dental Students 1 s.h.
To provide graduate students with an overview of advanced clinical specialties within a core college. Offered fall semester of every year.

Clinical Management Concepts

Faculty: professor Thomas W. Goeleke associate professor James K. Lowenthal assistant professor Michael Freeman clinical instructor (clinical faculty, associated in number) John M. Zacharias
111:187 Group Advocacy Seminar 2 s.h.
Weekly group meetings and student activities arranged to provide educational experiences in patient relations and treatment coordination utilizing computerized patient record systems.
111:188 Clinical Emergencies 1 s.h.
Clinical evaluation, diagnosis, and treatment of patients with dental emergencies. Implementation of patients' dental office for referral to appropriate department for definitive treatment.
111:189 Advanced Topics in Quality Assurance 2 s.h.
The course is designed to improve the professional self-awareness of practicing dentists in order to design and implement a quality control program in their own practice. An emphasis on improving treatment planning and ensuring the delivery of high quality dental care. Development of an effective patient education plan related to quality assurance. Analysis of ethical and moral dilemmas in relation to dental practice.
111:190 Advanced Skills 1 s.h.
Clinical opportunity to assess the entire concept of
Dental Hygiene

Department Chair: Patricia Hsu
Faculty: Dr. John L. Arnett, Susan Sprague, Patricia Bruns, Elizabeth Justin, Kaye Municipal, Nancy Siravo, Leslie Austin, and Catherine Davis.

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 study. Students who wish to graduate in December rather than May may enroll in an extended summer semester between the junior and senior years.

The curriculum is accredited by the Commission on Dental Accreditation of the American Dental Association. Program graduates are prepared to take the natuere, 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, students enroll in 60:2 Human Microscopic Anatomy; 71:130 Intermediate Periodontics; 82:61 Operative Dentistry Laboratory; 86:65 Dental Radiography I; 86:67 Oral Pathology; 86:61 Oral Pathology for Dental Hygienists; 71:61 Microbiology; 80:61 Dental Pathology; and 81:61 Dental Radiology for Dental Hygienists.

In addition, junior students learn the basic theory and clinical skills required for partial hygiene practice in 86:61 Dental Hygiene Clinical I and 86:61 Dental Hygiene Clinical II, which integrate concepts in dental anatomy with the theory and practice of clinical dental hygiene.

During the senior year, students advance after clinical skills in 88:55 Clinical Dental Hygiene. In 82:80 Advanced Periodontics for Dental Hygienists, each student is assigned to work with a graduate student in periodontics performing procedures on adults who have active periodontal disease. This experience not only advances dental hygiene clinical skills, but provides both the hygiene and graduate dental students with a learning experience emphasizing the team approach.


Senior students also are enrolled in 88:87 Practicum: Community Dental Hygiene; 88:68 Seminar: Community Dental Health; 71:17 Designing and Developing Instructional Materials; 22:101 Biostatistics; and 112:115 Introduction to Ceramic Dentistry.

Courses traditionally taught as isolated subject-oriented units, such as dental health education, public health, and epidemiology are incorporated into an integrated core. Learning emphasis is on the relationship between the underlying theories and practical applications of community dental health. Students discuss broad community health issues related to the provision of dental health care.

A two-year associate degree program in dental hygiene does not provide as appropriate a background for transfer into the baccalaureate program at NWS.

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.

Students must submit both baccalaureate and dental hygiene applications. All applicants are interviewed by the dental hygiene admission committee after submitting 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 graduate program prepares students 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 broad concentration in advanced dental hygiene theory, in the biological, social, and behavioral sciences, in the clinical application of the para-physiology of dental plaque, including plaque microbiology and biochemistry, and in the relationship of plaque to caries and periodontal disease.

Three semester hours of organic chemistry, including biochemistry—4.8 General Chemistry I.

Four semester hours of microbiology—1.0 Microbiology I.

Three semester hours of nutrition—7.41 Food, Nutrition, and You.

Three semester hours of psychology—3.11 Elementary Psychology.

Three semester hours of sociology—3.11 Introduction to Sociology.

Principles: Four semester hours of anatomy—60:1 Elementary Human Anatomy.

Four semester hours of physiology—72:140 and 72:141 Human Physiology.

These prerequisites provide the educational basis for the dental hygiene courses of study. In addition, students admitted into the professional program of study must complete basic certification in cardio-pulmonary resuscitation technique (CPR) prior to entrance. Completion of a two-year associate degree program in dental hygiene does not provide as appropriate a background for transfer into the baccalaureate program at NWS.
the response of the NOS to dental plaque, emphasizing immunological mechanisms; and the prevention of dental disease by immunization and antmicrobial agents.

In the social science area, students consider the implications of applied sociological, psychological, economic, cognitive, and environmental concepts relevant 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 or term of enrollment

Graduate Admission Requirements

Applicants for admission are subject to the general rules of the Graduate College. Departmental requirements include an applicant test score of 2.0 on the Graduate Record Examination (GRE) Aptitude Test and a 2.5 minimum undergraduate cumulative grade-point average. The undergraduate education of the applicant should include courses equivalent to those in the undergraduate dental hygiene major at the University of Iowa.

Candidates for admission must submit official transcripts of all undergraduate academic records, an application for admission, and Graduate Record Examination scores to the Office of Graduate Admissions, Calvin Hall. These materials must be received before the candidate's application can be processed. Application and information on the Graduate Record Examination can be obtained from the Office of Graduate Admissions.

Special Programs

Through an independent study program, students can explore additional career options in dental hygiene or enrich their educational background in a dental hygiene-related field of study. For example, a student interested in clinical research may become involved in a faculty-directed research project. Others considering graduate programs in public health or dental hygiene education may direct their studies in public health or dental hygiene education.

Facilities

The University of Iowa dental hygiene programs enjoy excellent faculty and facilities in their dental hygiene education. Their faculty members hold advanced degrees in dental hygiene and are engaged in research-oriented academic programs. Students have access to clinical facilities in the Dental Hygiene Building.

Financial Aid

In addition to financial assistance available to University of Iowa students in general, there are limited numbers 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

Graduate Dental Hygiene Courses

Graduate Dental Hygiene courses are offered in anatomy, bacteriology, biochemistry, immunology, nutrition and public health, oral pathology, periodontology, restorative dentistry, and veterinary medicine.

Endodontics

Department Head: Robert E. whisker
Faculty: Andros, Arthur W. (assistant), Richard K. Hopper
Assistant Professors: Keith F. H., Sabina K. Woodard
Degree: DMD, MD

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 includes both didactic and laboratory courses. In clinical endodontics, the student follows both normal and pathological conditions.
of the dental pulp, emphasizing the areas of prevention and diagnosis of pulpal disease. Students study endodontics under direct supervision of the department faculty and staff.

Graduate Program in Endodontics

The graduate program offered by the Department of Endodontics is designed to prepare qualified dentists for the practice of endodontics and for a career in dental education and research. The department offers two types of graduate post-D.D.S. programs.

The Master of Science degree program requires 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 no formal thesis. 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 36 semester hours of credit. An individual plan of study is prepared for each student.

Both programs are available for a minimum of two calendar years, and only full-time students are admitted. Completion of the program requires satisfactory performance in the certificate program and/or oral examination which is of a functional character and does not duplicate written examination.

These programs satisfy the training requirements for eligibility for the American Board of Endodontics. The specific goals of these programs are to allow the dentist to develop his or her skills and acquire a broad knowledge of the practice of endodontics and for a career in teaching and practice purposes; to gain sufficient knowledge and experience in the educational process so that he or she may fully function as a dental educator, to recognize the value of the pursuit of knowledge and research, and to develop the ability to plan, conduct, and report the results of research investigations.

An applicant for the graduate programs in endodontics must be a graduate of an accredited college of dentistry and must comply with the requirements for admission to the Graduate College of The University of Iowa.

The graduate programs in endodontics normally begin July 1. However, it is also possible to start a program at the beginning of either the spring semester or summer session. Applications should be made at any time during the academic year, but earlier applications are recommended. The deadline for the receipt of the requirements for admission to the Graduate College must also be accepted into the program by the faculty of the Department of Endodontics. A personal interview with the applicant may be requested.

Each student in the program must maintain a grade-point average of 3.0 to receive a certificate of degree. A student who fails below this level will be allowed one semester to attain it. The circumstances creating the deficiency will receive careful consideration.

Students enrolled in the graduate programs in endodontics may not enroll themselves in private practice enterprises outside the college. A student who does so will be asked to withdraw 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

Endodontics 3.5 h.

Primarily for Graduates

Endodontic Literature Review 1 h.

Research of the past and present of endodontic literature.

Endodontic Literature Review I 1 h.

Introduction to modern methods of endodontics and dissection of dental materials used in endodontics.

Endodontic Literature Review II 1 h.

Research and dissection of biomechanical aspects of root fractures.

Endodontic Literature Review III 1 h.

Overview of research findings and applications of methods and materials and their use in endodontics.

Research in Endodontics 2 h.

Topics selection, protocol preparation and starting, literature search, preparation of research project and gathering of data, and writing of thesis and defense.

Thesis Progress in Endodontics 2 h.

Examination of endodontic cases that require surgical intervention. Discussion of different treatment methods and protocol. Students present their surgical cases and meet in an informal setting to share ideas and treatment plans.

Advanced Clinical Endodontics 2 h.

Clinical treatment of patients, progressing from simple to more complex diagnosis and treatment planning and with emphasis on the philosophy and etiology of endodontic failure.

Clinical Endodontics 1 h.

Periodontal and endodontic problems and patient treatment and rehabilitation.

Endodontics of Teeth and Tissues 1 h.

Students in the certificate program are required to conduct a research project during the fall semester.

Endodontics in Endodontics 1 h.

Advanced clinical and research topics in endodontics. Review of basic endodontic concepts.

Endodontic Principles in Endodontics 1 h.

Biological cause of endodontic problems in relation to current concepts and principles. Students are given a research project and presented with endodontic problems leading to research planning and detailed treatment procedures of clinically difficult cases.

Endodontic Research 1 h.


Endodontic Procedures in Treatment 1 h.

Endodontics for the practicing dentist. Endodontic techniques and diagnosis of endodontic problems in the clinical setting.

Endodontic Technologies in Treatment 1 h.

Endodontic technology and the treatment of endodontic problems. Use of advanced diagnostic techniques and treatment planning.

Endodontic Treatment Planing 1 h.

Endodontic treatment planning and diagnosis. Emphasis on endodontic treatment planning and diagnosis.

Endodontics for the Pediatric Dentist 1 h.

Endodontics for the practicing pediatric dentist.

Endodontics for the General Practitioner 1 h.

Endodontics for the general practitioner.

Endodontics for the Specialist 1 h.

Endodontics for the specialist.

Endodontics for the Researcher 1 h.

Endodontics for the researcher.

Endodontics for the Teacher 1 h.

Endodontics for the teacher.

Endodontics for the Practitioner 1 h.

Endodontics for the practitioner.

Endodontics for the Consultant 1 h.

Endodontics for the consultant.

Endodontics for the Outpatient 1 h.

Endodontics for the outpatient.

Endodontics for the Inpatient 1 h.

Endodontics for the inpatient.

Endodontics for the Home 1 h.

Endodontics for the home.

Endodontics for the Emergency 1 h.

Endodontics for the emergency.

Endodontics for the Office 1 h.

Endodontics for the office.

Endodontics for the Clinic 1 h.

Endodontics for the clinic.

Endodontics for the Hospital 1 h.

Endodontics for the hospital.

Endodontics for the Laboratory 1 h.

Endodontics for the laboratory.

Endodontics for the Classroom 1 h.

Endodontics for the classroom.

Endodontics for the Community 1 h.

Endodontics for the community.

Endodontics for the Patient 1 h.

Endodontics for the patient.

Endodontics for the Family 1 h.

Endodontics for the family.

Endodontics for the Business 1 h.

Endodontics for the business.

Endodontics for the Insurance 1 h.

Endodontics for the insurance.

Endodontics for the Law 1 h.

Endodontics for the law.

Endodontics for the Medical 1 h.

Endodontics for the medical.

Endodontics for the Medical Student 1 h.

Endodontics for the medical student.

Endodontics for the Medical Faculty 1 h.

Endodontics for the medical faculty.

Endodontics for the Medical Staff 1 h.

Endodontics for the medical staff.

Endodontics for the Medical Staff 1 h.

Endodontics for the medical staff.

Endodontics for the Medical Staff 1 h.

Endodontics for the medical staff.

Endodontics for the Medical Staff 1 h.

Endodontics for the medical staff.

Endodontics for the Medical Staff 1 h.

Endodontics for the medical staff.
Fixed Prosthodontics

Department Head: Kenneth A. Turner
Program Director: E. Charles Yeager, Carl W. Swans
Assistant Professor: Richard D. Jordan, Brian M. Appel
Instructor: Francisco R. Brache, Robert Martin, Arlyn Robison
Degree offered: M.S. or M.S. with emphasis

Predoctoral Program

The department participates in the D.D.S. program for dental students at all levels. Preclinical courses at the first and second year levels prepare the student with a background in materials and techniques used in fixed prosthodontic treatment. Third-year students participate in a supervised clinical program of patient treatment in the specialty. The department provides a consultation service to students in the fourth-year 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 practicing dentists for careers in fixed prosthodontic education and/or research. The certificate program is designed primarily for individuals wishing to further prepare themselves for private practice in fixed prosthodontics. Both programs satisfy the formal training requirements for eligibility for the American Board of Prosthodontics examination.

Master of Science

The program gives major emphasis to fixed prosthodontic theory and treatment, and includes seminar courses in other specialties of dentistry. Curriculum includes a course in research methodology, a course in biostatistics or elementary statistical inferences in medicine, and ward work in the general area of basic science. A research project and thesis are also required 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/or 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.D.S. or D.M.D. degree or its equivalent.

Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>110:190 Prostodontic Materials Laboratory</td>
<td>2.0</td>
<td></td>
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<tr>
<td>110:121 Dental Materials</td>
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</tr>
<tr>
<td>110:122 Dental Materials</td>
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<tr>
<td>110:123 Occlusion I</td>
<td>1.0</td>
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</tr>
<tr>
<td>110:124 Occlusion II</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>110:124 Occlusion II</td>
<td>1.0</td>
<td></td>
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<tr>
<td>110:140 Fixed Prosthodontic Techniques Laboratory</td>
<td>1.5</td>
<td></td>
</tr>
<tr>
<td>110:141 Fixed Prosthodontic Techniques Laboratory</td>
<td>1.5</td>
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<tr>
<td>110:142 Fixed Prosthodontic Techniques Laboratory</td>
<td>1.5</td>
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<tr>
<td>110:143 Fixed Prosthodontic Techniques Laboratory</td>
<td>1.5</td>
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</tbody>
</table>

Predoctoral Program

Course work and clinical experiences in operative dentistry are fundamentals to the overall education of a dental student. The operative dentistry curriculum is designed so that the didactic material presented relates closely to the laboratory and clinical experiences. The programs are designed for 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.

Operative Dentistry

Department Head: Wallace W. Johnson
Faculty: professorses H. C. Dwyer, Gerald S. Baster, James F. Carter, Wallace W. Johnson

associate professores Carl A. Bower, James A. Crabb, John F. Schreiner, associate professores Thomas S. Schurman

Degree offered: M.S.
DENTISTRY/Pedodontics

Admission

Admission requires the D.D.S. degree, or its equivalent, and satisfaction of Graduation College requirements.

Courses

8B:13 Growth and Development

8B:20 Orthodontic Diagnosis and Its Biological Foundations

8B:21 Orthodontic Laboratory

8B:22 Orthodontic Treatment

8B:23 Orthodontic General Practice

8B:175 Orthodontic Clinic

8B:20 Orthodontic Therapy Diagnosis and Treatment

8B:30 Diagnosis and Treatment Planning

8B:31 Advanced Orthodontics

8B:29 Tissue Growth

Pedodontics

Department Head: John P. Panneton

Graduate Program

The purpose of the graduate program in orthodontics is to educate and train individuals who wish to practice orthodontics. The purpose of the graduate program in orthodontics is to educate and train individuals who wish to practice orthodontics. The purpose of the graduate program in orthodontics is to educate and train individuals who wish to practice orthodontics. The purpose of the graduate program in orthodontics is to educate and train individuals who wish to practice orthodontics.
Courses
90:160 Pediatric Diagnosis and Treatment 2.5 h.
Development and growth, behavior management, and preventive/dietetic techniques for pediatric patients.
90:161 Clinical Seminar in Pediatrics 1.0 h.
Discussion of patient management, case histories, and treatment philosophies.

Primarily for Graduates
90:214 Pediatric Intensive Care Laboratory 1.0 h.
90:250 Growth and Developmen: Laboratory Teaching Laboratory 1.0 h.
90:260 Advanced Pediatric Cardiology 0.5 h.
Same as 90:260. 1.0 h.
90:321 Advanced Pediatric Diagnostics 1.0 h.
Understanding the growth and development, behavior management, preventive/dietetic techniques and disease processes of pediatric patients.
90:360 Research in Pediatrics 1.0 h.
Research design and the completion of an original research project is required, results will be presented in a publishable form.
90:361 Thesis Preparation 0.5 h.
Preparation of original research project and completion of thesis.
90:364 Advanced Clinical Pediatrics 1.0 h.
Comprehensive clinical management in pediatrics, with an emphasis in areas of preventive orthodontics, operative therapy, endodontology, and oral surgery.
90:365 Pediatric Physical Diagnosis for Dentists 1.0 h.
Principles and techniques for making a physical examination of the child.
90:366 Pediatric Therapy for Dental Practitioners 1.0 h.
Principles of therapy in various disease conditions.
90:367 Pediatric Nutrition in Health and Disease 1.0 h.
A 4- to 8-week rotation through the anesthesia services of the University Hospitals and Clinics, with emphasis on pediatric pharmacology and nutrition.
90:368 Practice Teaching in Pediatrics 1.0 h.
Observation and practice in current teaching procedures.
90:370 Pediatric Case Review 1.0 h.
Preparation of pediatric case with emphasis on the recognition of dysmorphic syndromes and common oral and pediatric diseases. Diagnosis, laboratory, radiographic interpretation, and therapy.
90:371 Pediatric Oral Pathology and Clinical Radiology 1.0 h.
90:380 General Dental Practice 1.0 h.

Periodontics
Department Head: Philip A. Larson
Associate professor: Edith D. Martin
Professors Emeritus: Jack A. Gies, Robert F. Reynolds
Degree offered: D.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 periodontics. 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 coursework;
- Preparation and defense of an acceptable thesis based on original research requiring 11 semester hours of thesis research and 3 semester hours of thesis preparation; and
- Satisfactory completion of a comprehensive written and oral examination.

Completion of the program requires a minimum of 24 calendar months of full-time study.

Ad Hoc Interdisciplinary Ph.D. Program
Under Graduate College regulations, proposals for interdisciplinary doctoral programs of study may be developed.

The Graduate College grants final approval of such individual programs. The Department of Periodontics will assist in the development of individual doctoral programs designed to train scholars for careers in teaching and research in periododontal diseases. Such programs may be interdisciplinary with anatomy, biochemistry, microbiology, pharmacology, or physiology.

Certification
Designed to meet all the requirements of the American Board of Periodontology for eligibility for certification, 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.
Financial Aid
The applicant must be financially prepared to undertake uninterrupted 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 scores are not required. Interviews are encouraged, but not mandatory.

Courses
Predoctoral
5201 Introduction to Periodontics  3 sh.
Fundamental concepts of periodontics, etiology, histology, and diagnosis of periodontal disease. 3202 Advanced Periodontics: Dental Hygiene  3 sh.
Seminars in diagnosis and treatment of gingival disease, periodontal health, and prevention of disease. 5203 Periodontics  3 sh.
Fundamental concepts of periodontics, presented in a lecture and seminar format augmented by labs.

Graduate
5201 Advanced Periodontics  6 sh.
Provides incoming graduate student with comprehensive preparation in periodontics. Offered in summer sessions.
5202 Clinical Seminar in Periodontics  6 sh.
Comprehensive management of periodontal patients, presented with emphasis on treatment planning and case documentation and presentation for complete periodontal treatment. 6001 Periodontology Pathology Seminar  3 sh.
Review and assessment of student's knowledge of microbiology as it applies to oral health problems. 5214 Clinical Aspects of Periodontics  3 sh.
Emphasizes biomaterials used in periodontal therapy, follow-up, restorative therapy, non-operative therapy.

Preventive and Community Dentistry
Department Head: James D. Deen
Faculty: professor emeritus W. Philip Mar, Nathan C. Cory
professors James D. Deen, Leonard S. Logan,
associate professors Howard M. Frost, Horace J.
Kaufman, Dorothy Wise, Roger Simpson, Clare R.
Nelson,associate professor Martha Cunningham, and Hard,
clinical assistant professor Howard Cowan
Degree offered: M.D.

Programs in preventive and community dentistry are designed to increase dental students' awareness of oral health needs and to encourage them to develop and implement approaches to alleviate these needs.

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-campus extramural programs throughout the state.

To encourage students to become involved in oral health activities, the department provides a number of extramural opportunities designed to make students aware of the scope of dental care. The programs are open to all dental students, and participate in a variety of activities related to dental care. Students who are interested in participating in these activities are encouraged to contact their advisors. The programs are open to all dental students, and include participation in a variety of activities related to dental care.

Master of Science Program
The Master of Science degree program is designed to prepare students in community and general dental public health, with emphasis on research, teaching, or administration. The program objective is to help students develop a high degree of professional competence in their respective areas of special interest. Successful students will have completed educational requirements necessary to establish an eligibility for the Iowa Board of Dental Public Health.

The program requires a minimum of 24 semester hours of course work which should include research methods and oral health research. Most students should expect to take two academic years to complete all degree requirements.

Courses
Predoctoral
1111 Introduction to Predoctoral  2 sh.
Introduction to the field of professional dental hygiene. 1112 Advanced Predoctoral  2 sh.
Advanced study in dental hygiene. 1113 Predoctoral  2 sh.
Fundamental concepts of periodontics, presented in a lecture and seminar format augmented by labs.

Master of Science
1111 Introduction to Predoctoral  2 sh.
Introduction to the field of professional dental hygiene. 1112 Advanced Predoctoral  2 sh.
Advanced study in dental hygiene. 1113 Predoctoral  2 sh.
Fundamental concepts of periodontics, presented in a lecture and seminar format augmented by labs.

Master of Science
1111 Introduction to Predoctoral  2 sh.
Introduction to the field of professional dental hygiene. 1112 Advanced Predoctoral  2 sh.
Advanced study in dental hygiene. 1113 Predoctoral  2 sh.
Fundamental concepts of periodontics, presented in a lecture and seminar format augmented by labs.
1114 Predoctoral  2 sh.
Advanced study in dental hygiene. 1115 Predoctoral  2 sh.
Fundamental concepts of periodontics, presented in a lecture and seminar format augmented by labs.
As part of Removable Prosthodontics 4.5 h.

Seminar and clinical experiences: mouth examination, diagnosis, prognosis, and treatment of patients requiring complete and removable partial dentures.

04.201 Complete Denture Seminar I 1.5 h.
Review of current research in principles, practices, and concepts of complete denture construction.

04.205 Removable Partial Denture Seminar I 1.5 h.
Review of current research in principles, practices, and concepts of removable partial denture construction.

04.207 Complete Denture Seminar II 1.5 h.
Review of past research in principles, practices, and concepts of complete denture construction.

04.218 Removable Partial Denture Seminar II 1.5 h.
Review of past research in principles, practices, and concepts of removable partial denture construction.

04.250 Research: Removable Prosthodontics 1.0 h.

Lecture, review, protocol preparation, and data collection for selected research project.

04.251 Thera Preparation: Removable Prosthodontics 1.0 h.

Preparation and defense of thesis from research project.

04.261 Advanced Clinical Removable Prosthodontics 1.0 h.

Treatment of patients requiring complete and removable partial dentures.

04.261 Technique Methods: Removable Prosthodontics 1.0 h.

Assignment problems involving technical methods in construction of complete and removable partial dentures.

04.252 Library Course: Removable Prosthodontics 1.0 h.

Weekly or bi-weekly viewing assigned library material.

04.290 Journal Club 1.0 h.

Review of current literature in prosthodontics.

04.251 Library Assignment: Removable Prosthodontics 1.0 h.

Discussion of assigned readings that are contained classics in removable 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 1937, 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 Mathematics 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 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 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-level 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 rank 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 transcripts become available to the Division of Special Education, and candidates will be notified by mid-July. Approval will be based on a review of the candidate's educational background, prior work experience, and letters of recommendation.

Late applications will be considered on a first-come, first-served basis when program quotas are not filled. Students transferred from the University of Iowa from special education programs at other colleges or universities may be admitted to second-year courses only if space permits.

Graduate-Level Admission to Teacher Education Programs

Students who have completed a baccalaureate degree may be admitted to a Teacher Education Program in one of two ways.

They may apply to the Graduate College with their objective stated as "preparation only" or in some secondary teaching areas with a Master of Arts in Teaching (M.A.T.) objective. Students selecting this route must satisfy the following conditions:

Admission to the Graduate College. Have a cumulative grade-point average of not less than 2.00 on undergraduate work; 3.00 for M.A.T. objective. Admission to a specific certification program (e.g., elementary education, special education, or secondary (English)).

They may apply to the College of Liberal Arts as a postbaccalaureate student with senior standing. Students selecting this route should not apply as special students. They must apply to the appropriate Teacher Education Program following the general admission procedures and must meet the general requirements stated in the undergraduate admission section.

Student Teaching

The final phase of the Teacher Education Program is the practicum semester, devoted to supervised student teaching and directed observation in a variety of situations. Periodic seminars provide for discussion and evaluation of student teaching experiences. The student teaching requirement may not be met by transfer credit except under unusual circumstances and with approval in advance.

Admission to the senior year student teaching semester is by separate application. This application must be submitted by March 15 of the academic year preceding the one during which the student teaching is to be completed to the Office of Student Services, 310 Lindquist Center. Opportunities for overseas and urban student teaching experiences are available. Requirements for admission to student teaching vary by program and discipline. Students should consult with their advisers regarding specific requirements for the several program areas.

Waivers

Students who have completed practicum-type experiences or courses which they feel should be considered a lieu of requirements should consult with their advisers concerning waiver procedures.

Urban Student Teaching

Students who feel they may better advance their educational interests through student teaching in an urban setting may apply for this type of experience through the Office of Student Teaching. 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-Milwaukee 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 electing this program must meet the regular requirements for student teaching.

State Requirements

Certification to teach in most states, including Iowa, requires certification from the state's American government or American history. Either of the general education (social sciences) courses in Introduction to American Politics or 30:110 American Political System satisfies this requirement.

All students seeking an initial teaching 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 7V:92 Introduction to Microcomputing 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 primarily 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 local board of education. Or, a given student may feel that such courses would be helpful for 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 710 Student Services, 310 Lindquist Center.
Master of Arts

The College of Education offers a Master of Arts degree on both a thesis and nonthesis basis in each of its divisions. The nonthesis M.A. program usually provides an opportunity for specialized course work; those students who have demonstrated superior scholarship and mastery of research skills in course work are eligible for admission into 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 that will improve their chances of acceptance in the doctoral program.

Master of Science

Thesis and nonthesis programs are available to students desiring a concentration in science. The degree outline 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 advanced certification in such fields as art, business, English, foreign languages, home economics, mathematics, science, and speech and drama. A grade-point average of at least 3.00 on undergraduate course work is required for admission. At least 18 semester hours of graduate course work in the student's proposed teaching field must be completed. A minimum of 12 semester hours of graduate work in education must be completed before admission is granted. A minimum of 60 semester hours is required for the degree.

Support Units and Special Resources

The Computer Resources Laboratory provides hardware and consulting support for computer applications and instructional development. The Laboratory provides software and instructional development services for the College of Education.

The Curriculum Resources Laboratory provides materials primarily for students and faculty members involved in early childhood, elementary, and secondary instructional materials. The Laboratory provides a convenient central location for 26,000 elementary and secondary textbooks, reference books, course outlines, study guides, bibliographies, pamphlets, and non-print materials such as videos, games, records, and microcomputer software. The Laboratory also houses a 27,000-volume youth collection.

The Audiovisual Production Laboratory houses a variety of instructional equipment and materials. 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 microfiches, 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. The Department also conducts research in educational measurement and evaluation, publishes the results of these studies, sponsors lectures and symposiums, provides in-service education for school systems, and provides training experience for graduate students in measurement and statistics.

The North Central Association (NCA) of Col鉴s is the largest and most active of six regional accrediting associations in the United States. Iowa is one of 10 NCA-member states. The NCA's primary purpose is to foster improvement in education at the elementary, secondary, and collegiate levels through the development of educational programs, evaluation by external teams of educational programs, 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 supportive services for faculty research, development, and grant efforts and coordinates such efforts with the University Division of Sponsored Programs. It initiates and maintains contacts with federal, State, and private foundations for the purpose of identifying potential research opportunities.
opportunites. It disseminates information to college faculty concerning research opportunities and research being conducted.

The Special Program for Emotionally Disturbed Children is located in the child psychiatry unit of the University's Psychiatric Hospital. Children attending this school are residential patients in the child psychiatry unit. The program is supported by the Psychiatric Hospital. Opportunities are available for student teaching and practicum experience in school psychological services.

University Counseling Services are facilities available to students in counseling psychology for research and practicum purposes.

University Hospital School is a University-affiliated faculty and, as such, it strives to provide a viable balance of direct services to developmentally disabled youngsters, interdisciplinary training activities for personnel, and research projects in program development and effectiveness.

Teacher Certification Services

Though each state has its own teacher certification requirements, a majority of state certification agencies have entered into an agreement to issue certificates to applicants who have completed approved teacher education programs in institutions accredited by the National Council for Accreditation of Teacher Education.

The College of Education Office of Student Services, N310 Lindquist Center, provides Iowa application forms and certification instructions to all students competing 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 administrative records, and their career or degree goals at The University of Iowa.

Graduate Assistantships

Individual academic programs provide opportunities for teaching, research, or service assistantships, as well as for fellowship and related employment opportunities. Inquiries should be addressed to the chair of the division or to the director of the special program in an area in which the student believes he or she can provide service or achieve an outstanding academic 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 assistantship.

Special Graduate Assistantships in Education

The Iowa Testing Programs and the Iowa Measurement Research Foundation provide sufficient funds to support a limited number of special graduate assistantships in education. Students admitted to or pursuing any of the advanced degree programs offered by the College of Education are eligible to apply; provided, they are United States or Canadian citizens. The assistantships are open for the academic year, are renewable for a limited number of times, and, at the present, provide stipends similar to those for other assistantships. Holders are assigned to work under the direction of a faculty member in a research capacity, and must be enrolled for not less than 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. Application deadline is March 1.

Loans and Outside Employment

Information about commercial and federal loans as well as part-time employment in the University area is also available 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 loan programs: Associate Dean Emil Ensor L.A. Van Dyke, Professors Elbert John Hafler and John McCallum, the late Peter Mayquinte, a University of Iowa alumus, and the late Donald Sweney, 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-baccalaureate 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 master's degree student majoring in education whose specialization is adult and continuing education.

Harvey H. Davis Award To an outstanding student in educational administration or higher education, particularly a student interested in the financing of education.

Howard R. Jones Achievement Award To an outstanding graduate student who has made a noteworthy scholarly presentation at a national professional conference or published a significant scholarly article in a reputable professional journal or other substantial printed work.

Perry Eugene McElrath 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. Packer Award To the outstanding candidate for the Master's Degree in Education.

R. Louis Tawia Award To the outstanding senior, M.A. and Ph.D. levels.

To outstanding students of high scholarship, promise in the professional area of research, teaching or writing, and striking personal qualities.

James and Coretta Stroud Fellowship for Doctoral Study in Educational Psychology, Measurement or Statistics To an outstanding graduate student in the Division of Psychological and Quantitative Foundations who is entering the dissertation 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 this faculty have earned doctorates in their teaching fields, and the majority have had teaching or administrative experience in the public schools.
A major strength of the college is its close working relationship with the College of Liberal Arts. With few exceptions, professors on the College of Education faculty also hold academic rank in the College of Liberal Arts. A majority of the professors who teach secondary school methods have doctorates in their teaching disciplines, as well as preparation in education, and hold academic rank both in their academic departments and in education.

Intervisitonal Courses
72S000 Cooperative Education Internship 2 Cr.
Enrollment of students participating in Cooperative Education Internships involves the college during the fall semester. In conjunction with the cooperating firm, the student is given a project. An optional program fee is required. Participation is by permission of the Department of Cooperative Education requirements.

73I102 Facilitating Career Development in Schools 3-4 Cr.
Introduces teachers and counselors to concepts, methods, and techniques of helping students plan and implement their educational and occupational goals. Covers career guidance-counseling program, including career, goals, methods, materials, and evaluation procedures.

73I108 Topics in Vocational Work in the School 1-2 Cr.
Designed to acquaint vocational-technical volunteers with the many techniques to use effectively with students in public schools. Topics include volunteer responsibility and confidentiality, motivation, goal setting and objectives, testing skills and management of volunteers, and counseling students in school. These topics are to be covered during the course. May be repeated.

73I460 Parent-Teacher Relationships 3 Cr.
Prepares students who will be teachers for the realities, needs, and problems of relationships between parents and students. Topics include development of the student-teacher relationship, counselor with parents for parent support services.

73I465 Human Relations for the Classroom Teacher 3 Cr.
Develops awareness of role, styles, and histories of cultures and their relationship to education. Emphasis on different cultural systems and classroom interactions. Includes reading and discussion of the implications of cultural diversity. Emphasis on cultural differences and the implications of participation. Emphasis on creativity and educational services.

73I500 The Art in Education 1 Cr.
Designed to provide a variety of presentation of fine arts that include music, dance, art, drama, theoretical, and experiential components. Emphasis on the role of the arts in education. Emphasis on the aesthetics and philosophical implications of art on education and society.

73I510 Teaching American Indian History 3 Cr.

73I550 Examination of Alternative Learning Futures 3 Cr.
Examines current trends in societal mandates, overcrowding, and other human service requirements. Emphasis on the compatibility of these trends with projected and proposed solutions to future educational needs in the future and in educational and other human service futures.

73I725 Human Rights and Equity Issues 1-2 Cr.
Examination of societal and philosophical human rights and equity issues, historical bases of prejudice, discrimination, sexism, and racism; and their effects on society. Emphasis on the commitment to human dignity and equity issues; aspiration of culture and ethnic minority groups; multicultural education in the United States.

73S15 Seminar in the Arts 1-2 Cr.
An interdisciplinary graduate student-teacher seminar to consider the relationships of the arts education and problems of learning and practice in the arts. Preparation by instructor.

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 earn a 3.0 grade-point average to be admitted to the program.

Education Specialist
The Ed.S. program provides specialized professional preparation in college student development beyond the master's level for persons not planning to enter doctoral study; 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 unions, career planning and placement, residence halls, student services, community college counseling service, adult continuing education, external degree 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 student affairs, or as director of admissions, student activities, financial aids, student unions, career planning and placement, residence halls, student services, community college counseling service, adult continuing education and external degree programs.

The M.A. or its equivalent is not necessary for admission to the Ph.D. program, but to take the Ph.D. comprehensive examination, the student must have an M.A. thesis or equivalent as evidence of research. Students who enroll for the Ph.D. degree are required 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 1,300. Additional admission is sometimes granted.

Counseling 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 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.
TC231 Foundation of Counselling 3-4 b.h.  
Introduction to the theoretical and ethical principles of counsellor training. Stress on counseling process and counseling techniques. Prae-Requisite: consent of instructor. 

TC232 Family Therapy 3 b.h.  
Overview of several approaches to family therapy, with an emphasis on understanding the effect of family on the individual. Specific techniques for intervention examined and practiced. Same as RC 230. 

TC233 Therapy with Couples 3-4 b.h.  
Therapy with couples as a reactive process: topics include systems, trends of functionality and dysfunctional systems (with an emphasis on family therapy). Same as RC 230. 

TC234 Introduction to Rehabilitation Services 2 b.h.  
Historical and legal background of rehabilitation; roles of rehabilitation workers and roles of rehabilitation facilities. Programs and services provided by rehabilitation. 

TC234 Rehabilitation Counseling 3 b.h.  
Emphasis on counseling process as an interpersonal helping procedure in rehabilitation settings. Critical evaluation of counseling process in rehabilitation and its relation to the counseling process in other areas of rehabilitation and counseling. Students practice the skills learned. 

TC237 Medical Aspects of Disability 3 b.h.  
Counsellion of mental evaluation as a part of rehabilitation process. Body systems, medical terminology, and medical description of disabilities and importance of counselors, integration of medical information with social, psychological, and vocational aspects into counseling and educational planning. 

TC238 Group Counseling 3 b.h.  
Introduction to aptitude, interest, and personality tests used in occupational counseling and personnel selections. Laboratory practice in test administration, scoring, interpretation, and reporting. PREREQUISITE: TP 114 or 115, consent of instructor. 

TC239 Vocational Psychology 2 b.h.  
Comprehensive review of the major concepts in vocational testing and counseling of adults and of vocational choice, development, and adjustment. 

TC240 Individual and Family Counselling 3 b.h.  
Focus on counseling women and men for psychological equity, career counseling, and interpersonal relationship issues. Topics also include stress and stress management. Students will be able to understand the nature and process of counseling, experience in counseling, and consent of instructor. 

TC241 Fundamentals of Family Counseling and Psychotherapy 3 b.h.  
An introduction to the family counseling process and how it is applied to problems of marriage and the family. Processing of students will be required throughout the course. 

TC242 Counseling Theory and Practice 3 b.h.  
Study and analysis of various modes of counseling, techniques of counseling, and modern developments. Same as TP 243, TW 243. 

TC243 Laboratory in Counseling 2 b.h.  
Practice and training in the counselling of individuals and groups, with special emphasis on counselling skills. Limited to students in counselor education. 

TC244 Issues and Trends in Counseling 3 b.h.  
Survey of research and authoritative opinion on current issues concerning counseling in schools and agencies. 

TC245 Typical Behavior in Counseling Education 3 b.h.  
Special topics dealing with contemporary problems of counseling and social learning. May not offered for credit during the semester. May be repeated. 

TC246 Substance Abuse Counseling 3 b.h.  
Substitute topic dealing with the relationship of personal factors to alcoholism and drug addiction and the evaluation of different therapeutic models, circuit training, self-report measures, and other drug-related issues. Consent of instructor. Same as RC 244. 

TC248 Treatment Approaches to Alcoholism 3 b.h.  
Therapeutic approaches to working with individuals with alcohol problems, as well as treatment availability and evaluation of different treatment models and strategies, and groups with special concerns (e.g., children, adolescents, women, women). 

TC258 Internship in Drug Counseling 3 b.h.  
Supervised practice in counseling clients with drug-related problems, for the drug counseling emphasis. Consent of instructor. 

TC259 Internship in Group Facilitation 3 b.h.  
Supervised practice in working as a facilitator and/or counselor in group counseling and other types of group development. Consent of instructor. 

TC260 Individual Instruction in Counselling Education 3 b.h.  
Prerequisite: consent of instructor. 

TC262 Practicum in Counselling 3 b.h.  
Practicum in professional counseling. 

TC262 Introduction to Student Services 3 b.h.  
History, philosophy, and status of student personal services, emphasis on development of theory and environmental assessment and role as an interdisciplinary function, and orientation and skill-building. 

TC263 The College Student 3 b.h.  
Psychological and sociological characteristics of college students, including student development and academic success in college. 

TC265 Seminar Student Services 3 b.h.  
Intensive study and seminar presentation of current issues, problems, and conflicts related to certain areas of student personal services. May be repeated. 

TC266 Administration of Student Services 3 b.h.  
Organization, theories of administration, personnel administration, human relations, and other foundations of administration for college student personnel workers. 

TC267 Job Development and Follow-up 3 b.h.  
Focus on client, counselor, employer, and job placement. 

TC269 Seminar: Vocational Aspects of Disability 3 b.h.  
Emphasis on the psychological and educational implications of vocational placement and education. 

TC270 Professional Practice in Rehabilitation 
Procedures 3 b.h.  
Practicum for students with a discharge from a rehabilitation agency. May be taken for credit only once. 

TC271 Professional Field Work: Rehabilitation 
Procedures 3 b.h.  
Practicum for students in rehabilitation professions. Students will be provided with focused experiences in rehabilitation agencies and related fields. 

TC272 Advanced Counseling and Psychotherapy 1 b.h.  
Therapies and techniques of counseling clients with personality and interpersonal problems. Consent of instructor. 

TC273 Process in Family Counseling and 
Psychotherapy 3 b.h.  
Process of the clients' responses and experience in counseling setting. 

TC500 Organization Development and Change 3 b.h.  
Same as TC 398. 

TC500 Team Building: Training of Safety 
Injury 3 b.h.  
Major focus is to give professionals research- background and in-depth knowledge of safety dynamics and their treatment with special emphasis of experimental and program development. 

TC500 Training in Counseling and 
Psychotherapy 3 b.h.  
Prerequisites: TC 259 and consent of instructor. 

TC511 Marriage and Family Practicum 3 b.h.  
Analysis of cases to work with couples with family problems. Students expected to work with at least two families during mandatory field experience. Credits will be given on a pass/fail basis, with all grades recorded as P or F. 

TC512 M.A. Thesis in Counselling Education 3 b.h.  
Prerequisite: consent of instructor. 

TC550 Educational Special Research in 
Counselling Education 3 b.h.  
Prerequisite: consent of instructor. 

TC551 Seminar: Career Counselling 
Supervision of students enrolled in counselling practicum. 

TC599 Individual Practicum in 
Counselling Education 3 b.h.  
Prerequisites: consent of instructor. 

TC600 Practicum in Counseling 3 b.h.  
Practicum for students with supervised practice in counseling in schools and other counseling situations. 

Early Childhood and Elementary Education/EDUCATION  

The division’s programs are designed to prepare graduates for employment in specific positional roles in public schools and institutions of higher learning. Its programs are approved by the Iowa Department of Public Instruction and meet National Council for Accreditation of Teacher Education approval standards. 

Undergraduate Programs  
Students pursuing a major in elementary education or in early childhood education may elect to meet requirements for either the B.A. or the B.S. degree. The B.A. degree requires four semesters of study, while the B.S. degree requires two semesters.
of study or the equivalent in one foreign language. In all other respects the B.A. and B.S. degree requirements are identical.

Required by both programs are the following foundations courses, which should be completed by the end of the sophomore year:

97:7 Fundamentals of Science 4 s.h.
224:60 Theory of Arithmetic 3 s.h.
75:75 Educational Psychology and Measurement 3 s.h.
7E:100 Introduction: Elementary and Early Childhood 3 s.h.
7E:91 Audio-Visual Equipment for Instruction 1 s.h.
7E:97 Introduction to Microcomputing for Teachers 1 s.h.
A course in American history or American politics 3-4 s.h.
Also required, usually completed during the junior or senior year, is the following:

7E:170 Human Relations for the Classroom Teacher 3 s.h.

Undergraduate Programs in Early Childhood Education

Early childhood teachers serve in a variety of organizations, including pre-kindergartens and kindergartens in the public school system. Head Start and other publicly funded pre-kindergarten classes or day care centers, and privately funded early childhood programs serving children from infancy to first grade exist. Preparing for early childhood teaching includes the study of child development, parent-child relationships, the organization and administration of child care centers in addition to learning the methodology and curriculum for young children. The program requires a minimum of four practice experiences with children of different ages within the early childhood years in public or private early childhood centers or classrooms. This program meets the requirements of the Iowa Institution for Pre-Kindergarten and Kindergarten Teachers. Students interested in dual certification at the pre-kindergarten and kindergarten level and the kindergarten and elementary level should elect the elementary education major as described in a subsequent section of the Catalog and its early childhood education area of specialization. A student who successfully completes this combination is eligible for Iowa teaching certificate endorsements 10 (K-8) and 52. Students interested in dual certification as teachers of pre-kindergarten and kindergarten and pre-school handicapped children should elect the Special Education section of the Catalog. Separate requirements in this area of study 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 93.

In addition to the foundations courses listed above, the following must be completed before student teaching:

17:10 Growth and Development of the Young Child 3 s.h.
7P:106 Child Development 3 s.h.
17:124 Nutrition and Child Development (Same as 7E:102) 3 s.h.
7E:120 Methods and Materials: Music for the Classroom Teacher 3 s.h.
7E:122 Methods and Materials: Art for the Classroom Teacher 3 s.h.
7E:123 Literature for Children I 3 s.h.
7E:125 Methods: Early Childhood Education I 3 s.h.
7E:82 Pre-Kindergarten Practice, Pre-Kindergarten 1 s.h.
7E:167 Early Childhood Methods: Early Childhood Education I 3 s.h.
7E:93 Pre-Kindergarten Practice, Kindergarten and Early Childhood 1 s.h.

(Concurrent: TE:167)

Additional courses, required to complete the early childhood education major, may be taken before or after student teaching, follow:

17:114 Parent-Child Relationships 3 s.h.
7E:133 The Culturally Different in Educational Settings 3 s.h.
7E:185 Methods: Multicultural Education 3 s.h.
7E:195 Multicultural Concepts and Educational Systems 3 s.h.
7E:196 Development and Administration of Child Care Centers 3 s.h.

Students must take a minimum of three courses (nine semester hours) in one of the following areas of specialization: child and family services, the family, child development, and pre-school handicapped children. Copies of specialization requirements are available in the Early Childhood and Elementary Division office. These courses may be taken pass/fail if they are offered with that option.

One full semester of student teaching (15 semester hours) is required. The appropriate student teaching assignment is determined by the student's academic advisor in consultation with the student. Students should submit student teaching applications to the Office of Student Services March 15 preceding the academic year during which they plan to do their student teaching.

Undergraduate Programs in Elementary Education

Elementary teachers serve in a variety of school settings, including self-contained rooms in which the teacher assumes responsibility for most of the curricular areas, departmental positions in which their responsibilities are concentrated in one or two subject areas, and team teaching assignments where two or more teachers assume shared roles. These positions represent the total instructional endeavor.

Preparation for elementary teaching involves an introduction to 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 methodology 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 awarded specifically to prepare 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 foundations courses listed earlier in this section are also required. They must be taken in the early childhood major as described in a subsequent section of the Catalog and its early childhood education area of specialization. The student must complete the following elementary methods courses to be eligible for the equivalent graduate-level courses with the approval of the Department of Education.

7E:160 Methods: Elementary School Language Arts 3 s.h.
7E:161 Methods: Elementary School Social Studies 3 s.h.
7E:182 Methods: Elementary School Science 2 s.h.
7E:194 Methods: Elementary School Mathematics 2 s.h.
7E:195 Methods: Elementary School Reading 3 s.h.

An area of specialization is required in a teaching field. The areas of specialization offered are elementary art, the arts in early childhood, early childhood education, bilingual education, early childhood health education, elementary language arts, elementary mathematics, music, physical education, physical education, physical
elementary social science, special education, and elementary generalist.

The student should consult his or her adviser concerning courses which will serve to strengthen preparation for teaching in a subject area and meet the specific requirements for that area. Copies of the requirements for each area of specialization are available in the Early Childhood and Elementary Education Division office. Courses in the area of specialization may be taken pass-
nonpass if they are offered with the pass-
nonpass option.

Required is a minimum of 15 semester hours of credit in student teaching. Students should apply to the Office of Student Services by March 15 preceding the academic year during which they plan to do their student teaching.

Students should consult with their advisers concerning the appropriate registration pattern.

Graduate Programs

Master of Arts in Early Childhood Education

The program is designed to prepare persons to administer and/or deliver care and education to children from infancy through the early primary grades in private and public settings, or to serve as early childhood consultants or community college teachers. Admission will be given to those persons with undergraduate degrees which focused on the education and/or development of young children. The program is designed to meet the needs of pre-kindergarten, home economics, social work, or child development.

A core of courses (or their equivalents) is required of all students:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>7E:159</td>
<td>Development and Administration of Child Care Centers</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7E:254</td>
<td>Building Foundations for Reading: Pre-primary and Primary</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>7E:267</td>
<td>Curriculum Development in the Kindergarten and Early Primary</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>7E:268</td>
<td>Supervision and Curriculum Development in the Pre-Kindergarten</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7E:269</td>
<td>Comparative Early Childhood Education</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

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 30 semester hours (20 with math) are elected mutually chosen by the student and the academic adviser. 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 program, 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 in teacher preparation in either early childhood or elementary education. The candidate must enter 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 selected 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 graduates for positions as reading specialists in kindergarten and grades 1-12. Successful completion of this program and, together with four years of successful teaching experience, qualifies the student for certification as a reading specialist. Iowa Endorsement 54. The program is offered with thesis (30 semester hours minimum) and without (32 semester hours minimum). The following are required of all candidates:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>7E:171</td>
<td>Reading Clinic</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>7E:172</td>
<td>Teaching Techniques</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>7E:174</td>
<td>Parent Education for Reading: Pre-primary and Primary</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>7E:265</td>
<td>Supervision of Intermediate Grade Reading</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7E:174</td>
<td>Manuscript High School Reading</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>7E:264</td>
<td>Specials: Secondary Reading</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7E:308</td>
<td>Seminar: Research and Current Issues, Reading</td>
<td>2-3 s.h.</td>
</tr>
</tbody>
</table>

In addition, candidates must complete one or more courses in the curriculum, supervision, and social foundations areas. The student selects the remaining elective hours with the advisor's approval.
All Candidates
TD:211 Foundations of School Administration 3 s.h.
TD:203 Computer Applications in Education 2-3 s.h.
TD:251 The Principalship 3 s.h.
TD:298 Legal Aspects of School Personnel 2-3 s.h.
TD:303 Supervision of Instruction 2-3 s.h.

The student must meet the human relations requirement of the State of Iowa and specialize in elementary, secondary, or central staff administration by completing one of the programs outlined below. The candidate may choose electives approved by the advisor to satisfy degree requirements:

Elementary Level
Required
TD:300 Design and Organization of Curriculum 3 s.h.
TD:302 Field Service Projects in Educational Administration 3 s.h.
 rah.

