8-1-1982

The University of Iowa General Catalog 1982-84

University of Iowa
## University Calendar

### First Semester

<table>
<thead>
<tr>
<th>Event</th>
<th>1982-83</th>
<th>1983-84</th>
</tr>
</thead>
<tbody>
<tr>
<td>Registration begins</td>
<td>August 23</td>
<td>August 22</td>
</tr>
<tr>
<td>Classes begin</td>
<td>August 25</td>
<td>August 24</td>
</tr>
<tr>
<td>University holiday</td>
<td>September 8</td>
<td>September 5</td>
</tr>
<tr>
<td>Homecoming</td>
<td>October 2</td>
<td>November 23</td>
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<tr>
<td>Thanksgiving recess</td>
<td>November 24</td>
<td>November 24-25</td>
</tr>
<tr>
<td>University holidays</td>
<td>November 25-26</td>
<td>November 26-27</td>
</tr>
<tr>
<td>Classes resume</td>
<td>November 29</td>
<td>November 28</td>
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<tr>
<td>Classes end</td>
<td>December 10</td>
<td>December 9</td>
</tr>
<tr>
<td>Examination week</td>
<td>December 13-17</td>
<td>December 12-16</td>
</tr>
<tr>
<td>Commencement</td>
<td>December 18</td>
<td>December 17</td>
</tr>
<tr>
<td>University holidays</td>
<td>December 22-24</td>
<td>December 26-27</td>
</tr>
<tr>
<td>University holiday</td>
<td>December 31</td>
<td>January 2</td>
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</tbody>
</table>

### Second Semester

<table>
<thead>
<tr>
<th>Event</th>
<th>1982-83</th>
<th>1983-84</th>
</tr>
</thead>
<tbody>
<tr>
<td>Registration begins</td>
<td>January 13</td>
<td>January 12</td>
</tr>
<tr>
<td>Classes begin</td>
<td>January 17</td>
<td>January 16</td>
</tr>
<tr>
<td>Foundation Day</td>
<td>February 25</td>
<td>February 25</td>
</tr>
<tr>
<td>Spring vacation begins</td>
<td>March 15</td>
<td>March 17</td>
</tr>
<tr>
<td>Saturday classes only meet</td>
<td>March 16</td>
<td>March 17</td>
</tr>
<tr>
<td>Classes resume</td>
<td>March 26</td>
<td>March 26</td>
</tr>
<tr>
<td>Classes end</td>
<td>May 6</td>
<td>May 4</td>
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<tr>
<td>Examination week</td>
<td>May 9-13</td>
<td>May 7-11</td>
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<tr>
<td>Commencement</td>
<td>May 14</td>
<td>May 12</td>
</tr>
<tr>
<td>University holiday</td>
<td>May 30</td>
<td>May 28</td>
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### Summer Session

<table>
<thead>
<tr>
<th>Event</th>
<th>1983</th>
<th>1984</th>
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</thead>
<tbody>
<tr>
<td>Registration</td>
<td>June 6</td>
<td>June 11</td>
</tr>
<tr>
<td>Classes begin</td>
<td>June 7</td>
<td>June 12</td>
</tr>
<tr>
<td>University holiday</td>
<td>July 4</td>
<td>July 4</td>
</tr>
<tr>
<td>Session ends</td>
<td>July 29</td>
<td>August 3</td>
</tr>
<tr>
<td>Commencement</td>
<td>July 29</td>
<td>August 3</td>
</tr>
<tr>
<td>Independent Study Unit opens for law and graduate students</td>
<td>August 1</td>
<td>August 6</td>
</tr>
<tr>
<td>Close of Independent Study Unit</td>
<td>August 10</td>
<td>August 24</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 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 courses in the College of Liberal Arts, including a number of interdisciplinary courses. Total University enrollment during 1961-62 was about 23,400 students.

Founded on February 26, 1847, The University of Iowa is the state's oldest institution of higher education. It assimilated 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 1855. It was the first state university to accept creative work in lieu of the traditional academic thesis for graduate degrees in the arts and pioneered the now world-recognized UI writers workshops. It is recognized as the place where the science of speech pathology originated. It has enjoyed recognition for the quality and creativity of its teaching and research programs in many physical sciences and arts and the teaching of composition, and in graduate programs in speech, dramatic art, and communications, to cite just a few recent examples.

The UI faculty includes some 1,500 full-time members, many of whom have established national and international reputations. Their effectiveness as teachers is enhanced by their involvement in scholarly and scientific research. 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 almost evenly divided between men and women students. Approximately four out of five undergraduates are Iowa residents. The rest are students from all other 48 states and from more than 80 foreign countries.

About 65 percent of the University's entering freshmen had a B average or above in high school. Approximately 88 percent ranked in the upper half of their high school classes and about 82 percent ranked in the upper tenth.

The University of Iowa offers a comprehensive program of student financial aids. Half of the University's students have some form of employment. One-fifth have education loans. One of ten undergraduates and one of five graduate students are receiving UI 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 mini-courses, conferences, workshops, and continuing education programs for professionals to Saturday and evening classes offered on campus and credit course 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 respective 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 Chemical Engineering, Bachelor of Science in Civil Engineering, Bachelor of Science in Electrical Engineering, Bachelor of Science in Industrial Engineering, Bachelor of Science in Mechanical Engineering, Bachelor of Science in Nursing, Bachelor of Dental Surgery, Juris Doctor, 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.
Medical Technology—Committee for Allied Health Education and Accreditation of the American Medical Association
Physician Assistant—American Medical Association Council on Medical Education in collaboration with the Joint Review Committee on Educational Programs for the Assistan to the Primary Care Physician
Physical Therapy—American Medical Association Committee on Allied Health Education Accreditation and the American Physical Therapy Association
Nuclear Medical Technology—Committee for Allied Health Education and Accreditation of the American Medical Association
Psychology—American Psychological Association
Speech Pathology and Audiology—American Speech, Language, and Hearing Association

Sessions
The University’s academic year consists of two semesters of approximately 17 weeks each. The University also conducts an eight-week summer session and, following that, an independent Study Unit of from one to four 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 in learning 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 accordingly, the University has developed a Code of Student Life to provide and safeguard the right of every individual student to exercise fully freedom to learn without undue interference by others. This code applies only where a student’s misconduct has adversely affected some University process or function or some other distinct and clear interest of the University as an academic community. Students are expected to acquaint themselves with the code and to conduct themselves in accordance with the standards it sets forth.

Human Rights
The University is guided by the precept that in no aspect of its programs shall there be differences in the treatment of persons because of race, creed, color, national origin, age, sex, and any other classifications that deprive the person of consideration as an individual, and that equal opportunity and access to facilities shall be available to all. This principle is expected to be observed in the admission, housing, and education of students; in policies governing programs of extracurricular life and activities; and in the employment of faculty and staff 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, the student should turn to the departmental executive officer, if any. (3) If a satisfactory outcome still is not obtained, the student may take the matter to the college dean. In addition, graduate students should consult with the associate dean for academic affairs in the Graduate College concerning mechanisms for resolving complaints. Some colleges (Business Administration, Dentistry, Education, Engineering, Law and Nursing) also have established an ombudsman system as an alternative mechanism for handling student complaints. Information concerning the informal mechanisms established in a specific college is available in the college dean’s office or OAC office. If a student complaint concerning faculty actions cannot be resolved through the informal mechanisms available, the student may file a formal complaint which will be handled under the procedures established for dealing with alleged violations of the Statement of Ethics and Academic Responsibilities as specified in section 2026 of the University Handbook. A description of these formal procedures can be obtained from each college dean’s office, college ombudsmen, the Liberal Arts Advisory Office, the Undergraduate Advising Center, or the office of the College Academic Council.
Recognition of High Scholaristic Achievement

The University recognizes high scholaristic achievement by awarding degrees with mention and with highest distinction, as indicated in the following table:

<table>
<thead>
<tr>
<th>Mention</th>
<th>Highest Distinction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mention</td>
<td>Highest Distinction</td>
</tr>
<tr>
<td>Highest Distinction</td>
<td>Highest Distinction</td>
</tr>
</tbody>
</table>

Records

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

Honorary and Professional Societies

Phi Beta Kappa, Sigma XI, Motor Board, and Omicron Delta Kappa are among 84 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 College Hall, The University of Iowa, Iowa City, Iowa 52242. The first letter should request an application for admission. A second letter should describe the prospective applicant’s high school or college background, and outline his or her plans for further study. Including the department or faculty in which he or she expects to major. All applications for admission to all colleges of the University must be submitted to the Admissions Office and must furnish current transcripts and other supporting material as specified.

Application Fee

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

Application Deadlines

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

College of Liberal Arts—Ten days before classes begin—All sessions
College of Business Administration—April 1 for summer session, March 1 for fall semester, September 1 for spring semester
College of Dentistry—November 30, fall session 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 16 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 16 for fall semester, June 16 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; Two-Year Education Program—June 1, starting in 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 student would need to satisfy all of the application procedures and submit the application to the Admissions Office by the date given below.

Graduate College—Students applying to The University of Iowa for financial assistance (scholarships, fellowships, assistance) to:
February 1 for summer session or fall semester, October 1 for spring semester
Students who will not require university financial support:
March 1 for summer session, April 15 for fall semester, October 1 for spring semester
Graduates of Business Administration, Engineering, Liberal Arts: March 1 for the summer session, April 16 for the fall semester, October 1 for the spring semester.
Applications to all colleges and programs must meet the deadlines set forth above.

Foreign 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 460 is required for admission into the Graduate College. Newly admitted graduate students who score less than 550 on the TOEFL exam must complete an English proficiency evaluation prior to their first registration. Together with their academic advisors, graduate students determine whether or not they should enroll in an English as a Foreign Language (EFL) course work.

Undergraduate applicants to all colleges, except the College of Engineering, must submit TOEFL scores at a level of 480 prior to their initial registration. The College of Engineering requires TOEFL scores at a level of $30 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 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:
- Admissions—As a criterion for admission to some students unconditionally or on probation; for requiring some students to attend a probate session; and for denying admission to applicants who do not meet minimal standards.
- Placement—As a basis for placing some students in certain basic courses, and for placing others in sections designed to meet individual needs; and for advising students concerning their programs of study and future educational plans.

Scholastic Aptitude Test (SAT) scores may be submitted for some majors 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 test during the fall prior to his or her anticipated registration.

Applicants who have completed the tests but did not have their scores reported to the University should request this reporting from the Records Office, American College Testing Program, Box 451, Iowa City, Iowa 52240. Further information, including testing dates and location, may be obtained from your 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, 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

In the interest of providing optimum health care, Student Health Service strongly recommends that, following admission, incoming students submit physical examination reports and personal health histories on the forms provided for that purpose. This information does not affect the student's admission and is exclusively for Student Health Service use as necessary background for attending to the student's health needs.

Determining Residence

For admission, tuition, and fee purposes, the University requires classification of all students enrolling at 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 this Catalog.

Tuition and Fees

The following is the University's schedule of tuition and fees, per semester, for the academic year 1982-83:

- Undergraduate
  - Graduates
  - Ph.D.

<table>
<thead>
<tr>
<th>Hours</th>
<th>Undergraduate</th>
<th>Graduate</th>
<th>Ph.D.</th>
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<tbody>
<tr>
<td>0.5-8</td>
<td>$50</td>
<td>$114</td>
<td>$148</td>
</tr>
<tr>
<td>9-14</td>
<td>$69</td>
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<td>15-19</td>
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<td>20-24</td>
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<td>25-29</td>
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<td>30-34</td>
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<td>45-49</td>
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<td>50+</td>
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<td>51-55</td>
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<tr>
<td>96-100</td>
<td>$427</td>
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<td>$834</td>
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</tbody>
</table>

*One hours and over.
**Twelve hours and over.

Extension courses are $50 per semester hour. Correspondence courses are $30 per semester hour. All fees are subject to change by action of the State Board of Regents.

General fees provide for the student's use of Iowa Memorial Union facilities, and of libraries, laboratories, and gymnasium; free admission to minor sports events and to student extracurricular concerts and plays; reduced rates for admission to major sports events due to performances by visiting steps and concert artists; subscriptions to the student newspaper, the Daily Iowan, 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, and Nursing may audit courses with proper approval. Students who audit courses will be assessed fees based on the fewest credits for which the course is available that semester.

Procedure for Payment of Student Accounts

Tuition and fees, board, room, and other University residence hall or fraternity/sorority housing expenses, and such incidental University expenses as library and parking fees are payable by an installment basis, with billing the first of September, October, and November for the fall semester, and the first of February, March, and April for the spring
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>78</td>
<td>Secondary Education</td>
<td>13</td>
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<tr>
<td>7U</td>
<td>Special Education</td>
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</tr>
<tr>
<td>7X</td>
<td>Education Interdivisional</td>
<td>16</td>
</tr>
<tr>
<td>18</td>
<td>Greek</td>
<td>11</td>
</tr>
<tr>
<td>19</td>
<td>History</td>
<td>12</td>
</tr>
<tr>
<td>17</td>
<td>Home Economics</td>
<td>17</td>
</tr>
<tr>
<td>18</td>
<td>Italian</td>
<td>18</td>
</tr>
<tr>
<td>19</td>
<td>Journalism and Mass Communication</td>
<td>19</td>
</tr>
<tr>
<td>16</td>
<td>Latin</td>
<td>16</td>
</tr>
<tr>
<td>21</td>
<td>Literacy Science</td>
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</tr>
<tr>
<td>20</td>
<td>Applied Mathematical Science</td>
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</tr>
<tr>
<td>22A</td>
<td>Computer Science</td>
<td>22A</td>
</tr>
<tr>
<td>22C</td>
<td>Mathematics</td>
<td>22C</td>
</tr>
<tr>
<td>22S</td>
<td>Statistics and Actuarial Science</td>
<td>22S</td>
</tr>
<tr>
<td>23</td>
<td>Military Science</td>
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</tr>
<tr>
<td>23A</td>
<td>Aerospace Military Studies</td>
<td>23A</td>
</tr>
<tr>
<td>24</td>
<td>Museum Training</td>
<td>24</td>
</tr>
<tr>
<td>25</td>
<td>Music</td>
<td>25</td>
</tr>
<tr>
<td>26</td>
<td>Philosophy</td>
<td>26</td>
</tr>
<tr>
<td>27</td>
<td>Physical Education—Field House</td>
<td>27</td>
</tr>
<tr>
<td>28</td>
<td>Physical Education and Dance—Halsey Gym</td>
<td>28</td>
</tr>
<tr>
<td>29</td>
<td>Dance</td>
<td>29</td>
</tr>
<tr>
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<td>Physics and Astronomy</td>
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</tr>
<tr>
<td>31</td>
<td>Political Science</td>
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</tr>
<tr>
<td>32</td>
<td>Psychology</td>
<td>32</td>
</tr>
<tr>
<td>33</td>
<td>Literature, Science, and the Arts</td>
<td>33</td>
</tr>
<tr>
<td>34</td>
<td>Sociology</td>
<td>34</td>
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<tr>
<td>35</td>
<td>Spanish</td>
<td>35</td>
</tr>
<tr>
<td>36</td>
<td>Communication and Theatre Arts</td>
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<tr>
<td>37</td>
<td>Rhetorical Studies</td>
<td>37</td>
</tr>
<tr>
<td>38</td>
<td>Broadcasting and Film</td>
<td>38</td>
</tr>
<tr>
<td>39</td>
<td>Communication</td>
<td>39</td>
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<td>40</td>
<td>Zoology</td>
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<tr>
<td>41</td>
<td>Portuguese</td>
<td>41</td>
</tr>
<tr>
<td>42</td>
<td>Asian Languages and Literature</td>
<td>42</td>
</tr>
<tr>
<td>43</td>
<td>Social Work</td>
<td>43</td>
</tr>
<tr>
<td>44</td>
<td>Geography</td>
<td>44</td>
</tr>
<tr>
<td>45</td>
<td>American Studies</td>
<td>45</td>
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<tr>
<td>46</td>
<td>Speech Pathology and Audiology</td>
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<tr>
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<td>Comparative Literature</td>
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<tr>
<td>48</td>
<td>Science Education</td>
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<tr>
<td>49</td>
<td>Social Studies</td>
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99 College of Nursing
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The University of Iowa does not discriminate in its educational programs and activities on the basis of race, national origin, color, religion, sex, age, or handicap. For additional information, please contact the Coordinator of Title IX and Coordinator of 504 in the Office of Affirmative Action, 202 Jessup Hall, The University of Iowa, Iowa City, IA 52242. Phone (319) 335-4619.
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 preprofessional program goals may be assigned an adviser from 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
Advisers of the Undergraduate Academic Advising Center are specifically trained to help students who wish to explore alternative fields of study as they select career paths or plans of study appropriate to their interests. Advisers are conveniently located in students’ 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 admissions, academic majors and concentrations, grading options, career and degree 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 inquiries 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 assists students and student organizations.

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

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

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

Career Services and Placement Center
Career Planning
Career planning advisors assist students in all stages of the career planning and decision-making process. Individual advising and career planning seminars help students define their interests, abilities, work and life-style preferences, and career goals. Advisers also help
students explore occupational information, expand career options, and determine appropriate strategies for meeting immediate and long-term goals.

Career Resource Center

The Career Resource Center provides assistance in identifying career options, labor market trends, work environments, academic requirements, places of employment, salary ranges, and techniques of evaluating job opportunities. The center also enhances information on the job search process, including tips on researching organizations and agencies, defining job objectives, writing cover letters and resumes, and interviewing. An advisor is on duty to help students use the resources. No appointments are necessary.

Cooperative Education

The Cooperative Education staff works with students who want to gain internship experiences relevant to their academic and professional plans. Cooperative Education encourages students to apply what they are studying in a supervised work experience. Students must meet the eligibility requirement of their specific departments or colleges and receive faculty approval to participate. Opportunities are available year-round to undergraduate and graduate students in a wide variety of organizations throughout the nation.

Placement

The center provides job placement assistance for all service and graduate students seeking employment in business, industry, government, and nonprofit agencies. Assistance includes individual counseling with professional placement advisors, seminars for developing job search skills, the College and career placement lists, the skills, the Job Bulletin, on-campus interviews with employers, information on employment trends, and current job openings for college graduates.

Information sent by employers is made available to all interested students in the Employer Literature Room. This material provides background information about organizations interviewing on campus or listing positions in Career Services. (Also see the "College of Engineering" and "College of Education" sections of this guide for placement services these colleges offer.)

Community College Affairs

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

Each semester transfer consultants and peer counselors (former community college transfer students) conduct several programs 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 particular institution. In addition, OCCA develops and distributes several publications useful to transfer students.

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

Counseling Service

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

Dental Service

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

Evaluation and Examination Service

Evaluation and Examination Service duplicates, scores, and analyses many course examinations; helps faculty members develop and improve their classroom tests by providing analyses of the results of examinations; helps faculty or student groups with particular project requests, such as teacher or course evaluation and development; conducts institutional research projects and provides counseling services on questionnaires and survey design; 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), Medical College Admission Test (MCAT), Graduate Record Examination (GRE), Graduate Management Admission Test (GMAT), Graduate School Foreign Language Test (GSFLET), Law School Admission Test (LSAT), Test of English as a Foreign Language (TOEFL), Miller Analogy Test (MAT), and College-Level Examination Program (CLEP).

Health Service

The Health Service is located in the Children's Hospital at The University medical complex. All registered students at the University, except those registered off-campus courses, are eligible for outpatient care at the Student Health Clinic. There are charges for laboratory procedures, X-rays, scoliosis examinations, minor surgery, and some specialty 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 coordinates and implements all scheduled relations with secondary schools and institutions of higher education.

Intercollegiate Athletics for Men

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

Intercollegiate Athletics for Women

Women's intercollegiate athletic programs include basketball, cross-country, field hockey, golf, gymnastics, softball, swimming, tennis, track and field, and volleyball.

In 1981 Women's Athletics became an official member of the Western Intercollegiate Conference (Big Ten), participating in eleven of twelve championship areas. In 1982 Women's athletics was included under the University Board in Control of Athletics.
Athletic scholarships are available to qualified athletes in all sports.

**Intramural Sports and Recreational Activities**

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

**International Education and Services**

The Office of International Education and Services (OIES) provides services and facilities and organizes extracurricular programs for both foreign and domestic students.

The OIES maintains a library on topics related to study in other countries, including information about foreign universities and study abroad programs. The office helps students select study abroad programs to complement their on-campus academic programs and assures that students receive the correct credit. Students may also obtain information and applications for the Fulbright, Marshall, and Tabler 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 sponsoring agencies. Advisers help with problems arising in the United States except academic advising. They sponsor or support educational programs, such as the Host Family Program and the Conversation Exchange Program, to foster constructive interactions between students and scholars from other countries and their domestic counterparts.

The OIES operates the 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 at the facilities include the Campus Information Center, the University Box Office and check cashing service, the Office of Campus Programs and Student Life, and the coliseums with live entertainment, the Bijou Theatre, a variety of food services; a recreation area with bowling, billiards, and electronic games, a bachelor shop, an art resource center, a bookstore, rooms for lectures, concerts, and social events, art and sculpture display areas, and, in the adjoining Iowa House, 110 guest rooms for parents, alumni, conference participants, and other visitors to the campus. Also housed in the Union are the Student Activities Center, University Counseling Service, Career Services and Placement Center, the Center for Conferences and Institutes, and a copy center.

**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 recreational opportunities, to familiarize them with the physical layout of the campus, and to make them feel at home in the University community.

**Reading Lab**

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

The Reading Lab offers one service course, Voluntarist Reading Lab, which meets twice a week for 12 weeks. Students may attend more or less often if they wish, and may enroll at any point during that time if they feel they need reading help. The lab service course carries no credit and assigns no grade. Ordinarily, there are no outside assignments. Developmental reading work is restricted to lab hours, and makes extensive use of lab materials and the students' own texts in other courses.

The lab also offers: 10:8 Rhetoric, a one-semester, two-credit course for students who need exceptional help preparing for college-level reading; and SP:20 Advanced Reading Comprehension, SP:20 Speeded Reading, and SP:40 Practical College Vocabulary, independent five-week modular courses for one semester hour of credit each.

**Registrar**

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

**Services for Handicapped**

The University of Iowa is committed to making its facilities, services, and programs fully accessible to people with handicaps. Currently 97 percent of the University is accessible to people in wheelchairs.

The Office of Services for Handicapped works closely with University faculty and staff to ensure that students receive the maximum benefit from their experience at The University of Iowa. The office provides assistance in the areas of admission, orientation, academic and career planning, academic and career counseling, on-campus housing, including accessibility, and parking, aide and attendant care, and health services. The office helps students locate tutors, personal aides, tape recorders, and emergency loan wheelchairs. The office works with Recreational Services to provide activities ranging from planters to bowling and wheelchair basketball, and offers work-study regulations and career exploration to social skills. The staff works with the handicapped student organization Restricted Us Not (R.U.N.) and student's students in arranging adaptive transportation, i.e., the Bisoci Bus, a bus with a hydraulic lift available to students at no charge.

**Special Support Services**

The Office of Special Support Services (SSS) was established to make it possible for more students, both economically and educationally disadvantaged or otherwise 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 Howard Board Project, the Undergraduate Educational Opportunities Program: New Dimensions in Learning; The Educational Opportunities Professional and Graduate Programs; the Afro-American Cultural Center; and the Chicano-Native American Cultural Center.

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

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

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

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

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

Women's Resource and Action Center
The Women's Resource and Action Center (WRAC) provides services to meet educational, cultural, social, and personal needs of University and community women. The WRAC provides a resource for many women's organizations; sponsors a Brown Bag Luncheon program; offers evening and weekend workshops, lectures, films, and classes; provides a wide variety of support groups for women; offers women-on-one problem-solving sessions; and publishes a newsletter nine times a year. The WRAC houses the Stoltenberg 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. The WRAC's Rape Victim Advocacy program provides a 24-hour crisis line for victims of rape, attempted rape, sexual harassment, and incest. WRAC also maintains information and hotlines for women.

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 cogently.

Students may enroll for no-credit work in the Lab throughout the semester, or register for the credit course (109 Rhetoric) before or after taking a required rhetoric course, or transfer to 109 Rhetoric from another rhetoric course after discussing their writing problems with their rhetoric teacher and the director of the Writing Lab.
Housing

Fair Housing Policy

The following is the University’s statement on fair housing practices: "It is and shall be the firm policy of the University that no housing shall be rent to all students on the basis of their individual merits as persons, without exclusion or discrimination on the basis of race, creed, color, or national origin." Iowa City has a fair housing ordinance providing for equal opportunity to secure housing without discrimination due to race, religion, or ancestry, except in certain instances involving owner-operator dwelling units. A Human Relations Commission is responsible for the observance of this ordinance and for the initiation of redress for violations of it.

University Residence Halls

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 Grand Avenue Residence Halls (west side of the campus), which include Hilcrest, Quadrangle, Westview, South Quadrangle, Rienow, and Slater halls, and in the Clinton Street Residence Halls (east side of the campus), which include Burge, Currier, Daum, 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 for reference book collections, browsing libraries, and private rooms for group study sessions are available in two monitored learning centers.

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

Student and staff-initiated programs and activities provide opportunities to pursue social, recreational, cultural, and educational interests. Several classes 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.

Applications for residence hall housing are not considered until the applicant has been admitted to the University. Roommate assignment is made without regard to race, color, nationality, or religion.

Undergraduate students new to the University are given priority in the assignment of residence hall accommodations.

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 after June 1, if for the academic year; after December 1, if for the second semester only; after May 15, if for the summer session; or ten days after the University Housing Assignment Office issues notice of the acceptance of the contract and assignment of accommodations. If the notice is made within nine days before the beginning of registration, the contract becomes binding two days before the beginning of registration.

Upon written request, the $50 advance payment will be refunded to applicants who are not admitted to the University.
Rates
Basic rates for University residence hall accommodations for the 1981-82 academic year are $1,854 for a double room and $1,883 for a triple, with full board. Rates for the several available room and board options vary according to the accommodations, and 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, Hawkstail Park, and Parkview complexes. Rates for 1981-82 range from $126 to $137.50 per month for one-bedroom units (there are only 41 available at the lower rate) to $177 for two-bedroom units, not including gas, electricity, and telephone. All units are unfurnished. Rates are subject to change annually.

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

A $300 advance payment is required for all apartments at the time they are offered for leasing.

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

Undergraduate fraternities are Acacia, Alpha Epilson Pi, Beta Theta Pi, Delta Chi, Delta Tau Delta, Delta Upsilon, Kappa Sigma, Lambda Chi Alpha, Phi Delta Theta, Phi Gamma Delta, Phi Kappa Psi, Phi Kappa Sigma, Pi Kappa Alpha, Sigma Chi, Sigma Nu, Sigma Phi Epilson, 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 Pi (medicine), Phi Rho Sigma (medicine), and Phi Omega (dentistry).

Sororities
The 15 national sororities active 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 the University admission application procedure, 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 Service (Box 1000, Iowa City, IA 52243), requesting that a copy of the statement be sent to the University. When it receives a copy of the statement, the Office of Student Financial Aid supplies the applicant with instructions and forms for applying for aid at the University. Except for a few designated aid programs requiring special applications, the student need submit only one application each year to be considered for all forms of assistance administered by the Office of Student Financial Aid. The application deadline is March 1.

The Presidential Scholars' Program
The University annually awards $1,000 Presidential Scholarships, renewable for a maximum of four years of University enrollment, to ten Iowa high school students in recognition of their outstanding academic achievements. All other nominees for recognition in the Presidential Scholars Program receive $100 Dean's Scholarships for the freshman year of University enrollment.

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

Freshman Honor Scholarships
Entering freshmen who qualify for participation in the University's Honor Program by achieving a composite ACT score of 29 or above are recognized as Freshman Honors Scholars and receive $100 Freshman Honor Awards.

Transfer Honor Scholarships
Iowa community college students transferring to the University with a 3.0 grade-point average or above qualify for $100 Honor Scholarships.

General Scholarships
To qualify for general scholarship assistance, an entering freshman must apply for financial assistance; show a need for assistance; and either achieve an ACT composite score of 28 or above or rank in the upper 10 percent of his or her high school class. An upperclassman or a transfer student must have at least a 3.0 cumulative grade-point average to qualify for an initial scholarship award, and must maintain at least a 3.0 average to continue the scholarship.

LaVerne Noyes Scholarships
Noyes Scholarships, covering basic fees of 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.
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 $1,668 per academic year, minus the amount of the applicant's computed family contribution. The student may use his or her CSS or ACT financial statement to apply for Pell Grant eligibility, or may obtain a Pell Grant application form from any high school or from any college or university financial aid office.

Supplemental Educational Opportunity Grants (SEOG)
The SEOG program provides federal aid to students with exceptional financial need. The maximum grant is $1,000 per academic year, or one-half of the student's academic-year expenses, whichever is less. There are no specific academic requirements for an SEOG award, but the applicant must show academic or creative promise and must be enrolled at least half-time. No special application is required.

National Direct Student Loans (NDSL)
The NDSL program is the University's largest source of long-term student loans. Undergraduates may borrow up to $1,000 a year and $6,000 overall; graduate students up to $1,800 a year and $12,000 overall. NDSL assistance is available to students who are citizens or permanent residents of the United States and who are enrolled at least half-time. Repayment, at 6 percent interest, begins six months after the recipient ceases to be at least half-time student.

Guaranteed Student Loans
Under the Iowa Guaranteed Student Loan Program or the Federal family-sponsored Student Loan program, undergraduates may borrow up to $2,500 a year, graduate students up to $6,000 per year. The student negotiates the loan directly with a commercial lender, credit union, savings and loan association, or other eligible lending institution, and begins repayment, at 6 percent interest, when he or she ceases to be at least half-time student.

Health Professions Nursing Loans
This program assists United States citizens and nationals who are enrolled full-time to be doctors of medicine or osteopathy, or studying full-time toward degrees in pharmacy or nursing. Amounts available depend on federal loan. 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 6 percent on the Health Professions Loans and 8 percent on the Nursing Student Loans.

Part-Time Jobs
More than half the students attending the University have part-time jobs. Most of the students who have part-time jobs secure them through the Office of the Student Financial Aid. The most numerous opportunities for part-time work are in University food services, 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, to expand employment opportunities for students who must meet part of their educational expenses with their own earnings. As far as possible, College Work-Study jobs are arranged to give students work experience related to their educational goals. College Work-Study employees may work an average of 20 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 with the Office of the University's Division of Sponsored Programs has information on student aid available from non-university sources such 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 Educational Aid to War Orphans is available from the Iowa Bonus Board (Stone House, Des Moines, IA 50310). As advertised list of the University's financial aid sources is available from the Office of Student Financial Aid.
The University of Iowa Health Center

The University of Iowa Health Center

The University of Iowa Health Center plays a major role in the preparation of health professionals for Iowa and the nation. In its Health Center are found the academic programs, clinical facilities, and service agencies involved in grooming 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, faculties, 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

Director and assistant to the president for statewide health centers: John W. Cofman
Deputy director: Clifford W. Ostrava
Special assistant to the director: Douglas R. Wilkerson
Senior Assistant director: Richard M. Herbst, John H. Sweby
Assistant directors: Mary A. Bock, Ed C. Ewen, Joe B. Tye
Assistant to the director for legal services: Robert S. Miller

Clinical service heads: Dr. Peter J.K. Johnson (Anesthesiology), Dean B. Colton (Surgery); Dr. John J. Buelssen (Dermatology); Dr. Robert B. Rabin (Anesthesiology); Dr. Frank J. Albrecht, (Thoracic Surgery); Dr. Philip R. Fink (Gastroenterology); Dr. C. C. Roes (Endocrinology); Dr. Ray C. Collins (Orthopedics); Dr. Stephen McCune (Ophthalmology and Otolaryngology); Dr. Robert S. Lynch (Pathology); Dr. Fred Smith, (Pediatrics); Dr. George W. North (Psychiatry); Dr. Edward A. Freeland (Radiology); Dr. Robert Curry (Surgery); Dr. David A. Cole (Urology)

Largest university-owned teaching health-care complex in the nation. The University of Iowa Hospitals and Clinics provide the clinical base of graduate and undergraduate students for thousands of students in the health disciplines, providing medicine, dentistry, nursing, pharmacy, hospital administration, physical therapy, vocational training, pastoral studies, and social work.

University Hospitals and Clinics sponsor residency programs in which 500 physicians, dentists, and pharmacists gain advanced clinical knowledge and skills in the health care specialties they have chosen to pursue.

There are 1,051 beds in the hospital complex, accommodating some 40,000 admissions annually. In addition, 131 specialty clinics accommodate another 300,000 ambulatory patients each year. Nearly 15,000 major surgical procedures are performed annually in the hospital's 20 major operating rooms. Approximately 3,000 interns are delivered every year.

Highly specialized health services—for example, the burn unit, heart catheterization facilities, neonatal intensive care unit—are easily accessible to Iowans who reside in communities without such resources. The hospital's transportation fleet of 15 vehicles travels nearly two million passenger-miles each year, transporting 9,500 Iowans. The All-Care Emergency Helicopter Service carries specially trained medical and nursing teams to and
the most critically ill and injured, and to transport them to the hospitals for treatment. Metro lines now owe their lives to this service alone.

More than 6,300 hospital staff members are involved each day in providing professional and support services needed to care for approximately 3,200 patients. The hospital's clinical staff includes 2,500 physicians and dentists. The hospital's house staff, consisting of more than 600 resident physicians and dentists, provides a comprehensive and efficient medical system.

The hospital's Department of Nursing is staffed by 3,100 professional nurse employees. The department manages the patient care activities for the hospital's inpatients and outpatients. It also provides comprehensive care for the hospital's residents, including the management of patient care activities in the hospital's outpatient clinics.

Other hospital staff members annually provide more than 170,000 24-hour examinations and treatments, conduct more than three million laboratory tests, fill more than one million prescription orders, render more than 60,000 physical therapy treatments, and prepare nearly 50,000 blood and component transfusions.