Electives
TF:117 Philosophies of Education 2, 3, 5 s.h.
TF:150 Introduction to Educational Measurement 3 s.h.
TD:262 School Organization Patterns 3 s.h.
TE:282 Advanced Techniques of Teaching Science in the Elementary School 3 s.h.
TE:297 Curriculum Development in the Kindergarten and Early Childhood 3 s.h.
Thu:301 Seminar: Administration and Coordination of Curriculum 2-3 s.h.
TD:303 Supervision and Administration of Elementary School 2-3 s.h.
TE:260 Supervision of Elementary School Language Arts 3 s.h.
TE:261 Supervision of Elementary School Social Studies 3 s.h.
TE:263 Supervision of Elementary School Mathematics 2-3 s.h.
TE:265 Supervision of Intermediate Grade Reading 3 s.h.
TE:296 Curriculum Development in the Pre-Kindergarten 3 s.h.
TE:298 Supervision of Student Teachers and Auxiliary Personnel 2-3 s.h.

Secondary Level
Required
TD:291 Secondary School Curriculum 2-3 s.h.
TD:302 Field Service Project in Educational Administration 3 s.h.

Electives
TF:117 Philosophies of Education 2, 3, 5 s.h.
TF:131 Educational Psychology 3-4 s.h.
TF:143 Introduction to Statistical Methods 3 s.h.
EB:153 Collective Bargaining 3 s.h.
EB:158 Personnel Management 3 s.h.
TS:186 Curriculum Foundations 2-3 s.h.
TD:202 Administration and Supervision of Special Education 3 s.h.
TF:255 Construction and Use of Evaluation Instruments 3 s.h.
TD:262 School Organization Patterns 3 s.h.
TC:270 Issues and Trends in School Guidance 2-3 s.h.
TD:290 Improving Instruction in the Secondary School 3 s.h.
TD:291 Administration of Professional Personnel 2-3 s.h.
TD:295 Financial Management of Local School Systems 3 s.h.
TD:297 Theory in Administration 3 s.h.
TD:299 Legal Aspects of School Administration 2-3 s.h.
TD:304 Seminar: Supervision and Administration 2-3 s.h.

Central Staff Administration
Required
TF:143 Introduction to Statistical Methods 3 s.h.
TD:203 Computer Applications in Education 2-3 s.h.
TD:295 Financial Management of Local School Systems 3 s.h.

Electives
To be selected with the approval of the advisor.

Thesis
A student electing the M.A. program with thesis must take TFD: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 concentration 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 advisor to meet State of Iowa certification requirements.

Course Requirements
TF:131 Educational Psychology 3-4 s.h.
TF:117 Philosophies of Education 2, 3, 5 s.h.
TD:201 Foundations of School Administration 3 s.h.
TD:297 Theory Administration 3 s.h.

Program Emphasis
Students must complete the balance of their minimum required hours (minus the three core electives) in one of the following areas of emphasis. Courses specified here in each area of specialization are the required courses.

Elementary School Administration
TF:150 Introduction to Educational Measurement 3 s.h.
TD:291 The Principalship 3 s.h.
TD:262 School Organization Patterns 3 s.h.
TE:300 Design and Organization of Curriculum 3 s.h.
TD:303 Seminar: Administration and Coordination of Curriculum 2-3 s.h.
TD:304 Seminar: Supervision and Administration 2-3 s.h.
TE:381 Analysis and Appraisal of Curriculum 2-3 s.h.
TD:383 Supervision of Instruction 2-3 s.h.

Secondary School Administration
TF:150 Introduction to Educational Measurement (same as TE:186) 3-4 s.h.
TF:150 Computer Applications in Education 2-3 s.h.
TD:261 The Principalship 3 s.h.
TD:290 Improving Instruction in the Secondary School 3 s.h.
TE:291 Secondary School Curriculum 2-3 s.h.
TC:270 Issues and Trends in School Guidance 2-3 s.h.
TF:143 Introduction to Statistical Methods 3 s.h.

General School Administration
TF:100 Design and Organization of Curriculum 3 s.h.
TE:291 Secondary School Curriculum 2-3 s.h.
TD:203 Computer Applications in Education 2-3 s.h.
TD:291 Administration of Professional Personnel 2-3 s.h.
TD:295 Financial Management of Local School Systems 3 s.h.
TD:298 Legal Aspects of School Personnel 2-3 s.h.
TD:299 Legal Aspects of School Administration 2-3 s.h.
TF:143 Introduction to Statistical Methods 3 s.h.
Cognates
The student must complete a minimum of six semester hours bearing a cognitive relationship to educational administration, subject to the adviser's approval.

Electives
The student chooses electives comprising the 60-semester-hour requirement for the Ed.S. degree. In the program for generalist or staff administration, the student may choose electives for specialization in such fields as staff personnel, business affairs, instruction, theory, legal aspects, curriculum, and information systems.

Research
All candidates for the Ed.S. degree must complete a formal research paper (four semester hours) dealing with a specific problem in school administration or instruction.

Comprehensive Examination
The comprehensive examination for the Ed.S. degree comprises one three-hour examination in educational administration and one three-hour examination in a specialized area either in educational administration or in a related or cognate field.

Ph.D. in Educational Administration
The purpose of this program is to prepare students for positions at all levels of school administration, to do research in educational administration, and to teach educational administration at the college or university level.

All prior preparation and experience is carefully analyzed and a sequence of courses is determined to best equip individuals for their career objectives. As a general guideline, the student is expected to have a general background in professional education, educational administration, and an area of specialization in at least one aspect of educational administration.

Commonly selected specialization areas are: general administration, elementary school administration, secondary school administration, systems analysis and research, school finance, curriculum, upon stipends, theory, and school personnel. Students specializing in administration must complete a nine-semester-hour program outside the College of Education. Proficiency in two foreign languages must be demonstrated.

Comprehensive Examinations
Each doctoral student must complete satisfactorily an extensive six-hour comprehensive examination in the six common areas of educational administration and a three-hour examination based on the student's areas of specialization that is approved by the student's adviser and the division chair.

Students pursuing doctoral programs in areas other than educational administration seeking to utilize some aspect of educational administration as an area of concentration for which they would request a comprehensive examination should consult with an adviser in the Division of Educational Administration early in their sequence of study.

Any of the areas of specialization open to doctoral students in educational administration are open for this purpose to other doctoral students provided they meet the necessary prerequisites for specific course registration. The student should complete approximately 12 semester hours in one area of specialization before requesting a comprehensive examination. 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 course work in educational administration.

Research
Discussion Project
The student must write a formal discussion project and submit it to a doctoral committee for approval. The student and adviser determine the time for completing the project. Final evaluation of the project is made at a meeting of the committee.

Completion of the Dissertation and Final Examination
The student must accumulate a minimum of 70 semester hours of credit at the doctoral level. In the process, the student takes the examination within the months 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 grade point average, Graduate Record Examination (GRE) Aptitude Test scores, and other evidence of academic ability and professional promise.

Courses

Educational Administration

10:07 Educational Leadership 3 s.h.
Introduction to organization and administration of American public education; principles and strategies for improving educational settings; legal aspects of educational administration; planning, organization, and management of instructional systems; supervision, and research.

10:20 Computers in Education 2 s.h.
Principles of computer usage in schools and applications with applications to educational administration, management information systems, instruction, and research.

20:08 Educational Statistics and Research 2 s.h.
Applications of sampling and hypothesis testing; research methods to educational systems; planning, and design. Prerequisites: TC 250 in consultation or instructor.

20:10 Individualized Instruction 3 s.h.
Individualized designed course based on readings, special projects, and/or studies that reflect individual interest of student or interest in the area of educational foundations. Prerequisites: consent of adviser and instructor.

20:11 Individualized Instruction 4 s.h.
Individualized designed course based on readings, special projects, and/or studies that reflect individual interest of student or interest in the area of theory. Prerequisites: consent of adviser and instructor.

20:13 Individualized Instruction 5 s.h.
Individualized designed course based on readings, special projects, and/or studies that reflect individual interest of student or interest in the area of practice. Prerequisites: consent of adviser and instructor.

20:14 Individualized Instruction 6 s.h.
Individualized designed course based on readings, special projects, and/or studies that reflect individual interest of student or interest in the area of research. Prerequisites: consent of adviser and instructor.

20:15 Individualized Instruction, Elementary 3 s.h.
Individualized designed course based on readings, special projects, and/or studies that reflect individual interest of student or interest in the area of elementary administration. Prerequisites: consent of adviser and instructor.

20:16 Individualized Instruction, Secondary 3 s.h.
Individualized designed course based on readings, special projects, and/or studies that reflect individual interest of student or interest in the area of secondary administration. Prerequisites: consent of adviser and instructor.

20:17 Individualized Instruction, Supervision 3 s.h.
Individualized designed course based on readings, special projects, and/or studies that reflect individual interest of student or interest in the area of supervision. Prerequisites: consent of adviser and instructor.

20:18 Individualized Instruction, Middle School 3 s.h.
Individualized designed course based on readings, special projects, and/or studies that reflect individual interest of student or interest in the area of supervision. Prerequisites: consent of adviser and instructor.

20:19 Administration and Supervision of Special Education 3 s.h.
For prospective directors of special education programs; school administrative personnel provides for special education.
o enable students to better understand the influence of social, historical, and philosophical forces upon the formal, educational enterprise. Major areas of specialization within the program are comparative/international education, history of education, philosophy of education, and sociology of education.

General requirements for admission are as stated by the Graduate College. A personal interview with one or more members of the graduate faculty is desirable and may be required. An understanding and/or discussion in emphasis in 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 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 the minor area of specialization. In addition, the student must take at least 12 semester hours in the College of Education, of which six must be in one area of concentration, such as educational administration, educational psychology, measurement and evaluation, post-secondary and continuing education, etc. Approximately one-third to one-half (30 to 45 semester hours) of each student's program is devoted to course work in depth from at least one other program in the College of Education. Students may choose areas of specialization in philosophy, political science, sociology, etc. These sequences are individually planned by the student with the aid of his or her advisor and suggestions from the appropriate department and/or departments.

Two research tools are required and are selected from four following options in accordance with the individual candidate's research interests and program: two courses in a graduate level statistics sequence, philosophy and science and philosophy of social science: historiography, foreign language(s): proficiency exams.

In addition, all students are required to successfully complete PSF 410 Seminar: Alternative Research Strategies and PSF 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 phenomena. The academic programs in the division encompass that complexity. Degrees are offered at all levels. There is emphasis on both research and practice. Specialization in one or more fields is available. The teaching, research, and service activities of the faculty, and the work of the graduates of the several degree programs, illustrate that education beyond the high school level continues in a variety of ways for all ages and in many different settings.

Undergraduate Major in Health Occupations Education

The health occupations education major has been developed to prepare teachers for employment at the community college level in preparatory health occupations education programs. In addition to basic skill and general education requirements of the College of Liberal Arts, students will complete courses in preparatory health education and additional course work in the health occupation field and/or supporting areas. Students making application to this program must hold current appropriate certification, licensure, or registry appropriate to the area of health occupations education in which they wish to teach, e.g., dental assisting, medical office assisting, respiratory therapy, and the like. The health occupations education major is planned upon this base, and provides work in professional education and the liberal studies appropriate to teachers who wish to acquire a baccalaureate degree.

Applicants to this program must satisfy criteria for admission to the Teacher Education Program (TEP) of the College of Education.

Program requirements:

Professional Education Component

7P:131 Educational Psychology 3-4 s.h.
7P:150 Introduction to Educational Measurement 3 s.h.
7N:111 Principles of Instruction for Postsecondary Faculty 3 s.h.
7K:113 Teaching of Adults 3 s.h.
7H:117 Foundations of Vocational Education 2 s.h.
7H:190 Seminar: Health Occupations Education 1-4 s.h.

7H:191 Community College Teaching Internship 12 s.h.
7S:181 Observation and Laboratory Practice in the Secondary School 12 s.h.
7H:122 Curriculum Development: Application to Community College and Health Careers 3 s.h.

Appropriate courses in social foundations 2-3 s.h.

Graduate specialization course work in health occupations education.

Course work in the health occupations education specialty and supportive field should be planned carefully in consultation with the student's advisor. Students may avail themselves of workshops or courses offered by specific health colleges or choose electives such as development of audio visual aids, computers in education, etc., in keeping with their educational goals. In addition, students must meet certification requirements stipulating an American government or U.S. history course and a human relations course.

Graduate Programs

Master of Arts Without Thesis

The purpose of the M.A. program in higher education is to prepare individuals for entry- and middle-level administrative, curriculum and instruction, or continuing education positions in two- and four-year institutions, and is appropriate for individuals seeking to function as a department head, business manager, development officer, assistant to the president, director, in-service director, and division or program chair in a two-year college. Applicants for admission must satisfy the requirements of the Graduate College. Candidates selected on the basis of grade-point average, Graduate Record Examination (GRE) Aptitude Test scores, and promise for professional growth, transcripts, GRE scores, and three letters of recommendation are required for consideration for regular admission. An interview is recommended.

Specialist in Education

The Ed.S. program provides advanced graduate education to those planning to work 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 68 semester hours of graduate work or upon completion of a higher education sequence following a master's degree program.

Admission

Applicants for admission must satisfy the general requirements for admission to the Graduate College. Candidates will be
selected on the basis of grade-point average, GRE Aptitude Test scores, and promise for professional growth. Transcripts, GRE scores, and three letters of recommendation are required for regular admission. An interview is recommended.

Major in Higher Education
Requirements for the Ed.S. major in higher education are:
- At least 18 semester hours in professional education and related fields including a structured internship determined in consultation with the adviser to be appropriate for one of the following four 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.
- An examination in one of the four concentrations in higher education, perhaps 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.
- 7H:270 Intern Seminar—1.3 s.h.
- 7H:310 College Teaching Internship—1.9 s.h.
- 7H:117 Post-High School Staff Development Workshop—1.2 s.h.
- 7H:91 Audiovisual Equipment for Instruction—1.5 s.h.
- 7P:121 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 advisor early in their studies. Plans of work will be developed individually for each student.

Teaching Internship
Program participants teach half-time for a full semester at cooperating community colleges under the supervision of an experienced faculty member in that community college, with field supervision from The University of Iowa. Interns participate as full-time in the academic life of the host community college, and usually gatherdata 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 90 semester hours beyond the bachelor's degree.

The candidate chooses one area of concentration and must earn 16 to 24 semester hours in that area. Ordinarily the candidate chooses a related field of 9-11 semester hours or a minor (approximately 30 semester hours) which may be met by appropriate previous coursework at the M.A. level that complements the area of concentration.

The dissertation research (12 to 15 semester hours) is expected to deal with a specific problem in the area of concentration. These three components—concentration, minor and/or related fields, and dissertation research—constitute a major part of the typical doctoral program, and give the student the opportunity to specialize in one or more areas of interest.

While the doctoral program 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 the concentration, minor and/or related field, and dissertation.

Applicants for admission to the doctoral program must satisfy the requirements of the Graduate College. Candidates will be selected on the basis of grade-point average, GRE Aptitude Test scores, and promise for professional growth. Transcripts, GRE Aptitude Test scores, and three letters of recommendation are required for regular admission. An interview is recommended and may be required.

Iowa Community College Certification
To qualify for a professional certificate with authorization to teach in an arts and sciences field of an area community college in Iowa, the student must hold a bachelor's degree granted by an approved institution, with specialization in a field of instruction offered in the arts and sciences division of an area college. Preparation must include six semester hours of professional preparation appropriate for college teaching. Two semester hours of American history or government are required for certification in Iowa.

The following courses fulfill the requirement:
- 7H:171 Community College—2-3 s.h.
- 7H:270 Intern Seminar—3 s.h.
- 7H:173 Post-High School Staff Development Workshop—1-2 s.h.
- 7H:112 Teaching of Adults—3 s.h.
- 7H:310 College Teaching Internship—1-2 s.h.

In addition applicants for certification must have completed an approved human relations course for three semester hours of credit.

A master's degree in the student's teaching area is required for certification in arts and sciences areas.

Special Facilities
A resources and document collection relating to community colleges is available for students doing research or seeking employment information.

Courses

Social Foundations and Comparative Education—1-3 s.h.

Basic principles and methods of research drawn from psychology, sociology, economics, and political science designed to familiarize students with the organizational and functional requirements of community colleges.
Master of Arts in Educational Measurement and Statistics

A master’s degree in this field prepares students for positions that require a basic knowledge of educational testing, program evaluation, and data analysis. Both positions occur in research centers, testing organizations, large school systems, and state educational agencies. The program is also appropriate for students who wish to teach measurement of knowledge and research methodology and educational development. The degree may be taken without thesis (32 semester hours minimum) or with thesis (minimum 28 semester hours of course work plus two to four semester hours of thesis credit). All students must complete a core of courses totaling 18 to 20 semester hours. Included in this core are a graduate-level survey course in educational psychology, elementary and intermediate courses in classical test theory methods, an introduction to Bayesian statistical methods, a course in educational psychology, 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 counseling. The final comprehensive examinations typically include three-hour examinations in educational measurement and in applied research. In the fall of the year prior to graduation, each student must present a written examination in one of the fields plus a two-hour examination in educational psychology or a substitute area. Three-hour examinations assume a minimum of three courses in the area; two-hour examinations assume a minimum of two courses in the area.

Grade-point-average requirements for admission to the program are the same as those established by the Graduate College. Normally, if the candidate’s score for either the quantitative or verbal section of the Graduate Record Examination (GRE) Graduate Test is less than 500, the applicant will not be admitted. However, if there is sufficient evidence of superior ability, the faculty may allow acceptance on a conditional basis. Applicants should have at least one course in college mathematics. Some work experience as a teacher or researcher is highly desirable. The faculty reviews applications as they are received.

Master of Arts in Reading Disability

This program provides training in the diagnosis of reading disabilities and in the prescriptive teaching of reading. Graduates of the nonthesis program can qualify for certification as reading clinicians. They typically return to classroom teaching or take positions as reading clinicians, supplementary reading teachers, or reading consultants. Graduates of the thesis program typically expect to enter doctoral programs in the field of reading.

The nonthesis program requires a minimum of 32 semester hours plus the following core courses:

- TP-170 Introduction to Psychology of Reading 3 s.h.
- TP-173 Diagnostic and Prescriptive Approaches to Reading Instruction K-12 4 s.h.
- TP-150 Introduction to Educational Measurement 3 s.h.
- T1-251 Individual Intelligence Testing 3-4 s.h.

Students must also complete at least four hours of practicum courses chosen with the advisor’s approval from the following:

- TE-171 Reading Clinic Teaching Techniques 1-3 s.h.
- TE-172 Reading Clinic Teaching Practicum 2-3 s.h.
- TE-271 Advanced Reading Clinic Techniques 2-3 s.h.
- TE-272 Advanced Reading Clinic Practicum 2-3 s.h.
- TE-365 Reading Clinic: Supervision in Reading Laboratory 3 s.h.
- 75-295 Reading Clinic: Teaching Practicum—Secondary Level 4 s.h.

All students must take a minimum of 14 semester hours in elective courses, chosen with the advisor’s approval, from the fields of speech pathology and audiology, educational psychology, special education, or elementary or secondary education.

The thesis program requires a minimum of 30 semester hours including the following core courses or equivalents:

- TP-143 Introduction to Statistical Methods 3 s.h.
- TP-243 Intermediate Statistical Methods 4 s.h.
- TP-270 Advanced Psychology of Reading 3 s.h.
- TP-273 Reading Clinic: Diagnostic Practicum 1-3 s.h.
- 163-190 Introduction to Linguistics 3 s.h.
- TP-363 M.A. Thesis in Educational Psychology Measurement, or Statistics 2-4 s.h.

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 90-minute examinations in related fields. With the advisor’s approval, the nonthesis student may substitute a comprehensive project for one of the written examinations. The project will involve the investigation of a problem comparable to those encountered by a reading clinician or consultant in the field.

The grade-point-average requirement for admission to the program is the same as that established by the Graduate College. When the applicant’s total score in the verbal and quantitative parts of the Graduate Record Examination (GRE) Graduate Test 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 faculty reviews applications as they are received.

Master of Arts in Instructional Design and Technology

The M.A. in Instructional Design and Technology is a 35-semester-hour program designed to provide basic knowledge and skills required to work in settings such as schools, business and industry, hospitals, government, and it may be taken either with or without thesis. Repeat admission requires a minimum grade point average of 2.5 on all previous course work. Students with a grade point average of less than 2.5 may be admitted conditionally. Regardless of the admission status, all students are expected to attain a grade point average of at least 2.0 for the first 12 semester hours of course work taken after admission.

The degree requires the following course work or approved equivalents:

...
7W:163 Selection and Use of Media for Instruction
7W:164 Design and Production of Media for Instruction
7P:167 Psychological Bases of Instructional Design
7W:165 Introduction to Instructional Design and Technology
7P:162 Measured Instructional Design and Technology
7W:222 Instructional Strategies

If the degree is done with thesis the student is also required to take TP:112 Introduction to Statistical Methods or W:261 Research Methods in Instructional Design and Technology. In addition, all students must complete nine semester hours of prescribed course work in one of the following areas:

- Classroom instruction
- Computer applications
- Health sciences education
- Instructional development
- Media center administration
- Media production
- School media (Environment 39)
- Training and human resource development

Visual studies

If a student has not had previous experience in instructional design, he or she must complete a practicum and all students are required to do a final project.

Completion of the program also requires a six-hour set of final comprehensive examinations. These may be divided into either two- or three-hour parts distributed as follows:

General instructional design: 2-3 hours
Area of emphasis: 2-3 hours
Other: 0-2 hours

Educational Specialist in Instructional Design and Technology

The Ed.S. in Instructional Design and Technology is a 60 semester-hour program designed to provide specialized training beyond that provided by the M.A. program. The Ed.S. is ordinarily considered to be a terminal degree.

Admission to the Ed.S. program is the same as to the M.A. except for the minimum grade-point average of 3.0 on all previous graduate work for required admission. Applicants seeking admission to the Ed.S. program must submit a letter to the division chair at the time of filing completed admission forms with the University Graduate Admissions Office. The letter should describe the applicant's interests in the field of study and the program at The University of Iowa, areas of desired study, tentative future plans, and any additional information which may be helpful in the admissions process.

The following course work or approved equivalent is required for the degree:

- M.A. core, without statistics, plus:
- TP:163 Introduction to Statistical Methods
- 7W:261 Research Methods in Instructional Design and Technology
- TP:289 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
- 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 specific area of the project will depend on the program, interests, 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 or administrative positions in educational agencies, clinics, hospitals, testing organizations, and the public schools. A concentration in the 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 three substantive areas—human development, cognitive/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 motivation/socialization. In addition, the student will demonstrate substantial competence in at least one of these substantive areas. A minimum of one course in measurement and one course in a three-hour comprehensive exam based on 200-level course work is required in statistics and one graduate level course in measurement, and an hours of Ph.D. thesis credit. All of these courses are recommended for individual students can be completed with the approval of a three-member committee comprised of faculty members in the Education and Psychology program. Candidates who take the M.A. degree without thesis must undertake a project in lieu of the Ph.D. 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 council considers course grades, evidence of critical and analytical skills, development during the year, and purpose 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 comprehensive examinations. Typically, these examinations consist of a total of 16 hours of written examinations in two or more areas. One of these 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 an advanced degree from an accredited institution. The graduate grade-point average requirement for admission is the same as that established by the Graduate College. Normally, if the applicant's score on the verbal and quantitative sections of the Graduate Record Examination (GRE) Aptitude Test total less than 1000, he or she will not be admitted. However, any other evidence (high grade-point average, strong academic preparation, and high 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
Doctor of Philosophy in Educational Measurement and/or Statistics

The purpose of this program is to prepare students for professional positions in the fields of educational measurement, program evaluation, and statistical research and analysis, positions that generally occur in colleges and universities, government agencies, and departments of education, large public and private school systems, testing agencies, and research centers.

Every student must complete the following core courses or their equivalents:

**required courses**

Table 1: Descriptive Statistics and Probability Theory

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic Educational Psychology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>Intermediate Psychological Methods</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>Biostatistics I</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>Educational Research Measurement</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>Constructive and Use of Evaluation Instruments</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>Educational Measurement and Evaluation</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>Criterion and Regression</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>Design of Experiments</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>Program Evaluation</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

The student's advisor will suggest additional course work 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 familiarity with computer programming techniques and processing equipment.

Climatologists who enter the program without completing an M.A. must complete a substitute project approved by the three members of the division faculty. The project must be completed before the writing of the Ph.D. comprehensive examinations. A minimum of 90 semester hours is required for the degree, including 12 to 16 semester hours of thesis credit.

The record of every student admitted to the program is reviewed after completion of approximately 18 semester hours of course work. The division faculty will consider course grades, evidence of critical and analytical skills, development since admission to the program, and promise for continued growth. Students who show insufficient potential or deficiencies that cannot be remedied will be dropped from the program.

Following completion of the major portion of their course work, candidates must write comprehensive examinations. Typically, these consist of three three-hour written examinations over the fields of applied statistics, educational measurement, and educational psychology or an approved substitute area. A substitute area will generally be in the candidate's area of study and include at least nine semester hours of course work. In lieu of or in addition to written examination, the student's committee may assign a comprehensive or final project involving research skills or research creativity. The written examinations are followed by an oral examination in which the candidate's area of study will be examined.

The admission requirements are the same as those for those for the Ph.D. program in educational psychology.

Doctor of Philosophy in Instructional Design and Technology

The Ph.D. in Instructional Design and Technology is a 90-semester-hour program designed to provide a broad background for students interested in teaching, research, and leadership positions in the field. There is a relatively heavy emphasis on helping students acquire the knowledge and skills necessary for research and development of learning and instruction and those factors which influence learning.

The admission requirements are the same as for the Ed.S. degree except that a minimum grade-point average of 3.2 on all previous graduate work is required for regular admission. Applicants seeking admission to the Ph.D. program must submit a letter to the division chair at the time of filing completed admission forms with the University Graduate Admission Office. The letter should describe the applicant's interests in the field of study and the program at the University of Iowa, areas of desired study, tentative future plans, and any additional information which may be helpful in the admissions process.

It is also recommended that applicants for the Ph.D. degree arrange a personal interview with program faculty members after submitting admission forms.

All students in the Ph.D. program must complete the following courses work or approved equivalents:

M.A. core without statistics plus:
Courses

Educational Psychology, Measurement and Statistics

315 Elementary Statistics and Inference

Descriptive and inferential statistics, elementary sampling distributions, tests of hypotheses, and analysis of variance; basic measures of central tendency and variability; rank correlation, and regression. Prerequisite: 2261 or equivalent. Same as 225-10.

316 Educational Psychology and Measurement

Analysis of individual and group learning, classroom teaching and management, assessment and evaluation of educational programs, introduction to tests, measurement, interpretation, and evaluation of achievement tests. Prerequisite: 2261 or equivalent.

318 Low and Intermediate School Guidance

Introduction to the psychological principles of guidance, group counseling, procedures for career choice, and counseling in relation to the social and physical environment. Prerequisite: 2261 or equivalent.

321 Social Psychology of Exceptional Children

Human development, normal and abnormal; personality, character, and behavior; social development and relationships; interpersonal and intrapersonal relationships; roles and social interaction; mental health; and special education. Prerequisite: 2261.

322 Educational Psychology

Psychological principles related to learning, teaching, and the instructional process; motivation, learning, achievement, and personality; and methods of measuring, interpreting, and applying the learning process. Prerequisite: 2261.

323 Adolescents and Young Adults

Adolescence and young adulthood, family and social roles, and mental health; modes of thinking, learning, and information processing. Prerequisite: 2261.

415 Statistics I

Variable probability, random variables, probability distributions, correlation, and regression; linear and multiple correlation. Same as 225-10.

418 Statistics II

Analysis of variance, sample and population distribution, hypothesis testing, and parameter estimation, with applications. Prerequisite: 315 or equivalent.

419 Methodology in Educational Measurement

Practicum in test construction, analysis of item and test reliability, motivational scales, and scoring and standardization techniques. Prerequisite: 2261 or equivalent.

420 Elementary Testing and Public Policy

Analysis of the history and current status of psychological models of test bias and test selection; instruments, techniques, and procedures for test selection; and test administration and interpretation. Prerequisites: 316 or equivalent.

421 Introduction to Psychology of Reading

Psychological theories of reading and reading disabilities. Prerequisite: 2261 or equivalent.

422 Social Psychology of Exceptional Children

Introduction to the social psychology of exceptional children, materials, facts, and research related to reading performance.

423 Diagnostic and Prescriptive Approaches to Reading Instruction 6-12

Overview of emerging perspectives and methodologies in the area of reading instruction and teaching, with emphasis on effective reading instruction for students who are not progressing through the reading hierarchy. May be repeated, Prerequisites: 2261 or equivalent. 7-12.

424 Introduction to Theories of Learning

Role of learning theories in psychology and education; topics of memory, perception, problem solving, and creativity. As relevant to learning.

425 Special Reading and Projects

Supervised individual study. Prerequisites: senior standing and permission of instructor.

426 Social Psychology of Child Development

Influence of developmental research, assessment of several theories of child development, practical applications in the areas of child development. Prerequisite: 776 or equivalent.

427 Evaluative Children with Learning Problems

Same as 226. Same as 745.

428 Normal Psychology

Same as 745.

429 Psychophysiology of Learning

Same as 745.

430 Educational Research/Methodology

Practicum in educational research, technique, interpretation, and reporting research, evaluation of current methods in educational research, and related topics. Prerequisite: 316.

431 Research Writing

Review of current literature in psychology and science; coverage of content for Research Methods of the APA, cover and preparation of manuscript, and principles of scientific writing.

432 Pre-Internships in Counseling Psychology

Laboratory based course, learning and performance of basic helping skills, integrating theory and practice, counseling theories and techniques, and related strategies.

433 Internship in Counseling Psychology

Introduction to the psychological foundations of counseling psychology, application of theory and skills, with major emphasis in areas of personality, counseling, and behavior change. Prerequisites: consent of instructor.

434 Adult Teaching and Learning

309

435 Teaching and Learning

For elementary school teachers and professionals: principles of teaching and learning; discussion: individual assignment.

436 Research Methods I

Basic research methods in the behavioral sciences, statistical analysis of data, and preparation of research proposals for publication in professional journals. Prerequisite: 316.

437 Statistical Applications of Statistical

Techniques

For students planning to take only one course in the statistical methods sequence beyond 701-450, no-equivalent to

Financial Aid

The division normally employs a number of graduate students as teaching, research, and production assistants. These are normally half-time academic year appointments, and holders are expected to devote a study and research load of up to 12 semester hours per semester. Candidates should address inquiries to the chair of the division.

Other types of graduate assistantships are available in the Iowa Testing Programs. Duties are varied, and they include responsibilities in test development, test norming, and conducting research within the field whose duties have participated in these testing programs. There are also a few other assistantships supported by the Iowa Testing Programs which are not specific to the programs cited above. Inquiries should be directed to the program directors.
Certification requires a major 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 Liedke 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

English
- Foreign Languages - Spanish, French, German, Russian, and Lithuanian
- Health Education
- Home Economics
- Journalism
- Mathematics
- Music
- Physical Education
- Reading
- Science, including general science, physical science, biology, chemistry, physics, and earth science
- Social Science, including social studies, economics, geography, history, political science, psychology, and sociology

*Available as an additional approval area only. A major in another subject matter area is required for certification.

Students planning to teach art, music, or physical education typically complete a program which prepares them for both elementary and secondary level certification.

Undergraduate candidates for certification to teach in secondary schools must complete the following requirements, in addition to the requirements in their major:
- 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:92 Introduction to Microteaching for "teachers" 1 s.h.
- 7X:170 Human Relations for the "Teacher" 3 s.h.

The methods or teaching course in the major field 3-4 s.h.
- Student teaching 12 s.h.

With their advisor's approval, graduate students may select courses in the following courses in lieu of 7S:91, 7S:100, and 7P:75. Students must complete all methods course in their major teaching field prior to student teaching.

Students in secondary education may do their student teaching at the Center for Urban Teacher Education (CUFE) through the Regents' Exchange Program or the Consortium for Overseas Student Teaching, or in the practical area established by the College of Education. An exception to student teaching in the customary classroom area will be considered only if the student teaching site provides the student with a specific program opportunity not available in the classroom area or during 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, N201 Liedke 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) undergraduates students must be admitted to the Teacher Education Program (TEP). Application for Admission should be filed at the College of Liberal Arts Admissions Office, 119 Schaeffer Hall. In order to be eligible for admission, students must have completed a minimum of 28 semester hours of course work with a minimum cumulative grade point of 2.3. 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 a College of Education advisor in their subject matter field, or the Division of Secondary Education Office, N293 Liedke Center for additional information on admission criteria. Graduate students who have been admitted to the Graduate College for "certification only" and have not previously applied for admission to the Teacher Education Program. Their admission to the "certification only" category 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 major higher criteria must be met for admission to student teaching. Students should consult their secondary education adviser or the Division of Secondary Education Office for the student teaching admission requirements for their certification program.

Graduate Programs
The Division of Secondary Education offers, or jointly administers with other departments in the College of Liberal Arts, advanced degree programs in the following fields of professional interests: art education, communication and theatre arts education, curriculum and instruction, educational administration, educational leadership, general education, mathematics and science education, music education, physical education, science education, and social studies education.

In some fields, only master's level programs are offered; whereas in other fields, educational specialist and Ph.D. degree programs are offered. All degree offerings are listed below, grouped by program area.

Art Education

Master of Arts
The Master of Arts program is administered by the School of Art and Art History with the cooperation of the College of Education. Students make application for admission to the School of Art and Art History.

The purpose of the program is to prepare highly qualified teachers of art for elementary and secondary schools and community colleges. The strong academic emphasis in this program is to assist teachers who are themselves creative artists to become highly literate in the art and language of art.

Admission
Applicants must have completed the equivalent of the minimum course work in art required for the B.A. or B.F.A. degree in art from The University of Iowa and a certificate to teach art. Applicants must be accompanied by a representative portfolio of the student's work consisting of eight slide reproductions of art work and one example of written work. The written work may be a paper prepared by the student's teacher for a course in art or it may be an original paper. Deficiencies in undergraduate art or courses recommended for teacher certification, if any, will be evaluated following admission to permit students to make up required course work concurrent with work for the degree. Candidates must meet Graduate College requirements for admission.

Degree Requirements
Studio and Art History (18 s.h.)— Either 12 semester hours of studio art and six semester hours of art history or 12 semester hours of art history and six semester hours of studio art;

Art Education Seminars (8 s.h.)—The courses range from 4 to 6 s.h.

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. in the School of Art and Art History; Comprehensive Examinations—A written and/or oral examination in art education, the student may elect a three-hour examination or a one-week research question.

Doctor of Philosophy
The doctoral degree program is administered by the College of Education with the cooperation of the School of Art and Art History. Students make application for admission to the College of Education.

The purpose of the program is to prepare college teachers and researchers in art education and supervisors of art in state departments of education and school systems. To provide an opportunity for continuing inquiry and creative work in art history and in studio.

Admission
Students must meet the general requirements of doctor level students in the Graduate College and have an M.A. degree in an education from the University of Iowa or an equivalent degree from an accredited degree college or University. Application to the program must be accompanied by a representative portfolio of the candidate’s work, consisting of 12 side reproductions of art work and two examples of written work. The written work may consist of papers previously written for a course or may be original papers. These should be submitted to the office of Art Education, 13 North Hall. In the case of course work deficiencies, the student must register to pertinent courses. One year of successful teaching experience in an elementary or secondary school is required prior to admission or the completion of the doctoral program.

Degree Requirements
At least 50 semester hours of graduate work beyond the M.A., planned with the student’s advisor, including at least 15 semester hours in the School of Art and Art History, 15 semester hours in art education seminars, 15 semester hours in a related area (e.g., aesthetics, anthropology, higher education, childhood education, psychology, sociology), and 15 semester hours in courses meeting the individual’s needs (to be specified after the student begins the program). TS:306 or TE:306 Introduction to Research in Art Education, comprehensive examinations, both oral and written. The written examination consists of an in-depth research problem assigned by the examining committee and to be completed within 14 days after which an oral examination on the project is held. The written portion of the examination is not intended to relate directly to the dissertation proposal; satisfactory completion of a written dissertation for at least 12 semester hours, which constitutes a contribution to scholarship; the student is expected to prepare a dissertation proposal and defend it before the dissertation committee; an oral examination on the dissertation in the Ph.D. level examination.

Communication and Theatre Arts Education
Master of Arts
The purpose of the program is to prepare teachers and supervisors of speech communication for secondary schools.

Admission
Candidates must have a grade point average of 2.5 for conditional admission and 2.75 for regular admission. Candidates without a prior academic background in speech communication may find it necessary to take additional courses beyond the minimum requirement. Application should be made to the Department of Communication and Theatre Arts, Communication Studies Building.

Degree Requirements
At least 30 semester hours of approved graduate courses, at least 24 of them at this institution.
A graduate level course in communication,
36:300 Introduction to Research;
A graduate-level seminar in the Department of Communication and Theatre Arts;
Six to nine semester hours of graduate courses in education, selected in consultation with the candidate’s departmental advisor;
A paper or project involving substantial scholarly investigation and writing, which normally will be written in a seminar and presented to the committee prior to the comprehensive examination;
A comprehensive examination consisting of three 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 had few or no professional education courses, this program allows students to enrich their backgrounds by completing graduate courses in a teaching area and graduate education courses which constitute professional preparation leading to secondary teaching certification.

Admission
Applicants must have an accredited bachelor’s degree in Speech Communication and Theatre Arts;
A minimum undergraduate grade-point average of 2.7;
Satisfactory scores on the Graduate Record Examination (GRE) Aptitude Test.
Students must maintain a 3.0 grade-point average in graduate work once they are accepted into the program.

Degree Requirements
A minimum of 18 semester hours of graduate course work in Communication and Theatre Arts, including:
36:300 Introduction to Research must be taken the first time the course is offered during the student’s period of residence;
A graduate seminar in any division of the department;
A graduate course in communication education;
Electives chosen in consultation with advisor.

The following sequence in the College of Education:
TP: 131 Educational Psychology—3 s.h.
TP: 177 Philosophy of Education or TP: 107 History of Western Education—2.5 s.h.
TS: 100 Methods: Communication—3 s.h.
TS: 191-192 Observation and Lab Practice in the Secondary Schools—12 s.h.
TS: 187 Seminar: Curriculum and Student Teaching—3 s.h.
TS: 170 Human Relations for the Classroom Teacher—3 s.h.
Student teaching, TS: 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 TS: 187 Seminar: Curriculum and Student Teaching should be taken during the student teaching semester.

Comprehensive examinations in Communication and Theatre Arts and Education similar to that required for the M.A. degree.
Curriculum and Supervision

Master of Arts

The purpose of the program is to prepare teachers and administrators for positions as consultants, directors, and coordinators in secondary school curriculum development. Admission

Students must meet the general requirements of the Graduate College. Teaching experience is desirable.

Degree Requirements

Common Core (13-14 s.h.):
7S:186 Curriculum Foundations 2-3 s.h.
7F:117 Philosophy of Education 2 s.h.
7P:257 Educational Measurement and Evaluation 3 s.h.
or
7P:255 Construction and Use of Evaluation Instruments 3 s.h.
7S:251 Secondary School Curriculum 3 s.h.
7E:300 Design and Organization of Curriculum 2 s.h.

Research tool—selected in consultation with the adviser.

cognates (4-6 s.h.)—in a subject field such as English; Electives—selected in consultation with adviser to complete a total of 30-32 semester hours;

Thesis—for students electing a thesis program.
7S:363 Masters' Degree Thesis 2-4 s.h.

Two three-hour comprehensive examinations—one in curriculum and one in a related field in education or in a cognate field.

Doctor of Philosophy

The purpose of the program is to prepare students for leadership positions in the field of curriculum for secondary schools, state departments, intermediate systems, and college teaching. Admission

Students must meet the general requirements of the Graduate College, hold a valid teaching certificate, and have at least two years of teaching experience. Applicants must be approved for admission by a faculty review committee.

Degree Requirements

Common Core (22-23 s.h.):
7S:186 Curriculum Foundations 2-3 s.h.
7S:291 Secondary School Curriculum 3 s.h.
7E:305 Design and Organization of Curriculum 3 s.h.
7S:391 Problems of Curriculum Planning 3 s.h.

At least two advanced supervision courses 6 s.h.

or

in secondary or elementary school subject fields:
7P:257 Educational Measurement and Evaluation 3 s.h.
or
7P:255 Construction and Use of Evaluation Instruments 3 s.h.
7S:390 Problems in supervision Electives (20-35 s.h. to be chosen in consultation with adviser.) Recommended electives include:
7F:130 Educational Sociology 2 s.h.
7F:117 Philosophy of Education 2 s.h.
7P:121 Educational Psychology 3 s.h.
7P:175 Introduction to Psychology of Reading 3 s.h.
7P:342 Selected Applications of Statistical Techniques 3 s.h.
7T:203 Computer Applications in Education 2-3 s.h.
7T:307 Theory in Administration 3 s.h.
7W:120 Introduction to Instructional Design and Technology 3 s.h.
7U:150 Exceptional Persons 3 s.h.

All doctoral candidates are required to complete at least eight semester hours of cognate work, preferably in sociology, psychology, or political science.

Dissertation and research tools—dissertation with a problem approved by the student's major adviser in the area of curriculum and instruction. Two research tools must be selected with the approval of the student's adviser.
7S:493 Ph.D. Thesis 0-18 s.h.
Candidates take three three-hour comprehensive examinations in secondary school curriculum, secondary school administration, and one related field in education or in a cognate field.

Developmental Reading

Master of Arts

This program is designed to prepare graduate students for positions as reading specialists in kindergarten and grades 1 through 12. Successful completion of this program combined with four years successful teaching experience qualifies the student for certification as a reading specialist. See the Early Childhood and Elementary Education sections of the Catalog for a complete description of the program.

English Education

Master of Arts in English with Specialization in English Education

The purpose of the program is to provide the student with a specialization in subject matter and professional concerns of teaching for secondary school classroom teachers. Applications should be made to the director of graduate studies, Department of English.

Admission

A secondary school teaching certificate is required. 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 of the semester hours are courses 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 reading texts administered to Master of Arts (Library Studies) candidates in English is required.

Master of Arts

The purpose of the program is to prepare students for English department chair, and university 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: plus an undergraduate major in English and a grade of 3.0 on the GRE Aptitude Test score above the fiftieth percentile on the Verbal examination. Students must maintain a 3.0 grade-point average while they are in the program.

Degree Requirements

A student will specialize in English education and one or two other areas. These are: reading; liberal arts, junior high school teaching, English, reading, composition, speech and drama, language arts, and writing; and oral and written English. Application must be made to the College of Education.

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:

7P:117 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 fifteenth percentile on verbal test (low normalized and two years successful teaching experience. A student admitted to the program is expected to provide evidence of the success culminating in a substantial research paper for a course included in the first 15 resistance hours. Students must maintain a 3.0 grade-point average while 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 (18-16 s.h.), including four of the following courses:
7S:260 Supervision of Elementary School Language Arts 3 s.h.
7F:308 Seminar: Research and Current Issues: 1 arr.
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 seminars (15-18 s.h.) may include reading, school curriculum, literature for young people, literature of a particular culture, educational psychology, special education, educational media, rhetoric and composition, linguistics, literary criticism, educational measurement, speech and dramatic arts. Student and advisor will select 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.

Faculty in a research tool agreed upon by the student and advisor which will help the student achieve professional objectives.

Comprehensive examinations in three areas: the teaching of English, a cognate area, and an elective area. The minimal requirements for eligibility to write the comprehensive areas examinations varies; the general requirement is three courses in an area.

Dissertation (typically 12 semester hours).

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:81 Introduction to Teaching 3 s.h.
7P:131 Educational Psychology 3 s.h.
7P:107 History of Western Education or
7F:117 Philosophies of Education 2 s.h.
7S:125 Basic Program for Foreign Language CA (same as 9158, 35:129) 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 3 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 languages, literary analysis, and 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, in addition, 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 advisor.

A minimum of four courses in mathematics education, which must include:
7S:235 Current Issues in Mathematics Education 2-3 s.h.
7S:250 Teaching Secondary Mathematics 2-3 s.h.
7S:257 Teaching of Geometry 2-3 s.h.
7S:297 Teaching Mathematics in the Middle School and Junior High School 2-3 s.h.
7S:238 Teaching the Low Achiever in Mathematics 2-3 s.h.
7S:239 Teaching of 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 two-hour comprehensive examinations: one in secondary mathematics education, the second in mathematics, and the third in a related area.

Master of Science in Mathematics with Education Option

The purpose of the program is to prepare certified teachers with advanced specialization in mathematics and mathematics education. The program is especially recommended for students considering a Ph.D. in Mathematics Education. The 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:

In one course, the examination in eight 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 specific content relating to the teaching of secondary school mathematics.

Doctor of Philosophy

The program for a Ph.D. in mathematics education is administered by the College of Education. The 72 semester hours include work toward the master's degree, (all credit must be updated if taken more than ten years previously.) Minimum course requirements are for one optional area. Typically, a Ph.D. will involve 80 to 84 semester hours.

The purpose of the program to prepare supervisors, teacher education personnel, community college personnel, and researchers in mathematics education.

Admissions

Applicants must have an undergraduate major in mathematics or the equivalent, a master's degree in mathematics, mathematics education or education; a 3.0 grade-point average or above, a current teaching certificate, and a minimum of two years of teaching experience.

Degree Requirements

The mathematics education program has the following degree requirements:

A minimum of 36 semester hours of graduate work in the Division of Mathematical Sciences (mathematics, statistics, and computer sciences), including 22M-119, 22M-116, 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 sciences 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 on all University of Iowa graduate work in mathematics.
- Have a cumulative grade-point average of 3.0 on all graduate work.
- Have a cumulative grade-point average of 3.0 on all University of Iowa graduate work.

Three three-hour written comprehensive examinations, one in mathematics education and two examinations selected from other fields of education or mathematics. An oral examination follows the written examinations. It is the student's responsibility to plan a program with faculty members in the cognate 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 of the proposed research must be presented to the dissertation committee prior to undertaking the study. Upon completion of the dissertation, an oral examination will be conducted in defense of the dissertation. Normally, a student will be expected to earn a minimum of ten semester hours of dissertation credit.

Music Education

Both the Master of Arts and Doctor of Philosophy Advanced Programs in music education are administered by the School of Music in cooperation with the College of Education. Application is made to the School of Music.

Master of Arts

The purpose of the program is to provide students with deeper insights into music, the theory and practice of music education, and the role of music in the school curriculum.

Admission

The student must be a certified music teacher or in the process of completing certification requirements. A grade-point average of 2.5, excluding grades in ensembles, is required for admission to regular status.

Degree Requirements

General requirement:

25.321 Introduction to Graduate Study in Music 2 s.h.

M.A. Program:

25.145 Contrapuntal Forms 5 s.h.

25.147 Tonal Forms 3 s.h.

25.148 Advanced Harmony 3 s.h.

Specific hour and course requirements in the theory area are determined by scores on the advisory examinations.

Music History and Literature:

25.301 Advanced History and Literature of Music I 3 s.h.

25.302 Advanced History and Literature of Music II 3 s.h.

Specific hour and course requirements in the theory area are determined by scores on the advisory examinations.

Music Education (10-12 s.h.): 75.144 Psychology of Music 3 s.h.

75.205 General Music Programs in Public Schools 3 s.h.

75.240 Supervision and Administration of Music Programs 3 s.h.

Electives to be selected in consultation with the adviser. 4-6 s.h.

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 pass/fail option that is chosen on the music advisory 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 therapy, and music history and literature.

Doctor of Philosophy

The purpose of the program is to prepare students for teaching, research, or administrative functions in the following types of positions:

College positions—teachers of music education, classes and activities, band, choir, and orchestra directors; and administrators of music departments and schools of music; or
Public school positions—music supervisors, research and curriculum consultants, and directors of city or district school music programs.

Admission

Application is made to the School of Music. For admission to the Ph.D. program in music education, a student must have a 3.5 grade-point average (excluding grades in ensemble), have a score above the fifteenth 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 music teaching experience.

In addition to the specific admission requirements stated above, an appraisal of teaching and potential for scholarship and writing ability is made by the music education faculty. Minimum qualifications for admission are only determined.

Degree Requirements

The Ph.D. degree is granted on the basis of achievement (as determined by course grades and evaluations on the comprehensive and final examinations) and not on the accumulation of semester hours of coursework. The degree is granted at the end of the comprehensive and final examinations.

Music (21-29 s.h.)

General

25-321 Introduction to Graduate Study in Music 2 s.h.
25-295 Musical Acoustics 3 s.h.
25-145 Computer Forms 3 s.h.
25-141 Tonal Forms 3 s.h.
Elective (25-148-152) 3 s.h.
Music History and Literature 3 s.h.
25-301 Advanced History and Literature in Music 3 s.h.
25-302 Advanced History and Literature in Music 3 s.h.
Elective (25-203-314) 3 s.h.
Applied and Ensembles 4 s.h.
Electives 0-2 s.h.

Music Education (22-24 s.h.)

75-240 Supervision and Administration of Music Programs 3 s.h.
75-144 Psychology of Music 2 s.h.
75-149 Behavioral Research in Music 3 s.h.
75-208 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 3 s.h.

Education (8 s.h.)

7P-143 Introduction to Statistical Methods 3 s.h.
7F-242 Selected Applications of Statistical Techniques 3 s.h.
Elective 2 s.h.

*M.A. level requirements

Electives

Selected in consultation with the student's advisor on basis of advisory examination topics and the student's professional needs and goals. Students take courses from applied music, ensemble, theory, history and literature, music education, evaluation, statistics, and psychology to total 19 to 25 semester hours.

Dissertation

Students earn a minimum of 12 semester hours for work on a dissertation.

Comprehensive Examinations

The comprehensive examination is an inclusive examination of the student's mastery of selected fields of study. Candidates must demonstrate maturity and scholarship in the areas of theory and practice of music education, research design and technique, specialized music performance, history and literature of music, and music theory and analysis.

The examination typically is divided as follows: music education theory and practice and research techniques, music theory and analysis, music history and literature, and specialized music performance area.

Physical Education and Dance

Master of Arts

Requirements for this program are described in the "College of Liberal Arts" section of the Catalog, under "Department of Physical Education and Dance."

Doctor of Philosophy

This program is also described in the "College of Liberal Arts" section of the Catalog.

Field House Program in Physical Education

Master of Arts

See "Physical Education" in the "College of Liberal Arts" section of the Catalog.

Doctor of Philosophy

The Ph.D. in Physical Education program is also described in the "College of Liberal Arts" section of the Catalog.

Science Education

The following advanced degrees are offered in Science Education:

Master of Arts in Teaching

Master of Science (with or without thesis)

Educational Specialist

Doctor of Philosophy

All programs are described in the "College of Liberal Arts" section of the Catalog under "Science Education."

Social Studies Education

Master of Arts

The purpose of the program is to provide an opportunity for interdisciplinary work in history, social sciences, or related areas for classroom teachers, high school department chairs, and supervisors, as well as others interested in acquiring greater competency in the social sciences and greater proficiency in teaching and supervision.

Admission

Applicants must have a minimum of 20 semester hours of undergraduate credit in the area of history and the social sciences from an accredited institution, a cumulative grade-point average of 3.0, 3.0-grade-point average in history and social sciences courses, preferred GRE Aptitude Test score of 1000 composite of verbal and quantitative.

Degree Requirements

Thirty-eight semester hours distributed among history, social sciences, or related areas, with a minimum of ten semester hours in each of the fields chosen.

Thirty-eight semester hours distributed among the disciplines listed above and education.

Nine semester hours of the total 38 semester hours must consist of graduate courses numbered 700 or above; distributed in the fields selected for concentration. A minimum of two to three semester hours of 68-201, 68-205, 75-295, or 75-293 must be completed within the first year of social studies education, unless other coursework 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 students, curriculum directors, and college instructors in the social sciences and pedagogy.

Admission

Applicants must have a bachelor's degree in 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 Analytic 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 semester hours of course work and dissertation credit beyond the bachelor's degree and not including the following requirements:

The 90 semester hours are to be distributed among history, social science, and 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 18 semester hours of 98.201, 98.202, or 75.293 must be completed with one of the faculty members in social studies education, unless other course work with these faculty members has been completed.

Course requirements are tailored to the individual's program and may consist of foreign languages or other requirements.

Normally, statistics plus research techniques in one or more of the fields chosen for concentration are required.

Comprehensive Examinations:

Normally three-hour three-examination period. The areas of study, will be required. Depending on the distribution of work taken, the nine hours of written examinations may be rearranged.

The Ph.D. examining committee consists of a minimum of one faculty member from the Liberal Arts disciplines and one from social studies education. The remaining members (to make the minimum of five as required by the Graduate College) 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 following 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 an oral examination will be conducted in defense of the dissertation.

Continuing requirements for maintaining the candidate's grade-point average of 3.5 plus annual examination.

Assistantships

A limited number of half-time assistantships are 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, they must register for at least six hours per semester. Assistant's assignments vary: some involve teaching undergraduate courses or courses in social science experience and others primarily involve research activities. Assistantships in some Liberal Arts departments may also be available to Secondary Education graduate students. Candidates with appropriate credentials should apply directly to the department in question or consult the College of Education adviser directing the program in their field.

Courses

75.01 Introduction to Education 2 h.

75.06 Introduction to Teaching 2 h.

75.10 American and European History 3 h.

75.12 History of Education 3 h.

75.13 Social Studies Education 3 h.

75.14 Social Studies 3 h.

75.15 American and European History 3 h.

75.16 European History 3 h.

75.17 Philosophy of History 3 h.

75.18 Social Studies Education 3 h.

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75.99 Social Studies Education 3 h.
Elementary Physically Handicapped
First Year
7U:139 Orientation to Rehabilitation of Physically Handicapped 3 s.h.
3:15 Introduction to Speech and Hearing Processes and Disorders 3 s.h.
7F:90 Introduction to Microcomputers for Teachers 1 s.h.
Second Year
7U:136 Methods of Teaching Physically Handicapped 3 s.h.
Third Year
7U:191 Supervised Teaching Physically Handicapped 3 s.h.
Students completing this program will be recommended for State of Iowa Approval 81 (Mental Disabilities K-9).

Secondary Mental Retardation
First Year
7U:20 Introduction to Exceptional Students with Special Needs 2 s.h.
7U:135 Mental Retardation 3 s.h.
7F:91 Introduction to Teaching 2 s.h.
7F:95 Educational Psychology and Measurement 3 s.h.
7F:91-Audiovisual Equipment for Instruction 1 s.h.
7F:91 Introduction to Microcomputers for Teachers 1 s.h.
3:4 Introduction to Sociology: Psychology 3 s.h.
3:4 Introduction to Sociology: Problems 3 s.h.
Second Year
7U:192 Teaching Mildly Mentally Retarded: Secondary 3 s.h.
7U:193 Introduction to Physically Handicapped 2 s.h.
7F:136 Teaching Moderate to Mentally Handicapped 3 s.h.
7F:132 The Culturally Different in Education 3 s.h.
7F:356 Methods: Mathematics for the Handicapped 3 s.h.
7F:185 Developing Reading Skills in the Secondary Schools 2 s.h.
7F:192 Facilitating Development of Career Awareness 2 s.h.
undegraduates cannot take this course by correspondence) 7P-101 Introduction to Psychology of Reading 3 s.h. 7W-110 Selection and Use of Media for Instruction 3 s.h. 3A-141 Juvenile Delinquency 3 s.h. or 3A-140 Criminology 3 s.h. 7U-131 Introduction to Learning Disabilities 3 s.h. 7U-132 Introduction to Behavioral Disorders 3 s.h. 7X-170 Human Relations for the Classroom Teacher 3 s.h. A course on American History or American Government 2 s.h. Third Year 7U-152 Supervised Teaching with Mentally Retarded 15 s.h. Students completing this program are recommended for State of Iowa Endorsement 20 (Secondary Teaching) and Approval 81 (Mental Disabilities 7-12).

Preschool Handicapped First Year 7U-30 Introduction to Assessment in Special Education 1.5 s.h. 7U-130 Exceptional Persons 3 s.h. 7U-135 Mental Retardation 3 s.h. 7U-139 Orientation to Rehabilitation of Physically Handicapped Children 3 s.h. 3-15 Introduction to Speech and Language Disorders 1 s.h. 7W-92 Introduction to Microcomputing for Teachers 1 s.h.

Second Year 7U-120 Methods of Teaching Preschool Handicapped 3 s.h. 7U-36 Practicum with Preschool Handicapped 2 s.h. 7U-136 Teaching Moderately Mentally Retarded 2 s.h.

Third Year 7U-193 Supervised Teaching with Preschool Handicapped 7 s.h. Students completing this program will be recommended for State of Iowa Endorsement 05 in Preschool Handicapped.

Undergraduate Admission Fifty-five students who have completed at least one year of college course work are admitted to special education each year. Admission decisions are based on cumulative college grade point average and experience with the handicapped. Examples of acceptable experience (volunteer or paid) with handicapped persons are: counseling in a summer camp program for the handicapped, work with handicapped students or in community or religious organizations, extensive child-sitting experiences with handicapped children, and teacher aide experiences in classes for the handicapped.

Documentation forms are available from the Division of Special Education Office. Documentation forms and the application to the Teacher Education Program must be submitted by May 15.

Graduate Programs The purpose of the graduate programs in special education is to train new personnel and to retrain existing staff so that both groups can better provide appropriate levels of service to handicapped children. Most applicants to the graduate program have undergraduate preparation as teachers either in regular or special education. Applications from students without valid teaching certificates will be reviewed by the division admissions committee. Graduate programs are offered for certification only, and in the M.A., Ed.S., and Ph.D. degree levels, initial certifications or additions to present certificates are available at the graduate level in elementary and secondary learning disabilities or behavioral disorders, school psychology, work-study coordination, administration of special education and teacher education.

Master of Arts Most students admitted to the M.A. program in special education are seeking the first step toward certification. Behavioral disorders 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 30 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 educational administration. 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 total of 60 semester hours.

In addition to the general graduate admission requirements listed below, requirements for admission to these programs include a master's degree in special education or equivalent preparation and certification in special education and a minimum of one year full-time teaching experience before admission to the program.

Educational Specialist in Special Education Admissions The primary objective of the program is to provide sufficient training and experience to enable graduates to obtain entry-level positions in administration. The candidate of the program is on 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 special director of special education (State of Iowa Endorsement 40) and also qualifies the person for (State of Iowa Endorsement 81) 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 40 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 at least one year of 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 to enable 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 40). The program requires a minimum total of 40 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 a minimum of 3.5 grade-point average on previous course work.

Doctor of Philosophy The purpose of the Ph.D. program in special education is to prepare students as scholars, school psychologists, directors of special education, and university teacher educators. The program
71221 Supervised Teaching with Learning Disabled
Student teaching experience with learning disabled elementary or secondary level. Prerequisites: special education major or consent of instructor.

71228 Supervised Teaching with Behavioral
Disability
Student teaching experience with behaviorally disabled at elementary or secondary level. Prerequisites: special education major or consent of instructor.

71229 Seminar: Supervised Teaching with Learning
Disabled and Behavioral Disordered
For students enrolled in student teaching practicum in learning disabilities or behavioral disorders. For advanced students in special education. Prerequisite: consent of instructor. Complements: TIT 207 or TIT 208.

71216 Characteristics and Programs for Severely
Behaviorally Disabled Children and Youth
Characteristics of the most severely behaviorally disabled and youth, emotional disabilities, mental retardation and learning disabilities. Programs for this severely disabled population will be examined. Prerequisite: TIT 120 or consent of instructor.

71213 Seminar Methods for Severely Disabled
Disorders Children and Youth
Methods for severely behaviorally disabled youth, intellectual disabilities (mental retardation), emotional disabilities, and learning disabilities. A practicum will be required. Prerequisites: TIT 120 and TIT 228, or consent of instructor.

71215 Administration and Supervision of Special
Edudracus
For prospective directors of special education and school administrative personnel; provides a foundation for and self-analysis in roles performed by directors of special education. Same as TIT 228.

71207 Practicum in School Psychological Services
Practicum in psychological and evaluative-evaluation in school settings. May be repeated. Prerequisites: TIT 208, TIT 209, TIT 215, and consent of instructor.

71206 Assessment of Learning Difficulties
Administration of individual educational assessment instruments and interpretation of test results. Prerequisites: TIT 120 and TIT 228, or consent of instructor.

71205 Behavioral Personality Assessment of the
Learning Child
Understanding of the variables which influence child behavior. Special emphasis on the role of behavioral assessment in educational decision-making. Prerequisites: TIT 120, TIT 228, and consent of instructor.

71204 Individual Intelligence Testing
Administration of individual intelligence tests and the presentation of test results, in a psychological, testing, factors which influence performance. Prerequisites: PP 142 or PP 150, and consent of instructor.

71203 Integration of Assessment Information
Supervised practice in the integration of educational, psychological, social, and medical information into written reports. Students expected to work with peers and adolescents to obtain this course credit. Prerequisites: TIT 208, TIT 209, TIT 215, TIT 272, and consent of instructor.

71202 Consultation Theory and Practice
Study of various models of consultation, such as behaviorism and organizational development. Same as TIT 201.

71220 Advanced Laboratory Practice with Exceptional
Children
Observation, experimentation, and individual instruction focusing on the problems of learning, giftedness, and the handicapped. Emphasis on evaluation, construction, and application of projects, materials for exceptional children. Prerequisite: consent of instructor.

71219 Individual Internship in Special Education
Practices specialize under a supervisor not included in regular courses. Prerequisite: intern in consultation.

71218 Internship in School Psychology (5 credit
hours)
Supervised internship in psychology, counseling, and counseling and in other settings. For Ed. S. 8, and Ph. D. 10 students in school psychology. Prerequisites for Ph. D. 10, same courses as for Ed. S. or equivalent. Prerequisite for Ed. S. students: TIT 207, TIT 208, TIT 243, TIT 251, TIT 252, and consent of instructor.

71218 Seminar: Current Issues in School
Psychology
Readings and discussion of the current issues in school psychology such as ethical and legal standards, consultation, training, etc. For advanced students in special psychology. Prerequisite: consent of instructor.

71204 Seminar: Research in Special Education
Seminar in research methods in the field. Intended to help in preparation for Ph. D. comprehensive examinations, Section 2 research in special education. Experience in research facilities on campus, campus students in writing research proposals, writing a research proposal, and/or developing a research study. Prerequisite: consent of instructor.

71202 Organization Development and Change
Children's role in current issues such as program development and change, grant writing, includes theory, research, and applications. May be repeated. Same as TIT 205.

71201 Problems in College Teaching
Teaching seminars, under supervision, in teaching techniques in special education. Intended for doctoral students majoring in teacher training. Prerequisite: consent of instructor.

71200 Seminar in School Psychology Practice or
Interim
Doctoral students gain experience supervising school psychology interns or mental health.

71201 Field Services Project in Special Education
Internship
Provides part-time or full-time experience as an intern in school districts or area education agencies. Develops skills in the supervision and administration of special education services of school systems. May be repeated. Same as TIT 206.

71205 Special Educational Research
Research involving design, data analysis, and writing up results of research in educational requirements for the special education. Prerequisite: consent of instructor.

71493 Ph.D. Thesis in School Psychology
Prerequisites: consent of instructor.
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 product, process, material, or system that is useful to our society. This activity demands a high degree of creativity coupled with a full understanding of engineering fundamentals, good judgment, and a practical sense of economics.

The College of Engineering prepares young men and women for one or more of the many career opportunities in the engineering profession. Such opportunities include positions in design, production, development, research, management; and consulting. Engineers are employed in industrial organizations, governmental agencies, and in private practice.

The College of Engineering has two major responsibilities. The first responsibility is to provide high quality undergraduate engineering programs by maintaining contemporary engineering curricula and laboratories, as well as support services such as academic advising and engineering career counseling. The second responsibility is to provide graduate programs in modern areas of engineering that lead to the Master of Science and Doctor of Philosophy degrees. Graduate education involves intensive research activities of a creative nature which are expected to result in original contributions to the literature at the Ph.D. level.

Programs Offered

The College of Engineering offers programs leading to the Bachelor of Science in Engineering (B.S.E.) degree in the major fields of biomedical engineering, chemical engineering, civil engineering, electrical engineering, industrial engineering, and mechanical engineering, as well as a program leading to the B.S.E. degree without designation of a major. Programs leading to the Master of Science and Doctor of Philosophy degrees are offered in the fields of chemical and materials engineering, civil and environmental engineering, electrical and computer engineering, industrial and management engineering, and mechanical engineering.

Any of the undergraduate programs offered by the College of Engineering may be combined with a program leading to a bachelor’s degree in the College of Liberal Arts and a bachelor’s degree in the College of Engineering. The combined degree program may be normally completed in about five years. In addition, a minor in the College of Business Administration or a minor or minors in any degree-granting, with departmental or approved program in the College of Liberal Arts may be combined with any of the undergraduate programs offered by the College of Engineering.

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 80 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 22M.35 Engineering Calculus I and 22M.36 Engineering Calculus II, or their equivalents, at 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 Test with a composite score of 25 or above, or the State University Admissions Test (SUAT) with a score of 25 or above (or equivalent SAT score).

High school physics and chemistry are pertinent 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 2.25.

Fulfillment of the minimum requirements for admission does not ensure admission to the College of Engineering. From the applicants, the College of Engineering selects those who appear to be best qualified for the study and practice of engineering.

Undergraduate Curriculum

The undergraduate curricular programs in engineering are designed to assure an adequate foundation in mathematics, basic and engineering sciences, the humanities and the social sciences, and engineering design. Added to this base is preparation in an engineering specialty appropriate to the challenge presented by today’s rapidly changing technological problems. The overall objective of the curricular programs is to provide an integrated educational experience directed toward the development of the ability to apply pertinent knowledge to the identification and solution of practical problems in each of the designated areas of engineering specialization. The specific objective of the curriculum is to prepare students for the practice of engineering.

The curriculum is structured into four parallel stems extending through the entire four years of undergraduate study. The stems are mathematics, basic and engineering sciences, humanities and social sciences, and engineering analysis and design. The mathematics, basic and engineering sciences, and humanities and social sciences develop the background required for engineers. The practice of engineering involves the ability to utilize this education to determine practical solutions to engineering problems. This ability is developed in the analysis and design stem. The course sequence in this stem begins with 57:1 Introduction to

Engineering in the first semester of the freshman year and terminates with senior-level course design 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 themes 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 includes a required group of courses which provides a common depth and breadth of exposure to every student in each of the curricula programs. These courses provide the common background which the faculty expect of every graduate in each of the respective programs. The remaining courses are technical electives chosen by the student in consultation with his or her academic adviser. These courses allow the student to develop additional depth in areas of special interest and are ordinarily taken at the senior level.

The curriculum for the freshman year is:

First Semester
4:13 Principles of Chemistry I 3 s.h.
10:1 Rhetoric 4 s.h.
or
10:2 Rhetoric 4 s.h.
25M:3 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
4:16 Principles of Chemistry Lab I 1 s.h.
10:2 Rhetoric 4 s.h.
or
Humanities or social science elective 3 or 4 s.h.
25M:4 Engineering Calculus II 4 s.h.
57:4 Engineering Compositions 3 s.h.
57:7 Statistics 2 s.h.
Total 14 or 15 s.h.

A maximum of four semester hours is allocated for satisfaction of the rhetoric requirement. Students who qualify for 10:3 are able to satisfy the requirement with this single course, while those required to complete the eight-semester-hour sequence of 10-12 may enroll only four semester hours toward their engineering program.

The courses listed above are required of all students in engineering; 4:14
Principles of Chemistry is recommended during the second semester of the freshmen year for biomedical or chemical engineering majors. Since the College of Liberal Arts industrial engineering program should review the social science requirement specified for that major before selecting any social science courses.

Humanities and Social Sciences Requirements

The goal of the humanities and social sciences electives is to provide more effective preparation for professional responsibilities by integrating humanities and social sciences into the undergraduate engineering curriculum. Supportive of this goal, the student is to select, with the adviser’s approval, a maximum of 16 semester hours of humanities and social sciences electives, which to include at least six semester hours of course work in the humanities and at least six semester hours in the social sciences. Because the social science courses of this curricular stem in industrial engineering are specified and are not open to the same free selection, students considering a major in this field should consult the industrial and management engineering program requirements presented later.

Humanities electives may be selected from those approved to satisfy the humanities and social sciences requirements, and the foreign civilization and culture requirements. Since the College of Liberal Arts general education requirements and/or appropriate courses from any of the following institutions may be used:

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 a faculty advisor or a member of the junior or senior hour of advanced (100-level) course work in the humanities to ensure sufficient depth of knowledge in an elected subject of study. This advanced course work will build on a previously completed elementary course in the same department. Students will not satisfy any of the humanities and social sciences requirements unless the courses are of junior or senior level. These electives must not Conflict with the requirement.

The social science electives may be selected from those approved to satisfy the social sciences requirement of the College of Liberal Arts general education requirements and/or appropriate courses from the following departments: anthropology, economics, geography, political science, psychology, sociology, journalism and mass communication, and social work, or other departments.
approved by the College of Engineering faculty. Students may select courses from departments not included above with the approval of the assistant to the dean. To assure an adequate depth of knowledge in a chosen area of study, students shall select a minimum of three semester hours of advanced (100-level) course work. This 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 in either the College of Liberal Arts or the College of Engineering. Students who enter this program will be advised by the assistant to the dean of the College of Engineering and by an associate dean of the College of Liberal Arts. Students interested in the combined degree program should declare their interest by contacting a representative of the Dean's Office in either the College of Engineering or the College of Liberal Arts. A plan of study must be developed and approved by the advisers from both colleges. It is critical to enroll in the proper mathematics and engineering courses early in the program to minimize the time required to complete the combined degree program. The plan of study for the combined program can normally meet the baccalaureate requirements of both colleges in about five academic years. However, the exact length of time to complete the combined degree program will be determined by the major areas of study selected in liberal arts and engineering.

Students selecting this program will be required to complete the general education requirements and the requirements for the major, and the residence requirements in the College of Liberal Arts. The specific engineering courses taken by the student will vary, according to the engineering specialty selected. Since the courses in science, mathematics, and the social humanities are regularly accepted for credit by both colleges, the student is in many cases satisfying the requirements for two colleges in 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 bachelor’s degrees in engineering. The requirements for the second degree are to complete at least 30 additional credit hours of residence course work beyond the requirements of 128 semester hours for the first degree program with a minimum grade point of 2.0. The additional credit hours must include all courses required by the program selected for the second degree, including the senior level design course sequence of the second degree program as well as any specific socio-humanistic elective requirements. The technical electives selected for the second degree program must be of such caliber and level that the student will meet at least a minimal level of competency normally expected of graduates of that program. A student must file an application for admission to the second degree program approved by the faculty of that program and submitted to the Office of the Dean prior to the time the student initiates the course work in the second degree program. The proposed academic plan of study should include a list of the courses to be taken in the second program along with a list of the courses completed and to be completed for the first engineering degree program. The approved plan will be submitted to the Office of the Dean before the student begins course work in the second program and will be placed in the student’s permanent file. Any changes in the plan must be approved by the student’s faculty advisor in the second program and by the department chair (the current petition form may be used for this purpose) and submitted to the Office of the Dean for inclusion in the student’s permanent file.

Minors

Students graduating from the College of Engineering may earn a minor in the College of Business Administration or a minor in mathematics in the College of Liberal Arts. Students interested in a minor are encouraged to take courses required in the beginning curriculum to satisfy the minor requirements in these three areas. A list of courses from the minor will be entered on the student’s permanent record.

Students must inform the Registrar’s Office of their fulfillment of minor requirements as the last step 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 environment course. In addition to these required courses, a student normally would also complete a calculus sequence, a computer course, and a probability and statistics course. Engineering majors satisfy the mathematics, statistics, and computer science requirements with courses 22M:35, 57.4, and 225.39. A 2.25 grade-point average in the courses applicable to the minor is required. Students who wish to complete a Master of Business Administration degree later should select courses which will satisfy M.B.A. requirements.

Minor in the College of Liberal Arts

Requirements for a minor are: a minimum of 16 semester hours in the minor department, at least 12 of which are in advanced courses acceptable to that department. Students should confer with the minor department to identify acceptable courses. The student must achieve a 2.0 grade-point average in the courses applicable to the minor. Courses to be counted toward the minor may not be taken on a pass/no-pass basis. Students interested in physics, chemistry, or a mathematics minor may not use courses acquired 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 alternate periods in full-time academic study on campus and in full-time engineering-related employment in business, industry, or government.

While the student can earn a substantial portion of college expenses during the work periods, the success of the program depends on the work experience having significant educational value as well. This is assured by careful monitoring of the work experience provided by participating employers and by matching student interest and ability to the work situation. The insight gained by involvement in the practical application of subject matter studied in the classroom usually results in improved motivation during the study period and a corresponding improvement in academic performance. Another important aspect of the experience gained, although it is difficult to evaluate, is the increased awareness of the non-technical considerations involved in any engineering project.

The co-op phase ordinarily begins during or immediately following the sophomore year and continues until the beginning of the senior year. The total time for the degree program under this option is normally five years and includes the equivalent of at least one full year of work experience. A student in this option is also given the option to be assigned to a company that provides students with a corporate internship.
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 reenroll without specific approval following two consecutive semesters on probation. A student who has not made satisfactory improvement in scholarship may be dismissed from the college. A student dismissed from the college for poor scholarship may petition the assistant to the dean for permission to re-enroll after an interval of two regular semesters.

Dropping and Adding Courses

Courses may be added with permission of the advisor and the instructor during the first three weeks of the semester (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 ten weeks of the semester. Only under compelling circumstances may courses be dropped after the tenth week. In this case, special approval must be granted by the advisor, the course instructor, and the associate dean. Under no circumstances will a student be permitted to drop after the beginning of the scheduled final examination period.

Cancellation of Registration

A student in good academic standing who cancels his or her registration during the first four weeks of a regular semester, or during the final three or two weeks of a twelve- or eight-week summer session, respectively, will not be permitted to enroll for the semester immediately following without specific approval from the assistant to the dean.

A student on scholastic probation who cancels his or her enrollment at a 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 satisfaction 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 those colleges. The pass-nonpass option may not be used for courses taken to satisfy the rhetoric requirement.

Students enrolled in courses taught in the College of Engineering may choose to be graded on a pass/nonpass basis under the following conditions:

The signatures of the 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 highest grade is a prerequisite. The option may be elected to no more than three courses and it may be applied only once to a given course. Transfer students may apply the option on a pro-rated basis. For example, a student transferring in more than 42 semester hours of applicable engineering course work may use this option for a maximum of three courses, while a student with between 42 and 88 semester hours of credit may use this option for no more than two courses. Students transferring in 88 or more semester hours of transfer credit may use this option for only one course. Students wishing to exercise this option should apply to the assistant to the dean.

Satisfactory-Fail Courses

The noncredit professional seminar courses, which are required in each of the professional programs, are offered in this manner. An F (failure) grade earned for such a seminar will not satisfy any portion of the professional seminar requirement.

Incomplete and No Report Grades

A mark of I (incomplete) or O (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 converted by a final grade of F (failure), except that students with a minimum 2.0 semester gradepoint average 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 or his final 60 semester hours of study in residence in the college, and have completed at least 32 semester hours of study in the college before his or her final registration. Students in the tutored engineering-liberal arts program are eligible for this recognition regardless of the location in which they complete their residency requirements.

Dean's List

Engineering students achieving grade-point averages of 3.5 or above during a given semester on 10 or more semester hours of graded work with no I or D grades still standing on the current or past semester's record, are recognized by inclusion on the dean's list for that semester.

President's List

Students earning a 4.0 grade-point average in 10 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 D grades in the record are included by inclusion on the president's list.

Other College Policies

Advanced Placement

Students who have pursued college-level courses in high school through the Advanced Placement (AP) Program of the College Board (AP) and have achieved satisfactory grades on the corresponding advanced placement examinations, will receive credit for the courses for which the examination has been taken. Students are encouraged to consult the catalog for credit policies. Students are encouraged to consult the catalog for credit policies.

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 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 may be applied to the total humanities and social sciences requirements for engineering. Credit earned on other CLEP subject exams may also be applied to meet other course requirements as appropriate in content and level on a non-duplicative 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 work may be granted the opportunity to obtain credit toward graduation by examination. For example, credit for an engineering core course may be earned by achieving a satisfactory test score on a comprehensive examination similar to a final exam for that course. Conditions and limitations of this policy are established by the faculty of the College of Engineering. A student wishing to apply for such an examination should contact the assistant to the dean.

Credit by Volunteer Service

Students with course credits obtained at an accredited institution may request the validation of the credit up to a maximum of 12 semester hours. Credit may be validated if the student has completed at least 24 semester hours of course credit at The University of Iowa, which will include appropriate courses for which the work to be validated is prerequisite.

Students with unaccredited work who wish to utilize this option 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: Provided, at the time of applying 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. Satisfaction of engineering course requirements by courses from another college will 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 requirements of the University of Iowa Rhetoric requirements by transfer work should contact the assistant to the dean for details. Students planning to attend a two or four year institution before transferring to the college of Engineering should be advised to discuss the planned transfer with officials at both schools before embarking on a transfer program. The College of Engineering does have recommended course lists for most Iowa community colleges and some four year colleges. Course lists are available by contacting the assistant to the dean.

Once enrolled in the College of Engineering, all course work taken at other institutions must be pre-approved by the assistant to the dean if that credit is to be applied to meet engineering degree requirements.

Course Substitutions

For students in the College of Engineering, the substitution of a required course by an alternate course requires the approval of a petition. The petition is available in the Office of the Dean. The form must be completed by the student and approved by the student's advisor and by the chair of the academic department in which the student is majoring. In the petition, a required engineering core course, then it must also be approved by the department chair and the chair of the Academic Curriculum Committee. Core courses in engineering core courses are to occur concurrently in order to prevent the student from being required to resubmit an approved course. Substitutions of courses, at the option of the student's department major, are governed by the program faculty and approval of these course substitutions is only needed by the chair and the department major. All petitions must be forwarded to the Office of the Dean for inclusion in the student's permanent 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 W will be changed to a grade of D toward graduation. Auditing may not be used as a prerequisite for obtaining a registration for a course on an audit basis, the course would be deleted on the registration card in the usual manner even that zero credit hours would be indicated. The instructor's authorization signature and the registrar's department signature will also be required on the reverse side of the registration card. To change
registration from audit to credit or credit to audit, a drop-add form is used. These changes must be made during the first three weeks of a semester (or one and one-half weeks of a summer session).

Student Academic Misconduct
Regulations dealing with cases of cheating or plagiarism are delineated by a college policy. In cases of cheating on exams or quizzes, the policy recommends that the instructor reduce the student's grade, and that 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 allotted 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, after a satisfactory outcome, the student should discuss the complaint 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 seek assistance from the Faculty Ombudsman when attempting to resolve a complaint. However, it is anticipated that grievances generally can be satisfactorily resolved most especially at the faculty or chair level. If the student is not satisfied with the outcome at the department level, 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 the opportunity for students and carrying out activities involving the entire college, such as the student and faculty picnics held each fall and spring, the homecoming day, 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. 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 UI chapter of Tau Beta Pi, a national honorary society for students in all engineering fields, gives special recognition to superior students in their junior and senior years. Senior and graduate engineering students who have special ability in research are eligible for election to Sigma Xi. Phi Lambda Upsilon, honorary chemistry and chemical engineering society; Chi Epsilon, honorary civil engineering society; Eta Kappa Nu, honorary electrical engineering society, Alpha Pi Mu, honorary industrial engineering society, and Phi Tau Sigma, honorary mechanical engineering society, recognize the work of outstanding students in their respective fields. Many organizations dedicated to providing support and assistance in the development of more equitable enrollments of women and minorities in the college are the women's 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 time of graduation. (Graduates of unaccredited programs must complete at least one year of professional experience to be eligible to take the engineering fundamentals exam.) Following graduation and the successful completion of the engineering fundamentals exam, 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."
Computer Services
Services of the Weeg Computing Center are used extensively by students and faculty of the college under the auspices of the college computer committee. The committee maintains terminals and remote printers for access to the University computer systems in the CBE 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 minicomputers and microcomputers 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 interview rooms and resource area, is located on the ground floor 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, Civil Engineering, Electrical and Computer Engineering, Materials Engineering, and Mechanical Engineering. Each department offers an undergraduate degree program, which is accredited with Biomedical Engineering, all offer graduate degree programs. A program track in biometrics at the graduate level is available through Mechanical Engineering. In addition to the departmental degree programs, the College offers an engineering student's undergraduate degree program for students who wish to take make a special program that may not be available through traditional majors. Information about each of the degree programs follows in the next section.

The three research units are the Iowa Institute of Hydraulic Research, the Center for Materials Research, and the Center for Computer Aided Design. Descriptions of these units follow next.

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 1931 to coordinate capabilities, facilities, and resources available at the University for research or problems in engineering hydrostatics and hydrology, and soon broadened its scope of activities to include fluid mechanics. Active programs of basic and applied engineering research, conducted in five modern, well-equipped laboratories, with total floor space exceeding 72,000 square feet, currently are being pursued at IIHR.

Center for Computer Aided Design
The Center for Computer Aided Design was founded to promote the purpose of enhancing research and development of design methods utilizing modern computer technology. The research program of the center is focused on mechanical system dynamic analysis and design, control system analysis, structural optimization, and dynamic computer graphics. A research facility consisting of a PRIME 750 super minicomputer, a dynamic graphics system, and a variety of related computer support equipment supports the faculty, staff, and students associated with the center.

Faculty, staff, and students participating in the center are developing and distributing computer software to government and industrial agencies for use in a broad spectrum of mechanical and structural design activities.

Course Numbering System
The title of each course offered by the College of Engineering is preceded by a two-digit prefix and a three-digit suffix, separated by a colon. The first digits of the suffix is 5, which identifies the course as being offered by the College of Engineering. The second digit of the prefix identifies one of the schools or the courses offered by the departments for a specific curriculum program. The correspondence between the second digit and the curriculum programs as 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—19—Sophomore core courses
20—29—Junior core courses
30—39—Senior core courses
40—49—Required courses in undergraduate programs
91-94—Undergraduate professional program seminars
95—97—Contemporary topics courses for undergraduates
98—Individual investigation courses for undergraduates
101-109—Courses for which little or no engineering, science, or mathematics background is required
110-189—Undergraduate elective or lower level graduate courses
190—Readings courses for non-engineering majors
191-194—Seminars for undergraduates and graduates
195-197—Contemporary topics courses for undergraduates and graduates
198—Individual investigations for graduates
199—M.S. thesis research
210-289—Upper level graduate courses
291-294—Seminars for graduates
295-297—Contemporary topics courses for graduates
299—P.H.D. thesis research

The courses offered by each department are listed within each department's section by disciplinary area, starting with the lowest level course and proceeding to the highest level. Most courses have prerequisites stated in terms of courses at this University. Equivalent academic background may be obtained by a student through previous coursework at other colleges and universities. The student should consult with his instructor if there is any question concerning the academic background needed for a particular course, and the student should obtain the instructor's consent to enroll in the course.

Engineering students may enroll in any course in the College of Engineering if the student meets the course prerequisite and corequisite requirements. Non-engineering majors may enroll in engineering courses only by consent of the assistant to the dean. Consent for enrollment in an engineering course will be based on space available, as well as on the mathematics, science, and engineering core background of the student and that consideration necessary to satisfactorily undertake the course work.

Engineering Core Courses

All of the undergraduate engineering curricula, which are detailed in the following sections, are based upon a core program as described in the earlier section of Undergraduate Curriculum. Course descriptions follow for those courses of the core program that are offered through the College of Engineering.

Not all of the following courses are required for each engineering major. For course requirements in a specific major, see the course listing in the section for that major. None of the following courses are available to non-engineering majors unless special permission is obtained from the assistant to the dean.

151 Introduction to Engineering
152 Survey of various branches of engineering, engineering applications, and industrial problems. Prerequisite: 22002.
153 Engineering Graphics
See course descriptions necessary in component engineering including orthographic projection, geometric constructions, tolerances, sections, auxiliary views, dimensions, isometric and perspective drawings, trees, and planes and sections. Introduction to computer graphics with standard software using the PRINCIPAL computer.

154 Engineering Computation
See course descriptions necessary in component engineering including optimization (using FORTRAN), arithmetic and logical operators, loops, subroutines, input-output, flow charts, and program development techniques with emphasis on engineering applications. Corequisite: 22038.

157 Statics
Vector algebra, forces, couples, equivalent force couple systems, Newton's laws, friction, equilibrium equations of particle and free-body diagrams, applications. Prerequisite: 22038.

159 Dynamics
Vector calculus, Newton's laws, dynamics of particle motion, mechanical systems and rigid bodies in plane motion, applications. Prerequisite: 22037 and 22038.

168 Introduction to Electrical Science

150 Linear System Analysis
Treatment of linear and nonlinear systems in a systematic manner. Analysis of systems to both types of physical systems. Prerequisites: 157-110 and 157-111. Corequisite: 22038.

161 Linear Engineering Management Science
Basic techniques in engineering economy: time value of money, net cash flow, equivalent annuities, depreciation, inflation, and inflationary effects. Linear systems analysis. Linear programming, present worth, annual equivalent cost, rate of return, percentage rate, replacement analysis, break-even analysis, and capital rationing. Prerequisite: 22038.

162 Statics and Dynamics

163 Thermodynamics
Basic elements of classical thermodynamics, including first and second laws, reversibility, irreversibility, Carnot cycle, properties of pure substances, closed system analysis and zero-dimensional steady-flow systems. Prerequisite: 22038. Corequisites: 22036 and 22038.

164 Principles of Electronic Instrumentation

170 Mechanics of Deformable Bodies
Elementary theory of deformable bodies, stress, strain, principal stress and strain, stress in simple bending, plane stress, plane strain, and stress in thin-walled cylinders. Corequisites: 22036 and 22038.

175 Mechanics of Fluids and Transfer Processes

178 Electrical Machines and DRDC Connections
Chemical and Materials Engineering

Department chair: Gregory R. Carman
Faculty: professors Keith Betten, James O. Cawse, professor emeritus Kim Kimmervold; associate professors Gregory R. Carman, Arthur F. Verhe, assistant professor Ravindra Desai, Good W. Lumetta, David S. Reddick
Degrees offered: B.S.E., M.S., 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 develop, design, and engineer the complete process as well as the equipment, used in it. They choose the proper raw materials and operate the manufacturing facilities efficiently, safely, and economically. They are employed by basic industries such as heavy chemicals, petroleum, specialty paper, coal, and petrochemicals as well as consumer-oriented industries such as plastics, food, fertilizers, pharmaceuticals, cosmetics, paints, and glass fibers. 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 common 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

Fall Semester

2M:37 Engineering Calculus III

17:10 Dynamics

57:11 Introduction to Electrical Science

57:15 Materials Science

Total

Second Semester

2M:38 Differential Equations for Engineers

57:12 Linear Systems Analysis

57:20 Mechanics of Fluids and Transfer Processes

52:41 Process Calculations

29:81 Intermediate Engineering Physics I

Total

Junior Year

First Semester

4:131 Physical Chemistry I

29:82 Intermediate Engineering Physics II

57:21 Principles of Design I

52:42 Group Theory and Momentum Transfer

57:18 Principles of Electronic Instrumentation

52:91 Professional Seminar: Chemical Engineering

Total

Second Semester

4:132 Physical Chemistry II

4:144 Physical Measurements

52:43 Chemical Engineering Thermodynamics

52:44 Mass Transfer Operations and Selected Topics in Chemical Engineering

52:91 Professional Seminar: Chemical Engineering

Total

Senior Year

First Semester

4:121 Organic Chemistry I

52:45 Chemical Reaction Kinetics

52:89 Economics and Computation in Design

52:47 Unit Operations Laboratory

Humanities or socionics elective

52:91 Professional Seminar: Chemical Engineering

Total

Second Semester

4:122 Organic Chemistry II

4:146 Biochemical Reaction Laboratory

52:48 Unit Operations Laboratory

Humanities and social science elective

52:91 Professional Seminar: Chemical Engineering

Total

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. All candidates in advanced degree programs are required to assist faculty members in teaching or research as part of the graduate training.

Research is currently being carried out in air pollution, catalysis, diffusion, flow through porous media, membrane and bio-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 industries. Some of the 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 pollution 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 dusts, powders, and aerosols. The goals of this group are to describe mathematically the particle size and shape and then to relate these to the origins of the particles and their behavior. Potential applications include atmospheric pollution phenomena.
Chemical reactions, crushing and grinding, crystallization, grain dust explosions, storage and flow of granular solids, and analysis of machine wear.

Flow Through Porous Media Knudsen flow and surface diffusion through various microporous media are being studied. Practical applications are in gas separations, catalysts, and solar refrigeration.

Kinetics, Catalysis, and Reaction Engineering Hybrid multiphase catalysts are being investigated which combine the advantages of homogeneous and heterogeneous catalysts. Other topics of current interest include fluidized bed reactions, transport in porous media, diffusion and reaction in arbitrary shaped particles, design of novel systems for simultaneous reaction and separation, and parameter estimation by dynamic response of heterogeneous reactor systems.

Separation Processes The purpose of this research is the design, development, and optimization of separation processes. Particular emphasis is placed on methods that can achieve separations when conventional methods fail. Current research is focused on novel membrane, electrophoresis, and chromatography processes for use in biotechnology and chemical industries.

Master of Science A thesis and a minimum of 30 semester hours of graduate credit are required, including at least 24 semester hours completed in residence at The University of Iowa. Work completed in summer and winter sessions as resident credit may not exceed eight semester hours. However, six semester hours may be completed in residence at another recognized graduate college or by Correspondence Study at The University of Iowa.

The minimum course work requirement is 24 semester hours (eight courses), and the remaining three to 30 master hours may be devoted to research. To be eligible for 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. 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 collegiate work if the student has less than 12 semester hours of graduate work. Additional information may be required if the above requirements are not fulfilled and approval is obtained from the chair of the chemical and materials engineering program. A grade-point average of at least 2.3 is required for conditional admission. Also, applicants should take the verbal, quantitative, and advanced parts of the Graduate Record Examination (GRE) Aptitude Test, and scores of 150 should be submitted with the application.

Graduate courses in chemical and materials engineering are designed for the student who has an undergraduate background in chemical engineering or the materials area. However, exceptional students from other areas also may apply for admission to the M.S. or even the Ph.D. program in chemical and materials engineering. Such a student needs to take certain undergraduate courses at Iowa State to allow him or her to perform in the graduate courses with minimum difficulty. Since these undergraduate courses are in the nature of undergraduate courses, they do not carry credit toward a graduate degree.

Financial Assistance A number of fellowships, assistantships, and scholarships are available to graduate students who qualify. These are awarded on a competitive basis.

Special Facilities and Laboratories

Undergraduate Instruction Engineering Core Materials Science Laboratory This is equipped with optical microscopes and facilities for metallographic preparation including a darkroom. Mechanical testing instruments and hardness testing machines are also available. Heat treatment and sintering furnaces are available in a nearby laboratory. Teaching aids include metallography specimen kits, dislocation in Ni-Fe, and crystallography packages.

Required Course Laboratories Unit Operations Laboratory This is primarily an instructional laboratory for junior undergraduate students and involves experimentation with important phenomena, heat transfer, fluid flow, chemical engineering unit operations, and separation and catalysis. The laboratory includes pilot plant equipment such as distillation column interfaced with a microprocessor, 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, reflux column, mixer and blender, 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, heat and temperature. Equipment includes an analog computer, strip charts, chart recorders, two microcomputers, and pneumatic process control. 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 reactions, solid-state processes, and multiphase reactors. At present the laboratory contains a complete Beryll reactor unit suitable for catalytic studies at high temperature and pressures. It is
Civil and Environmental Engineering

Graduate Seminars, Advanced Topics, and Research

S11 109: Readings in Chemistry of Materials Engineering
For graduate students with industrial emphasis on chemistry of materials engineering graduate research. May be repeated. Prerequisites: graduate standing and consent of instructor.

S11 122: Seminar in Civil and Materials Engineering
Investigation and discussion of recent advances and research in chemical and materials engineering by guest lecturers, faculty, and students. Prerequisites: graduate standing.

S11 125: Controversies in Civil and Materials Engineering
New topics in areas of study not formerly offered by civil and materials engineering on a recurring basis. Offerings based on faculty interest and student interest. Prerequisite: graduate standing and consent of faculty adviser.

S11 128: Three-Research: Civil and Materials Engineering
Engineering research project enabling investigation of an approved topic for credit fulfillment of the 2nd year requirement for the Master of Science degree with research in chemical and materials engineering. Prerequisite: graduate standing and consent of faculty adviser.

S11 289: Research: Civil and Materials Engineering, M.S. Dissertation
An engineering research project enabling investigation of an approved topic for the Doctor of Philosophy degree in chemical and materials engineering. Prerequisite: completion of above.

Civil and Environmental Engineering

Department Chair: Jonathan Kye
adjunct professors: Mark W. Long
adjunct professors: Peter K. Kalikota, Forrest M. Jacob, A. Joseph (Bill) D. J. Burck, James C. Steer
non-tenured professors: adjuncts: Richard L. Veazey, Edward B. Stinner, Robert C. Veazey
adjunct professor: Roberta K. Mazlowski
Degree Offered: B. E., M.S., Ph.D.

Civil engineering is the oldest and one of the three largest fields of engineering. It traditionally has 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, sewers, and even highways; large-scale structures and office buildings to provide enclosed living and working space; environmental and hydraulic systems to provide clean water and air; including filtration 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.

In planning and design, the civil and environmental engineers work with architects, landscape architects, planners, economists, financiers, sociologists, lawyers, and other specialists as members of the design team. Some civil engineers work in engineering offices, others may be called upon to construct or supervise the projects they have designed. These field assignments, many of which are in remote and fascinating parts of the world, are particularly appealing to many civil engineers.

Undergraduate Program
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 foundational engineering, environmental engineering, hydraulic engineering, and transportation engineering.

Curriculum

Sophomore Year

First Semester

12M:37 Engineering Calculus III
51:10 Dynamics
51:11 Introduction to Electrical Science
51:15 Materials Science
51:16 Thermodynamics I

Total: 17 s.h.

Second Semester

12M:38 Differential Equations for Engineers
51:12 Linear Systems Analysis
51:19 Mechanics of Deformable Bodies
51:20 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
29:93 Probability and Statistics for Engineering and Physical Sciences
53:30 Sci Mechanics
53:31 Structural Analysis I
53:91 Professional Seminar: Civil Engineering

Total: 18 s.h.

Second Semester

57:16 Principles of Electronic Instrumentation
57:22 Principles of Engineer II
53:35 Design of Optics I
53:71 Principles of Hydraulics
53:78 Principles of Hydrology
53:82 Elements of Surveying
53:91 Professional Seminar: Civil Engineering

Humans and social science electives

Total: 18 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

Total: 15 s.h.

Second Semester

53:64 - Transportation Systems Design
53:91 Professional Seminar: Civil Engineering

Technical electives

Humans 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

Graduate program in civil and environmental engineering at both the M.S. and Ph.D. levels is designed to prepare students for professional careers and further academic work. 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 streams, one engineering and the other applied science. The curriculum maintains a heavy emphasis on interdisciplinary research and academic activities with other programs and colleges on campus, including the Institute of Hydraulic Research, the Institute of Agricultural Medicine and Environmental Health, the College of Business, Law, and Liberal Arts. Course work and research permit a general program of study or specialization in one or more areas: water quality management, air quality management, or solid waste management.

Hydraulics and Water Resources

The hydraulics and water resources curricula are associated with the civil engineering department. The curriculum is designed to provide a foundation of knowledge for students who wish to pursue careers in the field of water resources engineering, including design, analysis, and management of water resources systems. The course work includes topics such as water resources systems, soil mechanics, hydraulics, and water quality management.

Structures, Mechanics, and Materials

The structures, mechanics, and materials curricula are associated with the civil engineering department. The curriculum is designed to provide a foundation of knowledge for students who wish to pursue careers in the field of structural engineering, including design, analysis, and construction of structures. The course work includes topics such as structural analysis, materials science, and construction technology.

Transportation

The transportation curriculum includes courses in planning, design, construction, and management of transportation systems and facilities. The curriculum is designed to provide a foundation of knowledge for students who wish to pursue careers in the field of transportation engineering, including design, analysis, and management of transportation systems.

Master of Science

The Master of Science programs in civil and environmental engineering are designed to permit further concentration in the area or areas of the student’s choice. Graduates are placed in advanced technical positions in industry, consulting firms, or government, or they may continue their graduate study. Current and projected demand for M.S. graduates is excellent.

In general, the plan of study, with or without thesis, must include a minimum of 30 semester hours credit, with not more than six semester hours of credit allowed for a thesis. An additional six semester hours are required of the nonthesis environmental engineering curriculum.

Each student, with the approval of his or her advisor, develops a plan of study which satisfies special requirements of the curriculum chosen by the student. All candidates for the degree are expected to have a minimum grade point average of 3.0 and are required to pass written and oral examinations.

Doctor of Philosophy

The doctoral degree is granted primarily on the basis of achievement, rather than on a prescribed course of study. Requirements as to semester hours of course work vary somewhat among the various areas of specialty. The candidate will normally need at least three years of full-time work beyond the baccalaureate degree, one year of which is devoted to the preparation of a dissertation which contributes to knowledge in the field. Some areas of specialty, qualifying examination is required during the second semester for students who have not earned an M.S. in one of these fields of study.

All doctoral students are required to pass a written and oral comprehensive examination prior to formal admission to candidacy for the degree. This examination is normally taken when substantially all of the student’s course work has been completed.

The program culminates in a final examination, in which the candidate must successfully defend his or her dissertation.

Doctoral candidates are expected to maintain a grade-point average of 3.2 throughout the doctoral program.

The program also cooperates in interdisciplinary doctoral programs with the program in Applied Mathematical Sciences (see the “Division of Mathematical Sciences” section in “Liberal Arts”).

Graduate Admission Requirements

Each curriculum of the program is quite specific, and students will be admitted from all disciplines of engineering as well as from the mathematical and basic science.

An applicant for the master’s degree program is expected to have a cumulative undergraduate grade-point average of at least 2.5. Viva voce, 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 possibility.

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 extensive use is made of the Computer Aided Engineering Laboratory which is described under College Facilities.

For information about laboratories affiliated with other departments, see the section under facilities of the other engineering departments.

Required and Elective Course Laboratorizes

53-30 Soil Mechanics
The soils laboratory is equipped for determining the classification, shear strength characteristics, stress-strain properties, and strength of soils.

53-150 Principles of Environmental Engineering
The Environmental Laboratory and 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
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 analyzed.

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.
Graduate Facilities and Laboratories

Environmental Engineering and Science Laboratories

Research in environmental engineering is conducted in the department's Physt F. Morgan Sanitary Engineering Research Laboratory at the Iowa City Mu-Hall Wastewater Treatment Plant and in the Environmental Laboratory at the University Water Treatment Plant.

The Morgan laboratory is devoted to research activities in the wastewater treatment area. It includes a modern, well-equipped chemistry laboratory, a 10,000 gallon aeration tank for space for bench and pilot studies of wastewater treatment.

The Environmental Laboratory is equipped for both routine and advanced chemical and biological analyses of water, and provides space for both bench and pilot scale studies. The entire 4 million gallons-per-day water plant is especially designed to enable the isolation of treatment operations for research study without undue interaction with the production and supply of treated water to the University.

Hydraulics and Water Resources Laboratories

The teaching and research functions of the department are closely connected with the research and consulting activities of the Institute of Hydraulics Research. The Institute houses some of the most modern research facilities in the world, including a 350-foot towing tank, several hydraulic and associated facilities for suspended particle flows, a wave tank, two large flumes, and several field facilities for investigation of ice phenomena, an environmental hydraulic flume for modeling of atmospheric flows, a network of flow meters, and a computer controlled data handling system.

Structures, Mechanics, and Materials Laboratories

These laboratories include a structural testing laboratory, a soils laboratory, a plasticity research laboratory, and a design optimization laboratory.

The structures, soils, and plasticity labs are equipped for the determination of physical and mechanical properties of materials such as concrete, soils, plastics, and biomaterials. Equipment includes universal testing machines, a creep machine, a prestressing bed and frame, and a computer controlled MTS axial-torsional test system. The design optimization lab includes two microcomputers and three graphics terminals connected to a PRIME 750 computer.