Recent modernization provides new ancillary care, cardiac, cancer, and mental health care. A six-story, $15 million John Barlow Tower addition went into service in 1983, providing expanded and replacement facilities for a variety of inpatient and outpatient services. This new state-of-the-art John Barlow Tower is equipped with state-of-the-art equipment and technologies.

The hospital is a teaching hospital, affiliated with the University of Iowa College of Medicine. It is a research hospital, providing clinical care and education to patients, and conducting research in various fields of medicine. It is also a medical center, providing specialized care for patients with complex medical conditions.

The hospital is a leader in providing comprehensive care to patients, and is recognized for its excellence in patient care. It is a pioneer in the field of medical research, and is a leader in the development of new treatments and technologies.

The hospital is committed to providing the highest quality care to all patients, and is dedicated to advancing the field of medicine through research and education.
(SCHS) provides Iowa residents under age 19 with diagnosis and evaluation services in pediatrics, orthopaedics, otolaryngology, speech pathology, audiology, and clinical and educational psychology. It helps communities sponsor clinic health centers in which a number of new health programs are conducted. It administers demonstration services on special health problems related to handicaps such as muscular dystrophy, mental retardation, phenylketonuria, and subsidies a University of Iowa graduate training program in audiology and speech pathology.

University Hospital School

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

The interdisciplinary team approach provides services involving the fields of medicine, dentistry, nursing, nutrition, speech and audiology, physical and occupational therapy, activity and music therapy, psychology, social work, special education, physical education, prevocational and vocational activities. Outpatient services provide comprehensive evaluations and follow-up of infants, children, and young adults who have problems and/or disabilities that affect their development. Programs of education and therapy are planned in conjunction with the patient, when appropriate, and with the parents, and community-based service providers. The outpatient services include a number of special clinics (Child Development Clinic, Meningomyelocele Clinic, Genetic and Metabolic Disorders Clinic, Infant and Young Child Clinic, Weight Management Clinic, Child and Young Adult Clinics) which specially trained staff address specific problems.

Infants, children, and young adults may be admitted to the inpatient unit as a result of recommendations from any 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 peer- 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 setting.

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

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

University Speech, Language, and Hearing Clinic

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

Iowa City Veterans Administration Medical Center

Medical students and residents receive 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 also 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 in teaching and research, and the term "research" applies to creativity in all fields, imaginative originality, whether in the fine arts or in the sciences. It 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 involvements 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 (other than those in the colleges of Medicine and Dentistry) who wish to do health-related research. To qualify, the faculty member must hold a full-time appointment as instructor or assistant professor. The funds may be used for any purpose which will assist the faculty member in conducting an initial exploration of a hypothesis which he or she believes may lead to the development of a full-fledged program of research.

Incidental Grants

Limited funds are also available in the Office of the Vice-President for Educational Development and Research for small grants to faculty members to cover the costs of materials, supplies, equipment, proposal writing, clerical and related assistance for specific research projects, 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 honors 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

Located in the College of Dentistry, the EPMA facility has an extensively updated Applied Research Laboratory EMX-94 electron microprobe X-ray analyzer which includes three crystal spectrometers, a Si(Li) solid state detection system and an automation system.
system (PDF-11 comparator with floppy disk storage).

The primary application of the instrumentation is to analyze chemically, usually in a nondestructive manner, materials of small dimension (1-10 cubic micrometers). The automation of the data collection and correction process produces on-line quantitative results within a few minutes for 10-12 elements per sample point. Software exists for routine quantitation of minerals, metallography and microresidue analysis. The system was developed for other specimen types or on a demand basis.

Recently added capabilities include automated image analysis in which, through the use of digital beam control, it is possible to automatically locate, size, and chemically characterize small objects in the scanned image. Analysis times are frequently less than two seconds per image feature. Typical applications include particulate analysis of ambient air and water samples, inclusions in metals, and mineral particulate analysis in coal or ore samples.

Demonstration(s) of equipment capabilities are performed upon request and short-term feasibility studies are encouraged. Training sessions are available on request.

Scanning Electron Microscopy (SEM) and Transmission Electron Microscopy (TEM) Facility

The TEM and SEM Facility provides instrumentation and technical assistance to researchers involved in the use of scanning and transmission electron microscopy. Equipment includes a JEOL JSM 840A scanning electron microscope with an EDAX energy dispersive X-ray system, a Hitachi H-600 transmission electron microscope equipped with STEM and a Kenx X-ray microanalysis system, a Bal-Tec 900 thin sample preparation system, an automated stage, a Bal-Tec B-006 low-vacuum etch apparatus, an automatic licee processor, glass knife makers, diamond knives, ultramicrotomes, a digital image analysis system, vacuum evaporators, critical point drying apparatus, light microscopy, centrifuges, ovens, darkrooms, etc.

The facility also provides all solutions and supplies necessary for investigations involving ultramicrotomy, including specialized staining and embedding techniques, rotary protein staining, metal-coating, autoradiography, enzycytochemistry, immunocytochemistry, morphometry, sample preparation for IMA and ESEM fracture, the preparation of material science samples for both TEM and SEM, and other procedures. A modern library contains texts and reviews of various applications of TEM and SEM is also available. The facility is intended to serve both the experienced and novice investigator and to provide training for those who need it. Alternatively, all or parts of a project can be handled by the facility staff. All instrumentation is available on a first-come, first-served basis. The laboratory is located in the Brown Science Building.

Flow Cytometry Facility

The University of Iowa Flow Cytometry Facility provides facilities, technical personnel, and consultation services to investigators studying diverse problems in cell biology, immunology, endocrinology, hematology, cell physiology, and cell kinetics. It is equipped with an advanced fluorescence-activated cell sorter (Electron-Dynastin FACSS) which is interfaced to computerized data acquisition and storage electronics. The flow cytometer will measure any available light scatter and fluorescence parameters in up to 4 different parameters by various cell subpopulations. Applications may be concurrently evaluated per cell. A variety of cellular macromolecules can be thus visualized. Detectable parameters include two spectral regions of fluorescence, forward and side angle light scattering, and fluorescence polarization anisotropy. Optical excitation is done with an argon ion laser with ultraviolet capability. The instrument will physically isolate any idenfied cell subpopulation for subsequent experimental use. The facility provides all needed supporting equipment for staining cells with fluorescent probes, and the cell culture and fluorescence and phase microscopy. It is housed in the Research Laboratory of the College of Medicine. Educational tours are conducted upon request.

Laser Facility

The Iowa Laser Facility consists of a variety of modern instrumentation, in particular, state-of-the-art Argon ion and Krypton ion lasers (with ultraviolet capabilities) operating, either alone or in a Tuncle Dyne laser system. The system is located in the visual and near infrared regions of the spectrum. Each CW Laser is frequency tripled in a single longitudinal mode with a linewidth of one part in 1000 of a wave length of a stable optical resonator. The instrumentation is operated in a single newly remodeled laboratory which contains the first floor of the southwest wing of the Chemistry-Biology Building. It includes a mechanically and thermally stable 40-foot long enclosed optical bench with a variety of work stations for users.

High Field Nuclear Magnetic Resonance (NMR) Facility

The High Field NMR Facility is based on a recently acquired superconducting Bruker 900 MHz spectrometer. The instrument provides very high spectral resolution and sensitivity for study of complex molecules. Multidimensional, variable temperature, and selective pulse experiments are possible. Both 5 and 10 mm sample tubes may be accommodated. For the usual user, spectra are recorded by a technician, whereas hands-on use is encouraged for the frequent user. The facility is located in the northwest ground floor area of the Chemistry-Boyton building.

Computing Center

The University of Iowa Computing Center provides research and instructional computing facilities to students, faculty, and staff of the University. Located in the Lindquist Center, the Computing Center facilities are accessible through the main terminals, both batch and interactive, conveniently distributed around the campus. The center maintains systems capable of an extremely wide variety of applications, and provides network connections with off-campus facilities. Supported applications software covers such diverse areas as statistical and numerical analysis, financial modeling, tax editing and formatting, graphics, and data base management. In addition to terminals and general-purpose computing systems, the Computing Center has facilities for producing microcomputer- quality printed and graphic output. The center provides users with non-credit educational services and consultation services on general computer use. Specialized consultation is also provided for equipment selection, laboratory support, data base, and instructional management and software. Detailed information on competing facilities is available from the information center, located in the Lindquist Center for Measurement.

Video Center

The University of Iowa Video Center provides high-quality television services and facilities, including television and audiovisual and remote remote-study applications. It also coordinates University television direction and production and promotes efficient University support of campus video. Toward this end, the center has the personnel and facility resources to assist in the production of educational equipment and supplies, and in production and post-production production. Additionally, the center provides central video production and system design and maintains guidelines for equipment standardization.

Sponsored Programs

The Division of Sponsored Programs is a source of information on public and private agencies that provide funds for research and study, including pre- and post-doctoral fellowships. Program members are available to locate potential funding agencies, assist in the preparation of applications, provide information on the review process, and give editorial assistance to achieve the highest level of technical correctness in an application. The staff also assists in processing an
application through the University and in locating the appropriate contact in the prospective donor's office. After an award is made, it provides monitoring and advisory services, monitors other than expenditure accounting.

University House

University House began in 1977 as a program to develop a separate but related mission. 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—on scholarly tasks 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 is also able to support research and other educational development activities jointly pursued by faculty members from the University and from the independent, four-year colleges in Iowa.

In addition to promoting faculty development, University House seeks to bring together university centers, institutes, committees, and other groups into consortia, interdisciplinary arrangements that foster the acquisition of external support for research, education, and appropriate services.

University House has nearly six thousand square feet of furnished space in the Oakdale Hospital, including private faculty offices, several conference and project rooms, and a lounge. Secretarial services are available. Located in the same building are a cafeteria, an auditorium, a large conference room, a study center, a batch terminal connected to the University Computer Center, a terminal with text-editing capabilities, and a full-time assistant for computer services. Photocopying and book delivery services are available from University Libraries. Half-hourly Campus service connects University House with the main campus.

Included as part of University House are the following:

Child Behavior and Development

Activities of the Institute of Child Behavior and Development (ICBD) are focused at this time on the problems of child abuse. Through its Center on Child Abuse, the ICBD provides services and materials to professionals on a regional basis to aid them in diagnosing and treating the problem of child abuse.

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, Education, Engineering, Business Administration, and Liberal Arts, as well as the University of Iowa Hospitals and Clinics.

The Great Lakes Program in Hospital and Health Administration accepted responsibility for the management and development of the University’s Center for Health Services Research in 1981.

Urban and Regional Research

Primary objectives of the Institute of Urban and Regional Research are to broaden knowledge in the area of urban and regional studies, to enrich the teaching programs in participating departments, and to initiate and carry out interdisciplinary research projects. It pursues these goals through the acquisition of grants and contracts and through other on-campus activities, by providing a liaison between faculty and students in both basic and applied urban and regional research activities.

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

Dow 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 Medicine

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

Institute of Hydraulic Research

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

Institute of Public Affairs

See the "Continuing Education" section of the Catalog.

Centers

Cancer Epidemiology Center

Contact the Department of Preventive Medicine and Environmental Health in the College of Medicine for information.

Cancer Research 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 Materials Engineering in the College of Engineering for information.

Center for Rehabilitation Engineering

Contact the Division of Materials Engineering in the College of Engineering for information.

Center for Research in Interpersonal Behavior

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

Center for Research on Psychological Disorders of Children

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

Center for the Study of Recent History of the United States

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

Clinical Research Center

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

Comparative Legislative Research Center

See "Political Science" in the "College of Liberal Arts" section of the Catalog.
Core Center: Diabetes and Endocrinology
See the "College of Medicine" section of the Catalog.

Iowa Center for Communication Study
See "Journalism" in the "College of Liberal Arts" section of the Catalog.

Iowa Urban Community Research Center
See "Sociology" in the "College of Liberal Arts" section of the Catalog.

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

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.

Lipid Research Clinic
Contact the Department of Internal Medicine 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.
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 of the Division of Fine Arts in the College of Liberal Arts, together with the Museum of Art, E. C. Mead Theatre, Clapp Recital Hall, and Harper Hall in the School of Music, and Hancher Auditorium, the center's newest and 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 structure and educational/cultural offerings of the Iowa Center for the Arts. In addition to resources from the State of Iowa and the federal government, private contributions from growing numbers of corporate and individual patrons play an ever more important role in the quality and diversity of the center's services to the people of Iowa.

School of Art and Art History

The University of Iowa School of Art and Art History has been a pioneering force in America for more than a century. The original art building dates from 1926. Major additions were added in 1966-69, greatly extending classroom and studio spaces and providing a new wing for sculpture.

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

The school's Corcoran Gallery, housed in the old Altgeld building, features exhibitions of new and experimental work created 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 achievement 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 jades, provided that a museum could be built to house it, along with the University's existing and future acquisitions of art.

In response to this challenge, more than 2,000 individuals and businesses contributed toward the museum's construction cost. The museum opened in 1968 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 1979. With the Carver Wing, the museum has 48,000 square feet of exhibition space in 16 galleries, plus the behind-the-scenes work areas essential to support the activities of a major museum.

Each year thousands of visitors, including school children of all ages, visit the museum to see displays of the permanent collections and traveling exhibitions. The permanent collection of more than 10,000 works of art include the Elliott Collection, nineteenth- and twentieth-century sculpture, drawings, photography, and African and pre-Columbian art.

The Stanley Collection of African sculpture, currently on extended loan to the museum, is a promised gift from 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.

Museum special events include slide lectures by visiting artists, scholars, and collectors; Music in the Museum, a Sunday afternoon concert series; and art study trips to other cities and countries. Museum docents lead groups on guided tours of the museum's exhibitions. Catalogues of many exhibitions are
available for purchase. Friends of the Museum of Art, a private support group, sponsors spacious special exhibitions and an active Print and Drawing Study Club.

University Theatre

University Theatre houses the Division of Dramatic Arts of the Department of Communication and Theatre Arts. It is the home of the C. M. Mole Theatre, the traditional setting for many major University Theatre productions each year. Mole Theatre seats 477.

Four additional theater spaces in other parts of the campus greatly extend the range of University Theatre productions. Old Armory Theatre features a thrust stage and seats an audience of 200. MacLelan 301 Theatre is used for original works by students. Studio E is the Old Armory is used for student-produced works, often as an extension of course requirements. Hancher Auditorium provides a vast stage and highly sophisticated technical equipment to the wide range of University opportunities in stage production.

The graphic art division in the Department of Communication and Theatre Arts provides production management, design, and technical direction for dance, opera, and musical productions produced by the Iowa Center for the Arts in cooperation with the School of Music and the Dance Program in the Department of Physical Education and Dance. The Playwright Workshop, one of 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 home of the School of Music was designed for spaciousness and convenience. Its broad corridors lead from rehearsal rooms to two recital halls and is the stage of Hancher Auditorium. In a given year, faculty artists and the many visiting artists of the school present about 100 major concerts, plus an additional 270 to 300 student vocal and instrumental recitals.

Chapel Recital Hall, with its hand-crafted Cassadaga tracker organ, seats 720 for public concerts. The 200-seat Harper Hall is both a classroom and the setting for many recitals. The school's largest ensembles (symphony orchestra, bands, and choirs) perform regularly in Hancher Auditorium.

The school has produced opera since 1939. Like other major stage presentations, operas are interdepartmental in their opportunities for educational and performance experience, utilizing the talents and resources of other people.

The School of Music is in the vanguard of innovation in the arts, creating and performing in a new form. The Center for New Music, funded originally by the Rockefeller Foundation, is a laboratory and extension of the composition faculty. For many interested students, number one of the Center for New Music is a repertoire ensemble to the performance of new music.

Two electronic music studios provide a wide range of technical capabilities in creative audio-visual forms. In Voice/Laser I, the school has the most advanced laser deflection system of any university, utilizing laser beams in brilliant colors to produce visual analogues to sound. Outstanding recording facilities (12) for the various performance spaces of the School of Music/Hancher Auditorium complex with a central recording studio in the School of Music.

Hancher Auditorium

Hancher Auditorium, which opened in 1972, is a regional cultural resource of the first magnitude. It seats an audience of 2,600. In its first seven seasons, the auditorium hosted audiences totaling more than a million people.

In addition to performances by the various units of the Iowa Center for the Arts each year, leading artists from throughout the world appear on the Hancher stage — recitals, ensemble, theater and dance companies, major touring orchestras, and educational and artistic companies from other nations and cultures. For further information, call approximately one week in advance. Tickets are available by calling the Performing Arts Box Office at 3-5170 or by purchasing at the door. Hancher Auditorium is a major step forward in providing opportunities for Iowa's cultural life.

The performance season is a mixture of national tours, national tours, and local productions, with emphasis on programs that are educational and cultural services to its students and the community.

The stage itself is an uncommon educational device. Its proscenium is 30 feet wide. With its graceful wings, the stage area is 175 feet long, 50 feet deep, and eight stories high. Mobile units of a concert shell may be quickly installed on stage for various concert requirements.

Across the back of the auditorium’s main-floor, sound-isolated viewing rooms make it possible for small class groups to observe and discuss performances in progress.

Hancher Auditorium reflects another dimension of the campus — a new educational and cultural service to its students and the community.