Courses

Special Courses

3590 Cooperative Education Training assignment—Civil Engineering

4.0

Civil engineering students participating in a Cooperative Education Program receive 4.0 hours credit during each assignment. Repeat participation requires advisor consent. Student should plan for a minimum of one cooperative experience before graduation. After four semesters of satisfactory performance, permission of student's permanent record could. Prerequisite: admission to the Cooperative Education Program and approval of faculty advisor.

5242 Element of Survey, Plane Projection

4.0

Engineering surveying measurement, methods, and instruments. Prerequisite: Phys 27.1

5243 Professional Seminar—Civil Engineering

1.0

Professional seminar covering all aspects of practice through lectures and discussions by practicing engineers. May be required. Recommended not to exceed to six credit hours per student. Prerequisite: senior standing. Prerequisite: consent of faculty advisor.

5247 Investigational: Civil Engineering

4.0

Investigative and laboratory work in civil engineering and structural engineering. Includes lab work, design and construction of various projects. May be required. Recommended for all junior and senior students in civil engineering. Prerequisite: senior standing.

5248 Hydrogeology and Groundwater Quality

4.0

Quantitative and qualitative aspects of groundwater flow, wells pumping tests, flow nets, water quality, aquifer characteristics, mathematical modeling; includes computers in ground water studies. Prerequisite: senior standing in engineering or geology. Same as So 52.14.

5310 Computer Aided Design

4.0

Teaches 2-D CAD fundamentals, development data management, through to computer graphics, development of simple interactive design system, graphics mapping, files surface extraction, graphic hardware, file, EPS CAD systems. Prerequisite: senior standing. Same as So 51.10

5311 Numerical Calculations

4.0

Development of algorithms for numerical, differentiation and integration, solution of algebraic and differential equations, simultaneous equations, matrix analysis, numerical analysis of partial differential equations, numerical analysis of partial differential problems. Prerequisites: 2264.39. Same as So 11.47.

5312 Engineering Analysis

4.0

Course provides broad and general techniques in engineering analysis and their applications to physical problems, structural engineering, heat transfer, fluid mechanics, electrical engineering, experimental mechanics, fracture mechanics, fracture mechanics, linear analysis, advanced techniques, mathematical methods, advanced numerical methods, alternative analytical methods. Prerequisites: 2264.39. Same as So 46.12.

5313 Mathematical Methods in Engineering

4.0

Analysis of problems in advanced and applied mathematics, developing solutions to problems of engineering. Prerequisites: Math 2396. Same as So 11.43.

5324 Environmental Planning and Assessment

4.0

Major emphasis relating to environmental systems, dealing with impacts on human health and the data upon which its management and planning decisions are based. Emphasis of course is placed upon contemporary legislation involving major adverse effects upon environmental systems. Prerequisite: Math 2396.

5325 Advanced Environmental Engineering

4.0


5326 Water Resources Engineering

4.0

Analysis, approximation, numerical methods for solving structures to problems of water engineering, Prerequisite: Math 5313. Same as So 11.44.

Structures, Mechanics, and Materials

5330 Soil Mechanics

Engineering properties of soil, soil improvement, engineering classification, laboratory testing, testing of soils. Same as So 57.10.

5331 Energy Analysis

Analyzes energy in fluids, stresses, and materials: fluids: derivations of basic equations; boundary conditions and transmission characteristics for analytical solutions; similarity theory; parameter determination, by first order methods and by numerical integration. Prerequisite: Math 5313.

5335 Design of Steel Structures

Computational techniques in the design of steel structures. Design of steel columns, connections, girders. Reinforcement design. Prerequisite: Phys 27.

5336 Reinforced Concrete Structures

Computational techniques in the design of reinforced concrete columns and structures. Rebars, shear, fatigue, corrosion, shrinkage. Prerequisite: Phys 27.

5337 Concrete Methods in Structural Engineering

Design of steel and reinforced concrete design high-rise buildings using computer-aided design, large scale computer simulations, plastic design, control design, design project required. Prerequisites: Math 5313.5317.

5338 Prestressed Concrete Structures

Initial and final determination of forces concrete structural, analysis of and design of structural elements and steel reinforcement. Prestress. Shear, strain, deflection, flexural members, trusses,罂les, composite members. Sail, concrete members, reinforcing steel. Bridges, structural concrete design. Prerequisite: Math 5313.5317.

5339 Seismic Design of Buildings

Seismic design of buildings and structures. Analysis, design, and steel reinforcement. General techniques to practical applications. Seismic stresses, effects, and materials. Prerequisite: Math 5313.5317. Same as So 11.59.

5340 Intermediate Dynamics

Online study of dynamics, vibration, Lagrange's equations, kinematics of particles and rigid body, fourier series, and rectangular coordinates to practical applications. Prerequisite: Math 5313.5317. Same as So 11.59.

5341 Classical Mechanics

Motion and mechanics of particles and systems, analysis of static and dynamic system, and systems in equilibrium. Prerequisite: Math 5313.5317. Same as So 11.59.

5342 Continuum Mechanics

General theory of stress and strain, and strain energy, analysis of stress and strain, kinematics, and equilibrium equations for stress and strain fields. Prerequisite: Math 5313.5317. Same as So 11.59.

5343 Theory of Failure in Design

Inelastic analysis of structural systems, yield surfaces, limit analysis, factors of safety, work function, yield and failure envelopes, limit analysis, work function, yield and failure envelopes, yield surface, yield and failure envelopes. Prerequisite: Math 5313.5317. Same as So 11.59.

5344 Dynamic Analysis of Structures

Stokes method of solution, buckling analysis, eigenvalue problems, stability analysis, structural analysis, stress-bearing structures. Prerequisite: Math 5313.5317. Same as So 11.59.

5346 Finite-Element Techniques in Structural Engineering

Introduction to the finite element method. Analysis, design, and steel reinforcement. General techniques to practical applications. Seismic stresses, effects, and materials. Prerequisite: Math 5313.5317. Same as So 11.59.

5350 Computer Methods in Structural Engineering

Design of concrete and reinforced concrete structures, using computer-aided design and analysis. Large scale computer simulations, plastic design, control design, design project required. Prerequisites: Math 5313.5317.

5360 Structural Mechanics

Structural analysis and design of structures, earthquake engineering, steel structures, reinforced concrete structures, prestressed concrete structures, composite structures, design and analysis of largespan structures. Prerequisite: Math 5313.5317. Same as So 11.59.

5380 Space Frame Analysis

Introduction to the finite element method. Analysis, design, and steel reinforcement. General techniques to practical applications. Seismic stresses, effects, and materials. Prerequisite: Math 5313.5317. Same as So 11.59.

5390 Advanced Structural Analysis by Numerical Methods

Introduction to the finite element method. Analysis, design, and steel reinforcement. General techniques to practical applications. Seismic stresses, effects, and materials. Prerequisite: Math 5313.5317. Same as So 11.59.
**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. studies. Excellence in scholarship and research is stimulated through close contact with the faculty throughout the period of graduate study and through programs tailor-made to fit individual needs.

Each student selects an advisor, and, within the semester, plans an individual program, bounded only by a few broad guidelines imposed by the Graduate College and by the program. Course prerequisites vary with other departments exist 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 next.

**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 department is directed toward topics in nonlinear plasma physics of a theoretical as well as experimental nature. These topics include plasma confinement and stability, and nonlinear wave phenomena such as solitons and shocks. A plasma physics laboratory is available to support this activity. An electro-optic laser laboratory and an ultrasonic facility are used to conduct graduate research in the areas of optics/acoustics, especially acousto-optics, surface acoustic waves, and nonlinear wave phenomena in ultrasonic and microwave electronics. A microwave electronics 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 device development.

**Computer Systems**

Research emphasis is directed toward highly reliable and distributed computing. Areas of interest include failure-tolerant computing, distributed systems, coding theory and data security, VLSI design, and data-flow architecture. This work is supported by the availability of a computer network laboratory, and by microcomputer facilities and VLSI design software. Current projects include design of ultra-reliable computing systems, design of highly survivable computer networks, fault diagnosis in multinode 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 P, Q, R, S, and T waves, and development of hardware and software techniques for the acquisition and processing of images in cardiac and vascular systems.

**Statistical and Computer-Based Control Systems**

Current research emphasizes optimal control, learning and adaptive control, self-repairing systems, control design, and robotics. Work is also being done in estimation, identification, and control for linear dynamic systems. The general control systems research laboratory and the computer science laboratory support this effort. Topics include applications of stochastic processes to problems in control and communication systems such as spectral estimation, identification, and control for stochastic dynamical systems.

**Master of Science**

There are two M.S. degree options, an M.S. with thesis and an M.S. without thesis. The thesis option requires 30 semester hours of course work including at least 12 semester hours in electrical and computer engineering courses. The non-thesis option requires at least 30 semester hours of course work with a minimum of 15 semester hours in electrical and computer engineering courses. The M.S. nonthesis 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 55:198 Individual Investigations: Electrical and Computer Engineering are required in addition to the 12 semester hours in electrical engineering. This independent study is to be a special project completed under the supervision of the student's advisor.

The candidate for the master's degree in electrical and computer engineering must also successfully complete a final examination which is conducted by a committee of at least three faculty members, of which the 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 55:198 Individual Investigations: Electrical and Computer Engineering, for nonthesis candidates. At the time of graduation, the candidate for the Master's degree must have acquired a cumulative 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 the Graduate Committee, with at least 45 semester hours of credit earned in formal courses, including 30 semester hours in Electrical and Computer Engineering.

Successful completion of the Ph.D. qualifying examination;

Successful completion of the Ph.D. comprehensive examination;

Successful completion of a research project;

Successful completion of a final oral defense of the thesis, and a cumulative grade-point average of 3.25 or higher.

The Ph.D. qualifier examination, taken just after the student has completed 30 semester hours of graduate work, is an 8-hour 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 so as to protect 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 defense of the dissertation plan of study. The qualifier examination is given twice a year, and the student has two chances to pass it. A comprehensive examination includes a dissertation proposal followed within three calendar years of the qualifier, and the program ends with a final oral thesis defense.
Graduate Admission Requirements
The normal requirement for admission to the graduate program is a grade-point average of 2.7 grade-point average on all courses in electrical and computer engineering, mathematics, and physics for M.S. students. For Ph.D. students, this requirement is slightly higher. Students with baccalaureate degrees in related areas (e.g., physics, mathematics, and computer science) may be admitted.

Courses
Special Courses
Using computerized Education Training Environment
guided by Engineering

A special program for engineering students is offered in the Cooperative Education Program in the late summer and late fall. The program provides a unique opportunity for engineering students to participate in cooperative education programs. The program is administered by the University's Cooperative Education Program.

Exceptional Prerequisites of Electrical Engineering I 

Several design problems in electrical engineering with emphasis on design software and real-time integrated computer systems are presented. The emphasis is on design problems in electrical engineering with real-time integrated computer systems and the implementation of the design concepts in the laboratory.

Exceptional Prerequisites of Electrical Engineering II 

Design problems in electrical engineering with emphasis on design software and real-time integrated computer systems are presented. The emphasis is on design problems in electrical engineering with real-time integrated computer systems and the implementation of the design concepts in the laboratory.

Exceptional Prerequisites of Electrical Engineering III 

Design problems in electrical engineering with emphasis on design software and real-time integrated computer systems are presented. The emphasis is on design problems in electrical engineering with real-time integrated computer systems and the implementation of the design concepts in the laboratory.

Exceptional Prerequisites of Electrical Engineering IV 

Design problems in electrical engineering with emphasis on design software and real-time integrated computer systems are presented. The emphasis is on design problems in electrical engineering with real-time integrated computer systems and the implementation of the design concepts in the laboratory.

Graduate Facilities and Laboratories
The department has a microcomputer system in the computer engineering laboratory which supports two IBM ATs. The system consists of a large disk drive, a high-quality graphics display, an IBM-compatible keyboard, a mouse, and a network interface card. The system is used for a variety of purposes, including data acquisition and analysis, computer-aided design, and computer-aided manufacturing.

Computers and Digital Signal Processing

The department has a microcomputer system in the computer engineering laboratory which supports two IBM ATs. The system consists of a large disk drive, a high-quality graphics display, an IBM-compatible keyboard, a mouse, and a network interface card. The system is used for a variety of purposes, including data acquisition and analysis, computer-aided design, and computer-aided manufacturing.

Electrical and Computer Engineering 315
### Curriculum

**Sophomore Year**

| First Semester | 22M-27 Engineering Calculus III | 4 s.h. | 22M-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 | 29-83 Thermodynamics | 3 s.h. | 57-22 Principles of Design II | 3 s.h. | 57-14 Manufacturing 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. |

### Industrial and Management Engineering

Program chair: J. H. Buck

Faculty professors: J. H. Buck, J. M. Ullrich, M. J. Simon

Adjunct professor: M. J. Simon

Adjunct professor: R. G. Associates, Ltd.

Adjunct professor: E. M. M. Associates

Adjunct professor: E. H. Associates

Adjunct professor: E. H. Associates

Adjunct professor: E. H. Associates

The student may choose 3 s.h. from the following courses:

- 57-11 Introduction to Electrical Science
- 57-14 Management Engineering Science
- 57-15 Materials Science
- 22M-37 Engineering Calculus III

Total |
| 16 s.h. |

| Second Semester | 56-30 Manufacturing Materials | 3 s.h. | 57-10 Linear Systems Analysis | 3 s.h. | 57-16 Thermodynamics I | 4 s.h. | 22M-38 Differential Equations for Engineers | 4 s.h. | **313 General Psychology** | 4 s.h. |
| | | | | | | | | | Total |
| | | | | | | | | | 18 s.h. |

**Junior Year**

| First Semester | 56-91 Professional Seminar: Industrial Engineering | 3 s.h. | 56-31 Manufacturing Processes | 3 s.h. | 57-21 Principles of Design I | 3 s.h. | 225-39 Probability and Statistics for Engineering and Physical Sciences | 3 s.h. | 26-81 Intermediate Engineering Physics I | 3 s.h. |
| | | | | | | | | | **311-156 Psychology in Management** | 3 s.h. |
| | | | | | | | | | Economics elective | 3 s.h. | | Total |
| | | | | | | | | | 18 s.h. |

| Second Semester | 56-91 Professional Seminar: Industrial Engineering | 3 s.h. | 56-14 Design of Work Methods | 3 s.h. | 56-170 Deterministic Operations Research | 3 s.h. | 57-18 Principles of Electronic Instrumentation | 4 s.h. | 57-22 Principles of Design II | 3 s.h. | 29-82 Intermediate Engineering Physics II | 3 s.h. |
| | | | | | | | | | Total |
| | | | | | | | | | 16 s.h. |

**Senior Year**

| First Semester | 56-91 Professional Seminar: Industrial Engineering | 3 s.h. | 56-142 Human Factors Engineering | 3 s.h. | 26-150 Information Systems Design | 3 s.h. | Humanities elective (100 level) | 6 s.h. | **Technical electives** | 6 s.h. |
| | | | | | | | | | Total |
| | | | | | | | | | 15 s.h. |

**Second Semester**

| First Semester | 56-91 Professional Seminar: Industrial Engineering | 3 s.h. | 56-140 Operational Systems Design | 3 s.h. | 56-142 Quality Control and Engineering Statistics | 3 s.h. | **612 engineering science elective** | 3 s.h. | | | | | Total | 15 s.h. |
**Technical elective**
6 s.h.

**Total**
16 s.h.

The economics elective may be selected from:

- **6E:100 Price, Employment, and Production Theory**
  3 s.h.
- **6E:103 Microeconomics**
  3 s.h.
- **6E:111 Labor Economics**
  3 s.h.
- **6K: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.
- **57:30 Mechanics of Fluids and Transfer Processes**
  4 s.h.
- **28:93 Modern Physics**
  3 s.h.
- **A biological science course**
  3 s.h.

*Strongly recommended social science electives.*

The humanities and social science electives must be selected to satisfy the requirements of the College of Engineering.

**Technical electives.** At least 9 or 12 hours are to be selected from the following list. The final three semester hours are to be chosen with the approval of the academic advisor.

- **56:143 Advanced Human Factors Engineering**
  3 s.h.
- **56:148 Advanced Managerial Psychology**
  3 s.h.
- **56:151 Microcomputer Applications**
  3 s.h.
- **56:153 Engineering Administration I**
  3 s.h.
- **56:155 Quantitative Investment**
  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**
  3 s.h.
- **Simulation I**
  3 s.h.
- **56:198 Investigations:**
  - Industrial Engineering
  1 arr.
- **56:195 Contemporary Topics in Industrial and Management Engineering**
  1 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 choice of 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 area consists of facilities design, quality assurance, reliability, and production control. This area of concentration is covered by courses in the 60 series. Studies in operations research and applied statistics concentrate on mathematical, statistical, and computer sciences for modeling, analyzing, and optimizing systems. Various methodologies in this area include: mathematical programming, heuristic optimization, statistical analysis, and digital systems simulation. Courses in the 70 series cover these topics. Many graduate students tend to focus on one of these speciality 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 information on human information processing, performance time statistics with cognitive tasks, and the effects of visual information on human performance. Other ergonomic research is directed to the use of simulation and data analysis to solve human workload problems, industrial inspection, computer-aided work problem solving, and techniques of ergonomic data collection and analysis. Some current research in information and engineering management consists of facilities design, quality assurance, computer resource allocation, economics of parallel processing, entrepreneurship, governmental redistricting, methods of identifying accident causes through incidence data, and economic risk analysis. Production and quality management research is currently based on computer-aided layout and scheduling, material handling systems, flexible manufacturing systems, numerically controlled process paths, and inventory record accuracy-assurance procedures. On-going research in operations and applied statistics is centered on discrimination, improvements in robust regression, simulation and random number generation, and the development of programming techniques for discriminant classification problems. Other research is directed toward extending the capabilities of computer graphics.

**Master of Science**

Two M.S. programs are available—a thesis and a nonthesis program. Students considering eventual admission to a Ph.D. program are strongly advised to select the thesis option. The M.S. thesis option requires a minimum of 30 semester hours of coursework. The 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 38 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 and management human and factors students will find psychology and engineering economics useful preparation. Compensatory coursework may be required for students with nonengineering backgrounds.

The graduate program shall contain a minimum grade point average of 3.0 on all graduate course work (both 100 and 200 level courses). The University of Iowa is to be eligible for the M.S. degree. The date of the final examination will be specified by the examining committee. It may be composed of both written and oral parts. The examination will explore further the student’s course preparation and an appropriate individual investigation.

**Doctor of Philosophy**

Typically, Ph.D. programs in industrial and management engineering consist at least 72 hours of study including research for the dissertation. Part-time Ph.D. study is discouraged. There is no foreign language requirement or special requirement for research techniques. Admission to degree candidacy will require a minimum grade point average of 3.25 on all graduate work taken at The University of Iowa and the demonstration of a capacity for individual achievement. Upon completion of the course work 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 the 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. Students may be considered for conditional admission with a lower grade-point average and lesser GRE Aptitude Test scores. Students from business or social science programs who have adequate mathematical preparation may also be considered for regular admission. The student on conditional status must achieve regular status within two sessions of registration by attaining a grade-point average of at least 3.0 and regular acceptance by the industrial and management engineering program. Students may be dismissed at any time. Admissions may be limited by the number of facilities and available resources.

Students with a Ph.D. objective may be admitted from an A.A.S.-baccalaureate curriculum in any engineering discipline or the aeronautical and physical sciences with a minimum grade-point average of 3.0 and an acceptable GRE Quantitative Test score (typically at least 500 verbal, 700 quantitative). Students must be high school outside the U.S. must have an equivalent bachelor's degree and be able to satisfy the admission criteria of the University. Students may not have completed more than 12 credit hours in social science programs as determined by this University. Students may be admitted 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 onethird-time graduate student teaching and research assistantships are available. Awards are based on the student's academic record and the potential contribution to the research and 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 management 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 subsections for each of the other engineering departments.

Required and Elective Course Laboratories
Industrial and management engineering occupies the north wing of the fourth floor in the Engineering Building. Most classes and seminars meet there. Faculty, graduate student offices, and laboratories are also located there. These laboratories are described below.

Computer-Based Education Laboratory
Provides an on-line interaction with the University's computer systems for both standard computations and computer graphics applications.

Microcomputer Systems Laboratory
Conveys 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 integrated laboratory exercises, design projects, and research development. Various forms of testing devices, photographic equipment, television recording and playback 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 microcomputer with numerous features and peripherals for the real-time collection and analysis of human performance data as well as alternate forms of information displays and human response recorders.

Manufacturing Laboratories
Located in the 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, load force dynamometers, various forms of microscopy devices, and microscopic equipment for instruction and research in manufacturing processes.

Courses
Special Courses
55050 Cooperative Education Training Assignment: Industrial Engineering
Industrial engineering students participating in the Cooperative Education Program register in this course during work assignment periods. Registration provides a grading participation in the program on the student's permanent record card. Prerequisites: approval of the student's academic advisor and approval of the student's faculty advisor.

55510 Professional Practice: Industrial Engineering
Professional aspects of industrial engineering presented through lectures and discussions by guest speakers. Seminar topics may include: an overview on topics of current interest. Pass on appeal. Resumed each semester for individual engineering projects and seminars. Student should register for one semester credit in the last semester before graduation. Prerequisite: junior standing.

55515 Independent Investigation: Industrial Engineering
Independent projects for industrial engineering students such as: a laboratory study, engineering design project, analysis and simulation of an engineering system, computer simulations, project, and research. Prerequisite: consent of advisor.

Manufacturing
55.20 Manufacturing Materials
Methods used in manufacturing are studied at the macroscopic and microscopic level. Manufacturing and functional properties of metallic, nonmetallic, and ceramic materials with respect to their formation, treatment, and changes of material properties. Metal behavior in processing and service. Offered spring semesters. Prerequisites: 57.15, 57.19.

55.61 Manufacturing Processes
Methods of processing important industrial materials including casting, welding, machining, and forming. Production-shop tools and techniques, numerical control, planning of manufacturing operations. Offered fall semesters. Prerequisites: 57.15.

Human Factors
55.110 Human Factors Methods
Procedures of analysis and design required to integrate human factors into systems and equipment design. Methods of human performance measurements and on-design methods. Laboratory projects. Offered spring semesters. Prerequisites: 253.25 or 253.12.

55.145 Human Factors Research
Design of cognitive-interactive systems and development of optimum work environment by applying principles of behavioral science emphasis on sensory and perceptual processes, man-machine, experimental, and methodology. Offered fall semesters. Some as 155-153.

55.146 Human Factors Psychology
Discussion of selected areas in human factors engineering. Offered spring semesters of odd years. Prerequisites: 55.145 and 55.148 or consent of instructor.

55.145 Psychology in Management
Application of psychological principles to human relations and supervision. Discussion of motivation, leadership, communication, group dynamics, and conflict resolution. Practical applications. Some as 37.158.

55.146 Advanced Material Physiology
Discussion of selected recent literature on material physiology of man. Offered fall semesters of even years. Prerequisites: 55.145.
Second Semester
29:83 Modern Physics 3 s.h.
56:52 Mechanical Systems 1 s.h.
56:45 Heat Transfer 5 s.h.
56:42 Thermodynamics I 3 s.h.
56:51 Professional Seminar: Mechanical Engineering 0 s.h.
Humanities or total science elective 3 s.h.
Total 15 s.h.

Senior Year
First Semester
56:80 Experimental Engineering 4 s.h.
56:55 Mechanical Systems Design I 4 s.h.
56:91 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
56:48 Thermal-Fluid Systems Design 4 s.h.
56:86 Mechanical Engineering Project 3 s.h.
56:91 Professional Seminar: Mechanical Engineering 0 s.h.
Technical electives 6 s.h.
Humanities or social science elective 4 s.h.
Total 17 s.h.

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 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 research, development, and design. The plan of study is tailored to meet the student's career objectives. The primary area of concentration in the graduate program is mechanical engineering 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 pollution, 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 the high level applied research in bioengineering, biomechanics, or related areas. Emphasis is placed on fundamental principles and experimental techniques used in biomechanical systems. Areas of concentration include the biomechanics of the cranial and spinal systems, biomechanics of the lower and upper extremities, cardiovascular biomechanics, biomedical systems analysis, optimization as applied to biomedicine, biomedical imaging 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 research. 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 course work relevant to his or her degree program. The oral examination will determine whether the student is ready for his or her preparation for the proposed dissertation research project in addition to the student's course work. The oral examination is generally taken within one month after the written examination.

Having successfully completed the comprehensive examination, the student normally may proceed 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 for 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 program or a curriculum in the mathematical and physical sciences may be admitted as Ph.D. students if they have a minimum undergraduate grade-point average of 3.0. Reference letters, scores on the GRE Aptitude Test, 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 northwestern 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 program chairman. 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. Inquiries as to the amount of support for higher-graded students can be made by writing to the Graduate Program in Mechanical Engineering. The support is usually obtained through research and teaching assistantships from the Department of Mechanical Engineering. The Iowa Institute of Hydraulic Research, the Center for Manufacturing 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 priority in the awarding of new assistantships. Advanced doctoral students may also qualify for higher-graded hourly 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-tube; 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 the core courses coordinated by other engineering departments, see this subsection for each department.

Required and Elective Course Laboratories

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 Development of 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 sun-on computer. Experiments in solar energy applications and heat transfer measurements are made in this laboratory.

Graduate Facilities and Laboratories

The fluid mechanics courses are closely connected with the research and consulting activities of the institute, particularly in the areas of fluid mechanics, hydraulic engineering, flow instrumentation, and some aspects of thermal sciences related to diffusion and dispersion of waste heat in water.

In the thermal engineering laboratories, research is conducted in the solar energy, thermal radiation, combustion, and heat transfer laboratories in the Engineering Building.

The mechanical engineering systems laboratories are equipped to give students a wide variety of experience in using modern methods of measurement and analysis, including computers, a variety of strain gauges, a photo-electric laboratory, and other conventional instrumentation.
The biomechanics laboratory is equipped for research in stress analysis and modeling associated with biomechanical systems. Equipment includes a photoelastic bench with 12-inch transmission polariscope, photoelastic oven, force multiplier: camera projector, photo-stress meter, and recording equipment.

The hemodynamic laboratory is equipped for research in cardiovascular fluid dynamics. Equipment includes a Laser Doppler Anemometer System for fluid velocity and turbulence measurements, a mock circulatory system, a Brookfield viscometer, pressure transducers, and miscellaneous measuring instruments.

Courses

Special Courses

58.00 Cooperative Education Training Assignment

Mechanical Engineering

5.6 s.
Memorandum of cooperative education assignment.

58.01 Introduction to Mechanical Engineering

2.4 s.
Principles of physics, principles of elements and factors of performance of measuring systems: laboratory experience, equipment planning, freshman, junior, senior.

58.05 Mechanical Engineering Project

2.4 s.
Application of Mechanical Systems Design, group design problems, and capstone design, and students are coupled through to higher order projects.

58.19 Senior Mechanical Engineering Seminar

1.0 s.
Selected topics in modern mechanical engineering, seminars, field trips, fees and special discussions. Each mechanical engineering undergraduate is required to complete one seminar at 58.19.

58.19 Individual Investigations: Mechanical Engineering

1.0 s.
Individual projects for mechanical engineering undergraduate students. One credit point for completion of the individual investigation project or engineering design project, analysis and synthesis of mechanical, energy, control, friction, lubrication, research, etc. Permission of the instructor.

58.16 Energy in Contemporary Society

1.0 s.
Technique, legal, economic, and social issues in energy sources and energy conversion. Critical perspectives of energy sources and energy conversion systems will be utilized in the study.

58.16 Advanced Energy in Contemporary Society

1.0 s.
The development of heating, air conditioning, and cooling systems is practiced. Eight meetings and a final exam required for prerequisites required. Offered once per academic year.

58.12 Thermal and Fluids

3.0 s.
Thermodynamics I

1.0 s.
Thermodynamics of states of matter and processes. Power and refrigeration cycles. Design and refrigeration cycles. Thermodynamics of compressible flow. Applications to chemical engineering problems. Prerequisites: 58.16 and 58.08.

58.12 Heat Transfer

2.0 s.
Introduction to the principles of heat transfer by conduction, convection and radiation. Analysis and numerical methods of solution applications to engineering problems. Prerequisites: 58.16.

58.14 Thermal Fluids Systems Design

1.0 s.
Examine topics relating to design of thermal fluid systems. Economy, life cycle costs, modeling of thermal fluid systems, evaluation and optimization of systems. Applications to design and written reports are required. Prerequisites: 58.12.

58.15 Interdysplay Thermal/Fluids

1.0 s.
Interdependencies and interrelationships of processes, laws and principles, design and analysis of components, applications to thermodynamic properties and selected topics. Prerequisites: 58.14.

58.16 Intermediate Heat Transfer

1.0 s.
Thermal and convection processes, forced and natural convection, internal and external heat transfer problems. Prerequisites: 58.14.

58.16 Tidal Energy

1.0 s.
Solar radiation, oceanic and meteoric water at the earth's surface, measurement, evaluation, and assessment. Applications and use of solar radiation for: point focus collectors, wind and wave storage, complex systems for heating and air conditioning. Prerequisites: 58.14.

58.10 Intermediate Mechanics of Fluids

1.0 s.
Continuum Fluids II

1.0 s.
Eulerian and Lagrangian descriptions of fluid mechanics. Basic principles of fluid dynamics and applications of fluid dynamics to flows, DYNAMICS OF FLUIDS, Euler, Bernoulli, and Navier-Stokes equations. Applications of fluid dynamics. Prerequisites: 58.10. Same as 58.11.

58.20 Fluid Mechanics in Fluid Mechanics

1.0 s.
Fluid mechanics of compressible fluid flow. Applications of continuum mechanics, aerodynamics, and energy equations, flow of ideal and viscous fluids, and variational methods. Prerequisites: 58.10 and 58.21.

58.14 Fluids: Fluid Mechanics

1.0 s.
equations of fluid motion, inviscid flow, thin film behavior, thermodynamic, time, and boundary conditions, incompressible and compressible flows, and steady and unsteady flow past objects. Prerequisites: 58.10 and 58.11.

58.10 Convective Heat Transfer

1.0 s.
Fundamentals of convective heat transfer, analysis of forced and free convection, heat, mass and momentum transfer, boundary layer theory, and the Nusselt number. Prerequisites: 58.10.

58.20 Natural Heat Transfer

1.0 s.
Fundamentals of radiation heat transport and analysis of radiative interchanges. Radiation problems will be separated from nonparticipating and participating media, radiation properties of gaseous media, radiative transport equations and equations of radiative transfer, and radiative-convective and radiation-heat transfer systems. Prerequisites: 58.10.

58.20 Fluids: Fluids

1.0 s.
Numerical analysis and stability, theory of turbulence, Navier-Stokes equations and Reynolds-averaged equations, heat transfer and aerodynamic surface, heat conduction and viscous heat transfer with phase change. Prerequisites: 58.10 and 58.11.

58.20 Laminar Flow

1.0 s.
Introduction to the fundamentals of fluid mechanics. Flow of incompressible fluid, streamline flow, solution of Reynolds number equation, Euler's equation, Prandtl number, viscous flow, flow through nozzles, friction, and streamline flow. Prerequisites: 58.10 and 58.11.

58.20 Turbulent Flow

1.0 s.
Basic concepts of fluid mechanics, turbulence and dissipation, turbulent and laminar flow. Turbulent boundary layer, transition to turbulence, and Reynolds number. Prerequisites: 58.10 and 58.11.

58.10 Natural Convection

1.0 s.
Flow of an incompressible, inviscid, steady and unsteady flows, boundary layer analysis, pressure gradient, and two-dimensional flow, potential flow, non-dimensional flow, separation and vortex roll-up, laminar flow, shear layer, instability of shear layers, transition to turbulence. Prerequisites: 58.10.

58.10 Flow in Pipes

1.0 s.
Flow in pipes, circular and non-circular, steady and unsteady flows, boundary layer analysis, pressure gradient, and two-dimensional flow, potential flow, non-dimensional flow, separation and vortex roll-up, laminar flow, shear layer, instability of shear layers, transition to turbulence. Prerequisites: 58.10.

58.10 Flow in Pipes

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Flow in pipes, circular and non-circular, steady and unsteady flows, boundary layer analysis, pressure gradient, and two-dimensional flow, potential flow, non-dimensional flow, separation and vortex roll-up, laminar flow, shear layer, instability of shear layers, transition to turbulence. Prerequisites: 58.10.

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Flow in pipes, circular and non-circular, steady and unsteady flows, boundary layer analysis, pressure gradient, and two-dimensional flow, potential flow, non-dimensional flow, separation and vortex roll-up, laminar flow, shear layer, instability of shear layers, transition to turbulence. Prerequisites: 58.10.

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Flow in pipes, circular and non-circular, steady and unsteady flows, boundary layer analysis, pressure gradient, and two-dimensional flow, potential flow, non-dimensional flow, separation and vortex roll-up, laminar flow, shear layer, instability of shear layers, transition to turbulence. Prerequisites: 58.10.

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Flow in pipes, circular and non-circular, steady and unsteady flows, boundary layer analysis, pressure gradient, and two-dimensional flow, potential flow, non-dimensional flow, separation and vortex roll-up, laminar flow, shear layer, instability of shear layers, transition to turbulence. Prerequisites: 58.10.

58.10 Flow in Pipes

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Flow in pipes, circular and non-circular, steady and unsteady flows, boundary layer analysis, pressure gradient, and two-dimensional flow, potential flow, non-dimensional flow, separation and vortex roll-up, laminar flow, shear layer, instability of shear layers, transition to turbulence. Prerequisites: 58.10.

58.10 Flow in Pipes

1.0 s.
Flow in pipes, circular and non-circular, steady and unsteady flows, boundary layer analysis, pressure gradient, and two-dimensional flow, potential flow, non-dimensional flow, separation and vortex roll-up, laminar flow, shear layer, instability of shear layers, transition to turbulence. Prerequisites: 58.10.
Graduate College

The University of Iowa has been a leading center of advanced study for three-quarters of a century. Presently, nearly one-fifth of its enrollment is in the Graduate College. This unusually high 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 scholarships, fellowships, and research funds, the Graduate College encourages research and strengthening of departments. It offers extensive assistance to individual faculty members in finding the resources necessary for research projects. The Graduate College works with the other colleges of the University and with departments in the formulation of policies concerning selection, supervision, and support of graduate students.

The faculty of the Graduate College comprises all University faculty members in the ranks of assistant professor, associate professor, and professor. A 12-member Graduate Council, elected from and by the graduate faculty and the Graduate Student Senate, is the executive committee of the graduate faculty and is advisory to the dean of the Graduate College.

Degree Programs

The Graduate College confers the Master of Arts (M.A.), Master of Science (M.S.), Master of Business Administration (M.B.A.), Master of Arts in Teaching (M.A.T.), Master of Fine Arts (M.F.A.), Educational Specialist (Ed.S.), Master of Social Work (M.S.W.), Master of Comparative Law (M.C.L.), Doctor of Philosophy (Ph.D.), and Doctor of Musical Arts (D.M.A.) degrees.

The college currently confers degrees in the following fields:

- Accounting—M.A.*
- Afro-American Studies—M.A.*
- American Studies—M.A.*, Ph.D.
- Anatomy—M.D.
- Anthropology—M.A.*, Ph.D.
- Applied Mathematical Science—Ph.D.
- Art—M.A., M.F.A.
- Art History—M.A.*, Ph.D.
- Asian Civilization—M.A.
- Astronomy—M.S.*
- Biochemistry—M.S., Ph.D.
- Biology—M.S.*
- Botany—M.S.*, Ph.D.
- Business Administration—M.A.*, M.B.A.*, Ph.D.
- Business Education—M.A.*
- Chemical and Materials Engineering—M.S., Ph.D.
- Chemical Physics—M.S., Ph.D.
- Chemistry—M.S.*, Ph.D.
- Civil and Environmental Engineering—M.S.*, Ph.D.
- Classics—M.A.*, Ph.D.
- Communication—M.A.*, Ph.D.
- Communication and Theatre Arts—M.A.*, Ph.D.
- Community Dentistry and Dental Public Health—M.S.
- Comparative Law—M.C.L.*
- Comparative Literature—M.A.*, Ph.D.
- Computer Science—M.S.*, Ph.D.
- Criminal Justice and Corrections—M.A.*
- Dental Hygiene—M.S.
- Economics—M.A.*, Ph.D.
- Education—M.A.*, M.A.T.*, Ed.S.*, Ph.D.
- Electrical and Computer Engineering—M.S., Ph.D.
- Endodontics—M.S.
- English—M.A.*, M.F.A., Ph.D.
- Fixed Prosthodontics—M.S.
- French—M.A.*, Ph.D.
- Genetics—Ph.D.
- Geography—M.A.*, Ph.D.
- Geology—M.S.*, Ph.D.
- German—M.A.*, Ph.D.
- Gerontology—M.A.*
- History—M.A.*, Ph.D.
- Home Economics—M.A.*, M.S.*
- Hospital and Health Administration—M.A.*, Ph.D.
- Industrial and Management Engineering—M.S.*, Ph.D.
- Journalism—M.A.*
- Latin—M.A.*
Ad Hoc Interdisciplinary Ph.D. Programs

In addition to the degree programs listed above, the graduate faculty has authorized the awarding of ad hoc interdisciplinary Ph.D. degrees. There are no provisions for ad hoc interdisciplinary programs at the master’s level. Students seeking approval for an ad hoc interdisciplinary Ph.D. program must first have their proposal reviewed and endorsed in 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 nondegree program administered by the College of Liberal Arts in cooperation with other colleges of The University of Iowa. (The program is designed to complement graduate degree programs for students with academic, professional, research, or service career interests in aging. An entry is made on a student’s transcript certifying completion of an approved curriculum in Aging Studies. For further details, see "Aging Studies Program" in the ‘College of Liberal Arts’ section of the Catalog.

Applied Mathematical Science

The program in Applied Mathematical Sciences is a broadly based interdisciplinary program leading to the Ph.D. degree. Students combine study of theoretical and applied aspects of a mathematical science (mathematics, statistics, or computer science) with study in a science (behavioral, biological, engineering, industrial) or social science. 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 Regent’s recognition as a Center with the responsibility to serve as a physical, intellectual, and administrative focus for a variety of international activities, including teaching, research, faculty exchanges, publication, fund-raising, and outreach to the public. At present CICS sponsors six interdisciplinary programs: Afro-Civilizations, African Studies, Global Studies, Inter-American Development, Latin American Studies, and Women in Development. Faculty

members and students in these programs are drawn from schools and departments across the University. CICS works closely with the Office of International Education and Services, and both organizations are administratively linked to the vice-president for educational development and research.

Four of the six programs in CICS have primary instructional missions: African Studies, Asian Civilizations, Latin American Studies, and Global Studies (for further details, see the appropriate sections in the Catalog under ‘College of Liberal Arts’). The Program for International Development promotes research, teaching, and technical assistance activities. The Women in Development Committee is 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 facilities to grant applicants, and by furnishing a suite of offices in the Jefferson Building where students and faculty meet to host classes and seminars. From time to time CICS provides speakers for the College of Liberal Arts and for other community organizations. CICS subscribes to numerous foreign periodicals, which are maintained in a small library in the Jefferson Building. Six times a year CICS publishes the international studies newsletter, which announces forthcoming events, and CICS publishes scholarly articles in several occasional series.

Evolutionary Ecology and Behavior

Program coordinators: Stephen Heywood, Henry Newon, Faculty: programs formerly of Tropical Ecology and Behavior Program.

Assistants: Robert D. Flather, John J. Hahn, Tom H. Math, Program Director, Stephen Heywood, University of Illinois, Urbana-Champaign.

Program faculty: John J. Hahn, University of Illinois, Urbana-Champaign.

Program facilities: Robert D. Flather, University of Illinois, Urbana-Champaign.

Program supports: Grover E. Johnson, University of Illinois, Urbana-Champaign.

Program members: John J. Hahn, University of Illinois, Urbana-Champaign.

Program sponsors: Grover E. Johnson, University of Illinois, Urbana-Champaign.

Program contacts: John J. Hahn, University of Illinois, Urbana-Champaign.

Program publications: Grover E. Johnson, University of Illinois, Urbana-Champaign.

Program Address: John J. Hahn, University of Illinois, Urbana-Champaign.

Program Website: Grover E. Johnson, University of Illinois, Urbana-Champaign.

Program Funding: Grover E. Johnson, University of Illinois, Urbana-Champaign.

Program Activities: Grover E. Johnson, University of Illinois, Urbana-Champaign.

Program Accomplishments: Grover E. Johnson, University of Illinois, Urbana-Champaign.

Program Challenges: Grover E. Johnson, University of Illinois, Urbana-Champaign.

Program Opportunities: Grover E. Johnson, University of Illinois, Urbana-Champaign.

Program Limitations: Grover E. Johnson, University of Illinois, Urbana-Champaign.

Program Vision: Grover E. Johnson, University of Illinois, Urbana-Champaign.

Program Mission: Grover E. Johnson, University of Illinois, Urbana-Champaign.

Program Goals: Grover E. Johnson, University of Illinois, Urbana-Champaign.

Program Objectives: Grover E. Johnson, University of Illinois, Urbana-Champaign.

Program Outcomes: Grover E. Johnson, University of Illinois, Urbana-Champaign.

Program Evaluations: Grover E. Johnson, University of Illinois, Urbana-Champaign.

Program Assessments: Grover E. Johnson, University of Illinois, Urbana-Champaign.

Program Standards: Grover E. Johnson, University of Illinois, Urbana-Champaign.

Program Policies: Grover E. Johnson, University of Illinois, Urbana-Champaign.

Program Procedures: Grover E. Johnson, University of Illinois, Urbana-Champaign.

Program Guidelines: Grover E. Johnson, University of Illinois, Urbana-Champaign.

Program Resources: Grover E. Johnson, University of Illinois, Urbana-Champaign.

Program Infrastructure: Grover E. Johnson, University of Illinois, Urbana-Champaign.

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behavioural, life history, or other traits are investigated. Field research emphasizes the adaptive significance of traits.

Opportunities for field research are provided locally by the Macleod Field Campus just outside town. With lakes, temperate hardwood forests, and old fields. The Iowa Lakeside Laboratory on Lake Okoboji has year-round laboratory facilities, housing, and a research vessel, and provides the opportunities to study undisturbed prairie, marshland, and lake ecosystems. Three 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 instructional. Some 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 University of Georgia has a cooperative program with the University of the Andes in Merida, Venezuela.

Indoor facilities permit a wide range of studies, with varied equipment for observation and analysis, such as video-recorders, movie cameras, walk-in environment chambers, computer terminals, a GC-MS, and a high-speed computer. There is ample space for housing of large numbers of animals, mice, prairie dogs, meerkats, pronghorn, snow geese, lizards, and 'waterfowl' investigators, lizards, and the collections of birds and reptiles are particularly well represented in the vertebrates.

The atmosphere at Iowa is friendly and cooperative and the approach is multidisciplinary. Students may design their graduate programs to take advantage of collaboration, consultation, course work, and cooperative study with the staff, members of such departments as botany, chemistry, geology, meteorology, zoology, 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, research opportunities, 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. The teaching and research opportunities for students in botany, postdoctoral students may compete for seed grant money from the University. Computer funds are available for graduate students, postdoctoral fellows, 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 interdisciplinary program involving research in the departments of Biochemistry, Botany, Microbiology, and Zoology, and 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 coordinator: Charles F. H. van der Veen

The University of Iowa is one of a consortium of 24 colleges 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 programs take advantage of the unique academic opportunities offered at the Centre Universitaire Americain du Cinef de et al 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 language, and film and popular culture. Students discuss such themes as the evolution of the early cinema: the silent films of Griffith, Lang, Eisenstein, and Keaton, the classics: Hollywood film, French cinema during and after the transition to sound, and European and American avant-garde cinemas.

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 may simultaneously pursue degrees in both colleges. For further details, see "College of Law & Graduate Degrees Within the College of Law" section of the Catalog.

Joint Programs within the Graduate College
Various joint programs have been developed whereby students simultaneously work toward two graduate degrees. Consult the
appropiate sections of this Catalog for further information. Established joint programs include:
Business Administration/Library and Information Science
Hospital and Health Administration/Urban and Regional Planning
Social Work/Urban and Regional Planning
Preventive Medicine and Environmental Health/Urban and Regional Planning

Medical Scientist Training Program
The MISTP is an interdisciplinary M.D.-Ph.D. program offered jointly by the College of Medicine and the Graduate College. See "Medical Scientist Training Program" in the "College of Medicine" section of the Catalog.

Neuroscience
The Neuroscience Program is designed to provide an interdisciplinary and interdepartmental approach to graduate education aimed at an understanding of the structure, function, and development of the nervous system and its role in behavior. Research and teaching activities cover five major areas: molecular neuroscience, cellular neuroscience, developmental neuroscience, neural systems, and behavioral neuroscience. Training is conducted primarily in the laboratories and teaching facilities of the graduate departments of anatomy, biochemistry, pharmacology, physiology and biophysics, psychology, pathology and audiologuy, zoology, and the clinical departments of neurology and psychiatry.

Because of the interdisciplinary nature of neuroscience and the diverse backgrounds and interests of entering students, the program provides considerable flexibility in curriculum structure. The plan of study for each trainee is tailored individually to provide appropriate background courses in biochemistry, physiology, pathology, and statistics as well as a selection of elective courses appropriate to individual scientific objectives. The major required courses of the program are Neuroscience I and II, a two-semester sequence designed to cover the five basic areas of neuroscience as a survey of the knowledge and current concepts of the structure and function of neural systems. First-year graduate students enroll in a special topics course designed to introduce them to the present activities of program faculty and make them aware of the variety of available training opportunities. All trainees participate in an advanced techniques course and a seminar in which state-of-the-art research approaches are considered.

Trainees are candidates for the Ph.D. degree in participating departments or in a Neuroscience Ph.D. program (pending approval).

Admission
Students are admitted to the program following review of their academic credentials, including Graduate Record Examination (GRE) General (Verbal and Quantitative) 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
Preadmission students should contact the program office for specific information concerning admissions and application materials at the following address: Neuroscience Program Office, 5-660 Bowen 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.

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 $8,000 and $7,500 for half-time assistants, assistants are also eligible for tuition scholarships; nonresident assistants' teaching time may vary. Stipends and fees are reduced to resident rates.

University Teaching-Research Fellowships
For first-year graduate students entering doctoral programs; typical stipends are $8,500 a year on a year-round basis, with all tuition paid, for as many as four years; recipients have teaching and research assignments, but may carry full course loads at the same time; one year out of four and at summer, recipients have full time to pursue studies, research, or writing.

Scholarships
Up to full tuition and fees.

Graduate Fellowships
$5,300 for the academic year.

Other Sources
University and National Direct student loans are available through the University's Office of Student Financial Aids.

Many departments offer additional support that may be available for tuition, part-time employment in research or part-time teaching appointments. Specific policies are outlined in the Office of the Vice-President for Educational Development and Research which maintains a library of information on public and private agencies with funds for research and graduate study. A considerable amount of material has been collected concerning awards for overseas study.

For further information, see "Research Activities."
Graduate Student Senate

The Graduate Student Senate is the University graduate student body's representative organization. Senators and 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 consults the Board 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 application statement from the director of admissions. Applicants may obtain the proper forms from the director of admissions, The University of Iowa, Iowa City, Iowa 52242.

In addition to these 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. Application materials 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 Graduate ( Aptitude) Test of the Graduate Record Examination (GRE) or, for applicants to graduate programs in business administration, the Graduate Management Admission Test (GMAT). Applicants for whom admission data are complete, with the exception of scores on the GRE or the GMAT, may, depending on departmental policy, be admitted if they meet all other requirements. The GRE, or the GMAT, must be taken before the end of the student's first session of enrollment. The test is given several times a year at test centers established under the direction of Educational Testing Service, Princeton, New Jersey. The judgment of acceptable levels of performance on this test and its weight in the decision on admission of a student is left to the departments. Some departments in fields where GRE Subject (Advanced) Tests are available require these in addition to the General (Aptitude) Test. Inquires about the General (Aptitude) Test may be directed to University Evaluation and Examination Service, and 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 student applicants whose native language is other than English must take and pass TOEFL (Test of English as a Foreign Language), unless they have received a degree from an accredited college or university in the United States, the United Kingdom, Canada (except Québec), 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 director, must take the TOEFL examination and receive a passing grade prior to consideration for admission. The Graduate College will advise the departments of any students failing the TOEFL test. Individual departments may require such students to take and pass a course at The University of Iowa in English usage designed especially for foreign students.

D. Early Admission

A student who is within four semester hours of having satisfied the requirements for the Bachelor's degree at The University of Iowa or any other accredited college may be given provisional admission.

E. Candidacy

Admission to the Graduate College is not the equivalent of candidacy as a candidate for an advanced degree, which must be earned through work successfully completed at The University of Iowa. (See "The Degree of Master's Degrees," "Section XI: Two-Year Degrees," and "Section XII: Doctor's Degrees.")

F. Declaration of Major and Degree

Every applicant for admission must indicate on the application form the department or program of major interest and the degree, certificate, or professional objective he or she intends to pursue. The only exceptions to this regulation are the limited number of students 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 or required admission to a major or degree status in the Office of the Graduate College is required. Q. 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 accepted by the department, or interdepartmental program, for full-time graduate study or personal improvement.

2. Conditional—Students who are enrolled in a graduate degree or certificate program but who are required by the 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 the department, which will assume responsibility for advising him or her. (See minimum grade-point requirements, "Section IV." The student on conditional status must achieve regular status within two sessions of registration in the Graduate College by attaining a grade-point average of at least 2.50 (for doctoral students) and acceptance by the major department, or be dismissed.

3. Special—Students with a valid baccalaureate 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 as a regular graduate student or conditional status. A student registering as a special student can take no more than two courses during a semester or summer session during the eight-week summer session.

H. Minimum Requirements for Completion of Degree

Graduates of any college or university accredited by regional accrediting agencies are eligible for admission to the Graduate College if their academic record meets the minimum standards. For nondoctoral students, a minimum grade-point average of 2.5 is required for admission to a graduate program. A minimum of 5.5 is required for admission to conditional status. A grade-point average of 3.0 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 post-baccalaureate and graduate work completed. In cases in which a student has returned to his or her previous program and has a graduate grade-point average below the minimum required, the student has a Graduate Record Examination score of a point
to be designated by the Graduate College dean. His or her papers shall be forwarded to the registrar concerned for examination and decision.

Students applying for admission to a doctoral program with 12 or more semester hours of graduate work must meet a minimum grade-point average of 3.0 on the graduate work. For students with less than 12 semester hours of graduate work, a minimum of 2.7 is required on the entire record of college 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 C above.) A person holding faculty rank as specified above may petition the Graduate College dean for permission to enter as a special student for work leading to an advanced degree, certificate, or professional improvement except in the department of his or her appointment, who has the responsibility for any absent student. Such petitions must have prior approval of the department of appointment, dean of the college of appointment, the department in which study is to be pursued, and the Graduate Council.

J. Readmission

Students who have been admitted to and enrolled in the Graduate College, but who fail to register for a period of 36 months or more, must apply for readmission. The department and, if appropriate, the departmental approval for the session in which readmission is desired. The Consideration of the application for readmission will be governed by the standards of the Graduate College and the admissions standards in effect at the time of application.

Section II. Registration

A. Standard Schedule

Students registered in the Graduate College may register for no more than 15 semester hours of credit in graduate courses. In addition to the maximum graduate and undergraduate courses, two hours of undergraduate credit may be substituted for one semester hour of graduate credit; with registration limited to a total of 18 semester hours. This equivalency applies to the calculation of academic load only. Graduate credit is not given for courses numbered under 100. The maximum for the eight-week summer session is eight semester hours. The maximum for two or more semester hours of graduate work are included.

The maximum semester-hour registration for work scheduled outside of the regular eight-week summer session will be arranged on a basis proportionate to that stated above with the approval of the Graduate College dean. Nine semester hours in the regular semester constitute full-time registration. If followed in five to eight-eight semester hours in a semester as a condition of their appointments. One-quarter-time and one-thirty-two-semester hours 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 constraints of any and the approval of the dean of the Graduate College.

D. Reduced Schedules for Teaching and Research Assistants and Other Appointees

1. Half-time appointees may register for no more than 12 semester hours during a semester or six semester hours during the eight-week summer session.
2. One-eighth to one-quarter-time appointees may register for no more than 10 semester hours during a semester or five semester hours during the eight-week summer session.
3. Two-thirds- and three-quarter-time appointees may register for not more than nine semester hours during a semester or five semester hours during the eight-week summer session.
4. Seven-eighths-time appointees may register for not more than seven semester hours during a semester or four semester hours during the eight-week summer session.
5. Full-time appointees, including full-time instructors, may register for not more than six semester hours during a semester or three semester hours during the eight-week summer session.

E. Retroactive Registration

No form of retroactive registration is permitted.

F. Registration for Part of a Session

A graduate student may register at any time during the semester or the eight-week summer session for not more than one semester hour of credit for each of the remaining weeks of classes (not including the examination period) in the term. The total registration may not exceed the 15 semester hours permitted for a semester and the eight semester hours permitted for the eight-week summer session. Registration after the last day of the third week of a semester or the third day of the second week of a summer session is permitted only in courses involving special projects, readings, individual study, thesis, or research, with the signed approval of the instructor concerned and the Graduate College dean.

G. Extremal Registration

After admission to a departmental program in the Graduate College, registration for work done on 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 on campus by members of the Graduate faculty (see "Section V.B.") for the minimum semester hours required on campus of the master's and doctor's degrees.
5. Residence graduate credit from another Iowa Regents' university (see "Section V.B.").
6. As many as nine semester hours of graduate work taken at the Quad-Cities Graduate Center from faculty other than faculty of the Iowa Regents' universities, provided the work is acceptable to the student's major department for the specified degree.

Extramural registration does not count toward residence credit in the following circumstances:

1. Course work transferred from another institution
2. Correspondence courses

H. Extramural Fees and Privileges

Extramural course work may be counted as residence credit only if the student has been admitted to a departmental program in the Graduate College (see "Section I.G") and plays established fees. (See "Section V.K." for special fees applicable to postcomprehensive registration 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 earned in the Graduate College, in some instances, graduate level correspondence study credit earned after a student has received a bachelor’s degree but before enrolling in the Graduate College may not be counted toward an advanced degree with approval of the Graduate College dean upon recommendation of the major department. A graduate student may not register for correspondence courses without the approval of the executive of his or her major department and of the Graduate College dean.

J. System of Course Numbers
Courses primarily for graduate students are numbered 200 or above in each department. Courses open to and carrying credit for both graduate and undergraduate students are numbered from 100 to 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 student, the dean of the Graduate College may grant permission to audit courses for zero credit. Auditing is permitted only for a student who is currently registered.

L. Dropping of Courses
A student may drop any 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 registrar, after the deadline date, cancels the registration. The registration may be canceled only by the Graduate College dean upon recommendation of the student health director or the Student Counseling Service. If a student cancels her or his registration, the registration fee is nonrefundable.

Section III. Traveling Scholar Program A. Program
The program, under the auspices of the Committee on Institutional Cooperation representing 11 universities in the Midwestern United States, offers each student to take advantage of special resources available on another campus but not available on his or her own campus: special course offerings, research opportunities, unique laboratories, and library collections.

B. Procedure
1. A CIC Traveling Scholar first must be recommended by his or her graduate advisor who shall appoint an appropriate faculty member at the host institution to assist the traveling scholar in completing his or her degree. The advisor shall be informed of the date the traveling scholar will arrive for registration and the host institution, and shall inform the student when he or she will arrive.

2. After agreement by the student’s host department and the host institution, the student shall complete the appropriate forms and register for the courses.

3. A CIC Traveling Scholar will be registered at the home university, and fees will be collected and kept by that institution. The student shall be registered for 1200 to 2000 CIC Scholar at The University of Iowa.

C. Credit for the work taken will be recorded at the home university.

D. Additional Information
1. Those desiring additional information may inquire at the office of the Graduate College.

C. Conditions
CIC Traveling Scholars will normally be limited to two semesters or three quarters on another campus.

D. Restrictions
1. A student who is taking a course with special registration requirements may not register for credit in that course unless he or she is enrolled in a degree program with the specific requirements under which the course is being offered.

Section IV. Academic Standing, Probation, and Dismissal
A. Nondoctoral Students
A student, acceptable on conditional status, shall be placed on probation if, after completing eight semester hours of graduate work, his or her cumulative grade point average on graduate work done at The University of Iowa falls below 2.0. If the student is completing eight more semester hours of graduate work at this University, his or her grade point average remains below 2.0, he or she shall be permitted to re-enter if the student is permitted to re-enter, and otherwise, the student shall be restored to good standing.

B. Doctoral Students
A doctoral student on regular status shall be placed on probation if, after completing eight 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 the student is completing eight semester hours of graduate work at the University, the student’s cumulative grade point average remains below the required level, the student shall be dropped from the program and denied permission to re-register unless he or she applies and is accepted for a non-terminal degree or certificate program. If, after the second semester, the cumulative grade point average is at least 3.0, the student is returned to good standing.
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 academic dismissal decision improper, the student has a right to review. Each department shall establish procedures for handling such reviews. The procedures are to be approved by the Graduate College dean, and shall afford a fair and expeditious review. A description of these procedures shall be included in the departmental regulations described above. (See "Section V.D.")

F. Graduate College Review of Departmental Dismissal

Questions involving judgment of performance will not be reviewed beyond the department level. If, however, the student feels that there has been unfairness or some procedural irregularity concerning dismissal, the student may request a review by the Graduate College. This review may be conducted by the Graduate College dean alone, or the dean may appoint a Graduate College committee consisting of both student and faculty members to conduct the review and recommend the dean possible courses of action. The review by the Graduate College is final.

Section VI. Graduation Admissions.

A. Transfer of Graduate Credit

Graduate work at other institutions will be entered on the student's permanent record by the registrar and a report of this work 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 toward the degree. (See "Section X.D."

C. Reduction in Course

For course work seminars in independent study, thesis, and research, an instructor may report less credit than the number of semester hours for which a student is registered.

D. Graduate Credit for Veterans

Credit may be granted for studies pursued in war and military situations under such regulations as may be formulated by the national educational agencies and under such adaptation of standing rules as the Graduate Council may authorize from time to time to meet group or individual situations. The value of such credit in satisfying requirements for a degree will be determined by the major department with the approval of the dean.

E. 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. 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 fourth 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 or 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. W—incomplete, W—withdrawn without discredit, I—incomplete, 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 reason beyond the student's control. In registrations for courses, the instructor may, in his discretion, mark the satisfactory/unsatisfactory grades may be applied. (See next paragraph. "E."). If the instructor determines that the student's work during the semester with the first week of registration after the closing date of the session for which it is given, or after the grade becomes F, except cases of the student's 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 replaced 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 a semester is not complete to unsatisfactory means that he or she was not satisfactory in his or her use of grades of S and U as described above, above may be used in computing grade-point averages. At Iowa, the grade of I or F may be changed to the better grade. In addition, departments may ask the Graduate Council to require the use of grades of S and U as described above in grading special or experimental nature, are subject to a numerical grading of S and U and must be reviewed by the Graduate Council before being granted for longer periods. The type of grading system to be used in the above cases should always be mutually understood by the instructor and student.

F. Graded of S and U

S and U may be used for courses taken by a graduate student outside the major department or a departmental degree program that provided that the instructor of the course and the student's departmental advisor approved the grade. Arangements 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 last day of the seventh week of a summer session. No changes from letter grades to satisfactory/unsatisfactory grades or vice-versa will be allowed after these dates.
It is not the policy of the Graduate College to abandon the traditional letter grade system in the section; however, in certain exceptional instances, the Dean may authorize several areas of concentration in varying degrees of difficulty to request the permission of the Graduate Council to allow students enrolling in one area to register in another area within the same department or program on a satisfactory/unsatisfactory basis. In these instances, satisfactory/unsatisfactory cards will be used as described in the preceding paragraph.

G. Computed Grade-Point Average

This is based only upon graduate work graded A, B, C, D, and F. (A-4, B=3, C=2, D=1, F=0)

Section VII. Graduate Appointments

A. Scholarships

Scholarships are competitive and are awarded on merit.

1. Eligibility for graduate scholarships and fellowships will include: (a) registration in the Graduate College; (b) cumulative grade-point average of at least 3.0; (c) a GRE score 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 whom financial need is demonstrated.

3. Recommendations for graduate scholarships and fellowships will be made by the Graduate College by the appropriate department of the student's major college. A graduate scholarship may be awarded whether or not a student holds an assistantship. The amount of scholarship for the academic year may vary but will be at least the comprehensive fee assessed. Scholarships will be credited to the student's University account.

B. Graduate College Fellowships

Fellowships are awarded by the Graduate Council on 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 Council in consultation with the Graduate Council.

C. Faculty Research Assistantships

Faculty research assistantships are awarded to qualified graduate students and serve two purposes: to provide research service to professional members of the academic staff and to provide apprenticeship experience for graduate students who are in training in research. Not more than 20 hours of service per week are required of a half-time assistant. Other part-time service is scaled in proportion, and a limited academic schedule is permitted (see "Section II. D."). Appointments ordinarily are made for the nine-month academic year, but appointments may be made for other periods. The specific arrangements will be determined by the recommendations of the various departments in March of each year. Applications for teaching assistantships in summer sessions must be made by the Graduate College dean, and should be accompanied by letters of recommendations and/or a letter summarizing the student's qualifications.

D. Graduate Assistantships

These assistantships serve two purposes: assistance in the instructional program of the University and the preparation of future college teachers. In order to achieve both ends, academically superior graduate students who show exceptional promise as teachers are selected for graduate assistantships. All appointments are made by the dean of the appropriate college on recommendation of the department.

E. Eligibility for Scholarships, Fellowships, and Research Assistantships

Scholars, fellows, and faculty research assistants on the Graduate College budget may 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 the Graduate College or if the student may be promoted or tendered an appointment until after May 1 for admission to the Graduate College by the director of admission.

F. Dismissal of Assistants

A uniform policy regarding procedures to be followed in the dismissal of assistants 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 and Postdoctoral Fellowships

These provide for independent research. Appointment is made through the Office of the Vice-President for Academic Affairs.

H. Credit

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. Specifics should be addressed directly to the major department.

Section VIII. Advanced Programs Offered in the Graduate College

The work of which the Graduate College offers degree programs are listed under "Section II. B." in the forepart of the "Graduate College" section of this catalog.

Section IX. General Requirements for Advanced Degrees

A. Application for Degree

The student must file an application for an anticipated degree with the Registrar not later than ten weeks after the start of the fall or spring semester after the student has been determined by the Graduate College to be a graduate student.

B. Enrolment 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 paragraph. All students who must register for the session in which the degree is to be conferred are required to be 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 requirements except the final examination may register for the postcomprehensive phase (see "Section II. B," if such registration is appropriate. Master's candidates who have completed all work except the final examination may register for 0.000 Master's Final Registration at a fee equivalent to the postcomprehensive registration if such registration is appropriate. Registration in a correspondence course will not satisfy this requirement.

Students completing all requirements (including final examination and thesis defense) for a Graduate degree will be enrolled in the Independent Study Session and receive their degrees in the following semester without additional registration.

Section X. Master's Degree

A. Kinds of Degrees

Master's programs requiring a minimum of 33 semester hours lead to the Master of Arts degree, Master of Science degree, Master of 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 adviser 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 Regarding 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 admittance to a departmental program in the Graduate College, various forms of extramural registration may qualify toward fulfillment of this 24-hour residence requirement (see "Section II. G. Extramural Registration") in addition to regular on-campus registration. However, at least eight semester hours on campus are required, except for those departmental programs which ensure sufficient supervision between the student and the graduate faculty and have written agreements with the Graduate College Council and the dean of the Graduate College for reduction of this on-campus requirement.

E. Reduction of Old Credits
Credits for a master's degree dating back more than 10 years from the semester in which the degree is to be conferred are not counted toward fulfillment of degree requirements. This rule may be waived by the dean in cases affected by military service.

F. Limit on Professional Courses
Work taken by a student in the colleges of Dentistry, Law, or Medicine while enrolled for a professional degree may be credited to a graduate program leading to a master's degree if it is taken after the student has earned a bachelor's degree, or has completed work equivalent to that required for a bachelor's degree at The University of Iowa. The work accepted from the professional college must be directly related to the major area of study in the Graduate College and be approved by the adviser and the dean. Credit for the plan of study by the student's advisor and the major department. Work credited while registered for a professional degree in medicine, engineering, or law 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. One copy of the thesis, complete and in final typed form, must be presented to the Graduate College for a check of typographical errors 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 "A. Examinations Committee."

J. Master's Degree without Thesis
A master's degree without thesis, consisting of at least 30 semester hours of graduate study, may be awarded upon the completion of a curriculum prescribed by the department and approved by the Graduate College.

K. Final Examination
The requirements for a master's degree include a final examination which, at the discretion of the department, may be written or oral or both. Such an examination will not duplicate course examinations. It will be evaluated by the examination committee as satisfactory or unsatisfactory, with unsatisfactory votes making the committee report unsatisfactory. The report of the final examination is due in the Graduate College not later than 48 hours after the examination. If the department so recommends, a candidate who fails the examination may present himself or herself for reexamination, but not sooner than the next regularly scheduled examination period in the following session. The examination may be repeated only once. Upon recommendation of a department, the comprehensive examination for a doctoral degree may be substituted for this master's examination.

L. Examining Committee
The examining committee for the master's degree consists of at least three members of the graduate faculty, appointed by the Graduate College dean upon recommendation of the major department or program, at least two of whom are from the major department. If the examination covers work in another department, one member of the committee must be from that department. Upon recommendation of the major department, the dean may appoint additional qualified persons not necessarily members of the graduate faculty to serve as voting members of the examining committee, and, at his or her discretion, the Graduate College dean may add a member to the committee.

Section XI. Two-Year Degrees
A. Master of Fine Arts Degree
This degree is awarded for creative work in the visual arts, dramatic art, music, 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 requires at least two years of residence credit at The University. This requires a minimum of 48 semester hours of residence credit. The program must qualify for residence credit at the University. A Master of Arts degree may be earned while the student is working toward the Master of Fine Arts degree, but the student must meet all requirements for each degree separately, with a minimum combined total of 60 semester hours of graduate credit.

For other requirements see "Section X.B. Plans of Study for Graduated Students"; "G. Extra-Curricular Fields"; "A. Reduction of Old Credits"; "F. Limit on Professional Courses"; "H. Master's Degree with Thesis"; "J. Final Examination"; and "K. Examining Committee."

B. Specialist in Education Degree
This degree is granted upon completion of a prescribed two-year, postbaccalaureate program designed for students preparing themselves professionally in such fields as teaching, administration and supervision, and special services.

Of the minimum of 60 semester hours required for the degree, at least 24 semester hours must be counted as residence in this University, of which 15 semester hours must be earned while the student is in residence in this University during a 12-month period or during two summer sessions. Twenty-eight of the 60 semester hours are prescribed in the area of
specializations. The others are in cognate fields, supervised experience, and electives. Four semester hours of research culminate in a written report.

Courses successfully completed ten or more years prior to the final examination will be evaluated by the major department in order to determine the amount of credit that shall be waived for such work. Evaluation of such old credits will be reported to the Graduate College in writing no later than the time of submission of the plan of study.

Other requirements and regulations applicable to the educational specialist degree are the same as prescribed for the one-year master's degree in "Section X.B, Plan of Study; "C. Major and Related Fields; "F. Limit on Professional Courses; "J. Final Examination;" and "K. Examining Committee."

A master's degree may be earned while in residence for the educational specialist degree provided the student meets all the requirements for the master's degree in question.

C. Master of Social Work Degree

The M.S.W. degree is conferred by the University upon those students who give evidence of knowledge and competence in the professional practice of social work by meeting the following requirements:

1. A minimum of 24 semester hours in residence at The University of Iowa.
2. A minimum of 60 semester hours of graduate social work, including a research requirement.
3. A final examination.

A thesis is optional.

The requirement of 60 semester hours of social work practice does not mean that a student who can satisfy the faculty of the social work department in field practice, in the junior or senior undergraduate years, the clear equivalent of part or parts of the graduate curriculum in social work may be permitted, upon recommendation of the faculty of the school, to qualify for the M.S.W. degree in less than 60 semester hours. In no case may a student qualify for the degree on less than 48 semester hours of graduate credit.

The curriculum is organized into four general areas: social work practice, human growth and behavior, the social services, and research. During the two-year graduate program, class work is completed 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 XII. Doctor's Degrees

A. Character of Degree

The Graduate College awards two doctorates, the Doctor of Philosophy and the Doctor of Musical Arts. The doctorate is the highest degree awarded by the University. The Doctor of Philosophy degree indicates marked excellence in research or other creative work, and superior comprehension in the discipline. The Doctor of Musical Arts degree indicates marked excellence in performance and pedagogy.

B. Prerequisites

The candidate must present evidence of having completed a satisfactory amount of undergraduate work in the subject major. 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 enrollment 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 each of two semesters; or enrollment for a minimum of six semester hours in each of three semesters during which the student holds at least full-time assistantship certified by the department as contributing to the student's doctoral program. (For purposes of record and assessment of fees, student registration which reflects accurately the amount and kind of work undertaken in the Graduate College. All doctoral programs, including acceptable transfer credit, will contain a minimum of 32 semester hours of graduate work.)

D. Plan of Study

The development of the plan of study at the doctoral level is the responsibility of the student working together with his or her advisor. A formal plan of study must accompany the departmental request to the Graduate College for permission to conduct the comprehensive examination.

The plan will provide a listing of all graduate courses taken which apply toward the degree and a listing of courses in progress or to be completed after the comprehensive examination. The plan will provide a listing of all graduate courses taken which apply toward the degree and a listing of courses in progress or to be completed after the comprehensive examination.

E. Ad Hoc Interdisciplinary Programs

A student may propose a proposal for an interdisciplinary course of study, including the plan for the comprehensive examination, under the sponsorship of at least three faculty members and the department most directly concerned, which shall be designated as the sponsoring department. Final approval of such individual programs is granted by the Graduate College dean, who may add members to the student's supervising committee from other closely related departmental faculties. The degree will not be awarded in the interdisciplinary field stipulated in the approved program and, parenthetically, the name of the sponsoring department.

F. Reduction of Old Credits

Courses taken ten or more years prior to the comprehensive examination will be evaluated by the major department in order to determine the amount of credit that shall be allowed for such work. Evaluation of such old credits will be reported to the Graduate College by the departmental executive at the time of submission of the plan of study.

G. Limit on Professional Courses

Work 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 professional degree, and will not be counted as part of 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 required for the doctorate for these candidates. The examining committee will file separate reports on 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 sitting for 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 study of a language as a prerequisite for the degree must also set requirements for all other candidates. The faculty of each department is responsible for establishing such requirements.

J. Hours of Graduate Work

The Graduate College will issue to the student who has satisfied all the requirements the degree of Doctor of Philosophy or the Doctor of Musical Arts, depending upon the majority of his or her work.
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 satisfied an administrative requirement that has been approved by the student's adviser, the departmental executive, and the Graduate College dean. All registrations should accurately reflect the amount and type of work undertaken, the use of University facilities, and the amount of consultation with the faculty. The student should register for the courses, research, and thesis necessary to complete the plan of study. When the registrations required for the plan of study have been completed, the student may meet the continuing registration requirement by registering for 000-000 PH.D. Postcomprehensive Registration and paying a social security-type 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 (e.g., 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 the degree is required by the department.

L. Dissertation for the Doctoral Degree

A copy of the dissertation, complete and in final form, must be filed at least 14 days before the date of the oral examination. An examination should be held no later than four weeks before the graduation date on which the degree is to be conferred, and two copies deposited therein in final form ten days before graduation.

Regulations regarding the preparation of the dissertation copy shall be promulgated by the dean of the Graduate College. Dissertations will be microfilmed and thus made available on a permanent basis. An abstract of the dissertation, not to exceed 300 words of text, is to be deposited with the dean by the 60th day after the dissertation is completed. The abstract must be approved and signed by the dissertation adviser. The abstract is published in the Journal of Dissertation Abstracts International. A hard 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 dissertation committee will help the student and faculty adviser work out an appropriate method of preparing the work, if such help is needed. Once the accompanying manuscript is accepted, it is treated the same as any other thesis. Written dissertations shall be made available to all members of the examining committee not later than two weeks before the date of the examination.

M. Dissertation Fee

A nondeductible dissertation fee is charged each candidate to cover the cost of processing the dissertation and abstract.

N. Final Examination

The work for the degree culminates in a final oral examination administered on campus. This examination should include: a critical inquiry into the purposes, methods and results of the investigation—not a mere recapitulation of the procedure followed—intensive questioning on areas of knowledge constituting the immediate context of the investigation. The final examination may not be held until the next quarter or semester when the student passes the comprehensive examination nor until the student is acceptor for first deposit in the Graduate College. If, 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 "S.J. Comprehensive Examination").

Final examinations for the doctorate are open to the public. Members of the faculty of the Graduate College are responsible for their selection, 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. Unsatisfactory votes will make the candidate fail the final examination. In the case of a report of unsatisfactory in the final examination, the candidate must present himself or herself for resubmission not later than 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 at least five members of the Graduate College faculty appointed 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 college 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 discipline is relevant to the major comprehensive examination. For the final examination, the major department 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

398/399 Ph.D. Precomprehensive Preparation 0 s.h.
398/399 Master's Final Examination 0 s.h.
398/399 CC Scholar 0
399/150 CSS Practicum 0

398/150 CSS Practicum 0

398/150 CSS Practicum 0

398/150 CSS Practicum 0

398/150 CSS Practicum 0

398/150 CSS Practicum 0
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 law program places an equal emphasis on the development of fundamental lawyering 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 education-in-a-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 90 semester hours of acceptable work, take and complete all required courses, achieve a cumulative grade point 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 for entering students: late May (at the beginning of the summer session) or late August (at the beginning of the fall semester). Most students enter 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 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 three-week halves during which six to eight upperclassmen and three to five first-year courses are normally offered. Nonaccelerated students may attend either or both periods. Accredited students attend the entire 11 weeks.

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 legal analysis, argumentation, research, and writing.
Students in the Legal Aid Clinic represent indigent clients in several Iowa communities in a wide range of civil and criminal cases. Students in the Prisoner Aid Clinic represent inmates at Iowa correctional institutions in habeas corpus and civil cases.

Students in the Complex Civil Litigation Clinic work on substantive 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 aides to state legislators and to work in other aspects of the legislative process.

In addition to these 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, if a student takes a course which is relevant to both degrees, the course can, within limits, be counted toward the hour requirements of both. To reduce the time required to obtain the two degrees separately, hopefully, too, the joint-degree student will contribute to one discipline the insight and experience gained in the other. Graduate departments with which joint degree programs have already been initiated include Accounting, American Studies, Anthropology, Business Administration, Computer Science, Counselor Education, Economics, Education, Educational Administration, English, Fine Arts, 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.

**Admission Requirements**

Applicants for admission must present a baccalaureate degree from an approved college or university prior to commencing work at the College of Law. Each student must be able to pursue the legal education to which the graduate of the College of Law may be called upon to perform at so varied and the possible fields of endeavor so broad and diverse, that the college presumes the existence of a comprehensive undergraduate program for those planning to enter law school. With the assistance of faculty advisers, each student should develop an undergraduate program which explores and develops that student's particular intellectual interests. Iowa endorses strongly the three basic objectives recommended by a committee of the Association of American Law Schools which everyone thinking of law school should consider: a college life, an 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 pointedly toward later professional training and practice. Students are urged not to sacrifice the broader perspective for detailed specialization.
Application Procedures

Applications may be obtained by writing to the Director of Admissions, College of Law, The University of Iowa, Iowa City, Iowa 52242. A student must file his or her application for admission by March 1 preceding the summer or fall semester in which he or she wishes to enter. Applications should be sent to the Director of Admissions, Calvin Hall, The University of Iowa. An evaluation fee of $10 must accompany each application unless the applicant's bureaucracy degree wages is to be conferred by The University of Iowa. This fee is nonrefundable except for residents of Iowa who are denied admission. Students from disadvantaged backgrounds who cannot afford this fee should apply for waiver.

The applicant is responsible for submitting an official transcript from each college or university he or she has attended to the Law School Admissions Services (LSAS), Box 2000, Newton, PA 16940. The College of Law must receive the applicant's LSAS report prior to the March 1 deadline for submission of applications.

In the LSAT/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. Failure to do so will result in the processing of the application being delayed until the form is received.

Law School Admission Test

Each applicant for admission must take the Law School Admission Test (LSAT) administered by the Law School Admission Service, Box 2000, Newton, PA 16940. Scores are available to the College of Law only upon the student's request. For more information, applicants should contact the LSAS Office.

Admission to the Iowa Bar

A rule adopted by the Iowa Supreme Court requires all law students who intend to apply for admission to the Iowa Bar to register that intention with the court no more than 60 days after beginning law school. Details are available from the dean's office in the College of Law upon registration as a student in the college or from the clerk of the Iowa Supreme Court.

Courses

For descriptions of these courses, consult the college's bulletin, which is available from the Admissions Office at the College of Law.

91-155 Introduction to International Law 3 h
91-156 Advanced Civil Procedure 3 h
91-157 Administration of Estates and Trusts 3 h
91-158 Administrative Law 3 h
91-159 Admiralty Law 3 h
91-160 Advanced Criminal Procedure 3 h
91-161 Advanced Tax Problems 3 h
91-162 Antitrust Law 3 h
91-163 Missouri Regional Court of Appeals Competition 3 h
91-164 Appellate Advocacy I 3 h
91-165 Appellate Advocacy II 3 h
91-166 National Mock Trial Competition 1 h
91-167 National Moot Court Competition 1 h
91-168 National Moot Law Competition 1 h
91-169 Children and the Law 3 h
91-170 Business Planning A and B 3 h
91-171 Administrative Law and Practice 3 h
91-172 Constitutional Litigation 3 h
91-173 The Civil Justice System 3 h
91-174 Commercial Law 3 h
91-175 Commercial Transactions 3 h
91-176 Commercial Paper and Banking Regulations 3 h
91-177 Comparative Law 3 h
91-178 Community Property 3 h
91-179 Contract Law 3 h
91-180 Constitutional Law II 3 h
91-181 Consumer Protection 3 h
91-182 Contracts Project 3 h
91-183 Corporations I 3 h
91-184 Corporate Law 3 h
91-185 Criminal Law I 3 h
91-186 Criminal Procedure 3 h
91-187 Disability Law and Practice 3 h
91-188 Divorce Mediation 3 h
91-189 Domestic Violence Practice 3 h
91-190 Domestic Violence Cases 3 h
91-191 Employment Discrimination 3 h
91-192 Education Law 3 h
91-193 Environmental Law 3 h
91-194 Environmental Law II 3 h
91-195 Family Law 3 h
91-196 Family Estate Planning 3 h
91-197 Federal Taxation 3 h
91-198 Federal Tax Litigation 3 h
91-199 General Fundamentals of Jury and Disease for Lawyers 2 h
91-200 General Jurisprudence 2 h
91-201 Governmental Contracts 2 h
College of Medicine

The College of Medicine, as an integral part of the University, contributes to the educational programs of several Michigan students, not only those in the health-related colleges of Dentistry, Medicine, Nursing, and Pharmacy but also in the life sciences across 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 education 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 the state offering work toward the M.D. degree, the College of Medicine is concerned with broad public issues of distribution and organization of health care services, its faculty members advise and serve on state and regional health planning councils, health boards, and various health agencies; some faculty also take part in the University's Health Services Research Center.

The College of Medicine is responsible for the associated medical sciences programs of education for physician assistants, medical technologists, physical therapists, and nuclear medicine technologists.

The medical and associated medical science students have several opportunities to gain practical 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 boards. All other professional programs are approved by the College of Medicine and are accredited by their respective accrediting bodies.

Faculty

Nearly all College of Medicine faculty members are full-time, their work in practice and research being part of—not apart from—their work in teaching. Many have earned national and international honors.

Graduate Programs

The college offers programs leading to graduate degrees through the Doctor of Philosophy in anatomy, biochemistry, microbiology, hospital and health administration, nutrition, pharmacology (including toxicology), physiology and biophysics, preventive medicine and environmental health, and radiation biology. In addition, graduate degree programs leading to a master's degree are offered in cell biology, pathology, and physical therapy.

Medical Scientist Training Program

An interdisciplinary M.D.-Ph.D. program offered jointly by the College of Medicine and the Graduate College, the Medical Scientist Training Program provides preparation for careers in medical science and academic medicine with emphasis on research and teaching. With support from the National Institutes of Health, the program integrates the requirements for doctoral training in sciences basic to medicine with the full clinical requirements of the medical curriculum. The program entails six to seven years of study. Further details are given in the program description.

Combined M.D.- Master's Degree Programs

Students who want to pursue the M.D. degree in combination with a master's degree program may do so by gaining admission both to the College of Medicine and to the Graduate College, and making detailed arrangements with the graduate department chair and the associate dean for medical student affairs of the College of Medicine.
Interdisciplinary Programs and Centers

Interdisciplinary programs and centers have been developed that draw strength from the faculty of the college and the facilities available to them, without regard to interdepartmental units or to the expiration of graduate and postgraduate training. Notable among these are the interdisciplinary programs in endocrinology, neuropsychology, and immunology, in which degrees are not offered but in which the student can place emphasis upon the completion of a study program. Further information can be obtained from the associate dean for academic affairs.

The following centers are subdivisions of the College of Medicine.

Clinical Research Center

The Clinical Research Center provides the setting for patient-oriented research of disease processes. Studies of normal human physiology, 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 disorders. It supports the following federally funded programs: the Regulation of the Pericardial Circulation, the Specialized Center of Research in Arteriosclerosis, Specialized Center of Research in Ischemic Heart Disease, Lipid Research Clinic, Trial, several training programs, and a coordinated program of other interdisciplinary research supports. It is supported by a number of individual project grants. Gifts from private donors have underwritten construction of two floors of cardiovascular laboratories on top of the Medical Research Center.

Diabetes and Endocrinology Research Center

The Diabetes and Endocrinology Research Center coordinates research and training programs related to diseases and associated endocrinologic diseases. It was established in 1975 with support from the Institute of Allergy, Metabolism and Digestive Diseases.

Center for Research on Psychological Disorders of Children

This center draws from the expertise in the departments of Psychiatry, Pediatrics, Neurology, Speech Pathology Psychology, and Sociology. It is located 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, 132-bed Veterans Administration Medical Center; and in a score of affiliated hospitals and ambulatory care centers throughout the state.

College of Medicine and College of Dentistry faculty members comprise the 418-member clinical staff for University Hospitals and Clinics, whose 18 health services are directed by the heads of the corresponding academic departments in those colleges. These faculty members also provide instruction for the 334 resident physicians and dentists who comprise the house staff of University Hospitals and Clinics, which provides facilities for training at major medical specialties. A majority of all such specialties, and for fellowships in a number of subspecialties. University Hospitals and Clinics serves as a tertiary care center for the state of Iowa and portions of adjoining states, with most patients being referred for care and treatment not readily available in their home communities. For details about University Hospitals and Clinics, Veterans Administration Medical Center, and related academic and health service units, see "The University of Iowa Health Center" section of this Catalog.

Research Facilities

A number of facilities are administered through the dean's office in support of the research and teaching endeavors of the faculty of the College of Medicine.

The animal care facility arranges for the purchase, maintenance, and housing of a wide variety of animals. The bioengineering facility provides specialized electronic design, construction, and repair services.

The Office of Consultation and Research in Medical Education is composed of educational and media specialists who serve the faculty, staff, and administration. The unit provides educational consultation, utilizes and cooperates in education research endeavors, and conducts teacher education associates (M.D.).

The medical instrument facility designs and fabricates scientific equipment, provides precision machine services.

The medical graphics, photography, and television sections offer consultation, design, and production services in these various art forms. The spectrum of composition is greatly expanded by Genographics, a computer generated graphics system.

The P3 facility meets federal guidelines for recombinant DNA research requiring P3 containment. It can be used also for research on other hazardous human or animal pathogens.

Studies on protein structures are conducted in a facility containing ultracentrifugation, amino acid analyzers, protean sequencer, and spectroscopic equipment.

A facility for mass spectrometry provides service for structural studies of important biological molecules and their analysis by gas interface with a mass chromatograph.

Doctor of Medicine

The University of Iowa College of Medicine presently accepts 175 freshmen each year into its four-year course of study leading to the degree of Doctor of Medicine (M.D.).

The curriculum in medicine at The University of Iowa is based on a strong basic science program. It is evaluated and renewed continually to reflect the changing needs of the new physician and of society.

Basic Medical Sciences

The first three semesters present this core of sciences basic to the study of medicine.

First Semester

59:163 Biochemistry for Medical Students is organized around a series of clinical situations. The language of this discipline is presented in the context of problems the physician will meet. In the small group discussions that follow the clinical cases, the student starts to use various problem-solving approaches.

60:103 Gross Human Anatomy for Medical Students includes clinically relevant areas of anatomical neurology 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 anatomy with emphasis on the clinical aspect of development. Registration is limited to medical students; graduate students are referred to 60:217. The course is offered fall only.
60:105 General Histology for Medical Students provides a course of study for the care of tissues in forming cellular and tissue structure and function needed for the work to be accomplished in physiology and pathology.
11:012 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 Bioethics provides guidelines for the application of statistical principles to the biological and medical sciences. Emphasis is given to the interpretation of studies published in medical journals.

Second Semester
72:212 Medical Physiotherapy offers the student an understanding of the responses an organism gives to external stimuli and provides a basis for understanding the integrated function of organ systems. Much of the material in these two hour laboratory period from a clinical point of view. In small discussion groups the student learns to correlate data from the laboratory exercises, the students present their evaluations of the physiologic mechanisms at work in the clinical materia. Some demonstrations are given to show the experimental evidence of these principles.
61:033 Medical Microbiology includes immunity and presents a core of information on the classification and mode of action of infectious agents, as well as certain aspects of body response to these agents. Laboratory work continues to play an important role in this course.
66:201 General Pathology for Medical Students is correlated with microbiology in this semester to increase the efficiency of the learning process. This course is self-paced, with the student "testing out" of each segment as it is completed. Emphasis is placed on pathogenesis and altered function in cellular and tissue, degeneration, infection, and growth disorders. Clinical problem solving and discussion periods have replaced laboratory in this course.

Third Semester
69:020 Systemic Pathology for Medical Students applies the principles given in the preceding semester to the practical aspects of diseases in an organ approach. Students continue to participate in 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 clinics. 60:109 Preventive Medicine presents fundamentals to help prepare the student in some of the sociologic, economic, and public health aspects of medical practice.
71:015 Pharmacology for Health Sciences: Medical Pharmacology bridges the clinical and basic sciences and provides the medical student with principles that must be understood to describe properly the actions of drugs in the patient.
Several elective courses are available to students during the third semester. These courses cover two 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 physian. 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 the process of interviewing, counseling, and history-taking. Following this is an intensive review of clinical medicine on an organ system basis, given by teams of physicians and basic scientists. The final round of mornings is spent in areas of practice which do not naturally fall into organ systems, and on re-emphasis of some key subjects.
Throughout the 16 weeks of this course, students spend afternoons acquiring and practicing the skills of the clinician in history-talking and physical examination. Habits of care, concerns, and composition 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 of all disciplines as they care for their patients. Students spend two weeks in each of the following clinical services: surgery, pediatrics, psychiatry, obstetrics and gynecology; and two weeks each in anesthesiology, dermatology, neurology, otorhinolaryngology, orthopedics, urology, and family practice. Students spend most of this time in Iowa City.

The clinical clerk year is the most critical period of time in medical education, for this is where 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 specialties and the level of clerical 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. Monaid is in the form of loans. The Health Professions Student Loan and Guaranteed Student Loan are federally funded or sponsored programs. The Medical Education Assistance Program, Canal Brown Medical Student Loan, and Stethos Loan are College of Medicine programs. The Dr. George Scammon Memorial Fund may also be available to Iowa residents through the Iowa Medical Education Loan Program. A limited number of grants are awarded each year to students who demonstrate exceptional need.

In certain situations small, short-term emergency loans may be obtained through the college.

Information and advising on financial aid can be obtained through the Office of Student Services, College of Medicine.

Educational Opportunities Program
The Educational Opportunities Program provides financial and academic assistance to disadvantaged students from groups under-represented in American medicine.

Admission to the M.D.
The College of Medicine participates in the American Medical College Application Service (AMCAS), a nonprofit centralized application processing service for applicants to U.S. medical schools. Preliminary applications are processed by AMCAS through June 15 of the year preceding the beginning of the class for which application is being made. Prospective students are urged to apply...
as early as possible. The closing date is December 1.

Final application will be forwarded to applicants whose AMCAS applications pass a review conducted by the College of Medicine. A $75 fee must accompany the final application from applicants who have not completed work in residence 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's work.

- Completed three years of a baccalaureate program meeting the general graduation requirements of the college he or she is applying to.

Prospective students must have earned at least 84 semester hours of credit, or the equivalent, including:

- Physics: a complete introductory course
- Mathematics: college algebra and trigonometry, or an equivalent 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 utilize the entire medical curriculum and achieve the degree. Doctor of Medicine curricula require demonstrated proficiency in a variety of cognitive, problem-solving, manipulative, communicative, and interpersonal skills. Therefore, the following abilities and expectations must be met by all students admitted to the College of Medicine:

- Candidates must be able to observe demonstrations and experiments in the basic sciences;
- Candidates must be able to learn to analyze, synthesize, solve problems, and reach diagnostic and therapeutic judgments;
- Candidates must have sufficient use of the senses of vision and hearing and the somatic sensation necessary to perform a physical examination;
- Candidates must be able to perform palpation, auscultation, and percussion;
- Candidates must be able to 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 both 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.

Applicants who fail to meet these standards are encouraged to contact the coordinator of admissions.

- Fulfillment of the specific requirements for admission does not ensure admission to the College of Medicine. From 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. Because the quality of work in premedical science is basic to success in medicine, the admissions committee gives special attention to grades in science and to the level of difficulty of the program undertaken. Where courses are on a 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.
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. Completion and enrollment of a student who has not satisfactorily completed courses in a preceding grading period may be recommended by the promotion committee, provided that an appropriate tutorial program is designed for that student. Each student must demonstrate proficiency in each required course.

Evaluation of student progress in courses is based on such examinations or other tests as are determined by each department or course and on clinical skills and competency as deemed appropriate by the department or course. The College of Medicine requires that all students demonstrate proficiency in a variety of cognitive, problem-solving, manual, clinical, interpersonal, and ethical skills and insists that all students adhere to general principles of medical ethics. These critical skills and ethical commitment are described in a handbook in the Handbook for New Students that medical students receive at orientation.

Scholastic performance in the first three years is reported by using the letters H, P, F, and I in the narrative section, only grades P, F, and I will be used. The letter I indicates satisfactory achievement at the passing level. The letter H signifies "honors," indicates achievement at a level above the passing level. The letter F indicates work below the passing level. The letter I is used when for good reasons, the student has not completed the work of a course.

The promotion committee meets at least twice each year, following the completion of each academic semester and at other times as requested by the associate dean for medical student affairs.

The committee reviews with the course directors the records of all students who have received a grade of F or I during the previous grading period and the committee reviews the record of any student previously selected by the course director who is not meeting the minimum academic standards for that course. The committee cooperates with other business or professional 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 joint session to represent the faculty. Polkissic recommendations include: immediate dismissal of the student from the College, requiring the student to repeat all or any part of the curriculum; and allowing the student to continue either a regular or a decentralized schedule. Students having non-promoted grades of Failure will be placed on academic probation. A grade of incomplete, if not remediated 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, in 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 student and will be a resource for and provide advice to the promotions committee.

Appeals

Students desiring to appeal promotions decisions must submit an appeal in writing to the dean of this College of Medicine within two weeks after the date of written receipt of the decision. All appeals will be heard by the appropriate academic divisions reteled 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 a specified period of time. A leave of absence should be requested from the associate dean for medical student affairs and will be granted at the discretion of the dean. As leaves must be arranged in advance of the student's absence. If a student requests at any time that a leave begin during a clinical clerkship or clinical elective, the student must also obtain permission from the course director.

Any unexcused absence from a major section of a basic science course or a clinical clerkship may result in the disapproval of the department, in a grade of F.

Withdrawal from the College

A student may withdraw from the College of Medicine upon approval of a written application submitted to the office of the associate dean for medical student affairs.

Reinstatement

Application for reinstatement by any student who has withdrawn voluntarily or who has been required to withdraw from the college must be received in writing in the office of the dean at least four months prior to the requested date of readmission.

The faculty is authorized to refuse continuation of registration to any student, if it believes that he or she has not lived up to the expected standards of fitness required for entering the medical profession, as described in detail in the Handbook for New Students. Ordinarily such action is taken by the medical council and the executive committee meeting in joint session and acting as representatives of the faculty.

Informal Procedures

When a dispute arises between a student and a faculty member or department, there is often confusion as to the best way to resolve the problem. The medical school has a formal procedure as stated in "Promotion Policies and Procedures" and an informal procedure as outlined below.

In the College of Medicine, students with problems or complaints should attempt first to resolve the issue with the faculty member with whom there is a problem. Liking a satisfactory outcome, the student should next turn to the dean of the college or the dean of students, or the dean of medical student affairs of the College of Medicine. This informal discussion would not lead to involvement of the Office of the Dean in an official capacity. Should these procedures not resolve the situation, the student may then file a formal complaint with the Office of the Dean of the College of Medicine.

This informal procedure allows the greatest flexibility for all concerned in resolving the conflict and avoiding the extremes of a formal complaint that are to a part of the formal procedures. The informal procedure is intended for any situation a student may encounter including academic disputes, alleged academic dishonesty, alleged dishonesty during clinical rotation (e.g., falsifying
The anatomy faculty member who consented to direct the student's work.

20:08 Preventive Dentistry Seminar 4 h.
Preparation for preventive dentistry.

20:27 Seminar in Dental and Molecular Biology 1 h.
Preparation for research and dental science.

21:01 Preventive Medicine 1 h.
Preparation for research and dental science.

21:36 Preventive Dentistry Seminar 2 h.
Preparation for research and dental science.

22:01 Preventive Dentistry Seminar 3 h.
Preparation for research and dental science.

22:36 Preventive Dentistry Seminar 4 h.
Preparation for research and dental science.

23:01 Preventive Dentistry Seminar 5 h.
Preparation for research and dental science.

23:36 Preventive Dentistry Seminar 6 h.
Preparation for research and dental science.

24:01 Preventive Dentistry Seminar 7 h.
Preparation for research and dental science.

24:36 Preventive Dentistry Seminar 8 h.
Preparation for research and dental science.

25:01 Preventive Dentistry Seminar 9 h.
Preparation for research and dental science.

25:36 Preventive Dentistry Seminar 10 h.
Preparation for research and dental science.

26:01 Preventive Dentistry Seminar 11 h.
Preparation for research and dental science.

26:36 Preventive Dentistry Seminar 12 h.
Preparation for research and dental science.

27:01 Preventive Dentistry Seminar 13 h.
Preparation for research and dental science.

27:36 Preventive Dentistry Seminar 14 h.
Preparation for research and dental science.

28:01 Preventive Dentistry Seminar 15 h.
Preparation for research and dental science.

28:36 Preventive Dentistry Seminar 16 h.
Preparation for research and dental science.

29:01 Preventive Dentistry Seminar 17 h.
Preparation for research and dental science.

29:36 Preventive Dentistry Seminar 18 h.
Preparation for research and dental science.

30:01 Preventive Dentistry Seminar 19 h.
Preparation for research and dental science.

30:36 Preventive Dentistry Seminar 20 h.
Preparation for research and dental science.

31:01 Preventive Dentistry Seminar 21 h.
Preparation for research and dental science.

31:36 Preventive Dentistry Seminar 22 h.
Preparation for research and dental science.

32:01 Preventive Dentistry Seminar 23 h.
Preparation for research and dental science.

32:36 Preventive Dentistry Seminar 24 h.
Preparation for research and dental science.

33:01 Preventive Dentistry Seminar 25 h.
Preparation for research and dental science.

33:36 Preventive Dentistry Seminar 26 h.
Preparation for research and dental science.

34:01 Preventive Dentistry Seminar 27 h.
Preparation for research and dental science.

34:36 Preventive Dentistry Seminar 28 h.
Preparation for research and dental science.

35:01 Preventive Dentistry Seminar 29 h.
Preparation for research and dental science.

35:36 Preventive Dentistry Seminar 30 h.
Preparation for research and dental science.

36:01 Preventive Dentistry Seminar 31 h.
Preparation for research and dental science.

36:36 Preventive Dentistry Seminar 32 h.
Preparation for research and dental science.

37:01 Preventive Dentistry Seminar 33 h.
Preparation for research and dental science.

37:36 Preventive Dentistry Seminar 34 h.
Preparation for research and dental science.

38:01 Preventive Dentistry Seminar 35 h.
Preparation for research and dental science.

38:36 Preventive Dentistry Seminar 36 h.
Preparation for research and dental science.

39:01 Preventive Dentistry Seminar 37 h.
Preparation for research and dental science.

39:36 Preventive Dentistry Seminar 38 h.
Preparation for research and dental science.

40:01 Preventive Dentistry Seminar 39 h.
Preparation for research and dental science.

40:36 Preventive Dentistry Seminar 40 h.
Preparation for research and dental science.

41:01 Preventive Dentistry Seminar 41 h.
Preparation for research and dental science.

41:36 Preventive Dentistry Seminar 42 h.
Preparation for research and dental science.

42:01 Preventive Dentistry Seminar 43 h.
Preparation for research and dental science.

42:36 Preventive Dentistry Seminar 44 h.
Preparation for research and dental science.

43:01 Preventive Dentistry Seminar 45 h.
Preparation for research and dental science.

43:36 Preventive Dentistry Seminar 46 h.
Preparation for research and dental science.

44:01 Preventive Dentistry Seminar 47 h.
Preparation for research and dental science.

44:36 Preventive Dentistry Seminar 48 h.
Preparation for research and dental science.

45:01 Preventive Dentistry Seminar 49 h.
Preparation for research and dental science.

45:36 Preventive Dentistry Seminar 50 h.
Preparation for research and dental science.

46:01 Preventive Dentistry Seminar 51 h.
Preparation for research and dental science.

46:36 Preventive Dentistry Seminar 52 h.
Preparation for research and dental science.

47:01 Preventive Dentistry Seminar 53 h.
Preparation for research and dental science.

47:36 Preventive Dentistry Seminar 54 h.
Preparation for research and dental science.

48:01 Preventive Dentistry Seminar 55 h.
Preparation for research and dental science.

48:36 Preventive Dentistry Seminar 56 h.
Preparation for research and dental science.

49:01 Preventive Dentistry Seminar 57 h.
Preparation for research and dental science.

49:36 Preventive Dentistry Seminar 58 h.
Preparation for research and dental science.

50:01 Preventive Dentistry Seminar 59 h.
Preparation for research and dental science.

50:36 Preventive Dentistry Seminar 60 h.
Preparation for research and dental science.

51:01 Preventive Dentistry Seminar 61 h.
Preparation for research and dental science.

51:36 Preventive Dentistry Seminar 62 h.
Preparation for research and dental science.

52:01 Preventive Dentistry Seminar 63 h.
Preparation for research and dental science.

52:36 Preventive Dentistry Seminar 64 h.
Preparation for research and dental science.

53:01 Preventive Dentistry Seminar 65 h.
Preparation for research and dental science.

53:36 Preventive Dentistry Seminar 66 h.
Preparation for research and dental science.

54:01 Preventive Dentistry Seminar 67 h.
Preparation for research and dental science.

54:36 Preventive Dentistry Seminar 68 h.
Preparation for research and dental science.

55:01 Preventive Dentistry Seminar 69 h.
Preparation for research and dental science.

55:36 Preventive Dentistry Seminar 70 h.
Preparation for research and dental science.

56:01 Preventive Dentistry Seminar 71 h.
Preparation for research and dental science.

56:36 Preventive Dentistry Seminar 72 h.
Preparation for research and dental science.

57:01 Preventive Dentistry Seminar 73 h.
Preparation for research and dental science.