Arts Center Outreach

Cultural projects and programs which utilize the talent of faculty or student artists and other resources of the Iowa Center for the Arts are available to Iowa communities through the Arts Outreach Program. Designed to reach new audiences and to serve special constituencies (schools, centers for senior citizens and the handicapped, service organizations, special community and arts groups, etc.), the program is intended to share the University's cultural resources as widely as possible throughout the state.

Concerts and events are tailored to local needs and interests. In addition, programming throughout the state, the Arts Center Outreach office schedules on-campus performances, workshops, and educational projects.

Dance

The University of Iowa Dance Program is centered in the dance division of the Department of Physical Education and Dance. Dance faculty and students produce a year-round concert, performances of diverse nature during the year and participate with other units of the Iowa Center for the Arts in interdepartmental projects and programs. Dance Program is enriched by frequent campus visits of professional dancers, choreographers, and leading dance companies from this and other countries. The professional visitors come not only to perform but also to offer lecture demonstrations and classes.

Broadcasting and Film

The Telecommunication Center and the studios of KXUX-FM provide technical training for students in classrooms and laboratories for the broadcasting and film division of the Department of Communication and Theatre Arts. The entire community serves as the "teaching" laboratory for students in this division.
The Writing Programs

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

The International Writing program brings accomplished writers of many nationalities to the University for extended periods of intensive 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.

Windover Press

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

The Windover Press is one of the nation’s small companies 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 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 practica in Iowa City schools and on-campus diagnosis and treatment activities conducted within the James B. Stroud Educational Services Center. During the summers the clinic is in the Wendell Johnson Speech and Hearing Clinic, where the staff provides reading instruction for children who attend the Summer Residential Program for therapy in speech, hearing, and reading. Student clinicians do all Children’s Reading Clinic teaching under the close supervision of clinic staff members.

International Education and Services

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

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

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

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

Foreign student advisers in the OIES provide assistance to foreign students, faculty members, and professionals on immigration and other matters relating to international educational exchanges.

The OIES maintains a library on opportunities for study 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 Tiberian awards.

The 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.

James B. Stroud Educational Services Center

The James B. Stroud Educational Services Center in the College of Education serves children and adults who request testing, assessment, and consultation about their learning abilities or their personal and social development. The center also provides consultation and information to schools, area education agencies, health care agencies, and business and community organizations. These services are provided by faculty and advanced graduate students in the college.

Museum of Natural History

To meet the needs of the general public and the various departments of the University, the Museum of Natural History provides a repository and the proper care for specimens which come to the University either by gift or through the efforts of its own collectors. The museum faculty also develops and executes new exhibits of educational value and offers instruction in the conceptual and technical phases of exhibit preparation and the general operational procedures of small science museums.

Habitat exhibits of North American mammals include the beaver, antelope, mountain lion, moose, and beaver.
The Leyden Island Ciconiidae is a large and well-known bird habitat species comprising a complete representation of a bird island of the Neogene group. Other habitat exhibits include the Daring Sea, Louisiana Swamp, Fall Migration, and Crevasse on the South Dakota Prairie. The crane exhibit includes both the sandhill crane and the woodcock crane as they appear on the prairie during migration.

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

Several displays relate to the geology of Iowa and include typical fossil specimens.

Old Capitol
Old Capitol is the central landmark of the University. It was the capitol of the Territory of Iowa from 1842 until 1848 and the capitol of the State of Iowa from 1848 until 1881. Major repairs and maintenance moved to Des Moines and gave the "old" capitol to the University as its first permanent home.

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

Public Information and University Relations
The Office of Public Information and University Relations (PIR) works to promote understanding of, participation in, and support of the University's mission and activities both within the University community and among the general public. It seeks to maintain an effective information program through the use of internal and external media; coordinate 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 activities are implemented through the combined efforts of PIR's individual units on campus, including Art Center Relations, Broadcast News Service, Health Center Information and Communication, Humanities/Science News Service, OPPI Photo Unit, and Women's Sports Relations, as well as Men's Sports Information. These units supply news, photos, and information to print and electronic media; gather and prepare informative material for special and general Internet publications; and answer requests for information; and assist writers, photographers, and broadcasters who visit the campus.

PIR publishes the general University Calendar of Events; Campus Correspondent for students' parents; the FYI newsletter for faculty and staff; a Program for forthcoming arts activities; and Spectator 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, PIR has management responsibility for the Department of Publications and The University Iowa Press.

Publications
The Department of Publications provides services to meet the printing and publications needs of the University. It staffs provides assistance to departments and campus organizations in planning, editing, designing, and printing publications. A computer system located around the campus provide quick, inexpensive duplication service. The department also operates Campus Stores, which produce and sell manuals, lab notebooks, and other unique instructional materials created by the faculty and not commercially available. The department is responsible for University compliance with the printing regulations of Iowa, including provision for obtaining competitive bids on printing not done by the Department of Publications.

The University of Iowa Press
The University of Iowa Press was established to publish significant results of scholarly research. The imprint is controlled by the University Editorial Review Board, composed of faculty members and administrators appointed by the vice-president for external development and research.

Recreational Services
The Division of Recreational Services administers a program of more than 23 intramural sports and recreational activities for all interested University students; offers a wide range of recreational lesson programs in such activities as water skiing, tennis, soccer, yoga, aerobics, racquetball, skids, and gymnastics; and provides informal athletic activities for students, faculty and staff members, and their spouses and family. Activities include basketball, badminton, volleyball, table tennis, swimming, handball, pool/whistler, racquetball, squash, canoeing, golf, archery, weight training, billiards, frisbee, tennis, and juggling. The Division's Truth the Earth Outdoor Program includes such activities as rafting, parachuting, canoeing, bicycle trips, backpacking, fishing, cross-country skiing, wildlife research, winter camping, kayaking, canoeing, and horseback riding. Bicycles, camping equipment, ice skates, 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 1891 and now has members throughout the world. Its continuing purpose is to strengthen the bonds that exist between alumni and the University; to implement programs of service to alumni; to strengthen public recognition of the University as the alma mater of its alumni; to further the welfare and interests of the state and the nation, and, through organized alumni efforts, to serve the University by strengthening its programs in teaching, research, and public service as the Association publishes the Iowa Alumni Review, a bimonthly magazine for association members.

The University of Iowa Foundation
The University of Iowa Foundation was organized in 1958 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, hold in trust subject to the conditions imposed on them, and to hold, administer, manage, use, or distribute gifts,
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, non-teaching and nonstudent employees of the University. The University Personnel Office is responsible for the administration of the Board of Regents Merit System and faculty and staff benefits programs. It also participates in certain aspects of the academic personnel program, and in payroll recordkeeping and collecting personal record data for both faculty and staff employees.
The University's Main Library and its 12 departmental libraries, plus the Law Library, contain approximately 2.4 million volumes.

The Art Library contains approximately 56,000 volumes: Botany-Chemistry: 63,000; Business Administration: 20,000; Engineering: 54,000; Geology: 35,000; Health Sciences: 175,000; Library Science: 11,000; Mathematics: 39,000; Music: 58,000; Physics: 34,000; Psychology: 38,000; and Zoology: 29,000.

The Law Library, which is administered by the College of Law, contains 348,000 volumes.

Special Resources

Main Library facilities include microform reading room, 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 House Relations Area Files consist of full sets on a sample of societies throughout the world, and are designed to facilitate comparative studies of social and cultural behavior.

The Leigh Hunt Collection, brought together by Luther A. Brewer of Cedar Rapids, Iowa, is considered one of the finest volumes in existence. It contains nearly 2,000 manuscripts and manuscript letters written by Hunt or to him by many famous literary friends, 100 association volumes, and 600 editions of Hunt's writings.

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

The French Revolution Collection includes more than 8,000 political pamphlets, chiefly from the years 1788-1798, 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 Iowa City printer, includes 1,850 volumes of type specimens, books important in printing history, and volumes illustrating the art and progress of printing through the centuries.

The "Obing" Darleg Collection comprises originals of nearly six thousand carvings in which, for more than 40 years, Obing recorded and commented on the economic, political, and diplomatic affairs of the United States. His cartoons have served as a pictorial history of this country during the first half of the twentieth century. A subject index to the collection enhances its usefulness for reference and research.

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

The "K" Collection is a gathering of early, rare, or special works on diverse subjects, including books of the fiftieth and sixteenth centuries, early American, Rorschach Clin- Publications, rare press books, and selected modern first editions.

The Manuscript Collection includes more than 10,000 individually catalogued letters or manuscript items of English and American authors or historical figures, principally of the nineteenth and twentieth centuries, in addition to more than 400 inventoried collections of papers, diaries, and correspondence files relating to midwestern economic, political, and cultural history.

Other special collections include the Harvey Nickel Collection of maps and documents dealing with railroading in the Midwest; the History of Hydraulic Collection; the Edna Ford Piper Collection of ballets and incunabula; the Eau Claire Collection, which contains several thousand letters and fieldnotes and documents descriptive of the Chautauqua movement; the Bluffton Collection of poetry, biography, and criticism, manuscripts, and letters relating to the contemporary English poet, Edmund Blunden; the Iowa Aurora Collection, the Map Collection, containing more than 179,000 maps and indexed aerial photographs and nearly 5,000 atlases, gazetteers, and related reference items; and the University Archives.

The John Martin Rare Book Room in the Health Sciences Library houses a collection of approximately 2,000 books on the history of medicine, including a number of incunabula. The nucleus of the collection, which is especially strong in the areas of anatomy and surgery, was
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 ways of learning. Through the study of literature and language, mathematics, the physical, biological, and social sciences, and the arts, students may gain a general understanding of the many types of situations and people they will most meet after leaving college. Although this education often includes sound preparation for specific jobs, it also nourishes career flexibility by giving students broad bases for responding to changing employment opportunities. As a result, the danger that a graduate may become "locked" into a single unsatisfactory job is reduced.

The kinds of flexibility and adaptability mentioned here are built upon an understanding of other cultures and languages, the social and political institutions in American society, communication behavior, and the physical and biological world about us. A liberal arts education includes something called a "general education" because students receive general 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 preserve a healthy, unexpected society. The College of Liberal Arts attempts to provide this versatility by its concentration of major and, where appropriate, minor and general educational requirements.

College Organization

The College of Liberal Arts is composed of units of various ranks: divisions, schools, departments, programs, and non-departmental units.

Divisions

There are two divisions in the college. The Division of Fine Arts includes the School of Art and Art History, the School of Music, and the Department of Communication and Theatre Arts. The Division of Mathematical Sciences is made up of the Departments of Computer Science, Mathematics, and Statistics and Actuarial Science.

Schools

There are seven schools in the college. In addition to the School of Art and Art History and the School of Music, mentioned above, there are schools of Journalism and Mass Communications, Library Science, Religion, Social Work, and Letters. This last unit is a federation of the departments of Asian Languages and Literature, Classics, Communication and Theatre Arts, English, French and Italian, German, Linguistics, Russian, and Spanish and Portuguese, plus the programs in Afro-American Studies, American Studies, Comparative Literature, Women's Studies, the International Writing Program, the Translators and Writers Workshops, and the Winsor Press.

Departments

Thirty-six formally organized departments, plus units in the College of Education, provide instruction in the college, all of which offer one or more degrees. (See lists which follow.)

Programs

There are ten formally organized programs currently operating in the college: American Studies; Afro-American Literature, Aging Studies; Global Studies; Latin American Studies; Literature, Science, and the Arts; Museum Training; Recreation Education; Rhetoric; and Women's Studies. Comparative Literature; Literature, Science, and the Arts; and Recreation Education offer degrees.

Non-Departmental Units

Non-departmental units in the college, not included above, are the Language Media Center and the Iowa Urban Community Research Center.
Departments of The University of Iowa College of Education offer instruction leading to several different degrees for students in liberal arts. Undergraduate and graduate students are recommended to the state Department of Education for certification as classroom teachers.

The University of Iowa, College of Medicine provides instruction in medical technology and nursing medical technology programs. Students seek certification in these two specializations by taking national examinations. Students who complete these programs, may earn degrees, usually in general science.

**Liberal Arts Advisory Office**

The Liberal Arts Advisory Office functions as an integral part of the Office of the Dean 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 which will best prepare the student to pursue his or her life goals. Academic advisors are assigned by the Liberal Arts Advisory Office. Students who have declared majors are assigned advisors from their major departments; students who have not declared majors are assigned advisors from the Academic Advising Office; 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 Examination Program (CLEP), Advanced Placement (AP), pass/fail, satisfactorily-failed, second-grade-only option, deadlines for various administrative actions (such as dropping or adding courses, canceling registration), probation, dismissal, re-enrollment, academic discipline, and any other academic matter.

**Degrees Offered**

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

**Major Fields**

The College of Liberal Arts confers degrees as indicated in the following 56 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.
- Chemistry—B.A., B.S.
- Classics—B.A.
- Communication and Theatre Arts—B.A.
- Communication Studies—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.
- General Science—B.A., B.S.
- Geography—B.A., B.S.
- Geology—B.A., B.S.
- German—B.A.
- Greek—B.A.
- Health Occupations Education—B.S.
- History—B.A.
- Hons 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.
- 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.A., B.S.**

The B.A. and B.S. degrees are awarded by the college with no major designations.

**Interdisciplinary Programs**

The programs, briefly described below, are fully described among the rest of the course listings presented in alphabetical order in the following sections of 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 Africans in other lands. Because a thorough understanding of Afro-American culture cannot be achieved through a study restricted to the perspective of a single discipline, all students in the program are required to pursue courses in both humanities and social sciences.

The program originated in 1964 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, those 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 concentration in Afro-American studies in programs leading to a B.A., M.A., or Ph.D. in American Studies.

**Aging Studies**

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

**Global Studies**

The Global Studies Program is a cross-disciplinary study of major world problems. The purpose of the program is to give students an opportunity to
All Minors

Students graduating from the College of Liberal Arts may earn a minor or minors in any degree program or approved program in the college outside of their major department and a notation of the minor will be entered on the student’s permanent record.

 Requirements for a minor or approved program:

A minor of 18 semester hours must be taken in the minor area;
At least 12 of the 18 must be taken as advanced courses at The University of Iowa;
No course accepted toward the minor may be taken pass-fail;
A student must have at least a 2.0 grade-point average on all work attempted in the minor department;
and
The minor is awarded only at the time the student receives the bachelor’s degree, or later.

Students may apply for minors at the same time that they apply for a bachelor’s degree. If eligible, the notation of the minor is placed on the student’s grade report.

If a student, who already has a bachelor’s degree from The University of Iowa and is still in undergraduate status, completes the requirements for a minor, or she or he may apply to the registrar to have the notation regarding the minor placed on the permanent record.

When a student applies for a minor, the application-for-degree form filled with the registrar needs the signature of the major advisor.

The degree-granting programs in early childhood education, career/technical education, health occupations education, special education, and dental hygiene, do not offer minors.

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

Some programs in the college which do not offer undergraduate degrees have been permitted by the educational policy committee to offer minors. Information about program approval is available in departments or offices.

Students who earn bachelor’s degrees in interdepartmental programs, such as general science or biology, cannot earn minors in areas falling within the major degree field.

The decision of what an advanced course is left up to the minor department. Many departments have prepared lists of advanced courses.

Students seeking information about courses acceptable for minors should contact the minor departmental office or college with their major advisor. If departments have not designated any courses as advanced courses, all 100-level courses will be accepted as advanced courses.

The minor may support or relate directly to the student’s major. In other cases, the minor may allow a student to follow as distinctly different and separate interest from his or her major. Students should seek help from their major advisors in planning their minor programs.

For further information about the minor program in the College of Liberal Arts, contact the Liberal Arts Office.

Minor in Business Administration

Students in the College of Liberal Arts may seek a minor in business administration. Requirements include prudence as well as business courses. The courses listed below satisfy all requirements. Interested students should complete or be registered for the first semester of those courses before applying for admission to the minor program.

Computer programming course 3 s.h.
Course in mathematics numbered 25M:7 or higher 3 s.h.
Courses in statistics numbered 225:8 or higher 3 s.h.
8EC1-2 Principles of Economics 9 s.h.
6A:1 Introduction to Financial Accounting 3 s.h.
8A-2 Introduction to Managerial Accounting 3 s.h.
*8M13 Marketing 3 s.h.
*8F100 Introduction to Financial Management 3 s.h.
*8L100 Administrative Management 3 s.h.
*8M12 Introduction to Law 3 s.h.
* Must be taken junior or senior year.