57:36 Preventive Dentistry Seminar 74 h.
Preparation for research and dental science.

58:01 Preventive Dentistry Seminar 75 h.
Preparation for research and dental science.

58:36 Preventive Dentistry Seminar 76 h.
Preparation for research and dental science.

59:01 Preventive Dentistry Seminar 77 h.
Preparation for research and dental science.

59:36 Preventive Dentistry Seminar 78 h.
Preparation for research and dental science.

00:01 Preventive Dentistry Seminar 79 h.
Preparation for research and dental science.

00:36 Preventive Dentistry Seminar 80 h.
Preparation for research and dental science.

01:01 Preventive Dentistry Seminar 81 h.
Preparation for research and dental science.

01:36 Preventive Dentistry Seminar 82 h.
Preparation for research and dental science.

02:01 Preventive Dentistry Seminar 83 h.
Preparation for research and dental science.

02:36 Preventive Dentistry Seminar 84 h.
Preparation for research and dental science.

03:01 Preventive Dentistry Seminar 85 h.
Preparation for research and dental science.

03:36 Preventive Dentistry Seminar 86 h.
Preparation for research and dental science.

04:01 Preventive Dentistry Seminar 87 h.
Preparation for research and dental science.

04:36 Preventive Dentistry Seminar 88 h.
Preparation for research and dental science.

05:01 Preventive Dentistry Seminar 89 h.
Preparation for research and dental science.

05:36 Preventive Dentistry Seminar 90 h.
Preparation for research and dental science.

06:01 Preventive Dentistry Seminar 91 h.
Preparation for research and dental science.

06:36 Preventive Dentistry Seminar 92 h.
Preparation for research and dental science.

07:01 Preventive Dentistry Seminar 93 h.
Preparation for research and dental science.

07:36 Preventive Dentistry Seminar 94 h.
Preparation for research and dental science.

08:01 Preventive Dentistry Seminar 95 h.
Preparation for research and dental science.

08:36 Preventive Dentistry Seminar 96 h.
Preparation for research and dental science.

09:01 Preventive Dentistry Seminar 97 h.
Preparation for research and dental science.

09:36 Preventive Dentistry Seminar 98 h.
Preparation for research and dental science.

10:01 Preventive Dentistry Seminar 99 h.
Preparation for research and dental science.
225:101 Biostatistics (PT) 3 s.h.
Total 14-15 s.h.

Senior Year
General education, elective, or advanced courses in the departments of biochemistry, microbiology, chemistry, or others specified for specific degree requirements.
A student who has satisfactorily completed the prerequisites has satisfied the minimum academic requirements for admission to the physical therapy program in the senior year.

Medical Technology
Program director: Marian Schwebel
Faculty: associate professor, James A. Geiser; assistant professors, Monty Schriemer, Alton Smith, and Thomas Pasquarello.

Second Semester
Foreign Language 4 s.h.
Second Year Seminar 4 s.h.
96:110 Biochemistry 3 s.h.
Electives 5 s.h.
Total 16 s.h.

Senior Year
The clinical program comprises 12 months of didactic and practical instruction. The first summer session and semester are devoted to lectures, laboratory experience, demonstrations, and seminars covering theory and technique in clinical laboratory science. During the last semester the student rotates through the clinical laboratory facilities of The University of Iowa Hospitals and Clinics and the Iowa City Veterans Administration Medical Center, and attends additional lectures.

The program comprises the following courses:
69:121 Immunology for Medical Technologists 2
69:122 Clinical Chemistry for Medical Technologists 2
69:123 Immunohematology for Medical Technologists 2
69:124 Clinical Hematology for Medical Technologists 2
69:125 Microbiology for Medical Technologists 2
69:126 Clinical Chemistry for Medical Technologists 2
69:127 Clinical Immunohematology for Medical Technologists 2
69:128 Clinical Microbiology for Medical Technologists 2
69:129 Clinical Hematology for Medical Technologists 2
69:131 Clinical Laboratory Science Seminar 2
69:132 Parasitology for Medical Technologists 2

For course descriptions, see "Pathology" in this section of the Catalog.

Admission
The professional program is limited to 30 students who begin the program in June. Applications close October 15. Fifteen students continue during the fall and spring semesters and complete the program in May. The other fifteen have the opportunity to complete unfinished prerequisite course work during the fall semester and then return to the program for the spring and fall semesters of the following year, graduating in December.

To apply for admission to the professional program, the student must be able to complete all of the following prerequisites and University graduation requirements by the end of the professional (clinical) year:

16 semester hours of biology, including general zoology, microbiology, cell biology, physiology, and parasitology.

Admission is on a competitive basis. Minimum cumulative grade-point averages of 2.5 overall and 2.5 in science are required. All applicants who enter the program as an undergraduate student must meet the general admission requirements of the University’s College of Liberal Arts and Sciences, and should consult with the director on the Medical Technology Program as early as possible to plan practical studies to meet all requirements.

Expenses
Medical Technology students in the professional year curriculum are responsible for their textbooks. University tuition, and student fees. Laboratory costs and equipment such as microscopes are provided by the program.

Nuclear Medicine Technology
Program director: Kenneth A. Hamre
Faculty: assistant professor, Peter T. K Primer.

Technical director: John A. Rieser
Faculty: professor, Frank H. Cheng; associate professor, John A. Rieser; associate professor, Jean E. Carter; associate professor, John A. Rieser.

Second Semester
Nuclear Physics 4 s.h.
Nuclear Chemistry 4 s.h.
Nuclear Instrumentation 3 s.h.
Electives 3 s.h.
Total 15 s.h.

Nuclear medicine technology is a medical specialty which uses radioactive substances or diagnostic radionuclides for diagnostic, therapeutic, and research purposes. It is a vigorous, dynamic field that has grown rapidly over the past two decades and is still expanding and growing in complexity. This continuous expansion of the specialty has fostered an increasing demand for highly skilled and motivated nuclear medicine technologists.

Nuclear medicine technologists generally work in hospitals and clinics. At the heart of nuclear medicine technology is the use of sophisticated detectors and computers to trace the distribution and localization of radioactive tracers in the human body.

Other basic job responsibilities may include: radiation safety; quality control; radiopharmaceutical preparation and administration; and collection and preparation of biological specimens to measure levels of hormones, drugs, or other body components. In all these functions the nuclear medicine technologist works hand-in-hand with nuclear medicine physicians, health physicists, radiopharmacists, and radiologists as an integral part of a highly specialized team of medical professionals.

The Nuclear Medicine Technology Program at the University of Iowa is fully accredited by the Committee on Allied Health Education and Accreditation, and
the Council on Medical Education of the American Medical Association. Fulfillment of the requirements established by the AMA Accreditation Board involves three years of 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 medical technologist.

The required courses in the freshman and sophomore years emphasize the physical and biological sciences, which provide a basic background for further development in the junior year.

Applicants are strongly advised to pursue a course of study which is applicable to a baccalaureate degree, most common in one of the following areas: zoology, biology, chemistry, biochemistry, or microbiology. In the event a student is not admitted into the MM program, the student could then complete a degree in the chosen area.

Junior Year
Required courses:
62:1 Elementary Human Anatomy
72:1 Human Physiology
22:7 Introduction to Computing with FORTRAN

Recommended course options:
Recommended course options:
Science:
37:12 Cell, Tissue, and Organ Biology
37:14 Introduction to Developmental Biology
61:15 General Microbiology
41:12 Electron Microscopy
41:12 Organic Chemistry I
41:12 Organic Chemistry II
41:14 Organic Chemistry Laboratory
95:140 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, radiobiology, radiometry and tracer techniques, radioimmunoassay and immunochemistry, scintillation and autolysis, laboratory procedures, radiation protection, patient care, medical terminology, anatomy and physiologic bases of nuclear medicine procedures, physics and instrumentation, estimation of errors, 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 radiopharmaceuticals, diagnostic X-ray, computed tomography, and ultrasonography.

The clinical year consists of these courses:
74:184 Principles of Nuclear Medicine 12 s.h.
74:185 Applied Nuclear Medicine 12 s.h.
74:186 Nuclear Medicine Technology 12 s.h.
66:187 Advanced Nuclear Medicine Practicum 6 s.h.

For course descriptions, see "Radiology" in this section of the Catalog.

Admission

Prerequisites for admission to the nuclear medicine technology program include:
A minimum of 60 semester hours in all course work, with a minimum cumulative grade-point average of 2.5;
Fulfillment of the College of Liberal Arts general education requirements in rhetoric, physical education, humanities, historical perspective, foreign civilization and culture, and social sciences. (sociology and psychology are recommended);
A minimum of 20 semester hours in three science areas to include a complete introductory course with laboratory in chemistry, physics, and zoology;
A minimum of three semester hours in mathematics to include at least intermediate algebra.

Fulfillment of these basic admission requirements does not ensure acceptance into the nuclear medicine technology program. Promotion from the junior year to the final clinical year is conditional upon satisfactory completion of a minimum of 36 semester hours of study in the recommended area.

A new class begins in late August each year. Application materials must be received by March 1. 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 work placement programs are administered by the University's Office of Student Financial Aid and are awarded on the basis of demonstrated need. Part-time work within the Department of Radiology is also available on a limited basis.

Physical Therapy

Faculty, professor: Gary Smith; associate professors: David H.interesting facts about Gary Smith

Physical Therapy Program

The professional program in physical therapy at The University of Iowa is fully accredited by the American Physical Therapy Association. Satisfaction completion of the professional program
qualities candidates for the Professional Examination Service (P.E.S.) test for licensure in Iowa and other states. The two-year professional certification program consists of:

First Semester
60:108 Human Anatomy 4 s.h.
101:80 Fundamentals of Physical Therapy 3 s.h.
101:113 Kinesiology 3 s.h.
101:131 Therapeutic Physical Agents I 3 s.h.
101:141 introduction to Physical Therapy 1 s.h.
69:203 Introduction to Human Pathology 3 s.h.

Second Semester
60:109 Human Anatomy and Neuroanatomy 4 s.h.
101:85 Therapeutic Exercise II 2 s.h.
119:119 Clinical Observation 0-4 s.h.
101:101 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 Neurology and Clinical Sciences 1 s.h.
101:95 Clinical Education and Rehabilitation 2 s.h.
101:101 Therapeutic Injury 2 s.h.
101:121 Physical Therapy Management and Administration 1 s.h.
119:170 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 study must be able to satisfy all requirements for the baccalaureate degree by successfully 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 zoology (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 systems 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 applicant must have a minimum grade-point average of 3.7, and should have a 3.5 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 uniform, textbooks, professional liability insurance, and course syllabi.

Master of Arts
The Master of Arts in physical therapy emphasizes research and teaching in three areas of physical therapy: musculoskeletal, neuromuscular, and cardior pulmonary. The program focuses on theoretical and clinical applications for assessment and treatment of patient disorders in the three specialty areas.

Clinical praxis experiences are offered to complement these specialties. The master's degree requires a minimum of 20 semester hours of graduate course work. Completion of basic professional physical therapy education is a prerequisite. Clinical experiences are recommended.

Physical therapy laboratories are available for human and animal studies. These laboratories are well equipped with electromechanical systems and computers for measurement and analysis of musculoskeletal function (muscle strength and endurance, gait posture, and balance evaluation); neuromuscular activity (electromyography, spinal reflexes, CNS control mechanisms); and cardio pulmonary responses (heart rate, blood pressure, energy cost, and utilization). Use of extrapatient laboratories may also be arranged. Collaborative studies are encouraged with other departments, such as neurology, internal medicine, pediatrics, orthopedics, physiology, anatomy, engineering, pharmacology, and with personnel in the physical therapy 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 cardior pulmonary 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 practice;

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.
101:301 Thesis: Physical Therapy 4 s.h.
101:401 Analysis of Scientific Literature 2 s.h.
101:403 Advanced Physical Therapy 3 s.h.
101:251 Principles of Human Movement 3 s.h.
101:275 Evaluation of Selected Motor Functions 3 s.h.
101:290 Cardiopulmonary Therapy 3 s.h.
101:280, 285, or 286 Practicum (Teaching, Research and/or Clinical)*** 3 s.h.

*Maximum of six semester hours.
**Prerequisite.
65:167 Biometrics and Bioassay 3 s.h.
65:161 introduction to Biostatistics and 3 s.h.
65:162 Design and Analysis of Experiments in the Biomedical Sciences 3 s.h.
7P:143 introduction to Statistical Techniques and 3 s.h.
7P:242 Selected Applications of Statistical Techniques 3 s.h.
**These courses may be taken on a pass-fail basis.
Recommended courses:
7W:120 Introduction to Instructional Design and Technology 3 s.h.
69:203 Introduction to Human Pathology 3 s.h.
101:325 Independent Study in Kinesiology and Biomechanics 3 s.h.
101:327 Research I in Therapeutics 3 s.h.
27:153 Advanced Anatomy and Physiology 2 s.h.
27:141 Elementary Exercise Physiology Lab 2 s.h.
27:362 Physiology of Exercise Laboratory 2 s.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 a minimum grade point average of 2.75 or higher. Two years of clinical experience is also considered highly desirable. The student must successfully complete the Preprofessional Examination Service examination. Admission to the master's degree program is granted on a basis of the student's grade-point average for previous college 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 applicant 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 special emphasis on therapeutic programs. The program is described in detail under "Physical Education-Field Houses" in the "College of Liberal Arts" section of the Catalog. A student successfully completing the Ph.D. program in physical education with the specialty in therapeutics will:

Be knowledgeable and demonstrate application of basic and advanced concepts related to normal and abnormal musculoskeletal, neuromuscular, and cardiopulmonary physical therapy; have a comprehensive understanding of current as well as basic and applied scientific physical therapy literature; and demonstrate original scholarship, write, and 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 and graduate levels of physical therapy training.

Admission Requirements
The student is admitted to the study 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. To be considered for admission, the student must have earned a grade-point average of 3.0 or higher on all graduate work undertaken. In addition, the GRE scores must be on file at the University of Iowa.

The applicant must complete the Graduate College application and the application process for the Physical Therapy Educational Programs. A student who has completed the master’s degree requirements in physical therapy at The University of Iowa need only complete the application process for the Physical Therapy Educational Program. The application is reviewed after the applicant has been accepted by the Graduate College and all aspects of the written application for the Physical Therapy Educational Programs are submitted. Deadlines for the completed written applications are October 15 for notification by December 1, March 15 for notification by May 1, and May 15 for notification by July 1.

Financial Aid
A number of teaching and research assistantships are available; part-time clinic work may also be available.

Courses
The courses listed below are open only to students in the professional program.

101:00 Fundamentals of Physical Therapy
101:05 Michigan University I in Therapeutics 3 s.h.
101:06 Michigan University II in Therapeutics 3 s.h.
101:10 Therapeutics I 3 s.h.
101:11 Therapeutics II 3 s.h.
101:12 Therapeutics III 3 s.h.
101:13 Therapeutics IV 3 s.h.
101:14 Therapeutics V 3 s.h.
101:15 Therapeutics VI 3 s.h.
101:16 Therapeutics VII 3 s.h.
101:17 Therapeutics VIII 3 s.h.
101:18 Therapeutics IX 3 s.h.
101:19 Therapeutics X 3 s.h.
101:20 Therapeutics XI 3 s.h.
101:21 Therapeutics XII 3 s.h.
101:22 Therapeutics XIII 3 s.h.
101:23 Therapeutics XIV 3 s.h.
101:24 Therapeutics XV 3 s.h.
101:25 Therapeutics XVI 3 s.h.
101:26 Therapeutics XVII 3 s.h.
101:27 Therapeutics XVIII 3 s.h.
101:28 Therapeutics XIX 3 s.h.
101:29 Therapeutics XX 3 s.h.
101:30 Therapeutics XXI 3 s.h.
101:31 Therapeutics XXII 3 s.h.
101:32 Therapeutics XXIII 3 s.h.
101:33 Therapeutics XXIV 3 s.h.
101:34 Therapeutics XXV 3 s.h.
101:35 Therapeutics XXVI 3 s.h.
101:36 Therapeutics XXVII 3 s.h.
101:37 Therapeutics XXVIII 3 s.h.
101:38 Therapeutics XXIX 3 s.h.
101:39 Therapeutics XXX 3 s.h.
101:40 Therapeutics XXXI 3 s.h.
101:41 Therapeutics XXXII 3 s.h.
101:42 Therapeutics XXXIII 3 s.h.
101:43 Therapeutics XXXIV 3 s.h.
101:44 Therapeutics XXXV 3 s.h.
101:45 Therapeutics XXXVI 3 s.h.
101:46 Therapeutics XXXVII 3 s.h.
101:47 Therapeutics XXXVIII 3 s.h.
101:48 Therapeutics XXXIX 3 s.h.
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 or 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 for the opportunity to take the National Certifying Examination for Primary Care Physician Assistants. Successful completion of the national certifying examination is a prerequisite for registration 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 family practice clinics integrate the primary care and graduate physician assistant into the medical delivery team with physicians, health technologists, 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 of the program is taught at The University of Iowa Health Center. A major portion of the second-year clinical work occurs throughout the state in primary care settings.

The two-year educational program is divided into three broad phases.

The initial, didactic phase consists of seven months of course work in a number of basic science areas. Whenever appropriate, related clinical experiences are integrated to provide sequential lecture and laboratory experience. A seminar course specifically directed to the history, development, and future of the physician assistant profession is also offered during this session.

The second phase is 50-121 Introduction to Clinical Medicine for Physician Assistant Students. This full-semester course involves the application of basic science knowledge to the understanding of clinical-pathologic correlations of the common and/or catastrophic disorders encountered in the major disciplines of medicine.
Second Year
Phase III
Required clinical rotations:
70:555 Pediatrics for Physician Assistant Students 6 s.h.
75:555 General Surgery for Physician Assistant Students 6 s.h.
78:555 Internal Medicine for Physician Assistant Students 6 s.h.
115:515 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 6 s.h.
73:100 Psychopharmacology for Physician Assistant Students 6 s.h.
Elective clinical rotations, selected from the following:
70:102 Pediatrics Elective for Physician Assistant Students arr.
75:100 Emergency Room Elective for Physician Assistant Students 4 s.h.
78:100 Orthopedics Elective for Physician Assistant Students 2 s.h.
75:500 Family Practice Elective for Physician Assistant Students 4 s.h.
78:100 Internal Medicine Elective (Cardiology) for Physician Assistant Students 4 s.h.
62:525 Dermatology Elective for Physician Assistant Students 2 s.h.
74:5 Radiology Elective for Physician Assistant Students 2 s.h.
75:100 Surgery Elective for Physician Assistant Students 2 s.h.
78:100 Rehabilitation Elective for Physician Assistant Students 2 s.h.
79:100 Urology Elective for Physician Assistant Students 2 s.h.
66:110 Obstetrics and Gynecology 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
A complete introductory and at least one advanced course in zoology or animal biology.
It is also strongly recommended, although not required, that the applicant's background include analytical geometry, beginning calculus, and physics.
The applicant must have achieved at least a 2.5 grade-point average on the last 60 semester hours of college course work undertaken. The admissions committee gives special attention to the applicant's performance in science courses. In the past, the successful applicant has had a cumulative and science grade-point average of 3.1, a total of 132 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 from 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 commonly in the areas of biology, chemistry, biochemistry, or zoology. A new class begins the last week in May. Applications are accepted beginning one year in advance, and close April 15. Each applicant must complete the University of Iowa application and the Physician Assistant Program supplementary application and submit at least three letters of recommendation.
Expenses
In addition to general University student expenses, students in the Physician Assistant Program are responsible for the purchase of their uniforms and diagnostic equipment, approximately $550. Microscopes are not required.
Courses
115:101 Physician Assistant Clinical Second Year arr.
117:121 Seminar for Physician Assistant Students 0.5 s.h.
Lectures, readings, and group sessions dealing with the history and development of the profession and the role of the physician assistant to students in the Physician Assistant Program.
117:206 Advanced Emergency Medicine for Physician Assistants 2 s.h.
Introduction to advanced emergency medicine, including the recognition and intervention of medical emergencies, advanced life support, patient management, and pre-hospital and field techniques in emergency medicine. Open to selected senior physician assistant students and graduate physician assistant students.
117:207 Advanced Emergency Medicine for Frontline Physician Assistant Students 4 s.h.

Biochemistry
Department of Biochemistry is located in the University of Iowa Biology Building, 200 E. Congress Ave., Iowa City, IA 52242. The department offers undergraduate and graduate programs in biochemistry and molecular biology.

Undergraduate Programs
See "Biochemistry" in the Liberal Arts section of the Catalog.

Graduate Programs
The Department of Biochemistry offers graduate programs in study of 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. (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, 99:130, 99:135, and 99:150) and a course of effective oral presentation (99:282 Seminar). Students spend about half of their time working in three different faculty laboratories (99:281 Research Techniques), learning research techniques in the context of ongoing projects.

At the end of the first year, students choose research laboratories for Ph.D. thesis research, begin their thesis projects, and take courses that supplement and complement their interests and preparation. Students are required to complete a minimum of six semester hours of courses in biochemistry and six semester hours of elective science courses offered in other departments.

After passing the comprehensive examinations, toward the end of the second year, students are formally admitted to degree candidacy 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
Financial Assistance
Financial assistance is available to all students admitted to the doctoral program in biochemistry.

Admission
The graduate program in biochemistry is sufficiently flexible to accommodate students with backgrounds in any of the biological, biochemical, or physical sciences. Appropriate preparation includes one-year college-level courses in organic and physical chemistry, biology, and physics, and mathematics through calculus. Students with demonstrated ability may make up deficiencies after admission. Beyond the general Graduate College admission requirements (see the Graduate College section of the Catalog) minimum requirements of the department include an undergraduate grade-point average of 3.6, a 3.0 average in science and mathematics courses, and an acceptable score on the verbal, quantitative, and analytical sections of the Graduate Record Examination (GRE) Aptitude Test.

Courses
90-98 Cooperative Education Internship 0.5 a.
90-10 Senior Undergraduate 0.1 b.
Introduction to the field of biochemistry, current developments and opportunities. Guidance and training in the techniques of written and oral communication of biochemical information. Required of all majors.
90-116 Bachelor's 3 a.
Focus on chemistry and molecular dynamics of biological systems and mechanisms used to maintain them. Prerequisites: two semesters general chemistry, one semester organic chemistry.
90-120 The Chemistry of Biological Materials 3 a.
Chemistry of major functional groups important in biological systems and topics which influence their function, including structure and regulation of protein and nucleic acids. Prerequisites: 90-116 and 90-122 recommended.
90-122 Analytical Biochemistry 3 a.
An examination of the reactions of biological systems, how energy is utilized, how intermediary metabolites and macromolecules are synthesized and degraded, and how these processes are controlled: how these processes are carried out in multicomponent organisms; interorgan metabolic relationships. Prerequisites: 90-120.
90-125 Physical Biochemistry 4 a.
Theory and interpretation of physical-chemical measurements which yield information about biochemical systems; topics include thermodynamics of macromolecules in solution, solubility of proteins and nucleic acids, structure and solution behavior of molecules, and rate theory of enzyme catalysis; three lectures, one conference. Prerequisites: 90-120 and 90-229, 90-229 recommended.
90-126 General Biophysics 4 a.
Quantitative and qualitative experiments on the structure and behavior of biomolecules; use of modern instrumentation and techniques for spectroscopy, electrophoresis, electrodynamics, biophysics; development and application of biophysical techniques. Prerequisites: 90-120 and 90-125 recommended.
90-130 Biochemistry of Information 3 a.
Relationship of nucleic acid structure and sequence analysis to mechanisms of information transfer in prokaryotes and eukaryotes. Topics include bioenergetics, enzymology, and recombinant DNA techniques related to enzyme engineering, gene replacement, transposition, and translation, and the processes of transcription and translation. The first third of the course emphasizes prokaryotic systems; the second two-thirds analyze eukaryotic systems. Prerequisites: 90-120 or permission of instructor.
91-15 Research, Independent Study 2-4 a.
Students pursue independent study and research in areas of interest to them, arranged individually with appropriate faculty members, for credit approved by the department. Prerequisites: consent of instructor.
91-16 Biochemistry Tutorial 4 a.
Introduction to modern biochemistry for students who have not been exposed to the field or who wish to refine and expand their knowledge of biochemistry. Prerequisites: consent of instructor.
91-18 Biochemistry for Dental Students 4 a.
Lectures, demonstrations, and conferences. Dental students who have not had equivalent previous courses should attend only after consultation with instructor.
91-22 Biochemistry for Pharmacy Students 4 a.
Lectures, demonstrations, and conferences. Pharmacy students who have not had equivalent previous courses should attend only after consultation with instructor.
91-23 Biochemistry for Medical Students 4 a.
Lectures and clinical correlations major topics in biochemical aspects of human disease. Prerequisites: other students admitted only after consultation with instructor.
91-24 Biochemistry for Physician Assistant 3 a.
Aspects of general biochemistry necessary for understanding the biochemical basis of human disease; analysis of appropriate clinical cases. Taught concurrently and integrated with 12-23.
92-23 Molecular Biophysics 2 a.
Introduction to the role of protein structure in its function, in the regulation of transcription and translation, in the control of cell metabolism. Prerequisites: 90-120 or permission of instructor.
94-22 Biochemistry for Pharmacists 4 a.
Lectures, discussions, and conferences. Prerequisite: permission of instructor. Other students admitted only after consultation with instructor.
95-22 Biochemistry for Physicians 4 a.
Lectures, discussions, and conferences. Physicians who have not had equivalent previous courses should attend only after consultation with instructor.
96-22 Biochemistry for Physical Scientists 3 a.
Lectures, discussions, and conferences. Physical scientists and others who have not had equivalent previous courses should attend only after consultation with instructor. Prerequisites: 90-120 or permission of instructor.
97-22 Molecular Disease 1 a.
Application of basic biochemistry knowledge to the understanding of disease at the cellular and molecular level. Prerequisite: consent of instructor.
99-22 Mobility and Contact Systems 3 a.
Molecular mechanisms of somatosensory afferents: cellular, chemical, and physiological correlates. Prerequisites: 99-120 and 99-125 or consent of instructor.
100-22 Molecular Biology 1 a.
Intensive study of a specialized area of biochemistry. May be repeated. Prerequisites: 99-120 and 99-125 or consent of instructor.
101-22 Molecular Genetics 1 a.
Applications and limitations of current methods and techniques for determining mechanisms of enzymatic control and reaction. Development of basal understanding of molecular mechanisms and molecular techniques. Prerequisites: 99-120 or 99-130 or consent of instructor.
102-22 Protein Structure 1 a.
Development of advanced knowledge of the relationship of protein structure to biological function; correlation of sequence based on observed and predicted three-dimensional structures. Topics include thermodynamics and dynamics of protein folding and
Dermatology

Department head: John S. Skirrow
Faculty: professor Richard M. Glanzer, Donald T. Duvvuri, John S. Skirrow, associate professors Thomas A. Reynolds, Kevin A. Beasley, Ross S. McCalmont, Peter J. Quaite, David C. Whitaker
Clinical assistant professors Don Dreyer, Roger I. Geller, Robert F. Gowan, Randall Harvery, Joseph Parks, James E. Tawneface

Clinical Lecturer Donald B. Johnston, Jr.; Susan Public

The Department of Dermatology instructs medical students and trains 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 10 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
Basic medical student year, lectures and case studies; independent study option, clinical experience, supervised research.

623 Dermatology Electives
Fourth-year medical students spend four weeks in advanced clinical experience, dermatological surgery, and special assignments.

614 Research in Dermatology

626 Dermatology Electives for Physician Assistant
General principles of medical research, clinical or laboratory projects. Individually selected study.

6299 Special Studies of Campus

Dietetic Internship

Department Director: Rose Ann Stipp
Internship Director: Suzanne Kory

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 h. s.
50-203-204 Clinical Dietetics 4 h. s.
50-205-206 Projects in Dietetics 6 h. s.
50-209-210 Hospital Dietary Administration 4 h. s.

The following are recommended electives:
50-207-208 Dietetic Research 6 h. s.
65-215 Comparative Nutrition 2 h. s.
65-216 Analysis of Food Service Systems 2 h. s.
65-211 Nutrition of the Child 2 h. s.

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. Chester B. Smith is the program director. Further information may be obtained from the Office of the Dean, University Hospitals and Clinics, 326 Shirk Hall, University of Iowa, Iowa City, Iowa 52242.

Family Practice

Department head: Robert B. Reekel

Office: 2140 University Hall, University of Iowa Hospitals and Clinics, Iowa City, lowa 52242. Telephone 319-335-1992.

The Family Practice Program was initiated in response to the need for more primary-care physicians in Iowa and throughout the nation.

Appliances and study course in the department is included throughout the four-year M.D. program. The department's 18 elective senior rotation gives students opportunities for exposure to various Iowa communities through work in affiliated hospitals or connected with other Health Science University Hospitals offices, and in preceptorships with selected family physicians throughout the state. There is also ample
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 54 semester hours and takes two years to complete. All master's students must complete 15 required courses in addition to a core of disciplines and fields of knowledge.

In the course of study, the following courses are required:

- **80:101 Introduction to Health Care Organization** 3 s.h.
- **80:201 Health Services Administration I** 3 s.h.
- **80:202 Health Services Administration II** 3 s.h.
- **80:203 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.

**Five Year Program**

An early admission 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 for the bachelor's degree before 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 pursue an integrated program leading to a graduate degree in hospital and health administration and a graduate degree in another field such as business administration or urban and regional planning. Joint programs of study are encouraged. Applicants who are interested in these programs should discuss their plans with both departments and should indicate their interest when submitting their application for admission.

**Post-M.D. Doctor of Philosophy**

The primary purpose of the doctoral program is to prepare individuals who are competent to contribute to the body of knowledge in teaching and research in health care systems 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:

- **80:221 Quantitative Methods in Health Administration I** 3 s.h.
- **80:222 Quantitative Methods in Health Administration II** 3 s.h.
- **80:223 Systems Analysis** 3 s.h.
- **80:224 Health Care Marketing Research Methods** 3 s.h.
- **80:225 Vague Aspects of Health and Medical Care** 3 s.h.
Health Services Management and Policy
80-251 Medical Care Programs 5-4.5
80-253 Seminar: Health Services Management 5-4.5
80-255 Seminar: Contemporary Health Issues 5-4.5
80-256 Seminar: Contemporary Health Issues II 5-4.5

Research Methodology and Statistics
80-261 Health Services Research I 5-4.5
80-262 Health Services Research II 5-4.5
80-263 Independent Research Project 5-4.5
In addition, the student must complete one of the following statistics sequences:
General Measurement/Statistics
7P-243 Intermediate Statistical Methods 5-4.5
7P-244 Correlation and Regression 5-4.5
80-265 Application of Multivariate Statistical Methods 5-4.5
Econometrics Sequence 5-4.5
6E-183 Statistical Methods in Econometrics 5-4.5
6E-221 Econometrics I 5-4.5
80-265 Application of Multivariate Statistical Methods 5-4.5

Sociology of Health Services
80-264 Elementary Statistics and Data Analysis 5-4.5
80-266 Intermediate Statistics and Data Analysis 5-4.5
80-265 Application of Multivariate Statistical Methods 5-4.5

Minor Field
The student must complete at least 12 semester hours in a related field such as sociology, political science, psychology, management science, or economics.

Doctoral students are required to complete at least 90 semester hours of graduate work, pass comprehensive examinations, and submit an acceptable dissertation.

In addition to satisfying the specific requirements of the program, the doctoral student must satisfy the requirements of the Graduate College.

Center for Health Services Research
The Center for Health Services Research (CHSR) is the interdisciplinary focus for research on health and health care services at The University of Iowa. Faculty and staff investigate questions regarding the organization, delivery, and financing of health care. CHSR research interests embrace a broad range of disciplines and fields of study, including economics, organizational behavior, psychology, operations research, sociology, preventive medicine and environmental health, and clinical medicine. Under the aegis of the Graduate Program, the Center houses faculty from the Colleges of Medicine, Dentistry, Pharmacy, Engineering, Business Administration, and Liberal Arts in common research interests.

Admission
Admission procedures are the same for M.A. and Ph.D. applicants.
A qualified student with a baccalaureate degree in any discipline from an accredited college or university may apply for admission to the M.A. program. Interdisciplinary undergraduate courses in accounting and management are program prerequisites. Applicants for admission to the doctoral program are generally expected to possess master's degrees in health administration, medical care organization, public health, or in other fields related to health, although individuals from a variety of academic backgrounds are encouraged to apply. Students must have a 3.0 grade-point average for regular admission, although a student with a lower grade-point average may be admitted to conditional status upon the recommendation of the faculty.
All students applying for admission are required to furnish completed application forms, official transcripts of all graduate and undergraduate course work, three letters of recommendation, and a brief statement outlining career objectives. Applicants are required to take the Graduate Record Examination (GRE) Aptitude Test. A personal interview is usually requested prior to admission. Applicants are accepted for admission in the fall semester only. Completed applications must be filed not later than June 1.

Financial Aid
A limited number of research assistantships, teaching assistantships, and other sources of financial aid are available to support students in both the M.A. and Ph.D. programs.

Courses
80-616 Introduction to Health Care Organization 3-4.5
80-617 Graduate Organizational Behavior of Health Services 3-4.5
7P-243 Intermediate Statistical Methods 5-4.5
7P-244 Correlation and Regression 5-4.5
80-265 Application of Multivariate Statistical Methods 5-4.5

Health Services Administration I 3-4.5
First in a four-course sequence dealing with the organization and management of health care, organizations, including acute and chronic care facilities, hospitals, nursing homes, and ambulatory care facilities. Prerequisite: satisfactory performance on prerequisite examination.
80-262 Health Services Administration II 3-4.5
Continuation of Health Services Administration I 5-4.5
80-263 Health Services Administration III 3-4.5
Application of question management skills to problem-solving in hospitals, nursing homes, and ambulatory care settings. Students will work on projects in selected agencies. Prerequisite: 80-262.
80-264 Health Services Administration IV 3-4.5
Continuation of Health Services Administration III 5-4.5
80-265 Issues in Health Management and Policy 3-4.5
Case study approaches in the development and implementation of health care strategies. Prerequisite: 80-263.
80-266 Ambulatory Care Administration 3-4.5
Problems in the delivery of ambulatory care services in hospital-based, independently owned, and freestanding organizational forms, including review of profit-seeking and nonprofit organizations. Emphasis on manpower education and training, personnel administration, service scheduling, and management of office procedures. Prerequisite: 80-262.
80-267 Long Term Care Administration 3-4.5
Organization and delivery of all long care settings, including nursing homes, chronic care facilities, and other care facilities with special emphasis on planning and evaluation of long-term care services. Prerequisite: 80-262.

10 NCAA Accounting in Health Services 3-4.5
Accounting systems used in health care institutions. Topics include financial and managerial accounting for not-for-profit and for-profit institutions. Prerequisite: consent of instructor.
80-262 Health Economics I 3-4.5
Principles approach to economic problems in health care. Prerequisite: consent of instructor.
80-263 Health Economics II 3-4.5
Application to economic concepts to current health care issues such as federal health legislation, health insurance, managed care, and health care institutions. Prerequisite: 80-262.
80-265 Financial Management of Health Institutions I 3-4.5
Introduction to Financial management concepts as they apply in the health industry. Emphasis on the essential principles of finance and on practical techniques of controlling financial institutions. Prerequisite: 80-265.
80-266 Financial Management of Health Institutions II 3-4.5
Continuation of Financial Management of Health Institutions I. Prerequisite: 80-265.
80-267 Financial Management of Health Institutions III 3-4.5
Further study of financial management issues in the health field. Case study approach to financial management problems. Prerequisite: 80-266.
80-271 Quantitative Methods in Health Administration 3-4.5
Uses of quantitative methods in health administration, including algebra, calculus, statistics, decision science, and the use of computer programs. Prerequisite: consent of instructor.
80-272 Quantitative Methods in Health Administration II 3-4.5
Uses of mechanical models for forecasting economic demand for health care facilities and their application in health care organizations. Topics include work measurement, resource allocation, inventory management, and other computer methods using software packages. Prerequisite: consent of instructor.
80-273 Health Information Systems 3-4.5
Introduction to the computerization of medical records in health care organizations. Applications of computer concepts to the planning, design, implementation, and management of information systems. Prerequisite: 80-265.
80-274 Health Care Marketing Research Methods 3-4.5
Marketing concepts in health care organizations. Design and implementation of decision-making tools and computer systems for market analysis, sampling, questionnaire construction, and use of data. Prerequisite: 80-265 and 80-267.

80-275 Epidemiologic Applications in Health Services 3-4.5
Prerequisite: consent of instructor.
80-276 Administrative Residency 3-4.5
Practicum in administrative skills.
80-277 Regulatory and Compliance 3-4.5
Evolution and current status of regulation in the
Courses

6019 Nutrition Behavior 2 p.
Discussion of problems in research design for nutrition studies, including clinical investigations. Offered fall semesters.

6028 Nutrition Behavior 1 p.
Continuation of 60:29. May be taken independently. Offered spring semesters.

6031 Clinical Nutrition 4 h.
Energy, specific nutrients, nutrient-nutrient and drug-nutrient interactions, special diets, diseases caused by or related to nutrition, assessment of nutritional status. Offered fall semesters.

6039 Clinical Nutrition 4 h.
Assessment of nutritional status, age, sex, and special diets and their effects on the body and its functions. Special diets, current nutritional standards. Offered spring semesters.

50 Peptide in Nutrition 1 p.

50 28 Nutrition Research 4 h.

50 28 Nutrition Method 4 h.

50 28 Nutrition of the Child 2 h.
Developmental aspects of nutrient metabolism in the infant and child. Basic principles of human nutrition. Relation of nutrition to health and disease. Offered fall semesters.

50 28 Nutrition Methods 3 h.
History of nutrition research; animal models; nutrition; environmental factors, diet and health, sample collection, food composition, nutrition in health and disease; dietary intake, metabolic balance studies, individual variation in responses, dietary composition of body composition, and observations on fatness. Offered spring semesters.

50 28 Compensatory Nutrition 2 h.
Age, sex, and specific differences in metabolism of nutrients; special changes in human diet in developed countries. Offered spring semesters.

Internal Medicine

Department Head: Francois M. Abouljoud


Assistant professors: Ruth Aschauer, Zdenek B. Bakos, Michael B. Bowers, John B. Brown, David H. Brown, Peter J. Cianciolo, John P. Cline, John C. Cline, John A. Cline, John A. Cline, James H. Cline, Michael J. Cline, John J. Cline, Michael J. Cline, John A. Cline, John A. Cline, and John A. Cline.


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medical training. In the first semester trainees take courses in biochemistry, microscopic anatomy, gross anatomy, and biostatistics. In the second semester they take physiology, microbiology, and general pathology. The first semester of year two is devoted to the study of pharmacology, systemic pathology, microbiology, and community health sciences. During the summer between the first and second year, trainees engage in biomedical research under the direction of a faculty sponsor. For the second semester of the second year, trainees are enrolled in an introductory Clinical Medicine sequence which initiates the development of medical knowledge, and is necessary for building and maintaining competence as a physician. This semester provides information and practice in history-taking, physical diagnosis, and laboratory diagnosis, as well as insight into major health problems and needs. The introduction to Clinical Medicine sequence is followed in the summer of the second year by 12 weeks of clinical clerkships in internal medicine, pediatrics, obstetrics and gynecology, or medical specialties.

In years three, four, and five and six, to the extent necessary, six, trainees are enrolled full time in the graduate department which they are asked to select by January of the second year. During this time, trainees are provided with academic and research experiences necessary to fulfill Graduate College requirements for the M.D. degree and appropriate to their development as independent investigators. This scientific training is directly supervised by the faculty of the graduate department. During this phase of training, clinical contact is maintained through a formal weekly program of clinical research conferences under the guidance of the Associate Director for Clinical Studies. The trainees also participate in other clinical activities. As soon as trainees complete the graduate component of their training, they return to the College of Medicine to begin a final clinical year. This year serves two important purposes. First, it allows trainees to complete the clinical training in the clinical environment and to gain exposure to all fields of medicine. Second, it permits the trainee to review and develop further the clinical skills acquired in the second year of the program. On completion of 36 weeks of clinical clerkships, trainees are awarded the M.D. and Ph.D. degrees.

Financial Support
Trainees admitted to the first year of the program compete for stipend and full tuition awards provided by a Medical Scientist Training Program grant to The University of Iowa from the National Institutes of Health (NIH). Support from this grant and institutional sources is continued for up to six years, provided achievement and progress remain satisfactory. NIH stipends are supplemented during the graduate phase of the program. Trainees admitted without NIH awards are eligible for equivalent departmental training awards beginning at the end of the second year. Trainees admitted with NIH awards are eligible for equivalent training awards beginning after the second year. Trainees admitted with NIH awards are eligible for equivalent training awards beginning after the second year.

Eligibility
Applicants must meet requirements for admission to the College of Medicine and Graduate College of The University of Iowa. It is expected that trainees will have completed requirements for a bachelor's degree at an accredited academic institution. In addition to outstanding academic achievements including strength in physics and mathematical sciences, applicants should demonstrate aptitude for and commitment to specific research, usually through productive research experience as undergraduates.

Applications are accepted from students requesting admission to the first year of the program. Consideration will also be given to applications for admission to advanced standing from individuals currently enrolled in the College of Medicine or Graduate College at The University of Iowa.

Application Procedures
The University of Iowa College of Medicine is a participant in the American Medical College Application Service (AMCAS). Program applicants should submit AMCAS to forward their credentials to the College of Medicine (IA31) as soon as possible after June 15. At the same time, applicants should request a separate Medical Scientist Training Program application from the Program Office, 5-560 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 decision plan of the College of Medicine for out-of-state residents is waived for this program. Equal opportunity is given to 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 P. Crawford
Faculty: Robert A. Bodey, John F. DeSmet, John L. Dwyer, John C. Duvall, Irving P. Crawford, Michael G. Kieser, Thomas J. Kibbey (Emeritus), Rudolf P. Nisalak (Emeritus and Gynecology), Louis G. Kohlmann, William Johnson, David M. Lukoff (Emeritus), Richard G. Lymon (Emeritus), Alan J. Markowitz, Eoin M. Sw., Donald P. Shalit, associate professors George N. Baker, Charles D. Din, Jose E. Rodriguez, Martha F. Stone, George V. velocity, associate professors William J. Nutt, John T. Beamer, assistant professors Brian Clark, Lucy Dames, Raymond defeating B.S., M.S. Ph.D.

Undergraduate Program
See "Microbiology" in the "College of Liberal Arts" section of the Catalog.

Graduate Program
The objective of the graduate program in microbiology is to help students become highly qualified in research and in the teaching of microbiology. The program is designed with particular emphasis on disciplines and research areas of importance in the fields of medical microbiology, general microbiology, medical mycology, and medical zoology. Specialized training is provided in specialized areas, particularly in the areas of molecular biology, gene function, enzymes, and cell differentiation. The program is structured to provide training and research opportunities for students who wish to pursue a career in research and in teaching in the graduate department.
Master of Science
A candidate for the M.S. degree will be required to take a maximum of 12 semester hours in the modules in three of the six different subspecialties and laboratory biology. A student may substitute a course taken previously (at the UI or elsewhere) for the course requirements, upon obtaining approval from the M.S. committee. Additional course requirements or course selection will depend on the interests of the student and the advice of the examining committee. The thesis must be defended satisfactorily in an oral examination.

Doctor of Philosophy
The minimum course requirements for the Ph.D. are one course in each of four subspecialties (of the six subspecialties available in microbiology) or 15 semester hours of course work in two different areas. A student may substitute a course taken previously (at the UI or elsewhere) for the course requirements, upon obtaining approval from the Ph.D. committee. Other requirements are to pass a comprehensive examination and to write a thesis based on the student’s research. The thesis must be defended satisfactorily in an oral examination.

Facilities
The department shares the Bowen Science Building with programs in Anatomy, Biochemistry, Pharmacology, and Physiology. Adequate space and excellent equipment are available for teaching and research.

Admission
Prospective graduate students should be recommended for admission by their undergraduate departments. Application forms, a review and formal vote by the faculty, a written statement, a personal interview, and a satisfactory general examination are required. A minimum grade point average of 3.0 in undergraduate work is required.

Courses
61143 Microbiological Techniques 3 s.h.
Principles and methods essential to study of microorganisms, their isolation and identification, microbial propagation in various media, and use of staining, cultural, and physiological techniques.
61144 Medical Microbiology 3 s.h.
Introductory course in medical microbiology, with emphasis on the more common infections encountered. This course is required of all students in the graduate program in microbiology.
61145 Survey of terminology 3 s.h.
Interdisciplinary survey of the five subspecialties of cellular and molecular microbiology, as well as their applications to medicine and public health.
61157 With C or C- in an introductory course in biochemistry. Same as 71157.
61157 General Microbiology 4 s.h.
Fundamentals of microbial physiology, molecular genetics, biochemistry, and cellular and molecular biology.
61158 Pathogenic Bacteriology 3 s.h.
Introduction to the study of pathogenic bacteria, fundamentals of disease processes, and general principles of disease prevention and control.
61160 Clinical Laboratory Medicine 3 s.h.
Clinical, diagnostic, and therapeutic aspects of infections. Technical and theoretical aspects of laboratory methods used in diagnosis and management.
61161 Pathogens of the Respiratory Tract 3 s.h.
Principles of respiratory disease, clinical manifestations of respiratory infections, and pathogenic bacteria. Principles: 61157 with a C or C- in an introductory course in biochemistry.
61163 Problems in Microbiology 3 s.h.
Open to current microbiology graduate students.
61164 General Virology 3 s.h.
Introduction to the study of viral agents. Principles: 61157 with a C or C- in an introductory course in biochemistry.
61165 Medical Virology 4 s.h.
Open only to current validly enrolled graduate students in the department.
61166 Virology Laboratory 1 s.h.
Principles: 61165 with a C or C- in an introductory course in biochemistry.
61167 Laboratory Microbiology 3 s.h.
Principles: 61157 with a C or C- in an introductory course in biochemistry.
61168 Virology Laboratory 1 s.h.
Principles: 61165 with a C or C- in an introductory course in biochemistry.
61169 Medical Immunology 3 s.h.
Principles: 61157 with a C or C- in an introductory course in biochemistry.
61170 General Virology 3 s.h.
Principles: 61165 with a C or C- in an introductory course in biochemistry.
61171 Viral Immunology 3 s.h.
Principles: 61165 with a C or C- in an introductory course in biochemistry.
61172 Animal Virology 3 s.h.
Principles: 61165 with a C or C- in an introductory course in biochemistry.
61173 Problems in Virology 3 s.h.
Principles: 61170 with a C or C- in an introductory course in biochemistry.
61174 Medical Virology 4 s.h.
Open only to current validly enrolled graduate students in the department.
61175 Immunology Laboratory 1 s.h.
Principles: 61165 with a C or C- in an introductory course in biochemistry.
61176 Immunology Laboratory 1 s.h.
Principles: 61165 with a C or C- in an introductory course in biochemistry.
61177 Virology Laboratory 1 s.h.
Principles: 61165 with a C or C- in an introductory course in biochemistry.
61178 Virology Laboratory 1 s.h.
Principles: 61165 with a C or C- in an introductory course in biochemistry.
61179 Clinical Laboratory Medicine 3 s.h.
Principles: 61157 with a C or C- in an introductory course in biochemistry.
61180 Immunology Laboratory 1 s.h.
Principles: 61165 with a C or C- in an introductory course in biochemistry.
61181 Medical Virology 4 s.h.
Open only to current validly enrolled graduate students in the department.
61182 Virology Laboratory 1 s.h.
Principles: 61165 with a C or C- in an introductory course in biochemistry.
61183 Animal Virology 3 s.h.
Principles: 61165 with a C or C- in an introductory course in biochemistry.
61184 Problems in Virology 3 s.h.
Principles: 61170 with a C or C- in an introductory course in biochemistry.
61185 Medical Immunology 3 s.h.
Principles: 61165 with a C or C- in an introductory course in biochemistry.
61186 Immunology Laboratory 1 s.h.
Principles: 61165 with a C or C- in an introductory course in biochemistry.
61187 Virology Laboratory 1 s.h.
Principles: 61165 with a C or C- in an introductory course in biochemistry.
61188 Virology Laboratory 1 s.h.
Principles: 61165 with a C or C- in an introductory course in biochemistry.
61189 Animal Virology 3 s.h.
Principles: 61165 with a C or C- in an introductory course in biochemistry.
61190 Virology Laboratory 1 s.h.
Principles: 61165 with a C or C- in an introductory course in biochemistry.
61191 Problems in Virology 3 s.h.
Principles: 61170 with a C or C- in an introductory course in biochemistry.
61192 Medical Immunology 3 s.h.
Principles: 61165 with a C or C- in an introductory course in biochemistry.
61193 Immunology Laboratory 1 s.h.
Principles: 61165 with a C or C- in an introductory course in biochemistry.
61194 Medical Virology 4 s.h.
Open only to current validly enrolled graduate students in the department.
61195 Virology Laboratory 1 s.h.
Principles: 61165 with a C or C- in an introductory course in biochemistry.
61196 Animal Virology 3 s.h.
Principles: 61165 with a C or C- in an introductory course in biochemistry.
61197 Problems in Virology 3 s.h.
Principles: 61170 with a C or C- in an introductory course in biochemistry.
61198 Medical Immunology 3 s.h.
Principles: 61165 with a C or C- in an introductory course in biochemistry.
61199 Immunology Laboratory 1 s.h.
Principles: 61165 with a C or C- in an introductory course in biochemistry.
61200 Animal Virology 3 s.h.
Principles: 61165 with a C or C- in an introductory course in biochemistry.
61201 Virology Laboratory 1 s.h.
Principles: 61165 with a C or C- in an introductory course in biochemistry.
61202 Problems in Virology 3 s.h.
Principles: 61170 with a C or C- in an introductory course in biochemistry.
61203 Medical Immunology 3 s.h.
Principles: 61165 with a C or C- in an introductory course in biochemistry.
61204 Immunology Laboratory 1 s.h.
Principles: 61165 with a C or C- in an introductory course in biochemistry.
61205 Animal Virology 3 s.h.
Principles: 61165 with a C or C- in an introductory course in biochemistry.
61206 Problems in Virology 3 s.h.
Principles: 61170 with a C or C- in an introductory course in biochemistry.
61207 Medical Immunology 3 s.h.
Principles: 61165 with a C or C- in an introductory course in biochemistry.
61208 Immunology Laboratory 1 s.h.
Principles: 61165 with a C or C- in an introductory course in biochemistry.
Neurology

Department Head: Maurice W. Van Allen
Faculty: professors—Maurice Van Allen, Wiliam E. Boll (Pediatrics); Arthur Mandelkern, Richard Fischort, John Kloske, Ralph Lirin; Michael Kooyman, Gary Van Hoesen (Anatomy), Tracy Vaya; professors emeriti—Arthurl. Beren (Psychology), A. Saha
associate professors—Horace P. Alper, Jr., J. R. Warr Beck, James J. Curbert, Hannu Damato, William Van Tassel
associate professor—James D. Riddell (Pediatrics), G. E. Bockers (Emil), Kevin G. Hurbort
assistant professor—Robert D. F. Eggleston
assistant research scientists—John Miller, postdoctoral associates—Daniel Tran, Charles Franz
associate Franz Walter

Neurology is the branch of medical science concerned with diagnosis and management of disorders of the brain, spinal cord, peripheral nervous system, and muscle. Teaching and postgraduate training, carefully integrated with patient care, have long been a significant function of the department.

The department offers clinical and research training to third- and fourth-year medical students, contributing to the Doctor of Medicine degree. An active three-year approved residency program qualifying physicians for board certification in neurology is a major asset of departmental activity: experience in clinical electrophysiology, pediatric neurology, psychiatry, and neuropsychiatry is part of this training. The department also offers research opportunities in laboratory neurology to candidates for the Doctor of Philosophy degree in psychology.

Investigative interests of the staff center on speech disorders, duchotic listening, behavioral abnormalities based on disease of the nervous system, electrophysiological correlates of disease, proteins and gli growth factor of the central nervous system, biochemistry of the anticonvulsant drugs, treatment of dysthesia, peripheral neuropathy, cerebrovascular disease, and movement disorders.

Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
<th>Duration</th>
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<tbody>
<tr>
<td>6411</td>
<td>Clinical Neurology</td>
<td>1.5</td>
<td>1.5</td>
</tr>
<tr>
<td>6412</td>
<td>3D Ultrasound: Ultrasound examinations in any group, or management of amputees</td>
<td>1.5</td>
<td>1.5</td>
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<tr>
<td>6413</td>
<td>Stroke in Neuro-Ophthalmology</td>
<td>1.5</td>
<td>1.5</td>
</tr>
<tr>
<td>6414</td>
<td>Clinical Neurology and Clinical Science</td>
<td>1.5</td>
<td>1.5</td>
</tr>
<tr>
<td>6415</td>
<td>Electromyography and nerve conduction studies</td>
<td>1.5</td>
<td>1.5</td>
</tr>
<tr>
<td>6416</td>
<td>4th Year Research, I</td>
<td>1.5</td>
<td>1.5</td>
</tr>
<tr>
<td>6417</td>
<td>Research Neurology</td>
<td>1.5</td>
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Course Work for M.D. Students

The courses in obstetrics and gynecology are designed to give M.D. students a comprehensive overview of reproductive medicine. This is done through a series of didactic lectures, important participation assignments, ward rounds, teaching seminars, and small-disease conferences.

The third-year clerkship (664 Clinical Obstetrics and Gynecology) gives the student core knowledge, skills, and attitudes needed to provide primary health care to women patients.

The department offers fourth-year students a variety of electives that provide advanced training in the special areas of obstetrics and gynecology in addition to clerkships at The University of Iowa Hospitals and Clinics, these electives include rotations at Brooks Park Community Hospital, Des Moines; Ochsner Clinic and Canby Memorial Hospital; Monro, Louisiana; Medical Associates, Dubuque, The Gundersen Clinic, LaCrosse, Wisconsin, and Orlando-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 Waterloo, Des Moines, Muscatine, and Davenport. During the final two years, the resident spends time at Iowa Methodist and the associated 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, nutrition, family planning, and endoscopic procedures.

Fellowships

The department offers two-year fellowships in reproductive endocrinology (pre- and postgraduate endocrinology) (two) and maternal-fetal medicine (two). Each study in clinical and research activities. After completion fellows are eligible for the examinations of the American Board of Obstetrics and Gynecology, leading to certification of special competence.

Courses

<table>
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<th>Credits</th>
<th>Duration</th>
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<tbody>
<tr>
<td>664 Critical Obstetrics and Gynecology</td>
<td>1.5</td>
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</tbody>
</table>

The course is designed to provide men in special history-taking and physical examination of obstetric and gynecologic diseases, as well as concepts of management, including the use of diagnostic tests and procedures. It is offered to faculty, trainee personnel, or anyone who desires to serve as an assistant in an obstetric or gynecologic practice.

664 Advanced Obstetrics Clerkship Iowa City

The course is designed to provide men in special history-taking and physical examination of obstetric and gynecologic diseases, as well as concepts of management, including the use of diagnostic tests and procedures. It is offered to faculty, trainee personnel, or anyone who desires to serve as an assistant in an obstetric or gynecologic practice.

664 Advanced Obstetrics Clerkship Des Moines

The course is designed to provide men in special history-taking and physical examination of obstetric and gynecologic diseases, as well as concepts of management, including the use of diagnostic tests and procedures. It is offered to faculty, trainee personnel, or anyone who desires to serve as an assistant in an obstetric or gynecologic practice.
Ophthamology

Department Head: Charles D. Phelps
Faculty: professors Richard Anderson, Frederick C. Block, Soter, S. Hayashi, Hatrapage, E. Krider; Jay H. Kuehner; Karl C. Dobkin, Edward B. Perkins, Charles O. Phelps, H. Stanley Thompson, Thomas A. Waring
associate professors D. Frank, Judith associate professors James C. Fish, Andrew J. Packer, David T. Tawe
Degree Offered: M.S.

Ophthalmology is a medical and surgical specialty concerned with research, diagnosis, and treatment of diseases of the eye and its adnexa, including control of refractive errors. Several subspecialties are represented in the department: ocular pathology and physiology, pediatric ophthalmology, retinal disorders, glaucoma, neuro-ophthalmology, ophthalmic oncology, cornes 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 residents in ophthalmology. It emphasizes a scientific approach to problem solving in diagnosis and treatment.

The residency program lasts three and one-half years, and culminates 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, electron microscopy, microtomy, pupillometry, and vascular diseases. Clinical privileges are available only not at the University Hospitals and Clinics, but also at the Veterans Administration Medical Centers in Iowa City and 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

Ophthalmology Department

The following courses are required:

- Ophthalmology I: General Ophthalmology and Physiology of the Eye
- Glaucoma: Diagnosis and Management
- Pediatric Ophthalmology
- Retina: Anatomy and Physiology
- Retina: Diagnosis and Management
- Neuro-Ophthalmology

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 resident feels most interested. It is related to the vision research program, and may be done in one of the academic departments or at a basic science department.

Departmental Laboratories

The ophthalmology laboratories deal with problems in these major subject areas:

- Biochemistry—The biochemistry of mucopolysaccharides and collagen, membrane materials and dermatitis in epiphragm and disease.
- Biomechanics—In conjunction with the College of Engineering, biomechanics of the upper extremity, biomechanics of the hip and the gait, and total joint replacements.
- Cell biology and pathology—Ultrastructural studies on normal bones, cartilage, tendons, and muscles, and those altered by experiment and disease.

Orthopaedic Surgery

Department Head: Raymond H. Cooper
Faculty: professors Charles R. Atwood, Richard A. Brandt, Michael Dornbl, Raymond H. Cooper, George S. Erikkson, Jenny K. Marriott, Andrew A. McNeely, Ignacio R. Perrett, Ernest L. Verhagen
associate professors James M. Bell, Thomas Brown, Joseph A. Buckwalter, Charles B. Clark, Thomas D. Johansen, Mark F. Watts
Resident-Fellow 1st year: James Heslin, James B. Loveless
Resident-Fellow 2nd year: James Heslin, James B. Loveless

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 care, surgery and related to the neuromusculocutaneous system, and a five-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-year postgraduate training.

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 select veterinary subjects.
Tissue transport, radioactive isopes, and metastatic bone disease—skin, bone, and paraganglionate transplast, alakatea physiology, qualitative and quantitative aspects of histology, mineral composition, and bone density, effect of in vivo and in vitro metabolic bone disease, and exercise.

Facilities

The department is housed in the 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 brace shop, and physical therapy facilities.

Physicnians in the outpatient clinic see approximately 100 patients a day. Specialty clinics deal with such problems as scoliosis, club foot, congenital dislocated hips, neurosurgical disease, metabolic diseases, neck, back, amputations, hips, knees, trauma, and tumors.

Approximately 3,000 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 Orthopaedic Surgery
192 Orthopaedic Discharge for Physician Assistant
193 Orthopaedic Surgery for Physician Assistant
195 Advance Clinical Ortho
Open to senior medical students only.
195 Surgical Care of the Hand
Open to senior medical students only.
199 Orthopaedic Special Studies on Campus
Open to senior medical students only.
199 Orthopaedic Special Studies of Campus
Open to senior medical student only.

Otolaryngology—Head and Neck Surgery

Department head: Brian F. McClellan
Associate professors: Bruce J. Gertler, Joe L. Ryu, Robert S. Tapar
Associate professor emeritus: Kay R. Smith
Assistant professor: Richard Vincent
Research associate professors: Raymond C. Ault, Karl L. McCrory
Clinical associate professors: Thomas J. Benda, Guy McKearney

The department provides one of the oldest and largest otolaryngology—head and neck surgery training programs in the world. Currently it has a full-time faculty of 14, including several members from plastic surgery, audiology, speech pathology, and dentistry (orthodontics and prosthodontics).

The department’s main objective is to provide a high-level instrumental course in otolaryngology—head and neck surgery for medical students and residents. To maintain a teaching program, the department’s faculty and staff carry a large patient load in head and neck plastic reconstructive surgery, facial trauma, craniofacial congenital deformities, such as cleft lip and palate, neurosurgery, pediatric, and perioperative hearing problems, voice problems, personal endoscopy, surgery for deafness, and all the areas virtually considered otolaryngology.

There are eight divisions in the department which make this program comprehensive: otology and neurology, plastic and reconstructive surgery of the head and neck, rhinoplasty, pediatric otolaryngology, craniofacial abnormalities, speech pathology and audiology, and research.

Another major objective of the department is to foster research programs designed to yield new knowledge in the field and provide models for student and resident research training.

All senior faculty members participate in research and at least one is 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 scale research programs within the department in vestibular neurophysiology, clinical and other craniofacial defects, head and neck oncology, craniofacial reconstruction, nasopharynx, facial nerve conduction, maxillofacial reconstruction surgery, anatomy of the temporal bone, neuroanatomy, electrophysiology, bone resorption in ear disease, and electrophysiology of the inner ear.

Several of these research programs receive federal and private financial support.

Graduate Program

The graduate program in otolaryngology is in accord with the requirements of the American Board of Otolaryngology.

The program consists of a four-year course of basic and clinical science. The basic science lectures and laboratory studies are conducted during the first three and one-half months of 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 earn at least 30 semester hours of credit, one-third of which must come from the basic science group, and must present and defend a thesis. Student's passage of additional work may also take elective courses.

A limited number of resident physicians can be accepted each year. Applicants must be graduates of a recognized class in medical school and must have completed one year of general surgical training in an approved program.

Courses

020 Clinical Otolaryngology
020 Clinical Otorhinolaryngology
030 Head and Neck Oncology
031 Basic Principles of Facial Plastic and Reconstructive Surgery
031 Special Otorhinolaryngology
039 Basic Otolaryngology: Science

Lectures on descriptive anatomy and physiology, surgical anatomy of head and neck, embryology, pathophysiology, anatomy, oncology, oral and otolaryngology, surgical pathology, and related research, and laboratory work includes head and neck surgery, histology of ear and temporal bone, and instrumentation of behavioral and instrumental biologic measurements.

020 Research Techniques in Otolaryngology

Requires two months of full-time work in experimental research: research techniques concerned with auditory, vestibular, and craniofacial physiology and pathology of the temporal bone, and instrumentation of behavioral and instrumental biologic measurements.

020 Clinical Conferences in Otolaryngology

Presentation of diagnostic methods and outcomes of management for assigned patients. May be required.

021 Clinical Otolaryngology

Diagnosis and treatment of patients in cases of otology, rhinology, otology, head and neck surgery, cardiovascular medicine, and examination techniques including endoscopy. May be repeated.

021 Histology

Histology elective, seminar consisting clinical case histories with temporal bone histology.

030 Basic Medical Auditory

Introduction to standard audiometric procedures.

031 Advanced Medical Auditory

Special clinical test of hearing such as evoked response testing and other developmental auditory, audiometric, tests of inner ear, hearing loss, testing, and management of patients.

026 Seminar: Otorhinolaryngology and Related Fields

Clinical and research conferences of interest to otolaryngology and related fields. May be repeated.

026 Summer Otorhinolaryngology

Summer course intended for students interested in otolaryngology, may be repeated.

040 Dental Treatment of Maxillofacial Deformities

Supervised clinical experience in the surgical correction of craniofacial deformities. Limited to graduate students in dentistry.
Master of Science

The M.S. program in pathology is open to students with various educational backgrounds. The department particularly encourages applications from students with Bachelor of Science degrees in chemistry, biochemistry, zoology, and medical technology. Students pursue studies with medical and dental degrees.

The M.S. program is flexible, but the department emphasizes two tracks; one to provide a research background for academically oriented resident physicians and for medical and dental students, the other for medical technologists who wish to advance their training, usually by postgraduate study in an area of laboratory medicine.

U.S. students participate in teaching, patient care, and research through the instructional programs of the department, the service laboratories of the department and University Hospitals and Clinics, and faculty members' research laboratories.

Admission to the M.S. program requires a B.S. grade point average in science courses, a Graduate Record Examinations (GRE) Aptitude Test combined verbal and quantitative score above 1200, and a personal interview. A brochure describing departmental course requirements and giving examples of the major academic tracks is available on request.

Residency Program

The department is approved for 21 residency positions in pathology, covering a training span of up to five years. We are actively recruiting to utilize the patient population of University Hospitals and Clinics and the Iowa City Veterans Administration Medical Center. There is systematic rotation through the various laboratory services, including surgical pathology, autopsy pathology, cytopathology, hematopathology, immunohematology, microbiology, hematology, immunohematology, and transfusion center. Adequate opportunity is afforded for concentrated study in most pathology subspecialties. The department also offers a postdoctoral training program in clinical biochemistry for technicians and chemists. The program is approved by the American Board of Clinical Chemistry.

In addition, the department provides five 12-month externships and a variable number of clerkships for predoctoral students in any of the areas of anatomical and clinical pathology.

Postdoctoral Training

The Department of Pathology offers a program in hematology to physicians who have completed at least two years of residency training in pathology. The postdoctoral training spans one year and one year of laboratory research in basic hematopathology.

The department also provides postdoctoral training in immunology, neuropathology, biochemistry, hematology, hemostasis, cancer biology, and clinical microbiology, as well as in other areas of cellular and molecular pathology. These positions are open to individuals with either Ph.D. or M.D. degrees.

Facilities

The Department of Pathology administers the clinical laboratories of the University of Iowa Hospitals and Clinics. Most of these laboratories are located in 40,000 square feet of newly constructed laboratories that were occupied at the beginning of 1984. The Department of Pathology has individual research laboratories and core facility laboratories located in the Medical Research Center, Medical Laboratories, at the Veterans Administration Medical Center. The department is well-equipped to carry out the sophisticated technology of modern cellular and molecular pathology. Also available are the College of Medicine's facilities for recombinant DNA studies, protease structure, hybrization products, flow cytometry, and laboratory animal care.

Courses

8506 Introduction to Medical Technology 1.5 h.
Survey of the role of medical technologies in various laboratory settings and their relationship to the health sciences.
Offered every spring semester.
8506 Principles of Human Pathology 1.5 h.
Course emphasizing terms, mechanisms, and principles of disease, and the ethics of therapeutic manipulations. Offered every fall semester.
8113 Medical Jurisprudence
Lectures and discussions on legal aspects of medicine in the clinical setting, including lawsuits, ethical considerations, and other considerations. Offered every spring semester.
8511 Medical Technology
Principles of having an accredited medical technology program.
Offered every fall semester.
8514 Microbiology for Medical Technologists 1.5 h.
Principles and practice of clinical microbiology.
Offered every spring semester.
8513 Medical Technology
Principles of having an accredited medical technology program.
Offered every fall semester.
for rational decisions concerning the personal use of drugs.

The department offers research training in all areas of pharmacology and toxicology at the predoctoral and postdoctoral levels, in preparation for career opportunities in teaching, government, and industry. Prerequisites for graduate study include undergraduate background in chemistry, biology, and mathematics. The level of performance in undergraduate courses must be in the top quartile.

**Master of Science**

In cooperation with clinical departments in the College, the Department of Pharmacology offers a Master of Science degree program in clinical pharmacology to applicants who already hold the Doctor of Medicine degree. The specific objective of this program is to provide increased emphasis on and training in the science of clinical pharmacology for residents in the various clinical specialties. Completion of the M.S. program requires a minimum of two years. Satisfactory completion of the following core courses is mandatory unless specifically waived by the Department of Pharmacology faculty. Any of these course requirements may be waived at the request of the trainee if his or her advisor and the departmental faculty agree that the trainee has met them satisfactorily at a prior time.

71:203 Pharmacology Research Seminar
71:204 Pharmacology Seminar
71:210 Special Topics in Pharmacology
63:167 Biochemistry and Bioassays
71:212 Toxicology
71:216 Clinical Toxicology
78:390 Clinical Pharmacology and Therapeutics Lecture Series

The trainee may audit 71:105 Pharmacology for Health Sciences. May 10th may take additional courses in this or other departments appropriate to this or her program. Eligibility for the M.S. degree in pharmacology requires demonstrated proficiency in basic research, satisfactory performance on the qualifying examination (written and oral), and satisfactory preparation and defense of a research thesis.

**Doctor of Philosophy**

Course requirements for the Ph.D. in pharmacology are as follows:

71:115 Biochemistry
99:120 Metabolism
72:212 Medical Physiology
71:151 Pharmacology for Health Sciences: Pharmacology
63:167 Biochemistry and Bioassays
71:103 Pharmacology and Toxicology
71:206 Biochemical Pharmacology
71:203 Pharmacology Research
71:204 Pharmacology Seminar
71:207 Pharmacology of Excitable Cells
71:208 Introduction to Pharmacology

The student must complete at least one additional course in his or her area of interest, and individual faculty research advisors 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 by 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**

71:151 Pharmacology for Health Sciences 1.5h
Philosophical and experimental approaches to drug design; emphasis on areas of importance of biological and molecular research: pharmacodynamics and receptor theory included. Offered fall semester. Prerequisite: consent of instructor; seniors only.

71:152 Pharmacology for Health Sciences: Primary 1.5h
Lecture course, general principles of pharmacology, pharmacokinetics of drugs and interaction with biological systems, drug metabolism, pharmacodynamics, and toxicology. Emphasis on high quality graduate review. (To be given by consent of course director.) Offered fall semester. Prerequisites: 72:152 or 70:162, or equivalent, and consent of instructor.

71:153 Pharmacology and Toxicology 1.5h
Continuation of 71:151, lecture and discussion; covers topics in organic and inorganic toxic and related compounds. Examination of high quality graduate review. (To be given by consent of course director.) Offered fall semester. Prerequisite: 72:152 or equivalent, 60:203 or equivalent recommended. Prerequisites: 72:152 and 70:162, or equivalent, and consent of instructor.

71:154 Pharmacology for Health Sciences: Medical 1.5h
Lecture course, general principles of pharmacology, pharmacokinetics of drugs and interaction with biological systems, drug metabolism, pharmacodynamics, and toxicology. Emphasis on high quality graduate review. (To be given by consent of course director.) Offered fall semester. Prerequisites: 72:152 and 70:162, or equivalent, and consent of instructor.

71:155 Pharmacology for Health Sciences: Dental 1.5h
Lecture course, general principles of pharmacology, pharmacokinetics of drugs and interaction with biological systems, drug metabolism, pharmacodynamics, and toxicology. Emphasis on high quality graduate review. (To be given by consent of course director.) Offered fall semester. Prerequisites: 72:152 and 70:162, or equivalent, and consent of instructor.

71:156 Drugs: Their Nature, Action, and Use 1.5h
Lecture and discussion: principles of drug action and drug toxicity, antibiotics, corticosteroids, sedatives, hypnotics, barbiturates, and other drugs to students who have taken 71:101, 71:103, 71:111, 71:135 or 71:103. Offered spring semester.

71:157 Pharmacology for Health Sciences: Physician Assistant Studies 1.5h
Lecture and discussions, general principles of pharmacology, pharmacokinetics of drugs and interaction with biological systems, and with therapeutic use. Offered fall semester. Prerequisites: 72:152 and 71:115, or consent of instructor.

71:159 Intermediate Pharmacology 2.0h
Lecture course focusing on fundamental principles of pharmacology and their use in the design of therapeutic programs. Emphasis on pharmacokinetics and dynamics of drug action, drug-drug interactions, and speciation of drugs in body fluids. Offered spring semester. Prerequisites: graduate or medical school in pharmacology and consent of instructor.

71:160 Pharmacology Research Seminar 1.5h
Prerequisite: consent of department head.

71:161 Pharmacology Seminar 1.5h
Prerequisite: consent of department head.

71:162 Advanced Cardiovascular Pharmacology and Physiology 1.0h
Recent developments in cardiovascular pharmacology, physiology, and pathophysiology of cardiovascular disease in the 21st century. Offered fall semester. Prerequisite: consent of instructor.

71:163 Biopharmaceuticals 1.5h
Basis for drug effects on the molecular and biological level. Contents of this course are centered on drug-nucleic acids, chemical considerations include kinetics, structure and synthesis, pharmacology, pharmaceutics, drug metabolism, and excretion and induction. Offered fall semester of odd years. Prerequisite: consent of instructor.

71:164 Pharmacology of Excitable Cells 1.5h
Pharmacological mechanisms by which neurotransmitter factors influence neurons, including actions on cell membranes, voltage-gated ion channels, and excitation-secretion coupling. Offered spring semester. Prerequisites: 72:152 and 70:162, or equivalent, and consent of instructor.

71:165 Pharmacology of Synaptic Transmission and Synaptic Plasticity 1.5h
Pharmacological mechanisms by which neurotransmitters affect neurons, including actions on cell membranes, voltage-gated ion channels, and excitation-secretion coupling. Offered spring semester. Prerequisites: 72:152 and 70:162, or equivalent, and consent of instructor.

71:166 Clinical Pharmacology Seminar Series 1.5h
Reviews of recent therapeutic subject matter. Prerequisites: PH 32, 45D, or graduate training in pharmacology/physiology, and consent of instructor. Seminar takes place every third Thursday of the month.

71:167 Special Topics in Pharmacology 1.0h
Prerequisite: consent of department head.

71:168 Toxicology 1.5h
Current accounts in pharmacology. Emphasis on drug-induced injury mechanisms of toxicity generally related to clinical settings, drug safety evaluations, forensics and environmental toxicology. Milestone courses in the Department of Pharmacology. Offered spring semester of odd years. Prerequisites: 71:151 or by consent of course director.

71:169 Neuropharmacology 1.0h
Lecture course in biochemistry and structure of the nervous system, selected topics in pharmacology. Emphasis on mechanisms of action of drugs and their role in drug development and research of current interest. Offered spring semester of odd years. Prerequisite: consent of instructor. Same as 71:203.

71:170 Clinical Pharmacology 1.0h

71:171 Topics in Neuropharmacology 1.0h
Review and critique of recent literature related to selected topics represented by published articles chosen by course registrants. Prerequisite: consent of instructor.
Preventive Medicine and Environmental Health

Department of Preventive Medicine and Environmental Health

Preventive medicine relates to the individual patient when knowledge and techniques from biological, medical, social, and behavioral sciences are applied to prevent disease or its progression. It relates to the health of the entire community when the knowledge and skills of medical and allied sciences are applied in an organized community effort to maintain and improve the health of populations.

Department research and teaching activities are conducted within three primary divisions: biostatistics, epidemiology, and occupational and environmental health. Faculty of the Division of Biostatistics work closely with both clinical and basic science researchers investigating throughout the Health Center in the initial design and subsequent analysis of research projects and also work independently in studying problems of statistical theory. Activities of the epidemiologic faculty are concerned with health care organization and delivery, risk factors for disease in the general population, and causal factors in disease, and the establishment and evaluation of disease control measures in the community. Occupational and environmental health faculty are concerned with factors in the physical environment which are related to disease and have particular interest in the health problems of occupational workers.

Examples of ongoing departmental resources and activities include: The Illinois Health Registry of Iowa, which records in central files data on all cases of cancer which occur in residents of Iowa; the Aging Program, which examines health problems and needs of a representative segment of Iowa's elderly; the development, evaluation, and field testing of vaccine against scarlet fever; the University Occupational Health Service; the Community Pesticide Project; and the Biostatistical Consulting Service.
Psychiatry

Department of Psychiatry

The Department of Psychiatry is engaged in teaching medical students and training resident physicians for academic and clinical careers in psychiatry. It offers no degree program.

The instruction of medical students occurs principally during their third year, in the course of a six-week clerkship.

The department maintains a four-year training program approved by the Residency Review Committee of the American Medical Association. Training experiences are available at The University of Iowa Hospitals and Clinics and at the Iowa City Veterans Administration Medical Center. Additional experiences are available at affiliated institutions: Bremerhos Hospital in Des Moines, the Iowa State University Medical Faculty at Oak Creek, the Mid-Eastern Iowa Mental Health Center in Iowa City, and the Mental Health Institute at the University of Iowa.

The department offers an approved two-year residency in child psychiatry. The department is actively involved in genetic and family studies of psychiatric disorders, and is involved in research in the fields of general and biological psychiatry, neurochemistry, neurophysiology, and psychosocial aspects of behavior.

Many opportunities are available for students and residents to participate in research. The basic science areas of neurochemistry, neurophysiology, and electrophysiology offer additional opportunities to students and residents for special study and research. The clinical areas of psychiatry, child psychiatry, and group psychotherapy offer opportunities to interested students for further study and research.

Courses

The course in Psychiatry for medical students covers topics as follows:

- Introduction to the field of psychiatry
- Medical and psychiatric care of psychiatric patients
- Principles and methods of psychiatric treatment
- Psychiatric assessment and evaluation
- Psychiatric diagnosis and classification
- Psychiatric treatment modalities and management
- Psychiatric disorders and their treatment
- Psychiatric emergencies and crisis management
- Psychiatric research and evidence-based practice
- Psychiatric ethics and advocacy
Graduate Programs

The M.S. program in radiation biology emphasizes the technical aspects and serves well to train students whose major interest is in a related field. The Ph.D. program is open to graduate students with a background of study in physics, chemistry, mathematics, biology, health sciences, veterinary medicine, or engineering. Ordinarily, the M.S. is the c. a. related field is required for admission to the Ph.D. program, but consideration is given to other methods of qualifying.

After completion of the introductory course, the student may emphasize a particular aspect of the field. The details of the program are built around previous training, interests, abilities, and career objectives. Some students elect to emphasize training in physical aspects, such as radiological physics or health physics. Others major in biological aspects. In either case, a broad base rather than complete specialization is the goal. In addition to formal lectures, the programs involve small group conferences and discussions. Laboratory exercises are emphasized, and the student has the opportunity to become familiar with many types of instruments and techniques. It is recommended that a candidate for the Ph.D. have a near knowledge of scientific French or German and competence in biological statistics or computer programming before taking the final examination. Students must have at least 1 year of full-time work experience as a teaching assistant and at least one as a research assistant. His or her registration is required and no academic credit given.

Special Programs

Postdoctoral training is available by arrangement with the program chairman and individual faculty members.

Facilities

The Radiation Research Laboratory has two X-ray generators and other radiation sources. Students majoring in physics or engineering also have access to other radiation sources, such as the Co60 gamma source and the linear accelerators in the Department of Radiology and the reactor of the Biology Division at Argonne National Laboratory.

The Radiation Research Laboratory has a variety of radiation detectors and counters, including generic and liquid scintillation counters and a small animal whole-body counter.

The electron also has a nuclear resonance spectrometer, ultraviolet spectrophotometers, an automatic cell counter and particle size, and facilities for preparation of biological solutions of tissues-—fixed or frozen—and autoradiographs.

Three air-conditioned rooms provide convenient housing for the small laboratory animals used in research and teaching.

Financial Aids

Graduate students are supported as research assistants when possible from funds available through research grants and contracts, or as teaching assistants paid from departmental funds. Some awards are also available to graduate students and postdoctoral fellows 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 jointly by the candidate and his or her faculty sponsor.

Courses

77.122 Application to Radiobiology and Radiotherapy 4-6.
Capacities and biological effects of various radiations with use of radiobiology and radiophysics methods, applications, biological effect for protection and medical purposes. Preclinical/clinical concept of radiation.

77.132 Environmental and Radiological Health 4-6.
Physics of energy, assessment, documentation, reports of design and use of radiation facilities in medical, academic, and industrial practice, exposure and dose measurements in radiation environments. For all 3rd- and 4th-semester seniors and 1st-semester faculty. Arrangements will be made with instructor. Offered for seminar seniors.

77.138 Special Topics: Advanced Undergraduate 4-6.
For undergraduates primarily interested in a career in the radiation sciences, meetings and laboratory experience. Arrangements will be made with instructor. Offered for seminar seniors.

77.201 Seminar Research Radiation 4-6.
Research reports by students and faculty 2 to 3 reports from outside the program. Offered for satisfactory-un satisfactory basis only, once as seminars.

77.205 Seminar Radiation Research 4-6.
Research reports by students and faculty 4 to 5 reports from outside the program. Offered for satisfactory-un satisfactory basis only, once as seminars.

77.211 Physics of Radiobiology 4-6.
Characteristics of ionizing radiation, nuclear accelerations, and radiobiological properties of 6. Experiments with radiation sources. Radiation protection and use. Exposure and depth dose measurements, radiobiological. Offered spring semesters of even years. Prerequisite: eight semester hours of physics. 77.134, or consent of instructor.

77.225 Human and Medical Radiation Biology 4.
Molecular effects of ionizing particles on human and animals, mammalian and bone marrow transplantation, agents within medical radiation, radiation damage, radiation carcinogenesis. Offered spring semester of odd years. Prerequisite: 77.132 or consent of instructor.

77.233 Cellular Radiation Biology 4.
Radiation and cell growth, multiplication, differentiation, and function in vivo and in vitro. role of radiation on stem cells of the bone marrow. Offered spring semester of even years. Prerequisite: 77.132 or consent of instructor.

77.245 Radiobiology in Biological Research 4.
Current techniques in the use of biological systems and radiobiological studies; eight-week emphasis on basic work. especially liquid scintillation counting; second two weeks deal with using of small animals. Offered spring semester of odd years. Prerequisite: consent of instructor.

77.300 Synoptical Radiology 4.

77.306 Research Radiology 4.

77.307 Special Topics 4.

77.308 Special Topics 4.

77.309 Thesis 4.

77.310 Thesis 4.

Radiology


The Radiology Department's teaching program is designed to meet the needs and interests of fourth-year medical students in diagnostic radiology, nuclear medicine, and radiological therapy.

Residents rotate through the various subspecialties of diagnostic radiology— including ultrasonography, computerized tomography, and nuclear medicine—and radiology therapy—are designed according to the student's area of interest.

Courses

76.1 Clinical Radiology 4.
Clinical rotation in diagnostic radiology and nuclear medicine. 4. Clinical rotation in diagnostic radiology and nuclear medicine. 4.

76.2 Introduction to Radiology Therapy 4.

76.3 Radiology for Physician Assistant 4.

76.4 Principles of Nuclear Medicine 12.
Coursework covers clinical situations in nuclear medicine imaging. Involves basic science background. Prerequisites: 76.1 Clinical Radiology and 76.4 Principles of Nuclear Medicine. Prerequisites: 76.1 Clinical Radiology and 76.4 Principles of Nuclear Medicine. Prerequisites: 76.1 Clinical Radiology and 76.4 Principles of Nuclear Medicine. Prerequisites: 76.1 Clinical Radiology and 76.4 Principles of Nuclear Medicine.

76.5 The Medical Aspects of Nuclear Weapons 1.

76.6 Applied in-Unit Medicine Technology 12.
Prerequisites: satisfactory performance in nuclear imaging and 12 units of physics, general education, and 12 units of nuclear radiation. Prerequisites: satisfactory performance in nuclear imaging and 12 units of physics, general education, and 12 units of nuclear radiation. Prerequisites: satisfactory performance in nuclear imaging and 12 units of physics, general education, and 12 units of nuclear radiation. Prerequisites: satisfactory performance in nuclear imaging and 12 units of physics, general education, and 12 units of nuclear radiation.
Surgery

Department Head: Robert J. Corry
Fellows: Professor J. Brian Rabin, Robert J. Cort, Mark J. Perlman, Nathan J. Guskiewicz, Robert R. Shellock, John F. Warden, Nicholas J. Pugh, Bruce E. Shaffer, Robert F. Sager, John C. Waddell

Courses in surgery provide opportunities for students to gain a broad spectrum of experience, starting with patient care under basic surgical supervision. The program is designed to give the student access to the physiology of medicine and the physician's skills. These courses are available to all medical students and qualified professionals in medical science.

Facilities

The department has more than adequate numbers of patients with a wide variety of surgical diseases for teaching. Special areas include the only burn unit in the state, providing adequate patient material for both medical and basic science research.

Laboratories provide equipment, space, and technical expertise to support teaching and a wide spectrum of clinical and scientific research. These laboratories include animal operating, tissue culture, gynecology, microbiology, peripheral vascular, transplantation, perfusion,clerosis, experimental, and neurosurgery research.

Courses

1. Basic Surgery
   - Features second-year surgical and clinical conferences that are based on the surgical and clinical experiences of the medical student.

2. Advanced Clinical Surgery
   - Provides advanced experience in acute management of surgical patients, patients with multiple trauma, and patients with acute and chronic surgical problems. Students are evaluated on the basis of their performance in an acute surgical setting.

3. Advanced Surgical Intensive Care
   - Experience in acute surgical intensive care.

4. Pediatric Surgery
   - Experience in acute pediatric intensive care.

5. Emergency Room on Campus
   - Experience in acute patient care and management in a variety of settings, including acute and chronic diseases.

Urology

Department Head: Paul M. Oderberg
Fellows: Professor J. Brian Rabin, Robert J. Cort, Mark J. Perlman, Nathan J. Guskiewicz, Robert R. Shellock, John F. Warden, Nicholas J. Pugh, Bruce E. Shaffer, Robert F. Sager, John C. Waddell

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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 body sciences. The department participates with the Department of Microbiology in the teaching and research in immunology as it relates to transplantation and cancer.

The Department of Urology participates very actively in SB 111 Introduction to Clinical Medicine, which involves the entire second semester of second-year medicine. The department offers illustrative lectures and demonstrations concerning the diagnosis and treatment of diseases involving the genitourinary tract 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 international recognition for its studies of prostatic diseases. The urological laboratories are active and offer instruction in various urological research areas. The department offers special elective courses in these areas.

Courses

2.7 5912 Intro Clinical Oncology

2.7 5913 Intro Clinical Urology

2.7 5914 Intro Clinical Urology at VA

2.7 5915 Individual Study and Research

2.7 5916 Urology

2.7 5917 Urology and Radiology

2.7 5918 Urology and Radiology, where interactions, communications, demonstrations, and techniques of pathology are presented and discussed, often in consideration of time provided, course requires audit of departmental conferences.

Urology/MEDICINE 379

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College of Nursing

The College of Nursing is an integral part of the University of Iowa Health System, sharing in and contributing to teaching, research, and patient care programs which have earned institutional recognition. This provides an unusually fine setting for college preparation in 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, homes and home services, and public and 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 young people not only to realize their highest career potentialities, but to achieve the greatest measure of self-fulfillment in life.

The baccalaureate program is designed to provide both liberal and professional education. The basic, 128-semester-hour program consists of 79 semester-hours of liberal arts general education courses and supportive prenursing courses, and 50 semester hours of course work in nursing. Students complete the program in four or four and one-half academic years.

Course offerings are based on the concepts of health, deviations from health, and nursing intervention, and are determined in progressive levels of complexity from the sophomore through the senior year. The curriculum reflects the current trend in health care delivery toward greater emphasis on nursing as a service rendered outside hospitals and to other than the acute ill.

Approaches to the College of Nursing

The student may complete the entire program at Iowa, enrolling the first year in the University’s College of Liberal Arts or transfer from an institution offering a two-year sequence of specific courses approved by the College of Nursing.

Cooperating state institutions in the transfer plan include Iowa State University; the University of Northern Iowa; and Upper Iowa, Briar Cliff, Monmouth, Muscatine, Clinton, Iowa Falls, Avenly, Boone, and Fort Dodge. Completion of the transfer sequence at a cooperating institution does not guarantee admission to the College of Nursing, but consultation with the College of Nursing and approval of the student’s plan of study by the College of Nursing are advisable.

Cooperative Clinical Internship

Summer Clinical Nursing Internships are offered to qualified undergraduate students who are selected on a competitive basis from the applications received. Summer internships may be applied to the successful completion of Nursing III. Interested students should contact the Office of the Assistant Dean.

Undergraduate Studies for application information.

Dean: Gertrude Nelson
Assistant dean, graduate studies: Marilyn Sebin
Assistant dean, undergraduate studies: Elinor McClelland
Assistant dean, continuing education: Marie Hass
Faculty: professors Pamela Beine, Elizabeth Burns, Fernando Franklin, Sala Saman, Barbara Thomas
professor emerita: Cyril Ekon
associate professor, psychiatry, Behavioral Health Services, Nathan Gair, Elinor McClelland, Joan McClelland, Janet Powell, Jean Reine, Kim Koper, Elizabeth Swanson
associate professor, social service: Roberta McWhirter, Geraldine Bausch, Margaret Final, Margaret Lynn, Anne M. Overeill, Ellis M. Reissnitz, Ann M. Wildes
associate professor, nursing education: Jane Cusick, Martha Cuthbert, Carolyn Cowell, Jeanene Clay, Carol Ebert, Ophra Glick, Mary Koch, Marion Mazer, Kathleen Kay, Louise Krueck, Robert Kuhn, Jeanne Hack, Sara Linsey, Marjorie Maier, Leslie Middleton, Phyllis Miller, Carolyn Miller, Sharron Miller, Priscilla Mead, Jeanne Menard, Lorraine Peters, Bertha Shost, Judith Shostak, Marilyn Stokely, Antonia Sullivan
associate professor emerita: Ida Amsley, Mary Amsley, Paul Tidmarsh
instructor: Margaret Allen, Mary Amsley, Teresa Baudin, Thomas Baudin, Kathleen Clair, Mary Coronel, Suzanne Cowdrey, Jeanne Cren, Evelyn Debelo, Patricia Dilling, Cynthia Doughty, Jeannine Frey, Mary Harl, Doree Harmon, Mary Hardy, Jim Hargrave, Jane Hite, Deborah Irene涉案, Lauren Lachowicz, Larry Kohn, Debra Lee, Donn Rice, Henry Sapan, Kelly Shearin, Mary Whittier, Jane Williams
assistant professor: Joanne Barlow, Elsie Bell, Linda Eason, Karen Griffin, Mary Hoffman, Elizabeth Hulley, Louise Jones, Janie Kanegash, Frances Lambricht, Kalpabot Matsumoto, Justin Murray, Kathryn Olen, Patricia Perlick, Arlene Tumblin, Kay Warr
Degrees offered: B.S.N., M.A.
Aging Studies
Students in the College of Nursing may participate in the Aging Studies Program which is designed to provide undergraduate students a multidisciplinary approach to gerontology. Students plan their course of study with their academic advisor in close cooperation with the Aging Studies Program Coordinator. For further information refer to the Aging Studies Program information in the College of Liberal Arts.

Registered Nurses
For registered nurses who wish to complete the BSN degree and who have completed all required prerequisite courses, challenge examinations, and admission to the College of Nursing, a one-year plan of study is available for required nursing courses. Registered nurses planning to enter the baccalaureate program should obtain special information and advice from the College of Nursing.

Faculty Advisers
Advisors 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
Course of study status students may have their own Association of Nursing Students and are also eligible for membership in the state and national associations of nursing students.

Expenses
Students pay the general University fees throughout the program. Students must also purchase uniforms, white shoes, a stethoscope, a watch with a 12-hour clock, a second hand and supplies and materials for required nursing courses. Students arrange for their own health insurance requirements and transportation once admitted to their 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, four years of mathematics, and one year each of biology, chemistry, and physics, plus other college preparatory courses selected with the help of the high school counselor.

College Background
Admission Requirements
To apply for admission to the undergraduate program in nursing each student must be admitted to The University of Iowa and present: 1) a minimum of 30 semester hours completed in an accredited college; 2) successful completion of three of the following science courses (inorganic chemistry, organic biochemistry, 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 18 semester hours in algebra, geometry, and trigonometry.

Techniques (5 semester hours) or completion of a comparable or more advanced course in the University's Division of Mathematical Sciences.

Physical—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—1 semester hour; and

Statistics—3 semester hours.

Preclinical Background
Including the biological science courses required for admission to the college, the student must satisfy the following requirements before beginning clinical nursing course work:

Animal biology 4 s.h.

Chemistry (organic and inorganic biochemistry) 6 s.h.

Human anatomy 4 s.h.

Human physiology 4 s.h.

Microbiology 4 s.h.

Nutrition 3 s.h.

Psychology 3 s.h.

Sociology 3 s.h.

Anthropology 3 s.h.

Human development and behavior 3 s.h.

Standards
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. Physical examination report and specific health screening requirements are to be on file at the Student Health Services 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 degree 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 prepare the student to serve as the foundation for specialization and role preparation in specific areas. Since the available area of specialization may be broad or narrow, the curricular area of specialization in general nursing specialization options which focus on patients or clients: child health nursing, adult health nursing, and community/family health nursing. Within these specialty areas, however, students may tailor their plans of study to accommodate their specific interests by arranging for specific sites and types of field experiences to fulfill the practicum component of the specialization courses; the selection of specific courses 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 specialty.

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 advisers, 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 registration; part-time and evening study options are available. However, the student must maintain a 2.5 minimum grade point average and must successfully complete both a thesis project and oral defense and a written comprehensive examination.

The master’s degree curriculum is structured into five components:

Advanced Nursing Core (17 semester hours): This component includes conceptual and theoretical foundations for nursing (fall semester hours), leadership in nursing (fall semester hours), methods of nursing research (fall semester hours), and select professional issues seminar (two semester hours).

Nursing specialization (eight semester hours): Allows the student to build a special-focus of knowledge and practice, which exists beyond the advanced practice of selected areas of specialization. It may be in the broad areas of child health nursing, adult health nursing, or community health nursing. Students may choose any one area of specialization. Through their choices of course work and fieldwork experiences, for example, students selecting adult health nursing as their area of specialization may choose experiences with patients in a long-term care facility, mental health clinics, 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 adviser.

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 selecting this option to develop skills for careers in clinical practice, for example, will enroll for six semester hours of advanced clinical practice, which is in addition to courses required for the nursing specialization component. Students may select specific courses and/or preceptors compatible with their own career goals in fulfilling the practicum requirements of these courses.

Supporting courses (nine semester hours): Students may choose their supporting course work in areas related to their nursing specialization or role preparation interests. One supporting science course related to the nursing specialization area is required.

Thesis (five semester hours): Every student is expected to write and successfully defend a thesis. This involves a systematic inquiry into a nursing problem to include such methodologies as historical research, case studies, analytical method, 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 include the same way, but over a longer period of time. Taking one or two courses per semester, for example, would extend the study to two or three years. Any course work taken ten semesters or more prior to the Final Examination must be updated, according to University policy.

First Year

Fall Semester 96:200 Conceptual and Theoretical Foundations for Nursing I 3 s.h.
96:204 Leadership in Nursing: Theory and Application 4 s.h.
Supporting course 3 s.h.
Total 10 s.h.

Spring Semester 96:201 Conceptual and Theoretical Foundations for Nursing II 3 s.h.
96:223 Child Health Nursing I 4 s.h.
96:225 Adult Health Nursing I 4 s.h.
96:224 Community/Family Health Nursing I 4 s.h.
Total 14 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.
96:235 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 I 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 II 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: A baccalaureate degree, or its equivalent, from a regionally accredited institution, is required. Applicants must submit three letters of recommendation. The Graduate College requires that applicants:

- Possess a bachelor’s degree with a major in nursing or a program accredited by the National League for Nursing.
- Fulfill the legal requirements for the practice of nursing in Iowa.
- Have an undergraduate grade-point average of at least 2.7 or a demonstrated ability to do graduate work for regular admission, at least a
Continuing Education

Through its Department of Continuing Nursing Education, the college offers nonacademic courses for registered nurses. Programs are scheduled on campus and at community sites throughout Iowa. Continuing education units (CEUs) are awarded for each offering on the basis of one unit per 10 clock hours of instruction. Continuing Nursing Education is an Iowa Board of Nursing approved provider number 1 and is accredited by the National Accreditation Board, American Nurses Association.

Facilities

The Nursing Building is centrally located on the University's main campus in close proximity to the colleges of Medicine, Pharmacy, and Dentistry; University Hospitals; the Monroe Science Library, and the Health Science 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 1020 Cooperative Clinical Internship 6 hrs.
NUR 1010 Introduction to Health and Health Care Services
NUR 2010 Human Development and Behavior Developmental stages of human growth from conception through infancy. Phylogenetic factors and the interplay of genetic and environmental factors. Prerequisite: NUR 111 3/1 or 112 3 hrs.
NUR 1200 Nutrition and Nursing Studies 6 hrs.
NUR 1310 Pathology 6 hrs.
NUR 1400 Psychology 3 hrs.
NUR 1500 Maternal, Child, Developmental Psychiatric Social Foundations of Nursing 3 hrs.
NUR 1600 Family Health Nursing 3 hrs.
NUR 1700 Transcultural Nursing 3 hrs.
NUR 1800 Research in Nursing 6 hrs.
NUR 1900 Methods of Research in Nursing 6 hrs.
NUR 2010 Professional Responsibility and Practice 3 hrs.
NUR 2100 Sociocultural Correlations in Nursing Practice 3 hrs.
NUR 2200 Nursing Process 3 hrs.
NUR 2300 Nursing Theory 3 hrs.
NUR 2400 Nursing Research 3 hrs.
NUR 2500 Community Health Nursing 3 hrs.
NUR 2600 advanced level psychiatric nursing 6 hrs.
NUR 2700 Psychopharmacology 3 hrs.
NUR 2800 Psychiatric Nursing 3 hrs.
NUR 2900 Clinical Nursing 3 hrs.
NUR 3000 Nursing Administration 3 hrs.
NUR 3100 Psychology and Nursing 3 hrs.
NUR 3200 Public Health Nursing 3 hrs.
NUR 3300 Community Health Nursing 3 hrs.
NUR 3400 Nursing Research 3 hrs.
NUR 3500 Community Health Nursing 3 hrs.
NUR 3600 Nursing Research 3 hrs.
NUR 3700 Community Health Nursing 3 hrs.
NUR 3800 Nursing Research 3 hrs.
NUR 3900 Community Health Nursing 3 hrs.
NUR 4000 Nursing Research 3 hrs.
NUR 4100 Community Health Nursing 3 hrs.
NUR 4200 Nursing Research 3 hrs.
NUR 4300 Community Health Nursing 3 hrs.
NUR 4400 Nursing Research 3 hrs.
NUR 4500 Community Health Nursing 3 hrs.
NUR 4600 Nursing Research 3 hrs.
NUR 4700 Community Health Nursing 3 hrs.
NUR 4800 Nursing Research 3 hrs.
NUR 4900 Community Health Nursing 3 hrs.
NUR 5000 Nursing Research 3 hrs.
NUR 5100 Community Health Nursing 3 hrs.
NUR 5200 Nursing Research 3 hrs.
NUR 5300 Community Health Nursing 3 hrs.
NUR 5400 Nursing Research 3 hrs.
NUR 5500 Community Health Nursing 3 hrs.
NUR 5600 Nursing Research 3 hrs.
NUR 5700 Community Health Nursing 3 hrs.
NUR 5800 Nursing Research 3 hrs.
NUR 5900 Community Health Nursing 3 hrs.
NUR 6000 Nursing Research 3 hrs.
NUR 6100 Community Health Nursing 3 hrs.
NUR 6200 Nursing Research 3 hrs.
NUR 6300 Community Health Nursing 3 hrs.
NUR 6400 Nursing Research 3 hrs.
NUR 6500 Community Health Nursing 3 hrs.
NUR 6600 Nursing Research 3 hrs.
NUR 6700 Community Health Nursing 3 hrs.
NUR 6800 Nursing Research 3 hrs.
NUR 6900 Community Health Nursing 3 hrs.
NUR 7000 Nursing Research 3 hrs.
NUR 7100 Community Health Nursing 3 hrs.
Electives

Refer to current Schedule of Courses for offerings of nursing electives. Offerings of these courses will vary from semester to semester.

NURS 304 Introduction to Group Studies 3 s.h.
Overview of group dynamics research and writing. Topics: include the group contemporary society, the emerging process, and group literature as a social movement. Same as SOC 3460.

NURS 306 Individual Study 3 s.h.
Supervised study and/or clinical practice adjusted to needs of student.

NURS 310 Nursing Process and Pharmacology 5 s.h.
Pharmacology and psychosocial aspects of human sexuality; parameters are defined by needs of the group. Same as 1717T, 404.1, 404.2, 71.192.

NURS 310 Loss and Grief in Clinical Nursing Practice 3 s.h.
Exploration of thoughts and feelings elicited in dealing with loss and death in the clinical nursing practice. Prerequisite: NURS 310.

NURS 311 Introduction to Gerontology 2-5 s.h.
Interdisciplinary course focusing on the concept of aging, with emphasis on human resources, vulnerabilities, and challenges of aging, and implications for nursing practice. Junior or senior standing or consent of instructor.