Students complete the remaining courses following their admission to the business minor program in the College of Business Administration. Students must meet the general admission requirements of the College of Business Administration. Students must contact the College of Business Administration office 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 at
The University of Iowa may earn minors in
courses offered by satisfying College of
Liberal Arts requirements for minors. (See
other college sections of the Catalog).
Foreign Studies Certificate
The college's Foreign Studies
Certificate program is designed for
undergraduate students who seek to
broaden their knowledge of societies
other than their own. The program is a
supplement to and not a substitute for a
major. The chairs of the various
language departments serve as advisors
for students in preparing 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, arthistory,
archaeology, political science, or other
fields offering international studies.
Programs leading to the certificate will
include at least 18 semester hours in
course work related to the chosen
country or area. In addition, students
fulfill the foreign language requirement
for the B.A. in a language appropriate to
the chosen country or area. A student who
successfully completes a Foreign Studies
Certificate program and the certificate
requirements will be awarded aMinor in
Foreign Studies Certificate with his or her
degree.
Internships should consult the
requirements of the appropriate department:
Asian Languages and Literature (India,
China, Japan)
Classics (Ancient Greece or Rome)
French and Italian (France or Italy)
German (Germany or Austria)
Russian (Russia or Eastern Europe)
Spanish and Portuguese (Spain,
Portugal, or Latin America)
Specializations within Degree Programs
Almost every degree-granting unit in the
college offers individual specializations.
Some of these are normal divisions or
options within departments. For
example, broadcasting is offered in the
Department of Communication
and Theatre Arts, actuarial science is
offered in the Department 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 bachelor's degrees:
studio emphasis, education emphasis,
and art education: music education,
art therapy, music therapy/therapy
major, and applied music.
Other specializations can be developed
in various other areas such as:
theatre specialization with coursework
in the Department of
Communication and Theatre Arts.
the School of Journalism and Mass
Communication, or
the School of Art and Art History
and the School of
Communication and Theatre Arts.
A specialization in management with
courses taken in the
appropriate departments.
For more information on specializations
within and between programs, see
the program descriptions in the
Catalog and advisors in the
appropriate departments.
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 sections. Many
departments offer honors seminars,
individual research, and
the opportunity to write a senior thesis
under a faculty member's guidance.
Successful completion of courses taken
may lead to a baccalaureate degree "with
honors" in the major. The program
maintains an Honors House as a
study and meeting center for the
Honors Students. Students
may apply to the Honors Program at any
time during the year. For
information, inquire in the
Honors Office, 108 Seiberling Hall.
The Unified Program
The Unified Program (UP) is a four-
semester series of integrated general
education courses for a small group of
gifted and select freshmen. UP satisfies
all general education requirements, except
physical education and the foreign
language requirement, and each UP
course is interchangeable with an
appropriate approved course. All students in
UP take the same courses in a given
semester. Students may leave
the program at any time, and satisfy
their general education requirements in
other ways, but only freshmen may enter.
Preprofessional (Joint) Programs
Joint programs leading toward
graduation from the College of Liberal
Arts may be used with The University of
Iowa College of Dentistry, and any
accredited medical or dental college in
the United States which offers advanced
degrees.
To be eligible to use a joint program
with one of these colleges toward
graduation from The University of
Iowa, a student must have completed all of
the following prior to going to a
"professionals" college: earned at least
64 semester hours; all general education
requirements; met the requirement for
the major; and satisfied the residence
requirement of the college.
After the student completes the first
year of medical or dental college, the
College of Liberal Arts will, upon
presentation of a transcript, award a
student 30 semester hours of
engaged elective credit which may be
applied toward a degree.
No more than 32 semester hours
may be earned in the professional college after
transfer from the College of Liberal Arts may be counted as
electives towards a degree in the College of Liberal Arts.
To use a joint program with any other
accredited U.S. medical or dental
college acceptable to the University of
Iowa, a student, during his or her last semester in the
college, should consult the college and
the University of Iowa for
details on how to apply 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 to proceed
accordingly by applying to the
University of Iowa.
Combined Degree Programs Belonging to
College of Liberal Arts and College of
Engineering
Students may earn two University of
Iowa baccalaureate degrees in a
combined curriculum program in the
College 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 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 or the College of Engineering or the College of Liberal Arts. A plan of study must be developed and approved by the advisera 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 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 requirement in the College of Liberal Arts. The total number of course hours taken by the student will vary, according to the engineering specialty selected. Since the courses in science, mathematics, and the social humanities are regularly required for credits by both colleges, the student is, in many cases, satisfying the requirements for two colleges in the taking of a particular course.

Admission Requirements

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 or his or her choice.

Entering Freshmen

An applicant seeking admission as an entering freshman must have completed the high school from which he or she graduated or provide a certificate of school credits, including a complete statement of school work, grade 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 enrollment 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 has the proper subject-matter background, is in the upper one-half of his or her graduating class, and meets specific particular requirements, will generally be admitted upon 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 entering student officer, may be admitted unconditionally, admitted on probation, required to enroll for a trial period during a preceding summer session, or denied admission.

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.

A graduate of a nonaccredited high school must submit all data required above, and must take examinations which demonstrate his or her general competence to do successful college work.

An applicant who is not a high school graduate must submit all data required above, take examinations to demonstrate general competence to do college work, and provide evidence of specific competence for admission to a given curriculum.

Undergraduate Transfer Students

Transcripts of records are given full value if they come from colleges or universities accredited by the North Central Association of Colleges and Secondary Schools or similar regional associations. The recommendations contained in the current issue of the Report of 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 having the original seal and signature of the official in charge of record keeping 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 they require to support his or her application for admission.

A transfer applicant is expected to have maintained a C average (2.0 in a 4-point system) for all college work attempted, and must not be under 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 admitted or probation.

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

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

The College of Liberal Arts may refuse to recognize credit from a nonaccredited college, or may admit the applicant on a provisional basis and provide a means for the validation of some or all of the credit. The validation period may be more than one semester and will ordinarily be for a full academic year. The college will specify to the student the terms of the validation access at the time or provisional admission. Each student who has earned credit from a nonaccredited college is considered on his or her merits, and admission or rejection is at the discretion of the admissions officer.

Foreign Students

Foreign applicants (those who are or will be in the United States on a nonresident status), whether U.S. high school graduates or not, may be admitted to meet higher standards for admission than those prescribed for residents of an Iowa high school.

Applicants whose native or official language is not English must provide a score of 500 TOEFL or IELTS (International English Language Testing System) as evidence of fluency in English. Students who are admitted to the University of Iowa with a minimum score of 500 TOEFL are required to be admitted to an English as a Second Language (ESL) program before enrollment. If this requirement is met, the student may be admitted to an ESL program.

Admission to a program is available only after an official transcript and an official letter of admission by the University's Department of Linguistics have been received. Freshmen evaluated as proficient must enroll in 101 or 102, Rhetoric. If not proficient, the student must enroll in the ESL course recommended by the linguistics department. The student must continue to enroll in ESL, courses until the student can present a 500 TOEFL score or until the student has taken all of the courses recommended by the linguistics department.

The Department of Linguistics offers five ESL courses (103:184-189).
Foreign students who have attended a U.S. college or foreign college or both before transferring to Iowa for undergraduate study may be expected to meet higher admission standards than the minimum requirements outlined for in-state transfer students. Foreign transfer students will have their proficiency in English evaluated in the same manner as entering freshmen. Those who are initially evaluated as proficient will fulfill the university undergraduate rhetoric requirements. If the student is not proficient, enrollment in the ESL courses which are recommended by the linguistic department is required until all such courses are completed. Like foreign applicants, immigrants (permanent resident aliens) from typically non-English-speaking backgrounds may be required to take the TOEFL or a similar test of 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 unlimited in length. Reenrollment by such students may be contingent on University of Iowa grades. Courses taken by students in this category cannot be used toward satisfying the residence requirement for graduation from the College of Liberal Arts.

Requirements for Graduation

Total Earned Hours

Total semester hours required are at least 128. Students enrolling as beginning freshmen, as indicated on their admission statement for transfer students, are eligible to take dual-enrollment hours, up to 36 semester hours.

Residence

Minimum credit to be earned in residence is 36 semester hours, 45 of the last 60 semester hours, or a total of 90 semester hours. Nonresident enrollees include work at other colleges (not the University of Iowa), in other undergraduate courses at The University of Iowa, and in The University of Iowa correspondence courses.

General Education Requirement

All students must satisfy the college course requirements (see sections that follow).

Major Requirement

All students must complete the course and semester-hour requirements in one subject area (major department).

Other

A maximum of 16 semester hours of credit with a grade of "P" (prorated according to classification at the time of admission) will be counted towards the 124 semester hours needed for graduation. Transfer students admitted to the University with more than 16 semester hours of "P" grades are not eligible to take any more. (See following section for more details about the usage for pass-fail-graded classes.) Students may earn up to 32 semester hours of credit by examination from all sources.

Maximum credit earned through correspondence courses: 30 semester hours. Correspondence courses do not earn resident credit.

Semester hours for courses completed with nonpass marks do not count toward the total required for graduation and do not count in the computation of the grade-point average.

After a student has earned 62 semester hours of college credit from all sources, no more credit can be accepted by transfer from a two-year college toward meeting the 124 semester hours needed for graduation from the College of Liberal Arts.

College Course Requirements for Graduation for B.A., B.S., B.M., and B.F.A. Degrees

Two systems or general college course requirements for graduation exist in the College of Liberal Arts. All students who registered for courses at the University prior to May 1982 may meet the college course requirements by following either of the systems or requirements. All students who register for the first time at Iowa after May 1982 must complete the "new" general education requirements. Whichever system of course requirements students elect to follow, they must meet all parts of that system. One group or system of requirements may be called the skills, core, and foreign language requirements. It has been in operation, as amended, since 1944. The other group of requirements, called general education, goes into effect in June 1982. A description of the core requirements of the "old system" follows immediately, and a description of the "new" general education requirements follows after that.

How to Satisfy Course Requirements

The "old" skills, core, and foreign language requirements course requirements are comprised of:

Basic skills (historio, mathematica, and physical education skills);
Core courses (historical-cultural, literature, natural science, and social science); and
 Foreign language.

Rhetoric

All Students

Students fulfill the course requirement in rhetoric by registering at the first registration for rhetoric as assigned on the admission statement and continuing to enroll each semester until the requirement is satisfied. Once enrolled in a rhetoric course, a student cannot drop the course. Students enrolled in 10:3 Rhetoric may attempt to meet all or part of the rhetoric requirement by proficiency examinations given after the semester begins. Exception from the requirement, but no credit may be awarded. For information about these tests see the rhetoric section of the Catalog. The maximum number of semester hours of rhetoric that may be counted toward a bachelor's degree is 4.

Transfer Students

Transfer students fulfill the course requirement in rhetoric by submitting at the time of entrance 6 semester hours of course work from another institution of good standing comparable to the rhetoric course at The University of Iowa; or by transferring 6 semester hours of credit in English composition and 1 semester hour of credit in speech from another accredited institution. Transfer students may transfer 6 semester hours in English composition and either completing 2 semester hours of credit in speech (162C-25) at this University or pass-failably passing the speech test. A student who transfers less than 6 semester hours in composition must register for the first composition course the rhetoric course included on his or her admission statement and continue until the requirement is satisfied.

Mathematics

All Students

Students fulfill the course requirement in mathematics by presenting at least two and one semester hours of high school mathematics exclusive of such courses as business arithmetic and consumer mathematics; or by scoring 23 or better on the mathematics section of the ACT tests; or by completing 22M:1 Basic Mathematical Techniques; or by satisfactorily completing a college-level course in mathematics, computer science, or statistics, and completing satisfactorily the examinations in 22M:1.

Physical Education Skills

All Students

Students fulfill the physical education skills requirement by satisfactorily completing four four-semester-hour courses in physical education skills to
be taken under a satisfactory-fail grading system. Only 10/21, 10/22, 10/31, 10/32 and 10/33 may be used to satisfy the physical education skills requirement.

For the physical education skills courses that are listed on transcripts in terms of activities and levels, when in-completes are made up and second grade only options are used, the student must complete or take again the same activity at the same level. It is a student's responsibility to repeat the same course or take a more elementary one, the registrar will assess a fee for either duplication or repetition.

Students may meet the requirement by passing comprehensive tests in physical education skills. These tests are given each semester at announced times. Any student, even those not registered for physical education skills, is eligible to take these tests. A maximum of 4 semester hours of credit may be awarded for successful completion of these examinations. Credit from these examinations may be applied to the physical education skills requirement only.

Freshmen who elect to meet the requirements by examinations, but who fail to pass, must register for a physical education skills course for at least one semester before repeating the examination during the sophomore year.

Students who have passed their twentieth birthday prior to their first enrollment in the University, as well as those who have passed their twentieth birthday prior to the day of their graduation, are excused from the requirement.

Veterans
Exemption from physical education skills may be given to any member of the Office of the Registrar official evidence of having completed the basic training program in this branch of the armed forces.

Transfer Students
Transfer students may fulfill the physical education skills requirement by transferring 40 semester hours of college physical education, or by transferring 40 semester hours of advanced standing; or by transferring as few as 4 semester hours of college physical education and by earning enough credit in physical education skills in the College of Liberal Arts to make a total of 4 semester hours from all colleges.

Historical-Cultural, Literature, Natural Science, and Social Science Core Courses
Eight semester hours are required in each of the four core areas for the B.A., B.S., B.A. and B.A.Ed. degrees. However, with the approval of the department, certain courses may be used from the core requirement in the area of their major. Approved core courses, with permissible combinations, are listed below. Consult core and department listings for offerings in the current session.

Students interested in satisfying the core requirements by examination should inquire at the Liberal Arts Advisory Office, 118 Schaeffer Hall.

Historical-Cultural
Any combination (nonduplicating) of the following courses totaling 8 semester hours.
11/39-30 Problems in Human History
11/31-32 Western Civilization
11/32-34 Philosophy and Human Nature
11/37 Understanding Basic Visual Arts (formerly Form and Theory in the Visual Arts)
11/38 Western Art and Culture before 1400
(formerly 11/38 Art in the Western World)
11/39-40 Masterpieces of Music
11/41 Western Art and Culture after 1400
(formerly 11/38 Art in the Western World)
11/51 Art of the Theatre
(formerly Drama and Western Culture)
11/56-56 Civilizations of Asia
11/61 Judeo-Christian Tradition
(formerly 11/38 Religion in Human Culture)
11/62 Religion and Society
(formerly 11/38 Religion in Human Culture)
11/63 Quest for Human Destiny
(formerly 11/38 Religion in Human Culture)

Literature
All students must complete 11/1 The Interpretation of Literature, followed by any other literature core courses. Satisfactory performance in the prerequisite English majors are exempt from fulfilling the literature core requirement.

11/1 The Interpretation of Literature
11/2 Biblical and Classical Literature
11/3 Medieval and Renaissance Literature
11/4 Idea of Tragedy
11/5 Idea of Comedy
11/6 Narrative Literature
11/7 Lyric Poetry
11/8 Literature of the Theater
11/9 American Lives
11/13 The Classical Views
11/14 Literatures of the African Peoples
11/15 The Literary Presentation of Women
11/17 German Heroc and Erotic Literature of the Middle Ages
11/18 Contemporary Latin American Narrative
11/19 Asian Humanities
11/20 Asian Humanities

Natural Science
Any combination (nonduplicating) of the following courses totaling 8 semester hours.
21/1, 21/11, 21/13 Botany
4/7 or 4/8, 4/9, 4/13, 4/14, 4/16 Chemistry
11/21 Human Biology
11/22 Ecology and Bioe
11/23 Earth History and Resources
(only one)
11/24 Men and His Physical Environment
11/25 Chemistry and Physics of the Environment
(only 29, 30; offered for 3 s.h. credit only)
11/38 Technology and Society
12/5 Introduction to Geology (may not be combined with 11/23)
22/10 or 22/11 Mathematics (only one)
29/11 or 29/17, 29/12 or 29/18, or 29/28 Physics
29/51 or 29/62, or 29/50, or 29/105 Astronomy
(see Physics Department and Astrology
37/3 Principles of Animal Biology
97/35, 97/36, and 22/40 Science Foundation
(see 97/35, 97/36, and 22/40 Science Foundation
97/104 and 22/40 Science Foundations
(see 97/104 Science Foundations
Social Science
Any combination (nonduplicating) of the following courses totaling 8 semester hours.
BE-EE-2 Economics
30/1 or 30/11, 32/2, 30/30, 40/30, 40/90
30/11 or 31/3 Psychology (only one)
34/1, 34/2 Sociology
44/1, 44/2, 44/11, 44/19, 44/30, 44/35
103/11 Language and Society
11/50 Anthropology
Additional Options for Transfer Students
Transferring students may meet their core requirements in any of the following ways:
1. By transferring in 8 semester hours or more of appropriate courses.
2. When a student transfers less than 8 semester hours in a core area, he or she may complete the 8-semester- month core requirement by taking either approved core courses and/or any other courses from the departments listed in each core area below:
   a. Historical-cultural—American and/or international studies, history, philosophy, religion, and history and appreciation of art, music, or drama.
   b. Natural science—astronomy, biochemistry, botany, chemistry, general biology, microbiology, physics, physiology, and zoology.
   c. Social science—anthropology, economics, geography, linguistics,
political science, psychology, and sociology
2. A transfer student with zero hours in a core area must complete 8 semester hours of approved core courses at The University of Iowa.
4. Literature core—By submitting at the time of entrance 6 semester hours of college credit in literature from another institution or by submitting 3 semester hours of college credit in literature from another institution and completing one of the 4-semester-hour courses in the literature core area of this University. Students transferring less than 3 semester hours must complete 8 semester hours of approved courses in the literature core area.

Pass-Nonpass for Core Requirements
No core courses or departmental courses used to meet core requirements may be taken pass-nonpass if they are to be used toward satisfying the core requirements of the college.

Foreign Language
The following are the foreign language requirements for bachelor's degrees effective for students who entered Liberal Arts in September 1961, or thereafter.
1. Candidates for the Bachelor of Arts degree: A minimum of four sequential semester of college-level study must be completed in any one of the foreign languages at the college level.

The requirements may also be satisfied by:
1. Completion of two years of high school study in one language;
2. Completion of a combination of high school course work and college study in one language which would be the equivalent of two semesters of college study on the college level;
3. Satisfactory performance in an achievement examination measuring proficiency equivalent to that usually attained after four semesters of college study in one language.

Candidates for the Bachelor of Fine Arts, Bachelor of Music, or Bachelor of Science degrees:
A minimum of two sequential semesters of college-level study must be completed in any one of the foreign languages taught in the University.

The requirement may also be satisfied by:
1. Completion of two years of high school study in one language;
2. Completion of a combination of high school and college study in one language which would be the equivalent of two semesters of college study on the college level;
3. Satisfactory performance in an achievement examination measuring proficiency equivalent to that usually attained after four semesters of college study in one foreign language.
3. If you are taking French, the foreign language requirements for the B.A. degree may be fulfilled by taking a sequence of courses culminating in 3:12 Intermediate French, or 9:28 Second-Year Composition and Conversation, or a combination of 9:27 Second-Year Composition and Conversation and 9:28 French Conversation First Level. 9:26 alone is not sufficient for the fourth-semester requirement. Other combinations are possible. Check with the French department office, 10 Schaeffer Hall (phone 353-4087).
4. Elementary Chinese or Japanese courses, 6 semester hours each, for a total of 12 semester hours will meet the foreign language requirements for the B.A. degree. One semester, 6 semester hours, of these languages will meet the foreign language requirements for the B.F.A. B.M., or B.S. degree.
5. Bachelor of General Studies degree and Bachelor of Liberal Studies degree—no foreign language required.
6. No foreign language courses may be taken pass-nonpass if they are to be used toward satisfying the foreign language requirement of the college.

Change From Four to Three Semester Hours for Core Courses
If any of the 4-semester-hour core courses, previously approved to meet core requirements, change their credit hours from four to three for the new general education requirements, these degrees will be considered as meeting half of the core requirement for students entering under the new program core requirements. Transfer students held for 8 hours or less in a core requirement would also be subject to this ruling. While the courses described above will count as 4 semester hours toward meeting core requirements, they will only count as 3 semester hours toward total hours needed for graduation. Hours needed for graduation and core courses approved for general education and designated as 3 semester hours would count as only 3 semester hours taken by students meeting 8 semester-hour core requirements.

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

Rhetoric
Mathematics
Quantitative or formal reasoning

Language
Physical education
Natural sciences
Social sciences
Humanities
Historical perspectives
Foreign civilization and culture

Rhetoric
All students must complete the rhetoric requirement which includes speech and writing as stipulated at each student's admission statement. This applies to both entering freshmen and transfer students. All transfer students regardless of the number of hours brought in must satisfy the rhetoric requirement. All students must register for their assigned rhetoric course at their first registration and continue to enroll for rhetoric courses until the requirement is completed. Once enrolled in a rhetoric course a student cannot drop the course. The maximum number of hours of rhetoric credit that may be counted towards a Bachelor's degree is eight.

The rhetoric requirement may be completed in one of the following ways:
By passing 10:1 and 10:2 Rhetoric for 8 semester hours;
By passing 10:3 Rhetoric for 4 semester hours;
By passing the speech test and 1:0:4 Rhetoric for 2 semester hours;
By passing the writing test and 3:0:2 Principles of Speech Communication for 2 semester hours;
Or by passing both the speech and writing tests.

Proficiency tests in writing and speaking are given in rhetoric during the first week of classes under the direction of the 10:0 Rhetoric. Exemption but not credit from part or all of the requirement may be awarded on the basis of these tests.

Mathematics
The college requirement in mathematics may be met in any of the following ways:
1. By scoring 26 or above on the mathematics subscore 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 a basic mathematics techniques proficiency test at low levels. 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 are optional and used to recommend placement of students in elementary college mathematics courses.
High School Courses
Successful completion of four sequential years of study of the same language in secondary school qualifies for the B.A. degree requirements. Two sequential years in high school meet the B.S., B.M., and B.F.A. degree requirements. Individuals must complete the fourth year of high school Language for the B.A. degree and the second semester for the B.S., B.M., and B.F.A. degrees.

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

Combinations of High School and College Courses
One year of high school work in a foreign language qualifies as one semester of college work. Successful completion of sequential years of high school followed by sequential semesters of courses in 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.M., and B.F.A. degree.

Proficiency Examinations
Satisfactory performance on an achievement examination measuring proficiency equivalent to a grade of A or B may be attained after four semesters of college study meets the B.A. degree requirement. Proficiency equivalent to that usually attained after two semesters of college study meets the B.S., B.M., and B.F.A. degree requirements. (Accredited credit will not be given for passing the proficiency tests.)

Additional Comments
No foreign language courses may be taken by non-majors. If it is a sequence of courses to be used towards satisfying the foreign language requirement of the college.

No duplication will be assessed between high school work and college courses in foreign language.

If you are taking French, the foreign language requirement for the B.A. degree may be fulfilled by taking a sequence of courses culminating in 102 Intermediate French, or 120 Second-Year Composition and Conversation, or a combination of 120 Second-Year Composition and Conversation and 120 French Conversation First Level. 102 alone is not sufficient for the fourth semester requirement. Other combinations are possible. Check with the French department office, 10 Scheffer Hall (phone 353-4067).

Elementary Chinese or Japanese courses, 6 semester hours each, for a total of 12 semester hours will meet the foreign language requirement for the B.A. degree. One semester, 6 semester hours, of these languages will meet the foreign language requirement for the B.S., B.M., and B.F.A. degrees.

There is no foreign language requirement for the Bachelor of General Studies and 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. No semester hours credit will be awarded on the basis of validation of proficiency in a foreign language.

Physical Education
All students must complete four one-semester hour courses in physical education skills under the S-G grading procedure. Only courses 10.1, 10.2, 10.3, 10.5, and 10.55 offered by both physical education departments may be used to satisfy the requirement. Courses under these numbers have activity or sports titles and levels of proficiency. If a student repeats the same course or takes a more elementary one, the registrar will assess a penalty for either duplication or regression. In removing incompletes, only the student or the registrar may remove an incomplete. To ensure a more active and comprehensive program of exercise, only the option the student must complete or take again the same activity or sport at the same level.

Proficiency Examinations
This requirement may be satisfied wholly or in part by passing comprehensive tests in specific physical education activities or sports. Up to 4 semester hours of ungraded credit or exemption may be earned by students upon completion of these tests. Credit from these tests cannot be used as elective credit towards a degree. A maximum of 4 semester hours of credit by examination in physical education skills will be recorded towards a bachelor's degree.

Transfer Students Transfer students may satisfy this requirement by transferring 4 semester hours of college physical education course work (skills, sports, and activities), or by achieving junior standing having earned at least 36 semester hours of college credit prior to admission to The University of Iowa, or by transferring less than 4 semester hours of college physical education by earning enough credits in physical education at Iowa to make a total of 4 semester hours from all colleges.

Older Students
Students who have passed their twenty- eighth birthday prior to the fall of 1967 or those who have passed their twenty-eighth birthday prior to the fall of their
Transfer Students and General Education Requirements

Transfer students who have had courses elsewhere, that are similar to or more approved for general education at Iowa, may be granted credit toward general education requirements (acceptance of these courses will be determined by the student's admission statement). If a transfer student brings to Iowa less than enough hours to meet a general education requirement, he or she may use only approved courses to complete the remainder of the requirement.

Transfer Students with A.A. Degree

Students admitted from Iowa Community Colleges who have received Associate of Arts degrees prior to the time of their first registration at Iowa will be considered to have met all the college general education requirements except the foreign language requirement. The program of study at the community college for which the A.A. degree was awarded must meet the following requirements: A minimum of 80 semester hours of credit acceptable for transfer, the completion of an agreed-upon group of courses at the community college, and at least a 2.00 grade-point average. A yearly review is conducted to assess whether students are meeting the stipulations in this agreement.

Course Limits and Waivers

No course from a student's major department can be selected as a general education requirement, except those taken to fulfill the following: a) the foreign language requirement, or b) the physical education requirement, and c) 2 MTE: Basic Mathematical Techniques, or d) 111: Interpretation of Literature. However, each department may waive 4 semester hours of general education requirements for its B.A. students, and 7 semester hours for its B.S., B.M., and B.F.A. students, in the area closest to or most relevant to its program. Each department will be asked to submit a statement defining these areas and designating the area in which it requests to waive these hours. Statements must receive the approval of the dean and the Educational Policy Committee.

Pass-Nopass

No course offered to meet any of the general education requirements may be taken pass-nopass.

Bachelor of General Studies

The Bachelor of General Studies degree is designed for 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 have satisfied the general education requirements of the college, except that students held for the rhetoric requirement must enroll for a rhetoric course.

Within the freedom of the B.G.S. degree, students may assemble groups of courses related to a single topic or they may select 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 consult their academic advisor where it seems in their best interests to do so. In working out such an individualized “area of concentration,” the student should examine the requirements in the major most closely related to his or her field of interest.

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

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

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

Completion of at least 124 semester hours of college-level course work, including no more than 40 semester hours in one department from all colleges and no more than 30 semester hours in all colleges of the University. (Students in the College of Liberal Arts must register in The College of Liberal Arts.)

Enrollment for at least one semester of rhetoric.

Achievement of at least a 2.0 grade-point average in the college course work undertaken, on all course work undertaken at The University of Iowa, and on all upper-level (numbered 100 and above) course work undertaken.

For purposes of the above requirements, all College of Education courses (prefix 73) are considered to be in one department, all College of Business Administration courses (prefix 85) are considered to be in one department except those in economics (prefix 68), and all Division of Mathematical Sciences courses with the 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.

College of Liberal Arts residence, pass-nopass, extra-credit pass (100, 200, and 300 level), and good standing policies apply to B.G.S. students in the same way as to all other undergraduate students in the college.

No major or concentration is specified with the B.G.S. degree.

Bachelor of General Studies students are not eligible to earn minors.

A B.G.S. student may take on a pass-nopass basis any course offered pass-nopass.

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

Bachelor of General Studies 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.

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:

Meet all B.G.S. upper-level course requirements and course distribution requirements.

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

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

A B.G.S. student seeking certification to teach may use the one-listing of education and psychology courses to avoid exceeding the B.G.S. maximum allowance of 40 semester hours in one department.

Bachelor of Liberal Studies

Offered by each of the three Iowa Regional Universities (The University of Iowa, Iowa State University, and the University of Northern Iowa), the B.L.S. program is designed to serve adults who cannot attend college as full-time, on-campus students. The program has no residence requirement. Work done in community and private colleges in Iowa and in accredited out-of-state colleges may be applied toward the degree, as may applicable courses taken from any of the three Iowa Regent universities. Types of courses available from the Regional Universities include correspondence and independent study courses, radio, television, and newspaper courses; Saturday and evening courses; extension courses including those with new distance-learning formats; and regular on-campus
courses. Students may also take proficiency examinations.

To be eligible for admission to the program, the student must have earned an Associate in Arts (A.A.) degree from an accredited institution, or 62 semester hours of collegiate work acceptable for credit toward graduation. The student must satisfy the college’s general education requirements; holders of the A.A. degree from accredited two-year colleges in Iowa may have already met these requirements.

Of the 124 semester hours of credit required for the degree, at least 45 must be earned in four-year colleges, in courses defined as upper-level where the credits were earned (in the College of Liberal Arts, courses numbered 100 and above); 48 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 and, in addition, must earn at least 17 semester hours (or 16 quarter hours) of credit in each of these three distribution areas:

- Humanities
- Communications and arts
- Natural sciences and mathematical discipline
- Social sciences
- Professional, as approved by the degree-granting institution

Of these 38 semester hours, 24 must be in upper-level courses, and of these 24, at least 8 must be in any of the three selected distribution areas. Credits applied to the general education requirements may not be used to meet the distribution area requirements.

Graduation requires a minimum grade- point average of 2.00 of course work applied toward the degree, in all course work completed after admission to the program, and in all upper-level course work.

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

Two or More Bachelor’s Degrees

Students who have already received a bachelor’s degree may be eligible for a different bachelor’s degree must meet requirements for the second degree and complete at least 30 additional hours of study in residence in the College of Liberal Arts beyond the first degree.

Double Majors

Students may meet the major requirements in more than one department, and if both departments award the same degree, the student may earn a bachelor’s degree with two majors: for example, B.A. in histology and English; B.S. in psychology and sociology. No double majors can be earned unless both are in degree- granting departments or programs in the College of Liberal Arts.

Scholarship Requirements for Graduation

The general requirements for graduation include the element of quality as well as the quantity of work completed. A student satisfies the qualitative graduation requirements of the college by earning a minimum grade-point average of 2.0 on (1) all college-level work attempted, (2) all work attempted at The University of Iowa, (3) all work attempted in the major field, and (4) all work attempted in the major field at The University of Iowa.

A student who does not meet requirement (1) but who does have a cumulative grade-point average of at least 3.0 on all college work attempted and on all work attempted at The University of Iowa, and has a 2.0 average in the major, both cumulative and at The University of Iowa, may satisfy requirement (1) by earning sufficient grade points to equal or exceed a figure derived by multiplying by two the number of hours required for graduation at the time of entrance.

The provisions of the preceding paragraph (the 1.90 rule for graduation) are not available to any student who enrolls at Iowa for the first time after May 1982 and who has not graduated by May 1986.

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 may change their majors at any time to one of those fields after enrolling. In order to be allowed to enroll in the field (major) courses in education, the student must have been admitted to the Teacher Education Program (TEP).

To be accepted into the TEP, a student must have attained sophomore standing (28 semester hours) and have earned a total cumulative grade-point average of at least 2.2. In order to remain in the TEP, the student must maintain a 2.2 total cumulative grade-point average.

To apply for admission to the TEP, complete application forms in the Liberal Arts Annex with Walter 103, theChecker Hall. Students admitted will be notified in writing. The College of Education section is the Catalog.)

Collegiate Policies

Deadlines

Add:

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 adviser and instructor.

Drop:

Courses may be dropped during the first ten weeks of the semester or first five weeks of the summer session with the approval of the adviser and instructor.

Special Courses

Courses that meet on a different schedule or start or end at times other than the beginning and end of the semester, and are not listed in the Schedule of Classes, may be added with necessary signatures at any time during the first one-fifth of the duration of the course and dropped at any time during the first two-thirds of the duration of the course. Similar proportional deadlines apply to the usual eighth-week summer session and for other special session courses. The dean’s approval will be needed for all adds after the third week and for all drops that occur after the tenth week.

Pass-Nonpass and Audit

Pass-nonpass registrations or revocations of pass-nonpass registration and changes to audit or revoking audit may be made during the first three weeks of the semester (or first one and one-half weeks of the summer session) with approval of the adviser and instructor.

Late Registration

With the approval of the adviser and instructor, students may register late during the first three weeks of the semester or first one and one-half weeks of the summer session.

Cancellation

Students may cancel their registration at any time during the semester up to 4:30 P.M. of the last day of classes and prior to 4:30 P.M. of the fourth day from the end of the summer session.

Grading System

A: 4 grade points
B: 3 grade points
C: 2 grade points
D: 1 grade point
F: no grade points
N: nonpass, no grade points
P: pass, no grade points
S: satisfactory pass, no grade points
R: repeated, no credit
I: incomplete
C: no report
W: withdrawn

Incompletes
A grade of I may be reported only if (a) the unfinished part of the student's work (other than in research, thesis, or independent study) is small; (b) the work is unfinished for reasons acceptable to the instructor; and (c) the student's standing in the course is satisfactory. Courses may not be repeated to remove incompletes. Incomplete grades must be removed by completing the unfinished part of the work. Failure to remove the incomplete during the next session for which the student is registered (except that students with incompletes from second 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 removing incompletes must reach the registrar on or before the deadline for submitting final grades for the next session that the student is registered. No extensions to prevent the assigning of Fs will be made. Instructors, 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 F. In such cases, special report indicating regular forms must be sent for approval to the dean of the college since the instructor now is changing a grade.

No Report
The "no report" designation appearing on a student's permanent record must be changed to a valid grade according to the standard rules for changing an "incompletes." Failure to remove the O by the specified date will result in an F being assigned for each such record.

The Mark of W
Undergraduate students in the College of Liberal Arts will be assessed a mark of W for any course in which they drop after the third week. Undergraduates in other colleges will receive a mark of W for dropping a course in the College of Liberal Arts after the third week, including courses offered with the College of Education prefix T and General Science Program prefix B. A mark of W will be assigned for all courses dropped after the first week and a half of a summer session. For courses that begin and end at times other than the beginning end of the semester, students may drop these courses any time within the first one-fifth of the duration of the course without being assigned a mark of W.