NURS 312 Nursing Care of Institutionalized Geriatric Client 3 s.h.
Analysis of the needs of the institutionalized geriatric client and implications for nursing practice. Same as 316 and 108.

NURS 316 Interpretation of Cardiac Arrhythmias 1 s.h.

NURS 316 Human Structure and Function--A Cellular Approach 3 s.h.
Prepares students to identify human tissues, cell types, and subcellular organelles, and to satisfy their curiosity, to describe processes common to normal human cells, to describe mechanisms of cell division and cellular multiplication by which the human organism systemic level. Prerequisite: 841.61.40, 841.62 of consent of instructor.

NURS 317 Human Structure and Function--A Systemic Approach 4 s.h.
Prepares students to describe structure, function, and organization of nervous and hormonal systems of control and communication in human organism. Identifies interactions between functions and structures (gross and microscopic) of an organ, and describes the physiology of these functions and structures. Prerequisites: 841.61 and 841.62, or consent of instructor.

NURS 317 Health and Cultural Diversity 3 s.h.
Survey of the diversity of health and illness in current society. Professional, 112.2. Consent of instructor. Same as 112.108.

NURS 348 Transactional Mental Health 3 s.h.
Survey of stress-critical perspectives on mental health and mental illness. Evaluation of expected behavioral patterns for different developmental ages in various cultures, as well as deviations from these patterns. Prerequisite: NURS 160, prior standing in department of Anthropology or consent of instructor. Same as 111.2.

NURS 358 Executive Nurse Leadership Program 6 s.h.
Offered as a 12-week summer program for nurse executives. Designed to expand their knowledge and broaden their managerial skills to enable them to function more effectively in their organizations. Prerequisites: NURS 301, prior standing in department of Anthropology or consent of instructor. Same as 111.2.

NURS 358 Financial Management for the Nurse Manager 3 s.h.
Survey of financial management concepts and strategies.
The pharmaceutical sciences are concerned with the discovery, development, and dispensing of medicinal products and monitoring of their effects. The pharmacist is also trained to identify, analyze, select, combine, and standardize these medicines, and serves his or her community as a prime source of information on health topics. Although he or she performs a variety of tasks, the pharmacist is basically a specialist in the science of drugs. He or she must understand their composition, chemical and physical properties, manufacture and uses, and activity in the normal individual as well as in the ill patient, and must be familiar with tests for the strength, purity, and efficacy of drug products. The pharmacist is prepared to compound and dispense prescriptions written by health practitioners, who rely on the pharmacist for information about various drugs—their availability, activity, toxicology, contraindications, etc. Another important role of the pharmacist is the communication of knowledge of drugs to the patient and to other health professionals.

Nearly everyone is familiar with the community pharmacist and the pharmacy in which he or she practices. This site and type of practice may vary—community pharmacies may be large or small, operated by individuals or by corporations. The pharmacists who staff these pharmacies make up the majority of pharmacists in this country. Over 100,000 men and women practice in community pharmacies.

Another group of pharmacists is employed in hospital pharmacy work. The government employs pharmacists in the Public Health Service, Veterans Administration, Food and Drug Administration, and the armed forces. Many pharmacists assume administrative positions in industry, including manufacturing, research and development, control, marketing, and advertising. In addition to these positions, numerous others are employed in pharmaceutical sales as medical service representatives.

Pharmacy training is especially valuable to these men and women, who are responsible for acquiring physicians, dentists, veterinarians, and other pharmacists with drug products.

In the United States more people are receiving total health care than ever before. This expansion of health care will continue. Young men and women in pharmacy will face new challenges, expanded responsibilities, and an ever-increasing growth of opportunities.

Undergraduate Program

Students in the College of Pharmacy are in a Bachelor of Science program, and they receive professional training and education in a number of fields, including pharmacy technology, pharmaceuticals, medicinal chemistry and natural products, pharmaceutical economics, education, and clinical and hospital pharmacy.

The colleges of Liberal Arts, Business Administration, Dentistry, and medical schools contribute to the education of pharmacy students by providing instruction in the physical sciences, basic medical sciences, business, humanities, and social sciences.

Basically, the Bachelor of Science program in pharmacy consists of one year of prepharmacy study, taken in the College of Liberal Arts at The University of Iowa or in any accredited community or liberal arts college, and four years of pharmacy studies. It is possible to transfer into the College of Pharmacy after two years of college-level work at an approved institution. A student entering the college after two years of preprofessional study can complete the professional program in three years if the preprofessional study includes, in addition to the basic professional requirements, at least eight semester hours of organic chemistry, from five to eight semester hours of biology or zoology, three or four semester hours of economics and three to four semester hours in quantitative analysis.

The University of Iowa College of Pharmacy is accredited by the American Council on Pharmaceutical Education. Graduates of the college are qualified to take the licensure examination given by the Iowa Board of Pharmacy Examination.

The professional curriculum requires a number of hours of electives. If choosing appropriate electives, the student should plan on such topical areas as clinical or hospital pharmacy or graduate study.

The Professional Curriculum

For students admitted no later than the Fall 1984 semester.

First Semester

46:13 Pharmacy Math 3 s.h.
37:3 Principles of Animal Biology 5 s.h.

Degree offered: B.S. Ph., Pharm.D., M.S., Ph.D.
<table>
<thead>
<tr>
<th>Quarter</th>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Second Semester</td>
<td>46:14 Pharmacy: Orientation</td>
<td>2 s.h.</td>
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<tr>
<td>46:11 Principles of Pharmacology</td>
<td>4 s.h.</td>
<td></td>
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<tr>
<td>46:122 Organic Chemistry II</td>
<td>3 s.h.</td>
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<tr>
<td>46:141 Organic Chemistry Laboratory</td>
<td>3 s.h.</td>
<td></td>
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<tr>
<td>*60:102 Principles of Human Anatomy</td>
<td>3 s.h.</td>
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<tr>
<td>**Elective</td>
<td>3 s.h.</td>
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<tr>
<td>Total</td>
<td>15 s.h.</td>
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</table>

*Also offered first semester for students on a 2-3 program only.
**18 semester hours of electives are required.

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<thead>
<tr>
<th>Second Year</th>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>First Semester</td>
<td>46:23 Pharmacology I</td>
<td>4 s.h.</td>
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<tr>
<td>99:162 Biochemistry for Pharmacy Students</td>
<td>4 s.h.</td>
<td></td>
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<tr>
<td>61:157 General Microbiology</td>
<td>4 s.h.</td>
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<tr>
<td>*60:102 Principles of Human Anatomy</td>
<td>3 s.h.</td>
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<tr>
<td>Total</td>
<td>15 s.h.</td>
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<tr>
<th>Second Semester</th>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>46:24 Pharmacology II</td>
<td>4 s.h.</td>
<td></td>
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</tr>
<tr>
<td>46:22 Pharmaceutical Sociogenomics: Health Care Systems</td>
<td>4 s.h.</td>
<td></td>
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<tr>
<td>46:128 Medical Chemistry: Natural Products I</td>
<td>4 s.h.</td>
<td></td>
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<tr>
<td>72:150 Intermediate Physiology</td>
<td>4 s.h.</td>
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<tr>
<td>Total</td>
<td>16 s.h.</td>
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</table>

*May be taken in second semester of first year.

<table>
<thead>
<tr>
<th>Third Year</th>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Semester</td>
<td>46:121 Medical Chemistry: Natural Products II</td>
<td>4 s.h.</td>
<td></td>
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<tr>
<td>69:140 Introduction to Human Pathology</td>
<td>4 s.h.</td>
<td></td>
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<tr>
<td>71:101 Pharmacology for Health Sciences: Pharmacy</td>
<td>5 s.h.</td>
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<tr>
<td>46:35 Pharmaceutical Sociogenomics: Practice Management</td>
<td>3 s.h.</td>
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<tr>
<td>Total</td>
<td>16 s.h.</td>
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<table>
<thead>
<tr>
<th>Second Semester</th>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>46:132 Medical Chemistry: Natural Products III</td>
<td>4 s.h.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>71:103 Pharmacology and Toxicology</td>
<td>3 s.h.</td>
<td></td>
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<tr>
<td>46:38 Pharmaceuticals III</td>
<td>3 s.h.</td>
<td></td>
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<tr>
<td>46:110 Clinical Pharmacy: Case Study</td>
<td>3 s.h.</td>
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<tr>
<td>46:61 Clinical Pharmacy: Drug Information</td>
<td>3 s.h.</td>
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<tr>
<td>Total</td>
<td>15 s.h.</td>
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<th>Fourth Year</th>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>First Semester</td>
<td>45:41 Introductory</td>
<td>2 s.h.</td>
<td></td>
</tr>
<tr>
<td>46:453 Pharmaceuticals IV</td>
<td>4 s.h.</td>
<td></td>
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<tr>
<td>*46:60 Clinical Pharmacy: Community Pharmacy</td>
<td>3 s.h.</td>
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<tr>
<td>46:111 Clinical Pharmacy: Therapeutics I</td>
<td>3 s.h.</td>
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<tr>
<td>Elective</td>
<td>4-6 s.h.</td>
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<tr>
<td>Total</td>
<td>14-16 s.h.</td>
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</table>

Each P-4 student must complete six clinical clerkships (usually three each semester). Two of these are required (46:60 and 46:61).

<table>
<thead>
<tr>
<th>Second Semester</th>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>*46:60 Clinical Pharmacy: Community Pharmacy</td>
<td>3 s.h.</td>
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<tr>
<td>46:112 Clinical Pharmacy: Therapeutics II</td>
<td>3 s.h.</td>
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<tr>
<td>Electives</td>
<td>6-8 s.h.</td>
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<tr>
<td>Total</td>
<td>10-12 s.h.</td>
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</table>

*May be taken in either semester.

<table>
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<tr>
<th>Professional Electives</th>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>46:48 Community Pharmacy Residency</td>
<td>3 s.h.</td>
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<tr>
<td>46:52 Seminar Seminar</td>
<td>3 s.h.</td>
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<tr>
<td>46:56 Non-Prescription Drugs</td>
<td>2 s.h.</td>
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<tr>
<td>46:101 Pharmacy Projects</td>
<td>1-3 s.h.</td>
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<tr>
<td>46:103 Physical Pharmacy</td>
<td>3 s.h.</td>
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<tr>
<td>46:104 Pharmacokinetics and Biopharmaceutics</td>
<td>3 s.h.</td>
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<td>46:105 Industrial Pharmacy Survey</td>
<td>2-3 s.h.</td>
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<tr>
<td>46:108 Hospital Pharmacy: Survey</td>
<td>3 s.h.</td>
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<tr>
<td>46:114 Advanced Clinical Pharmacy</td>
<td>4 s.h.</td>
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<tr>
<td>46:135 Perspectives in MCPH Research</td>
<td>3 s.h.</td>
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<tr>
<td>46:138 Introduction to Medicinal Chemistry: Natural Product Research</td>
<td>1-2 s.h.</td>
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<tr>
<td>46:147 Introduction to Research Methods</td>
<td>3 s.h.</td>
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<tr>
<td>46:154 Communications Skills for Pharmacists</td>
<td>3 s.h.</td>
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<thead>
<tr>
<th>Professional Clerkships</th>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>46:82 Clinical Pharmacy: Family Practice Therapeutics</td>
<td>3 s.h.</td>
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<tr>
<td>46:92 Clinical Pharmacy: Pediatrics</td>
<td>3 s.h.</td>
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<td>46:84 Clinical Pharmacy: Radiopharmaceuticals</td>
<td>3 s.h.</td>
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<td>46:85 Clinical Pharmacy: Surgical Therapeutics</td>
<td>3 s.h.</td>
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<tr>
<td>46:86 Clinical Pharmacy: Geriatric Therapeutics</td>
<td>3 s.h.</td>
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<td>46:87 Clinical Pharmacy: Neurology</td>
<td>3 s.h.</td>
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<tr>
<td>46:59 Clinical Pharmacy: Elective Clerkship</td>
<td>3 s.h.</td>
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<tr>
<td>46:120 Clinical Pharmacy: Psychopharmacology</td>
<td>3 s.h.</td>
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</tbody>
</table>

Graduation from the baccalaureate program in pharmacy requires the student to complete satisfactorily the required courses in addition to 15 semester hours of electives and to achieve a minimum grade-point average of 2.0 for all work undertaken.

For rules and regulations concerning academic probation, pass/fail/no credit by examination, maximum schedule, second-grade-only option, waiver or substitution of courses, cancellation of registration, drop date and corresponding study, see the "College of Pharmacy" section in the current Schedule of Courses.

**Admission**

Admission to the College of Pharmacy for the Fall 1984 Semester requires the following preprofessional course work:

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**Fourteen eight semester hours of six semester hours of transfer credit in the following areas:**

- English composition and literature, 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- 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.

Fulfillment of these requirements does not ensure admission to the College. From applicants meeting the requirements, the admissions committee of the College selects the best-qualified applicants.

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**Transfer Students**

Students who transfer into the college after two years in a community or liberal arts college can complete the pharmacy curriculum in four years. However, students must satisfactorily complete 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.

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**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 humanitarian areas of knowledge.

Transfer Students Admitted for Fall 1985 Semester

Students who transfer into the college after two years in a community or liberal arts college can complete the pharmacy program in three years if they have satisfactorily completed courses in organic chemistry, biology or zoology, quantitative analysis, and satisfy general education electives. Students who pass to remain in a community college for two years before transferring to the UI college should consult the dean of the College of Pharmacy concerning course requirements.

The Professional Curriculum, Effective for Fall 1985 Semester

First Year

First Semester
46:33 Pharmacy Math 3 s.h.
4:12 Organic Chemistry I 4 s.h.
4:10 Principles of Animal Biology 5 s.h.
4:101 Elementary Quantitative Analysis 4 s.h.
Total 15 s.h.

Second Semester
46:14 Pharmacy Orientation 2 s.h.
4:12 Organic Chemistry II 3 s.h.
4:14 Organic Chemistry Laboratory 3 s.h.
*60:102 Principles of Human Anatomy 3 s.h.
**General Education Electives 2-9 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 humanitarian areas of knowledge.

Second Year

First Semester
46:25 Pharmacology I 4 s.h.
59:152 Biochemistry for Pharmacy Students 4 s.h.
61:517 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 Pharmacology: Pharmacoeconomics Health Care Systems 4 s.h.
46:28 Medical Chemistry: Natural Products I 4 s.h.
72:150 Introductory Physiology 4 s.h.
Total 16 s.h.

*May be taken in second semester of fourth year.

Third Year

First Semester
46:31 Medicinal Chemistry: Natural Products II 4 s.h.
69:203 Introduction to Human Pathology 4 s.h.
71:101 Pharmacology and Toxicology: Sciences: Pharmacy 6 s.h.
46:35 Pharmaceutical Social, Economic, and Environmental 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 3 s.h.
46:38 Pharmacology II 4 s.h.
46:19 Clinical Pharmacy: Case Study 3 s.h.
46:81 Clinical Pharmacy: Drug Information 3 s.h.
Total 16 s.h.

Fourth Year

First Semester
*46:60 Clinical Pharmacy: Community Pharmacy 3 s.h.
46:11 Clinical Pharmacy: Therapeutics I 3 s.h.
46:41 Jurisprudence 2 s.h.
46:43 Pharmacology 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.
46:12 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 10 didactic clinical clerkships, including 46:60 and 46:61. The others are selected from a large number of offerings.

Transfer with Advanced Standing

Applicants transferring from other colleges of pharmacy accredited by the American Council on Pharmaceutical Education who have completed the course work required in this curriculum, however, at least one semester year (30 semester hours) of residence in The University of Iowa College of Pharmacy is required for the degree.

Doctor of Pharmacy Program

The Doctor of Pharmacy (Pharm. D) program is a two-year, post-baccalaureate professional degree program which combines didactic course work and clinical clerkship. The major goal of the program is to provide the health-care system with pharmacists who are specifically trained to undertake an extended role in monitoring, evaluating, and dispensing drug therapy in hospital and ambulatory settings.

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 pharmacometrics, medicinal chemistry, natural products, and pharmaceutical social, economic, and environmental practice management. 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, government agencies, and in a number of health-related institutions.

The application deadlines, grades-point average for admission, Graduate Record Examination (GRE) Aptitude Test scores and necessary letters of recommendation are the same as those of the Graduate College. The academic requirements for maintaining graduate registration are
Courses

Undergraduate Pharmaceutics
48.13 Pharmacy Math
2 s.h.
Application of concepts of weights and measures, and mathematical calculations involved in pharmaceutical procedures and practices. Includes activities in mathematics and its application to pharmaceutical problems.
48.14 Pharmacy Orientation
2 s.h.
Lectures and discussion of career opportunities, pharmaceutical technology, and practice settings, education, and professional organizations in pharmacy.
48.15 Pharmaceutics I
4 s.h.
Lectures and laboratory in the physical and chemical properties and behavior of pharmaceutical substances. Emphasis on pharmaceutical dosage forms. Primers: 46.13, 46.12.
48.16 Pharmaceutics II
4 s.h.
Lectures and laboratory on preparation of product dosage forms and the physical and chemical characteristics of compound mixtures. Describes the properties of solid mixtures, including physical, chemical, and pharmaceutical behavior of mixtures. Primers: 46.13, 46.12.
48.20 Pharmacognosy
2 s.h.
Study of plant and animal products used in the formulation of pharmaceuticals. Primers: 46.20, 46.12.
48.22 Pharmacology
4 s.h.
Lectures and laboratory in the scientific and clinical studies of the effects of drugs on living organisms, including the physiological actions of drugs on the body. Primers: 46.20, 46.12 or equivalent, and 46.17 or equivalent.
48.151 Medicinal Chemistry Natural Products I
2 s.h.
Completion of 48.152, which is prerequisites.
48.152 Medicinal Chemistry Natural Products II
2 s.h.
Completion of 48.151, which is prerequisites.
48.155 Perspectives in Medicinal and Biopharmaceutical Research
1 s.h.
Survey of contemporary research in medicinal chemistry and natural products, with particular emphasis on current faculty interests.
48.161 Enzymatic Basis of Drug Metabolism
2 s.h.
Studies the interaction between the body and various foreign chemicals, including concepts in metabolic and cellular biochemistry. Primers: 48.12, 46.12 or equivalent, and 46.17 or equivalent.
48.162 Introduction to Medicinal Chemistry
1 s.h.
Elective laboratory course to give in-depth exposure to techniques and problem-solving in natural product research. Primers: 48.152 and consent of instructor.

Graduate Pharmaceutics
48.151 Pharmacy Projects
5 s.h.
Basic and applied research problems in pharmaceutical microbiology; PF 20 or standing, open to graduate students.
48.152 Physical Pharmacy
3 s.h.
Studies of physical phenomena, adsorption, and stabilization in pharmaceutical systems.
48.154 Analytical and Biochemistry
3 s.h.
Studies of drug identification, chemical structure, and separation, including development of mathematical models. Primers: 46.12, 46.17, 46.20, and course work in mathematics.
48.161 Medicinal Chemistry Natural Products I
2 s.h.
Studies the interaction between the body and various foreign chemicals, including concepts in metabolic and cellular biochemistry. Primers: 48.12, 46.12 or equivalent, and 46.17 or equivalent.
48.162 Introduction to Medicinal Chemistry
1 s.h.
Elective laboratory course to give in-depth exposure to techniques and problem-solving in natural product research. Primers: 48.152 and consent of instructor.

Graduate Medicinal Chemistry: Natural Products
48.150 Synthetic Strategy in Medicinal Chemistry
3 s.h.
48.253 Stereocenters and Conformational Analysis
3 s.h.
Basic concepts of stereocenters. Analysis of conformational and stereo chemical properties of molecules. Primers: 48.12, 46.17, and 46.20.
48.350 Spectroscopic Interpretations
3 s.h.
Interpretation of ultraviolet, infrared, nuclear magnetic resonance, optical circular dichroism, and mass spectrometry data; correlation of vibrational and electronic spectra and assignment to molecular structure and chemical reactivity.
48.355 Medical Chemistry of Medications
3 s.h.
Discussion of nucleotide and nucleic acid modeling techniques. Primers: 48.12, 46.17, and 46.20.
48.356 Medicinal Chemistry of Nucleosomes
3 s.h.
Development of drugs for DNA damage, nucleases, and other related transcriptions; mechanisms of action, resistance, and utility. Primers: 48.17, 46.17, and 46.20.
48.357 Medicinal Chemistry I
3 s.h.
Discussion of nucleotide and nucleic acid modeling techniques. Primers: 48.12, 46.17, and 46.20.
Graduate Clinical-Hospital Pharmacy

48150 Hospital Pharmacy Survey 1 h

Medical pharmacy relations, pharmacy services, hospital pharmacy, clinical pharmacy, handling and dispensing of medications, control and evaluation of stock drugs, pharmacy service. 
Prerequisites: Consent of Instructor.

48151 Advanced Clinical Pharmacy 1 h

Application of principles in pharmacology and pharmacotherapeutics to patient administration in clinical pharmacy practice. 
Prerequisites: Consent of Instructor.

48152 Clinical Pharmacy Drug Literature Review and Evaluation 1 h

Literature review and evaluation of recent literature in clinical pharmacy and pharmacological aspects of drug therapy. 
Prerequisites: Consent of Instructor.

48154 Hospital Pharmacy Internships 1 h

Therapy and applications in preparation, packaging, and dispensing of parenteral drug forms.

48155 Nuclear Pharmacy 1 h

Design, testing, and evaluation of radio-pharmaceuticals; gamma-ray spectrometric methods for measuring, analyzing, and measuring of radiation. 
Prerequisites: Consent of Instructor.

48252 Clinical Pharamacotherapeutics 1 h

Contemporary pharmacotherapeutics in selected disease states, discussions from current literature emphasizing individualization of drug therapy, therapeutic outcome, and rational use of drugs. 
Prerequisites: Consent of Instructor.

48253 Clinical-Hospital Pharmacy Seminar 1 h

Topics of current interest in the specialty of clinical and hospital pharmacy. May be repeated.

48257 Hospital Pharmacy Directed Study in Administrative Problems 1 h

Application of organizational and administrative theory to practical problems in the hospital pharmacy situation, including personnel, equipment, budgeting and forecasting, systems and physical plant design. 
Prerequisites: Consent of instructor and 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 the various departments and colleges of the University and by bringing the University generally into direct contact with the citizens." The division's organization and services include:

Center for Credit Programs

Correspondence Courses

Over 150 Guided Correspondence Study courses are available from The University of Iowa. All courses are approved by the appropriate University departments. Students in residence at The University of Iowa must obtain permission of the dean of their college to enroll in Guided Correspondence Study courses for degree credit.

The following departments or divisions have approved courses in Guided Correspondence Study:

- College of Liberal Arts: Afro-American Studies; Anthropology; Asian Languages and Literature; Chemistry; Classics; Communication and Theatre Arts; English; French; Geography; Geology; German; History; Home Economics; Journalism and Mass Communication; Linguistics; Literature; Science and the Arts; Mathematics; Music; Philosophy; Physical Education; Political Science; Psychology; Recreation Education; Religion; Russian; Social Work; Sociology; Spanish and Portuguese; Women's Studies; Zoology
- College of Business Administration: Economics; Finance; Industrial Relations and Human Resources; Management Science
- College of Education: Counselor Education; Early Childhood Education; 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 $50 per semester hour. Fees are payable at the time of registration. A catalog including course listings, procedures, and enrollment forms may be obtained from Guided Correspondence Study, W400 Seashore Hall.

Veterans may enroll for correspondence courses concurrently with other academic study under Public Law 92-540. Veterans should contact the Veterans Affairs Office at the University.

Off-Campus Classes

The division offers off-campus classes in liberal arts, business administration, education, nursing, and engineering. Classes are scheduled where they may best serve the off-campus students and at the request of public school officials, or where geographical, industrial, or other qualified groups indicate a specific need for educational services. Courses offered in engineering are scheduled on a semi-annual basis. Courses in liberal arts, business administration, nursing, and education require enough enrollees to meet course expenses. For information, write to Center for Credit Programs, W400 Seashore Hall.

Saturday and Evening Classes

This program provides credit course offerings for part-time undergraduate, graduate, or 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.L.S.) degree is designed to serve adults who cannot attend as full-time, on-campus students. The program has no residence requirements. Credits toward the degree, which is awarded by the College of Liberal Arts, may be earned through correspondence study, Saturday and evening classes, off-campus courses, and televised and teletext 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 encourage the utilization 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 adults receive training in the center's varied programs, which represent a cooperative endeavor between the center and the various colleges, departments, and disciplines within the University. The marshaling of appropriate resources, coupled with the professional planning and execution of conferences and other short-term training programs, helps to ensure the achievement of the educational objectives specified for each program.

The director of conferences is responsible for approving and conducting or coordinating all conferences, institutes, short courses, and other noncredit continuing education offerings here in the Iowa Memorial Union for other than on-campus student groups. All members of the faculty and staff who plan University conferences and other University-related group functions such as trips and tours in the Midwest (including Coralville) are expected to submit a proposal to the conference center office and to utilize the conference facilities, dining services, and lodging accommodations at the Iowa Memorial Union, to the extent they are available and appropriate.

Adult Education Noncredit Program

This open enrollment program provides a wide variety of noncredit short-course offerings and special interests classes. Courses are normally conducted at the Iowa Memorial Union during evening hours by University-affiliated instructors. Continuing education units may be awarded by course completion. For current offerings, contact the Center for Conferences and Institutes.

Radio Broadcasting Services

WSUI-AM and KUSI-FM serve the needs and interests of the people of eastern Iowa with 18 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 free copy of their "Studio Guide" may be obtained by writing to that address.

Institute of Public Affairs

The mission of the institute is to help improve state, city, and county governments in Iowa by serving as the primary research and continuing education link between the University and those governments. Services of the institute are available to state and local government agencies and to citizen groups interested in civic affairs.

The institute has a full-time research and training staff. Through the institute, other resources of the University are applied to problems faced by Iowa public officials. The institute also works in close cooperation with organizations of public officials such as the League of Iowa Municipalities and the Iowa State Association of Counties.

The institute provides:

In-service training and continuing education services to public personnel, primarily managers and supervisors, offering a wide 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 governmental units;

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, is the liaison office between the University and Iowa's area community and vocational-technical colleges. In active liaison, discipline 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 liaison service between the University and statewide professional groups and associations in order to develop collaborative work among selected regional and national organizations; conducts relevant research on community colleges and disseminates descriptive data reports to the community colleges;

Fosters University-community college faculty relations;

Coordinates articulation of University-Correlated 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 education programs for community college personnel leading to state certification; Participates in state, regional, and national approval, accreditation, and consultation activities;

Provides regular information, consultation, and coordination services for specialized groups of community college personnel and students;

Provides peer counseling outreach programs to prospective community college transfer students and coordinates consultation and information services for community college transfer students who enroll in the University.

Iowa Lakeside Laboratory

The Division of Continuing Education has general administrative supervision of the Iowa Lakeside Laboratory, a summer laboratory for the biological sciences on Lake Okoboji, Iowa, where a cooperative program in teaching and research is carried on under the auspices of Iowa State University, University of Northern Iowa, and The University of Iowa. Two terms of five weeks each are held during June, July, and August. Facilities for year-round research are available. For information, write to the Division of Continuing Education. (See also listing for "Lakeside Laboratory" under College of Liberal Arts.)

Macbride Field Campus

The University hosts a lease from the U.S. Army Corps of Engineers on two tracts of land in the Coralville Reservoir 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 faculty and students in the improvement of the teaching-learning process through the effective use of audiovisual media. To accomplish this objective, the Audiovisual Center provides a full range of services in:

Instructional Development

The Audiovisual Center staff is able to assist faculty and staff in the designing and planning of learning facilities and media, in locating materials for specific disciplines, and in developing strategies for utilizing media.

Media Services

The Audiovisual Center Media Library provides a major collection of 16mm instructional films and videotapes, available on campus without charge for instruction and curriculum-related activities, and for rental to off-campus requestors. Smaller collections of audio tapes, filmstrips, and slides, plus facilities for student or faculty utilization, are also available. Catalogs of these collections are available upon request. The library also maintains a reference collection of materials from other sources.

Equipment Services makes available without charge for instructional use film, slide, filmstrip, opaque, and overhead projectors; portable projection screens; audio tape recorders, record players; portable public-address systems; and display devices (exhibits, nets, boards). There is a nominal charge for projectionist service and for equipment requested for conferences and for off-campus use. Reserve service is available at a nominal charge for all 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, passports, slide shows, 16mm-35mm, 35mm-side duplication, printing and processing services
- Television—video production, color and black-and-white (1-inch, 2-inch, and cassette), systems design, equipment maintenance, portapak rental
- Fabrication—design and construction of displays, specialized audiovisual equipment and furniture

Marketing—sales, distribution, and marketing of University-originated products and services.

Satellite Centers

Satellite centers are established, as needs arise, through cooperative arrangements between the Audiovisual Center and departments, schools, colleges, and other service agencies. Satellite centers currently include the Medical Audiovisual Center, Dental Audiovisual Center, Nursing Audiovisual Center, the Educational Media Laboratory, and the Music Audiovisual Center.
State Board of Regents
The University of Iowa, Iowa State University of Science and Technology, the University of Northern Iowa, the Iowa Braille and Sight Saving School, and the Iowa School for the Deaf are governed by the State Board of Regents, consisting of nine members. The board membership is as follows:
President: S. J. Brownlee, Emmetsburg
Peg Anderson, Bettendorf
Charles Duchan, Des Moines
Perry G. Harris, Cedar Rapids
Ann Jorgensen, Garrison
John McDonald, Dallas Center
June Murphy, Des Moines
Arthur Nau, Cedar
Bais Van Gist, Oskaloosa
Executive secretary: R. Wayne Richey

Central Administration
President: James G. Freedman
Vice-President for Academic Affairs and Dean of Faculties: Richard D. Ramlington
Vice-President for Educational Development and Research, Dean of the Graduate College: Duane C. Spiepersbach
Vice-President for Finance and University Services: Dorsie D. Ellis, Jr.
Vice-President for Student Services and Dean of Academic Affairs: Philip G. Hubbard

Academic Affairs
Vice-President and Dean of Faculties: Richard D. Ramlington

College of Business Administration
Dean: George D. Daly
Industrial Relations Institute Director: Anthony J. Sinicrope
Institute of Accounting Research Acting Director: Robert W. Ingram
Institute for Economic Research Director: Jerold Barnard
Institute for Insurance Education and Research Director: Emmett J. Vaughan
Institute for Entrepreneurial Management: Emmett J. Vaughan

College of Dentistry
Dean: James H. McLennan
Down Institute for Dental Research Director: Ian MacKenzie

College of Education
Dean: Charles W. Cacek
Iowa Institute for School Executives Director: George A. Swindells

College of Engineering
Dean: Robert G. Herring
Institute of Hydraulic Research Director: John F. Kennedy

Graduate College
Dean: Duane C. Spiepersbach
Dean of Advanced Studies: Rudolph W. Schults

College of Law
Dean: N. William Hines

College of Liberal Arts
Dean: Howard Lasseter
School of Art and Art History Director: Wallace J. Tomsak
School of Journalism and Mass Communication Director: Kenneth Starck
School of Letters Acting Director: Richard Loyd-Jones
School of Library and Information Science Director: Carl F. Ogren
School of Music Director: Marilyn F. Somville
School of Religion Director: John P. Boyle
School of Social Work Director: Janice Wood Wetzel

College of Medicine
Dean: John W. Eckstein

College of Nursing
Dean: Geraldene Fellon

College of Pharmacy
Dean: Robert A. Wiley

Division of Continuing Education
Acting Dean: M. Dean Zenor
Audiovisual Center Director: William Ogletree
Center for Conferences and Institutes Director: June Braverman
Center for Credit Programs Director: Von V. Pittmann, Jr.
Community College Affairs Director: Duane D. Anderson
Institute of Public Affairs Director: Clayton Ringenberg
Iowa Lakeside Laboratory Director: Richard V. Boyce
Maconohie Field Campus Director: Radio Stations WSUI-WSUI Director: George S. Kingler
Iowa Center for the Arts Chair: Philip G. Hubbard

Libraries
University Librarian: Dale M. Bentz

Museum of Art
Director: Robert C. Hoobs
Iowa Administrative Code: Board of Regents

The following is extracted from the Board of Regents section of the Iowa Administrative Code as of March 4, 1981.

Residence
720—1.4(262)
Classification of residents and nonresidents for admission and fee purposes

1.4(1) General

a. A person enrolling at one of the three state universities shall be classified as a resident or nonresident for admission, fee, and tuition purposes by the registrar or someone designated by the registrar. The decision shall be based upon information furnished by the applicant or other evidence submitted by the registrar, or designated person. It is authorized to require such written documents, affidavits, verifications, or other evidence deemed necessary to determine the domicile of a student. The burden of establishing that a student is domiciled in Iowa is upon the student.

b. In determining resident or nonresident classification, the issue is essentially one of intent. Intent is determined by a consideration of all the facts and circumstances. A domicile is a residence which is that person’s true, fixed, permanent home and place of habitation. It is the place to which, whenever the person is absent, the person has the intention of returning.

c. Under these regulations, a resident student is defined as one who is domiciled in the state of Iowa. A nonresident student is defined as one who is domiciled elsewhere. A student shall not be considered domiciled in Iowa unless the student is continuously present in Iowa and the student is a continuous resident of Iowa. The student must be domiciled and the student must be a continuous resident of 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 specifically 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, although not necessarily conclusive, have protective value in support of a claim for resident classification: (1) Ownership of property in the state of Iowa for ten or more consecutive months, and the customary living quarters; (2) Proof of financial support; (3) Employment in Iowa; (4) Person appears in Iowa for educational purposes other than those of a full-time student, immediately prior to the beginning of the term for which resident classification is sought; (5) Person supporting and maintaining a dependent; (6) Acceptance of a degree in Iowa; (7) Acceptance of an offer of permanent employment in Iowa; (8) Continuous presence in Iowa during weekends when not enrolled in school. Other factors indicating an intent to make Iowa the student’s domicile shall be considered by the board in classifying the student.

1.4(2) Facts

a. A person who is admitted into the state as the result of military or civil orders from the state for other than educational purposes and who is domiciled in Iowa, is entitled to the benefits of the statutes of Iowa. A nonresident, who is domiciled in Iowa, is entitled to benefits of the statutes of Iowa. If the requirements of the Board of Regents are met, the nonresident may be entitled to the benefits of the statutes of Iowa. If the requirements of the Board of Regents are met, the nonresident may be entitled to the benefits of the statutes of Iowa.

b. A person or the dependent of a person whose attainment of a degree or classification as a resident or nonresident for admission, fee, or tuition purposes has been classified as a resident for tuition purposes, may continue to be classified as a resident for other purposes, including employment in Iowa, without the necessity of proving domicile in Iowa. If a person or the dependent of a person whose attainment of a degree or classification as a resident or nonresident for admission, fee, or tuition purposes has been classified as a resident for tuition purposes, may continue to be classified as a resident for other purposes, including employment in Iowa, without the necessity of proving domicile in Iowa.

c. A person who is domiciled in Iowa is entitled to the benefits of the statutes of Iowa. If the requirements of the Board of Regents are met, the nonresident may be entitled to the benefits of the statutes of Iowa. If the requirements of the Board of Regents are met, the nonresident may be entitled to the benefits of the statutes of Iowa.

d. A student who has been given incorrect or misleading information to make payment of the nonresident fees and tuition 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 a United States citizen.

f. A person who has been certified as a refugee by the appropriate agency of the United States government is entitled to a student status. The state board of regents may accord immediate resident status for tuition purposes where he or she: (1) Comes directly to Iowa from a refugee facility or part of a refugee camp; (2) Has arrived in another state for 100 days or less; and (3) Provides satisfactory documentation that he or she has an Iowa sponsor.

Any resident of the United States who has been certified as a refugee by the appropriate agency of the United States government is entitled to a student status. The state board of regents may accord immediate resident status for tuition purposes where he or she: (1) Comes directly to Iowa from a refugee facility or part of a refugee camp; (2) Has arrived in another state for 100 days or less; and (3) Provides satisfactory documentation that he or she has an Iowa sponsor.
1.4(1) Review committee
These regulations shall be administered by the registrar or someone designated by the registrar. The decision of the registrar or his delegate 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 unless he is a resident or has established domicile in the state.

1.4(2) Admission
A student who is a former resident of Iowa may be considered a resident provided he has resided more than one year in the state and is a full-time student enrolled in an approved institution of higher education.

1.4(4) Graduation
Students desiring admission must meet the requirements in this section and also any special requirements for the course or courses in which they are enrolling.

1.4(5) Graduates of accredited high schools in other states
Graduates of accredited high schools in other states may be considered eligible for admission to the University of Iowa if they meet the following requirements:

(a) They have maintained a grade point average of 3.0 (on a 4-point scale) or better

(b) They have completed a course of study equivalent to the courses of study offered by the University of Iowa

1.4(6) Graduates of accredited high schools in other states
Graduates of accredited high schools in other states may be considered eligible for admission to the University of Iowa if they meet the following requirements:

(a) They have maintained a grade point average of 3.0 (on a 4-point scale) or better

(b) They have completed a course of study equivalent to the courses of study offered by the University of Iowa

(c) They have taken the SAT or ACT tests and have achieved scores that meet the standards for admission to the University of Iowa

1.4(7) Transfer students
Transfer students who have not maintained a C average (2.00 on a 4-point scale) may be considered for admission if they can demonstrate evidence of academic achievement that meets the standards for admission to the University of Iowa.

1.4(8) Application for admission
Applications for admission to the University of Iowa must be submitted to theRegistrar or his delegate. The decision of the Registrar or his delegate may be appealed to the Iowa state board of regents.

1.4(9) Admission
Students desiring admission must meet the requirements in this section and also any special requirements for the course or courses in which they are enrolling.

1.4(10) Graduation
Students desiring admission must meet the requirements in this section and also any special requirements for the course or courses in which they are enrolling.
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 from colleges and universities not regionally accredited

Transfer applicants from colleges and universities not regionally accredited will be considered for admission on an individual basis taking into account all available academic data.

720—1.3(262) Transfer credit practices

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 Admissions Officers (AACRAO), and the Council on Postsecondary Accreditation (COAPA). The Joint Statement on Transfer Credit Practices of Selected Educational Institutions, published by the American Association of Collegiate Registrars and Admissions Officers (AACRAO), is acceptable for transfer credit.

1.3(1) Students from regionally accredited colleges and universities

Credit earned at regionally accredited colleges and universities is acceptable for transfer except that credit in courses determined by the receiving university to be of a remedial, vocational, or technical nature, or credit in courses or programs in which the institution granting the credit is not directly involved, may not be accepted, or may be accepted by a limited extent.

Transfer credit from a college of less than twelve semester hours will not reduce the minimum number of credit hours required for a baccalaureate degree. If a college is granted credit in 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 become candidates status

Credit earned at colleges and universities which have become candidates status 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 on a probationary basis if they can demonstrate by satisfactory academic study in residence, or by transcript, that they have the equivalent of the academic credit required by the programs of the regent universities.

1.3(4) Students from foreign colleges and universities

Credit earned at the senior and junior college level in foreign institutions may be granted if the student has been a full-time student in an institution of high repute if the academic program is comparable to the academic program of the regent universities.

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Credit earned at the senior and junior college level in foreign institutions may be granted if the student has been a full-time student in an institution of high repute if the academic program is comparable to the academic program of the regent universities.

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Transfer credit from a college of less than twelve semester hours will not reduce the minimum number of credit hours required for a baccalaureate degree. If a college is granted credit in 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(3) Students from colleges and universities which have become candidates status

Credit earned at colleges and universities which have become candidates status 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(4) Students from foreign colleges and universities

Credit earned at the senior and junior college level in foreign institutions may be granted if the student has been a full-time student in an institution of high repute if the academic program is comparable to the academic program of the regent universities.

1.3(1) Students from foreign colleges and universities

Credit earned at the senior and junior college level in foreign institutions may be granted if the student has been a full-time student in an institution of high repute if the academic program is comparable to the academic program of the regent universities.

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 transcripts and other supporting material as required by the director of admissions.

Applicants may not be registered until they have been issued an admission statement by the director of admissions. The application form must be completed and submitted to the college attended. Each applicant must place one in the office of the college attended. Each application form and an official transcript from each college attended will be required to meet the minimal academic requirements for admission to the College of Dentistry.

The college application form must be completed and submitted to the college attended. Each applicant must place one in the office of the college attended. Each application form and an official transcript from each college attended will be required to meet the minimal academic requirements for admission to the College of Dentistry.

Closing dates for receiving applications will be announced in advance of the opening date of any session.

2.3(2) Requirements for admission

For admission to the College of Business Administration an applicant must have a. completed specific course work as prescribed by the faculty of the college.

b. Attained satisfactory scores on the university’s required admission examinations.

c. Maintained a satisfactory grade-point average at all colleges and universities, at least six semester hours of which were undertaken at The University of Iowa, and on all courses undertaken in business and economics.

Applications from students who have minor deficiencies in meeting grade-point requirements will be considered. These deficiencies will be reviewed by the admissions committee of the college, and upon favorable recommendation of the committee, such students may be granted conditional or probationary admission.

Fullment of the minimal requirements listed above, however, does not assure admission to the College of Business Administration. From time to time institutions of business and economic education may review by the admissions committee of the college, and upon favorable recommendation of the committee, such students may be granted conditional or probationary admission.

Fullment of the minimal requirements listed above, however, does not assure admission to the College of Business Administration. From time to time institutions of business and economic education may review by the admissions committee of the college, and upon favorable recommendation of the committee, such students may be granted conditional or probationary admission.
In order to meet minimum scholarship requirements the applicant should attain a cumulative grade-point average of 2.5. Since the quality of coursework is important, science is basic to success in dentistry, special consideration to each college grade is given by the admissions committee. The grade-point average is based upon the University of Iowa's marking system in which a grade of A is equivalent to four points. Other marking systems will be evaluated by the office of admissions and the committee on examinations of the College of Dentistry.

Applicants who have completed the requirements for admission to dentistry few or more years prior to seeking admission to this College of Dentistry will be considered by the admissions committee only under exceptional conditions. Preference will be given to applicants who are residents of Iowa, but consideration will also be given to outstanding nonresidents. Personal interviews will be required of applicants for admission to the College of Dentistry. Applicants will be notified when they should appear for the required interviews with members of the admissions committee.

Applicants must complete the dental aptitude tests sponsored by the council on dental education of the American Dental Association. Tests are given from time to time annually. The University of Iowa is a testing center.

To facilitate early selection, applicants for admission to the College of Dentistry are urged to complete the aptitude test no later than October to enable the admissions committee to begin its selection in December.

Applicants are notified of their admission by the director of Admissions of the College of Dentistry. The applicant is notified electronically and will receive a letter in the mail acknowledging acceptance. All applicants must reply within two weeks to accept or decline admission. A candidate who does not reply will lose the opportunity to accept admission to the College of Dentistry.

Applicants accepted for admission are required to submit a social security number for record purposes. All accepted applicants must complete a form acknowledging that the University is authorized to conduct background checks for the purpose of determining that the applicant is not a member of a gang or organization that is engaged in criminal activity.

2.42) Advanced standing

Applicants for advanced standing are handled as individual cases.

2.70—2.75(262) College of Engineering

Address all inquiries regarding admission to the Director of Admissions, the University of Iowa, Iowa City, Iowa.

Closing dates for receiving applications will be announced and in advance of the opening date of any session.

2.51) Admission of freshman students

The applicant must submit a formal application for admission and must have the secondary school provide a certificate of high school graduation. High school records of the applicant's high school record, rank in class, scores on standardized tests, and certification of high school graduation. The applicant must also submit any other evidence such as a certificate of health that may be required by this University.

Each applicant must have 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 state Board of Regents shall establish and publish specific admission requirements for admission to the College of Engineering. Among the nonacademic requirements which may be determined are test scores, grade-point average, class rank, and previous precalculus courses. These specific determinations will be published in the University Catalog.

From applicants who do not meet minimum admission requirements, the director of Admissions may consider those who: (a) attained, on probation, a grade-point average of 2.50 or better in a college course or section of a college course taken during the summer session or (b) have application.

2.52) Admission of undergraduate students by transfer

The applicant must submit a formal application and official transcript of college work. Each applicant shall have:

a. Satisfactory progress in mathematics.

b. Attained satisfactory scores on the University's required admission examinations.

c. Maintained a satisfactory cumulative grade-point average on all college work undertaken.

From applicants who do not meet recommended requirements, the director of Admissions will review individual records and may offer probationary admission.

2.70—2.75(262) Graduate College

Address all inquiries regarding admission to the Director of Admissions, the University of Iowa, Iowa City, Iowa.

Closing dates for receiving applications will be announced and in advance of the opening date of any session.

2.61) Admission of freshman students

Admission to the Graduate College of any college or university accredited by regional accrediting associations may be granted to any candidate of the college of the Graduate College. Admission to the Graduate College is not equivalent to acceptance as a candidate for an advanced degree. Such acceptance follows upon successful completion of work at the University and upon recommendation of the major department and approval by the dean of the Graduate College. The acceptance of a student as a degree candidate is determined by the merits of each student case.

A student who is within four semester hours of having satisfied all the requirements for the bachelor's degree at the University of Iowa may be given a tentative admission into the Graduate College of Iowa.

2.70—2.75(262) College of Law

2.71) Application for admission

Address all inquiries regarding admission to the Director of Admissions, the University of Iowa, Iowa City, Iowa.

Beginning students may enter the College of Law only in the summer session or the fall semester. Closing dates for receiving applications will be announced and in advance of the opening date of any session.

To be considered for admission, an applicant should have obtained a cumulative grade-point average of at least 2.3 on all college work undertaken. The grade-point average is based upon the University of Iowa's marking system in which a grade of A is equivalent to four points. Other marking systems will be evaluated by the office of admissions.

Applicants for admission must present a baccalaureate degree from an approved college or university prior to commencing work in the College of Law.

Each applicant for admission must take the Law School Admission Test administered by the Educational Testing Service, Princeton, New Jersey, and have his 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. The application is required to take the test in the fall or winter preceding the fall term in which the applicant intends to make application. Except upon showing acceptable evidence, the admissions committee will not consider applications from students who fail to take the test prior to the June 1 preceding the fall semester in which they wish to enter.

Fulfillment of the specific requirements for admission listed above does not insure admission to the College of Law. From the applicants meeting the minimum requirements, the director of Admissions of the College of Law will select those applicants who, in their judgments appear to be best qualified for the work, the study, and practice of law. The law admissions committee may require personal interviews of applicants.

2.72) Admission with advanced standing

A transfer student may be eligible for admission if the student had attended a school or colleges for at least two years in an American Law School; did in good standing at the time of transfer; has been notified by a letter from the dean of the school from which transferring; (c) meets the admission requirements for beginning students; and (d) has a satisfactory grade-point average in the work attempted. Applicants for admission with advanced standing must complete all the procedures for admission to the law school and comply with the procedures required for admission to the two-year class.

2.70—2.75(262) College of Medicine

2.81) Application for admission

Address all inquiries regarding admission to the Director of Admissions, the University of Iowa, Iowa City, Iowa.

Applicants are urged to apply as early as possible. However, since this will give the admissions committee the time to process the file and transmit admission. Closing dates for receiving applicants are announced and in advance of the opening date of any session.

Fulfillment of the specific requirements for admission listed above does not insure admission to the College of Medicine. From the applicants meeting the minimum requirements, the admissions committee of the College of Medicine will select those applicants who in their judgment appear to be best qualified for the study and practice of medicine.

Postgraduate applicants must:

a. Have received the baccalaureate degree; or
b. Have completed three years of a combined baccalaureate-medicin 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 equivalent of the first three years of the College of Liberal Arts of the University of Iowa for the combined baccalaureate degree.

Each applicant must place on file in the office of the Director of Admissions the completed application form and an official transcript from each college attended.

"The 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 required to have completed college courses for 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 in those entering the medical profession. In the selection of applicants, preference will be given to those who give evidence of having obtained such a broad education.

To be considered for admission, an applicant must have attained a grade-point average of at least 2.5 for all college work undertaken. As the quality of work in premedical science is very basic to success in medicine, special attention will be given by the admissions committee to grades in courses relating to these sciences. The 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 of the College of Medicine.

Preference will be given to applicants with high grade-point average standing who are residents of Iowa, and consideration will also be given to nonresidents of Iowa who have evidence that they are qualified for admission. Students are required to take the medical college admissions test which is administered for the Association of American Medical Colleges. The applicant is required to complete this test in May or October of the year preceding that for which they are applying for admission. Students make arrangements to apply to this examination through the National College Examination Service, University of Iowa.

Personal interviews will be required. Applicants will be notified for the appointment for required interviews.

Applicants for admission to the College will be required to submit a satisfactory physical examination report from the Student Health Service within two weeks following notification of their acceptance.

All applicants must also complete, through Student Health Service, the required writing, 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 that college, students from other approved medical colleges may be admitted to advanced standing according to the following conditions.

Only applicants of high scholastic standing will be considered.

They must present certificates showing that they have satisfactorily completed courses equivalent to those already pursued by the class they wish to enter.

The committee on admission to advanced standing will decide of thirty-week regular examinations in the various subjects will be required.

Applications will be considered only upon a letter of recommendation from the dean or registrar of the school from which the applicant comes, showing the number of weeks 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 to which they are assigned, 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 courses or by action of the faculty upon recommendation of the professor in charge of the course.

270—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, late in the spring of the year. Applications for admission to the undergraduate program in nursing must present a minimum of thirty semester hours completed in an accredited college. For admission to the College of Nursing an applicant must have:

1. Completed course work as prescribed by the faculty of the college.

2. Completed the American College Tests.

3. Performed satisfactorily on all courses undertaken.

Applications from students who have minor deficiencies in meeting grade-point requirements specifically approved by the admissions committee of the college, and, upon favorable recommendation of the committee, such students may be granted conditional or probationary admissions.

Fullfillment of the minimum requirements listed above, however, does not assure admission to the College of Nursing. From those applicants who meet the minimum requirements, the admissions committee will select the applicants whose judgment, as determined by their background, 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), 1.2(262) and 1.3(262).

720—2.12(262) College of Education

Students at the University desiring professional work in education are registered in the College of Liberal Arts or the Graduate College. Requirements for permission to take teacher-training courses are listed in the University Catalog.
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