Pass-Nonpass
The option of taking courses P-N is available to all students in the College of Liberal Arts under the following conditions:
1. The signature of the adviser and the instructor must be obtained on the proper form. (In cases where multiple-section courses are involved, the department should have a uniform policy.)
2. The mark of "Pass" (P) may be used in lieu of grades of A, B, and C for authorized courses in the College of Liberal Arts. Students registered on a P-N basis who receive grades of D or F will have N entered on their record. The grade of P and F will not be used in computing GPA nor will the grade of N count as earned hours for graduation. Liberal Arts students taking courses in other colleges of the University will be subject to the grading policies of those colleges. Students from other colleges taking courses in liberal arts are subject to the College of Liberal Arts grading policies.
3. A student must be in good academic standing in order to be eligible for the P-N option. The academic advisor should not sign P-N forms unless the student is in good standing.
4. P-N grading may be used on elective courses only.
5. Not more than 18 semester hours of P grades from all colleges will be accepted toward the bachelor's degree for any student. Transfer students who bring in less than 56 semester hours may earn a maximum of 16 semester hours of P grades. Those who bring in more than 56 semester hours are limited to 8 semester hours.
6. Work in the major department is not available on a P-N basis, except by departmental action for courses which are not eligible for credit toward the departmental major. Courses required for the major in cognate or related areas may be taken on a P-N basis, at the discretion of the major department.
7. A student may register for a maximum of two P-N courses per session.
8. A student is not registered for P-N unless he or she turns in a properly completed P/N form during registration or to the registrar before the end of the third week of classes (and of the first week and a half of a summer session). Any change from P/N to grade status to P-N must be made by submitting a properly signed form to the registrar before the end of the third week of classes (and of the first week and a half of summer session).
9. For courses eligible for P-N that start after the regular beginning of classes in any session, students may turn in properly signed Pass-Nonpass slips at any time prior to the beginning of the courses and during the first one-fifth of the duration of the courses.

Satisfactory-Fail
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:
1. When approved by the department and the dean of the college, the grade of satisfactory (S) may be used in courses in which, in the judgment of the department, the instructional purposes of the course will be best served by grading all students on a satisfactory-fail basis. Not more than 16 semester hours of S grades will be accepted toward the bachelor's degree of any student.
2. Grades may be earned in the major. No forms will be needed to register for a satisfactory-fail course. All students in each course will receive either an S or an F.

The grade of F under the satisfactory-fail waiver will be used in the computation of the student's grade-point average.

Auditing Courses
Students in the College of Liberal Arts may register to audit courses by marking their registration form for zero credit. A change from audit to credit (with the special permission signature of the instructor) must be made in the audited course. To add a course for audit (zero credit) after the start of the semester, the student must register for zero credit on a change of registration form. Any change from credit to audit or audit to credit basis must be made within the first three weeks of the semester (including a week and a half of a summer session), using a change of registration form with the necessary signatures.

The mark of R will be assigned to those registered for the course for zero credit if the student's attendance and performance are satisfactory. If unsatisfactory, the mark of W will be assigned. Courses offered for zero credit only will be graded on the R/W basis. Courses offered for zero credit as well as for credit hours, when taken for zero credit, will be graded on the R/W basis. Courses completed with a mark of R will not meet any college requirement, and carry no credit toward graduation. Auditing may not be used as a second-grade option.

Grade-Point Average
The cumulative grade-point average is computed by (1) multiplying the hours of credit for each course by the appropriate grade points; (2) totaling the grade points earned to date; and (3) dividing the sum in (2) by the number of hours undertaken, excluding courses in which
grades of W or P are given. Grades of F
are included in hours attempted and are
used in computing the grade-point average.

Deficiency in English
Any instructor who finds the written work
of a student seriously defective in the
English is expected to report the case,
together with specimen papers, to the
writing supervisor of the Rhetoric
Program, who shall have authority to
require additional work in composition
without credit. Instructors are authorized
to refuse credit or to give a reduced
grade to written work which does not
demonstrate academic competence.

Duplication
Duplication occurs when a student takes
the same course more than once.
Whether duplication has occurred is
determined by the registrar at the time
of graduation, and it has occurred the
student must earn extra hours to replace
those earned by duplication. Both
grades for courses when duplication has
occurred will count in the student's
grade-point average.

Regression
Regression occurs if a student takes a
lower-level course (which may be a
prequisite) after having satisfactorily
completed a more advanced course in
the same subject. Grades for courses
where regression has occurred will
count in the student's grade-point average.
Whether regression has occurred is
determined by the registrar at the time
of graduation, and if it has occurred, the
student must earn extra hours to replace
those earned by regression.

Area of Concentration or
Major
The executive officer of the department
or area in which the student wishes to
concentrate his or her studies specifies
the requirements in this area. In most
instances, requirements are stated in
connection with the departmental area
announcement in the Catalog. However,
a student must confer with her
adviser in outlining plans for a major.

Maximum Credit in One
Department
No more than 30 semester hours of
credit earned in one department or
degree granting program may be applied
toward College of Liberal Arts
requirements for the Bachelor of Arts or
Bachelor of Science degrees.

Semester Load Limit
The normal schedule is 15-16 semester
hours for a semester, 45 for a summer
session. No student may register for
more than 30 semester hours in one
semester, or 10 in a summer session,
without the permission of one of the
associate deans in the Liberal Arts
Advisory Office.

Credit from Other Colleges
The College of Liberal Arts will accept
credit on a case-by-case basis toward
the bachelor's degree up to a
maximum of 30 semester hours of credit
the student earned from courses taken
in all other colleges of the University while
the student is enrolled in the College of
Liberal Arts.

Examinations for Credit
Validation of Credit
Students with educational experience
obtained at an accredited institution or in
a formal training program in which
there is no standardized procedure for
evaluation of credit may request the
validation of this credit. The Liberal Arts
Advisory Office and the department
concerned should be consulted for
approval to take the appropriate
examinations.

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 shall be
those prepared by the Advanced
Placement Program of the College
Entrance Examinations Board or by a
recognized test construction agency or
group as approved by the Educational
Policy Committee. These include the
College-Level Examination Program
(CLEP) and the Advanced Placement
Program (AP) of the College Entrance
Examination Board.

In the case of foreign languages, credit
toward graduation will be awarded only
for passing examinations covering
 sophomore-level (or above) course
work.

Information about the CLEP tests may
be obtained from the Liberal Arts
Advisory Office. For information about
Advanced Placement 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 which may be awarded in
the major field is 18 semester hours.

Second-Grade-Only Option
For courses taken at The University of
Iowa, a student may request that course
at the University whose option
regression is involved, and have only the
grade of the course of the original
registration used in calculating The
University of Iowa's grade point or total
cumulative grade-point average.
This provision may be applied to a
maximum of 16 semester hours of work
from all sources.
A student who wishes to utilize the
provisions of this rule should:
Register in the usual manner for the
courses he or she decide to repeat or
add it during the regular period for
adding courses (the first three weeks
of the semester or the first week and
a half of a summer session)
Apply to the Liberal Arts Advisory
Office to check his or her eligibility
and complete the proper form. Current
procedures of counting both grades in
instances where a student repeats 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
necessary time period the student has
earned the grade. The course may not
be offered, or disciplinary actions
concerning grades may be involved.
If the student takes the course for a
grade the first time, he or she must take
the course for a grade the second time.
If the student took the course pass-
nonpass the first time, she may take
it pass/nonpass for a grade the second
time.

Classification
Freshman: less than 28 semester hours of
credit earned Sophomore: 28 through 55 semester
hours earned Junior: 56 through 89 semester hours
Senior: more than 89 semester hours
earned

Official Transcript
Official transcripts of a student's record
are available at the Office of the
Registrar.
Application for Degree
Each student who wishes to be considered for graduation must file an application for a degree with the Office of the Registrar before the deadline date during the session in which the degree is to be conferred.

If a student does not graduate on the date indicated in the application, he or she must file another application for a degree for the next applicable session. Students do not need to be registered to apply for a degree.

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

Class Attendance
The individual faculty member or course chair 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 which necessitate absence from class. Students are required to observe the regulations as announced for the course. The individual instructor may assign extra work, lower grades, or in repeat cases cancel the student's registration for the course if attendance is unsatisfactory.

Students are expected to attend classes regularly. It is suggested that instructors keep reasonably adequate attendance records, especially in courses in which examinations are given.

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 President of the Liberal Arts Advisory Office for permission to withdraw the student.

Excused Absences
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 date and time it is necessary to miss class.

Students who have been absent for medical or health reasons are expected to present evidence that they have been ill. Excused absences for this purpose are available in each department under the Liberal Arts Advisory Office. Students should not be asked to obtain excusal from the Student Health Service.

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 announced. Students are expected to report for final examinations at the times scheduled. If a student has two examinations scheduled for the same time period or more than three examinations scheduled for the same day the student may file a request with the registrar to have the conflicts adjudicated.

Mid-Semester Reports
Faculty members are expected to report mid-semester grades for all students whose work is below C. Mid-semester reports should be sent to the Office of the Registrar on forms provided for that purpose. These reports are distributed to advisers and to individual students. Delinquent grades are not recorded on a student's permanent record.

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 instructor by the student to the Office of the Dean. The instructor should report any disciplinary action which he or she takes to the dean's office. If the student involved is enrolled in another college, the report must be made to the dean of that college or the dean of students.

Student Dishonesty
All cases of plagiarism and cheating in the College of Liberal Arts should be reported for action to the Office of the Dean of the college. Although each department has its own channels of reporting, the dean is responsible for the overall college policy. The department and the instructor concerned may also submit recommendations in each case for appropriate disciplinary action. The individual instructor may reduce the student's grade, including the assignment of the grade of F in the course. After an appropriate hearing the dean of the college may impose the following or other penalties as the offense may warrant: disciplinary probation, suspension from the college, or recommendation of expulsion from the University.

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

- Freshermen (less than 28 semester hours): 1.60
- Sophomoremen (28 to 55 semester hours): 1.80
- Juniors (56 to 89 semester hours): 1.90
- Seniors (90 or more semester hours): 1.90

The suspensions of the preceding paragraph (minimum grade-point averages needed in order to be in good academic standing) do not apply to any student who enrolls at Iowa for the first time for any session after May 1986 and who has not graduated by May 1986.

The minimum grade-point averages for good standing for these people are:

- Freshmen: 1.90
- Sophomoremen: 1.75
- Juniors: 1.90
- Seniors and unclassified: 2.00

Students on probation whose cumulative U and overall grade-point averages equal or exceed the grade-point averages listed above for the four classes will be restored to good standing. Students will be removed from probation only at the end of a semester or session.

Students who fail to make the grade-point averages as listed above will be dropped from the College for poor scholarship as follows: those who are admitted on probation, at the close of one semester or session; those who are admitted in good standing and are placed on probation at the close of the first semester of their enrollment, after one semester on probation; all others after two semesters on probation. However, very poor work in any semester may result in dismissal at the close of that semester or session.

Under special and unusual conditions, students may be granted an additional semester on probation. Students who are made probationary in their freshman year may be granted a second trial for scholarship at the close of the spring semester. With the approval of the dean, they have their cases reviewed if they enroll in the summer session at The University of Iowa and achieve good standing at the close of the session.

A student dropped from the College for poor scholarship may petition the Liberal Arts Advisory Office for permission to register after an interval of one year. The petition must present evidence that changes have occurred in the status of the student which indicate improvement of the student's work. A student granted permission to register under the provision of this paragraph will be registered on scholastic probation and if dropped for the second time for poor scholarship, may not register for at least five years. After five years, the student may petition the Liberal Arts Advisory Office for permission to register.

A record of each student's scholastic performance is kept in the Office of the Registrar and the Liberal Arts Advisory Office. Students placed on probation, continued on probation, or
Aerospace Military Studies

Department head: Lt. Col Michael P. Nolan
Faculty professor: Lt. Col. Annette K. Johnson
Assistant professor: Major Robert J. Armstrong
Chief: Capt. Thomas E. Strommen
Capt. James W. Allen

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

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

In order to receive a commission, AFROTC cadets must complete all University requirements for a degree and complete certain courses 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.

Four-Year Program

The four-year program consists of the General Military Course (GMC) and the Professional Officer Course (POC). The GMC awards a no-obligation contract at AFROTC. In the first two years, books as AFROTC privileges are provided.

The GMC consists of four one-credit AFROTC courses and the leadership laboratory. Enlisted students must attend a freshmen-only student takes 23A:11-12 The Air Force Today and AFROTC takes 23A:31-32 The Development of Air Power. To be considered an AFROTC cadet, a student must also take 23A:58-59 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 compresses the GMC into one year. Sophomores take the freshman and sophomore sequence simultaneously. This results in two semester hours of AFROTC plus 23A:58-59 Leadership Laboratory.

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 either undergraduate or graduate work remaining in college.


Students desiring to enter the two-year program should contact the professor of aerospace studies by the January before the fall semester of their junior year. Applicants must be evaluated on the basis of college major, grade, 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 POC incur a commitment to serve a minimum of four years as a U.S. Air Force officer.

Leadership Laboratory

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

Field Training

All applicants must successfully complete field training during the summer at a U.S. Air Force base. There are two types of field training: a four-week course for cadets in the four-year program and a six-week course for two-year AFROTC applicants. Normally, a student attends field training between the freshman and junior years.

Field training consists of aircraft, airborne, career, and survival orientation, junior officer training, physical training, small arms training, human relations education, and equal opportunity training. The six-week field training provides 60 hours of academics that a student normally would have taken as a freshman and sophomore.

Students receive authorized pay and allowances when they attend field training.
Courses
33A.17 The Air Force Today 1.6h. Discussion of the U. S. Air Force, including missions, operations, and the U.S. military forces. Credit for credit if the student has not previously taken the course.
33A.18 The Naval Service 1.6h. Course concentrates on the U. S. Navy and its role in national defense and international relations. Credit for credit if the student has not previously taken the course.
33A.19 The Army Today 1.6h. Course provides an overview of the U. S. Army, its organization, and its role in national defense and international relations. Credit for credit if the student has not previously taken the course.
33A.20 The Air Force Today 1.6h. Continuation of 33A.17. Credit for credit if the student has not previously taken the course.
33A.21 The Development of the Air Force 1.6h. Survey of the development of the U. S. Air Force from its early origins to the present. Credit for credit if the student has not previously taken the course.
33A.22 The Development of the Air Force 1.6h. Continuation of 33A.21. Credit for credit if the student has not previously taken the course.
33A.23 Leadership and Management 3.6h. Course introduces students to the principles of leadership and management as they apply to military organizations. Credit for credit if the student has not previously taken the course.

Afro-American Studies
Program chair: Daniel T. Turner
Faculty: Peter van der Veen (English/Afro- American Studies), Joseph Padua (History/Afro-American Studies), Vincent Weldy (History/Afro-American Studies), William A. White (History/Afro-American Studies), and Robert F. Williams (History/Afro-American Studies)

The Afro-American Studies Program is designed to provide students with a comprehensive understanding of the Afro-American experience. The program offers courses in African-American history, literature, culture, and social sciences, as well as opportunities for research and independent study.

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Faculty: Peter van der Veen (English/Afro- American Studies), Joseph Padua (History/Afro-American Studies), Vincent Weldy (History/Afro-American Studies), William A. White (History/Afro-American Studies), and Robert F. Williams (History/Afro-American Studies)

The Afro-American Studies Program is designed to provide students with a comprehensive understanding of the Afro-American experience. The program offers courses in African-American history, literature, culture, and social sciences, as well as opportunities for research and independent study.

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a program leading to the B.A. degree in American studies. Such a concentration would make room in the curricula for the African Peoples, 45:80 Introduction to Afro-American Culture, and 45:82 African-American history to numbered 45:10 through 45:15. Also recommended as background for more advanced courses in Afro-American literature and history are 45:116-117 Afro-American Literature I and II, and 45:185 Afro-American History 1900-1930, 45:186 Afro-American History 1930-1914, and 45:185 Afro-American History 1914 to the Present.

The Master of Arts Program

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

Curriculum Requirements

The Master of Arts program in Afro-American studies includes a minimum of 30 semester hours of coursework in the baccalaureate and graduate levels. The program is flexible and must be designed in consultation with an advisor. The student must complete 11 graduate credit hours in Afro-American literature and seven graduate credit hours in Afro-American history. The remaining 12 hours may be taken in Afro-American studies courses numbered 45:10 through 45:15. Also recommended as background for more advanced courses in Afro-American literature and history are 45:116-117 Afro-American Literature I and II, and 45:185 Afro-American History 1900-1930, 45:186 Afro-American History 1930-1914, and 45:185 Afro-American History 1914 to the Present. Students who have earned graduate credit in Afro-American literature and Afro-American history may be required to complete both 45:116-117 Afro-American Literature I and II, and the following—45:185 Afro-American History 1900-1930, 45:186 Afro-American History 1930-1914, 45:186 Afro-American History 1914 to the Present. Students who have earned graduate credit in Afro-American literature and Afro-American history may be required to complete both 45:116-117 Afro-American Literature I and II, and two of the following—45:185 Afro-American History 1900-1930, 45:186 Afro-American History 1930-1914, and 45:186 Afro-American History 1914 to the Present. In order to be eligible to take a Master's degree in Afro-American studies, students must complete a minimum of 30 semester hours of coursework in Afro-American studies. This 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 Master of Arts degree in Afro-American studies. However, a student elected to write a thesis, the thesis must be approved by the thesis advisor. The thesis is a one-year process, and the thesis advisor will meet regularly with the student to discuss progress. During the thesis writing process, the thesis advisor will work with the student to develop a research proposal and a research plan. The thesis advisor will also provide guidance and support to the student throughout the thesis writing process.

Admission Requirements

In addition to the general requirements of the Graduate College, unconditional graduate standing in Afro-American studies requires that a student have an appropriate educational background in literature and the social sciences, at least 8 semester hours of college credit in African-American literature and/or history courses, and a minimum grade-point average of 2.7 in previous college coursework. The student must also complete at least 30 semester hours at the graduate level, at least 20 of which must be in Afro-American studies courses numbered 45:10 through 45:15. Also recommended as background for more advanced courses in Afro-American literature and history are 45:116-117 Afro-American Literature I and II, and 45:185 Afro-American History 1914 to the Present.

Concentration within M.A. Program in American Studies

Generally, a student seeking a concentration in Afro-American studies within the Master of Arts program in American studies is preparing for a career as a research scholar or a college/university teacher, and proposes to undertake doctoral work in American studies. Of the 30 post-baccalaureate semester hours required for the Master of Arts program, 15 of these hours are to be taken in Afro-American studies. The program is designed to give students a broad understanding of Afro-American studies, and to provide a solid foundation for further study in this field. The program includes coursework in Afro-American literature, Afro-American history, Afro-American culture, and Afro-American social studies. The program also includes coursework in Afro-American art, Afro-American music, and Afro-American religion.

Concentration within Ph.D. Program in American Studies

Generally, a student seeking a concentration in Afro-American studies is preparing to be a teacher or research scholar at the university level, for a minimum 72 post-baccalaureate semester hours toward the degree, at least 30 of which must be in courses in Afro-American studies, including 45:221 Introduction to Research in Afro-American Studies. The program is designed to give students a broad understanding of Afro-American studies, and to provide a solid foundation for further study in this field. The program includes coursework in Afro-American literature, Afro-American history, Afro-American culture, and Afro-American social studies. The program also includes coursework in Afro-American art, Afro-American music, and Afro-American religion.
Cognate Areas, Special Fields
It is possible for students to take concentrations of 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 1968 through 1975, The University of Iowa each summer served as host for an Institute in Afro-American Studies for college and university teachers. The institute, 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 are not eligible to be official members of the Institute, they are permitted to enroll in a three-quarter-hour course which is offered at the same time as the Institute and on the current year's topics. 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 instruction and experience in theatrical 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 a theater, and it exhibits and exhibits of Black culture. Thus, it provides cultural enrichment for Black people of the Iowa City community and a cultural meeting place for Black students. It also aims 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 with which bands, dance, music, poetry, and visual arts in representations 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 list of required courses, the following courses are recommended for students interested in Afro-American Studies.

Business Administration
627, 629 Employment Relations and Public Policy 3-ah.

Economics
552, 324 Employment Relations in Urban Economics 3-ah.

Education
712:104 Education in the Third World 2-3-ah.
719:105 Educational Sociology 2-3-ah.
730:105 Seminar: Value Problems in the Administration of Social Education 3-ah.
730:105 Socialization of the School Child 2-3-ah.
731:123 The Culturally Different in Educational Settings 3-ah.

History
18:181 American History, 1492-1877 3-ah.
18:182 American History, 1877-Present 3-ah.
18:183 United States in the Early Republic 3-ah.
18:184 Civil War and Reconstruction 3-ah.
18:185 The Global Age in America 3-ah.
18:186 The Progressive Era in America 3-ah.
18:188 The Contemporary United States 1940-Present 3-ah.
18:189 The Revolutionary Generation in America 3-ah.
18:170 American Thought and Civilization 1660-Present 3-ah.

Courses
Afro-American Studies and Related Areas
For Undergraduates Only
467, 482, 483, 484, 485, 486
467 Literature and Cultural History of Afro-American People 3-ah.
482 Introduction to selected works of twentieth-century Black writers in the United States, the Carribean, and Africa. Prerequisites: 111:1. Same as 11:14.
483 Black Poetry Workshop 3-ah.
484 University in Afro-American History 3-ah.
485 Black American poetry, from its roots in folk songs and spirituals to the Black Arts Movement. Three one-credit courses: one dealing with the life and work of a contemporary poet, another with African and Afro-American heritage and the life of a poet admitted by students in the course.
486 Contemporary Black Experience 3-ah.
487 Selected readings of several genres of African and Afro-American literature, generally concentrating on the 1960s.
488 Afro-American Families 3-ah.
489 Trends and duration of Afro-American reception in American drama and film. Prerequisites: 3-ah.
504 Introduction to the Afro-American Family 3-ah.
505 General works are accompanied, selected and applicable to the topic. Prerequisites: 3-ah.
552 Afro-American Studies: An Introduction to Black Culture 3-ah.
555 Afro-American Studies: An Introduction to Black History 3-ah.
556 Afro-American Studies: An Introduction to Black Thought 3-ah.
557 Afro-American Studies: An Introduction to Black Politics 3-ah.
558 Afro-American Studies: An Introduction to Black Religion 3-ah.

Primarily for Advanced Undergraduates and Graduate Students
4815 African Drama 3-ah.
An examination of drama by contemporary African; reading list includes plays for study, one-act plays, radio plays.
4816 Afro-American Art 3-ah.
Work of Afro-American painters and sculptors, with emphasis on individual artists, movements, and African backgrounds. Observation of works in the area.
4817 Art of West Africa 3-ah.
4818 Art of Southeast Asia 3-ah.
4819 Art of the United Kingdom 3-ah.
4820 Art of the United States 3-ah.
4821 Art of the United States 3-ah.

4820 Art of the United States 3-ah.
Students should take the introductory gerontology course prior to for continuing education courses in the program. The research project or the practicum should not be taken until the first nine semester hours of the program are completed.

Program Eligibility

The program is open to all interested graduates, upper-level undergraduates (must have completed forty-five 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 sequencing of course work to be taken. The coordinator will keep a record of the student's approved program and of the student's progress. Upon completion of 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 in the program include:

17:108 Basic Aspects of Aging
34:130 Aging and Society
42:199 Selected Aspects of Social Work
Social Welfare
90:129 Introduction to Gerontology

Practicum and Research Courses

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

17:119 Directed Studies in Family Development
42:199 Selected Aspects of Social Work
Social Welfare
90:130 Seminar in Research 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:

Business Administration
6F:123 Public Economic Security Programs

Counselor Education
7C:280 Topical Seminar in Counselor Education

Dentistry
112:145 Introduction to Geriatric Dentistry

Family Practice
116:521 Perspectives on the Process of Aging

Health and Hospital Administration
80:112 Long-Term Care

Home Economics
17:211 Individual and Family Development: Life Span (Partial Credit)?

Nursing
96:104 Nursing IV (partial credit)
96:131 Nursing Care of the Institutionalized Gerontological Client

Physical Education
27:112 Physical Activity and Aging

Recreation Education
104:148 Contemporary Issues in Recreation and Leisure: Aging Reality or Socially Imposed (Same as 104:163)
104:162 Aging and Leisure

Religion
30:193 Death and Dying

Sociology
34:233 Aging and Human Development
34:260 Home Behavior: Selected Aspects of the Elderly
34:262 Social Welfare Policy: Selected Aspects-Public Policy and the Elderly

Speech Pathology
35:202 Seminar in Communication and Aging

Zoology
37:271 Seminar in Cell Physiology: Biology of Aging

American Studies Program

Program chair: Robert G. Strole
Faculty: professors Wayne Finken (English), American Studies; Margaret M. McClelland (History); Women's Studies; Robert Strole (American Studies, English); Dorothy T. Turner (Amerio-American Studies, English)

Associate professors: Richard P. Hintze (American Studies), Visual Arts (Art History); Frederick Woodward (Amerio-American Studies, English); associate professors: Alyson M. Parks (Amerio-American Studies, Anthropology); Jonathan W. Watson (Amerio-American Studies, Anthropology).


American Studies courses offered B.A., M.A., Ph.D.

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

Bachelor of Arts

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

With his or her adviser's assistance and approval, the student majoring in American studies develops an individual plan of study combining courses from cognate departments and programs with the American Studies Program courses to explore a common period, topic, theme, or problem in American culture and 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 core-credit (18 semester hours) in cognate departments and/or American studies.
The couquests in American and/or Afro-American studies usually include:

Required courses:
- 451 American Values 3 s.h.
- 4520 Turning Points in American Culture 3 s.h.

Two of the following:
- 452 American Issues 3 s.h.
- 453 Women in American Culture 3 s.h.
- 454 Family and Sex Roles: Alternatives to Stereotypes 3 s.h.
- 455 Media Studies 3 s.h.
- 456 Regional Studies: The American West 3 s.h.
- 457 Sex, Race, and Ethnicity 3 s.h.
- 459 American Music 3 s.h.
- 4590 Introduction to Afro-American Sociology 3 s.h.
- 4591 Introduction to Afro-American Culture 3 s.h.
- 4592 Readings in American Studies 3 s.h.
- 4592 Childhood and Youth in America 3 s.h.
- 4593 Aging in America 3 s.h.
- 459 Visual Arts and American Culture 3 s.h.
- 459 American Institutions: The Business Corporation 3 s.h.
- 4593 American Community: Field Work 3 s.h.
- 4590 Autobiography and American Culture 3 s.h.
- 4598 Populace Culture 3 s.h.

The history requirement may be met by two of the following:
- 1551 Colloquium for History Major 3 s.h.
- 4591 American History 1490-1787 3 s.h.
- 1594 American History 1777-Present 3 s.h.

General education courses in historical perspectives, humanities, literature, and social sciences provide relevant preparation for American and/or Afro-American studies major; 11/2 American Lives is especially recommended.

Honors
Honors candidates in American studies must take 4550 Turning Points in American Culture and 4556 Honors Project. With his or her advisor's help, the student in 4550 defines 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:
- 45200 Theory and Practice in American Studies 4 s.h.
- 45201 History, Literature, and American Popular Culture 3 s.h.
- Two other courses or seminars in American studies or Afro-American studies
- Two courses in American history at the graduate level (unless already taken as undergraduate credit)
- Six or eight additional courses selected in relation to a topic or period of cultural history. These courses may be grouped to address more than one topic or problem, but must be chosen from more than one discipline or department.

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

The M.A. may also be taken with 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 seminars in interdisciplinary approaches and methods; subfield journal courses in a major field or topic; equivalent work in a second major field or topic; two other electives; and one in tools of skills.

Although permitted considerable flexibility in planning a program, the American student candidate must meet certain basic requirements. One is that all students directly engage, in course work and reading, the cultural diversity of American life and experience. Some course work is expected in such areas as Afro-American studies, women's studies, Latin American culture, or Chicano culture; this will be selectively explored on the candidate's own interest. A second requirement is that each program will include substantial study of one period of American cultural history as defined to reflect the student's specific interests. Hence, history is considered either background to or the actual content of a course sequence.

The candidate normally takes 45200 Theory and Practice in American Studies and 45201 History, Literature, and American Culture during the first year of graduate study, and may include 45530 Special Graduate Projects among the two or three other courses he or she takes in the area of interdisciplinary methods and approaches in American studies. Instead of a written examination in this area, the student prepares a position paper or interdisciplinary essay. The student then takes two seminars and one course on seven or eight 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 one basis for the candidate's oral final examination.

The student also takes three or four courses, organized around a specific topic or subdiscipline, as one minor area. A student who wishes to explore a larger topic as a minor may do so if one of his or her major areas has a thematic or specific focus.

Instead of a written final examination, the candidate provides an annotated bibliography on the minor field, for evaluation by a member of his or her comprehensive examination committee.

A candidate who has already submitted an annotated bibliography for a course has the option of taking a two-hour written examination based on an abbreviated reading list.

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

In demonstrating mastery of tools or skill useful for the candidate's studies, the candidate may use prior experience, summer internships, and/or independent study, but must take two graduate-level courses at low.

The final requirement for the Ph.D. in American studies is presentation of an acceptable thesis on a topic whose investigation involves more than one field or discipline. The candidate may present a creative thesis—such as fiction, autobiography, film—if he or she combines it with a critical analysis of the cultural experiences the thesis reflects.

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

Courses

Primarily for Undergraduates

451 American Indian Studies (3) An interdisciplinary study of American Indian culture, history, and contemporary issues.

452 American Studies (3) Topics and problems in American studies student and women's studies.

453 women in American Culture (3) Topics include pioneer women, women's work, women's roles, and the image of women in American art.

454 Family and Sex Relations in Marriage (3) Women and the family: homogeneous in American history and culture.

456 Studio Studies (3) Study, film, television, cartoon, the new journalism.

457 Regional Studies: The American West (3) Jazz, theater, or wind 'n' wire.

458 THE AMERICAN FUTURE (3) SHS

458B THE AMERICAN PEOPLE (3) SHS

458C THE AMERICAN WAY (3) SHS

458D THE AMERICAN FUTURE (3) SHS

458E THE AMERICAN PEOPLE (3) SHS

458F THE AMERICAN WAY (3) SHS

458G THE AMERICAN FUTURE (3) SHS

458H THE AMERICAN PEOPLE (3) SHS

458I THE AMERICAN WAY (3) SHS

458J THE AMERICAN FUTURE (3) SHS

458K THE AMERICAN PEOPLE (3) SHS

458L THE AMERICAN WAY (3) SHS

458M THE AMERICAN FUTURE (3) SHS

458N THE AMERICAN PEOPLE (3) SHS

458O THE AMERICAN WAY (3) SHS

458P THE AMERICAN FUTURE (3) SHS

458Q THE AMERICAN PEOPLE (3) SHS

458R THE AMERICAN WAY (3) SHS

458S THE AMERICAN FUTURE (3) SHS

458T THE AMERICAN PEOPLE (3) SHS

458U THE AMERICAN WAY (3) SHS

458V THE AMERICAN FUTURE (3) SHS

458W THE AMERICAN PEOPLE (3) SHS

458X THE AMERICAN WAY (3) SHS

458Y THE AMERICAN FUTURE (3) SHS

458Z THE AMERICAN PEOPLE (3) SHS

459 Anthropology


459B Anthropology and American Indian (3) Topics in American culture and the life experiences of sub-cultures members as released in anthrology, whose complex role in the cultural role and the traditional dynamics. Same as 110-115.

459C Anthropological Field School in High School and Community College (3) Same as 70-75.

459D Popular Culture (3) SHS

459E Exlcursion of several features of American popular culture, such as the cinematic novel, the Western, the thoughtful film, and the adolescent drama. Emphasis on their relation to other features of American life.

459F Primarily for Graduates

459G Theory in Practice in American Studies (4) SHS

459H Theory and Methods in American Studies (4) SHS

459I History, Literature, and American Culture (3) SHS

459J Approaches to Literary and Historical Interventions and Interactions of American culture and cultural experience.

459K Psychosocial and Culture (3) SHS

459L Primarily for students in the field of American culture.

459M Special Graduate Projects (4) SHS

459N Special Graduate Projects (4) SHS

459O Special Graduate Projects (4) SHS

459P Special Graduate Projects (4) SHS

459Q Special Graduate Projects (4) SHS

459R Special Graduate Projects (4) SHS

459S Special Graduate Projects (4) SHS

459T Special Graduate Projects (4) SHS

459U Special Graduate Projects (4) SHS

459V Special Graduate Projects (4) SHS

459W Special Graduate Projects (4) SHS

459X Special Graduate Projects (4) SHS

459Y Special Graduate Projects (4) SHS

459Z Special Graduate Projects (4) SHS

Anthropology

Department Chair: Judith A. Marshall

459A American Indian Studies (3) SHS

459B Anthropological Field School in High School and Community College (3) SHS

459C Anthropological Field School in High School and Community College (3) SHS

459D Anthropological Field School in High School and Community College (3) SHS

459E Anthropological Field School in High School and Community College (3) SHS

459F Anthropological Field School in High School and Community College (3) SHS

459G Anthropological Field School in High School and Community College (3) SHS

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459W Anthropological Field School in High School and Community College (3) SHS

459X Anthropological Field School in High School and Community College (3) SHS

459Y Anthropological Field School in High School and Community College (3) SHS

459Z Anthropological Field School in High School and Community College (3) SHS

Accounting

Bachelor of Arts

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

112:3 Introduction to the Study of Culture and Society (4) SHS

112:12 Introduction to Prehistory (3) SHS

112:13 Human Origins (3) SHS

112:14 Language and Human Behavior (3) SHS

In addition, each student must take one course in archaeology other than laboratory methods, one course in ethnology, and one course in social institutions. The remaining hours are to be selected in consultation with the advisor.

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

Honors

The program in anthropology is open to students with minimum cumulative grade point averages of 3.0 overall and 3.2 in anthropology. In addition, the regular requirements for a major in anthropology, honors students must complete the department's honors research courses and honors research courses, Field Research Opportunities are available for students to participate in anthropological field research in central Mexico or at various sites in Iowa. Under the direction of University archaeologists, participating students acquire skills in data recovery and interpretive techniques.
Master of Arts

The M.A. program is general in nature, designed to prepare the student to deal with any aspect of anthropology at an introductory level. The department offers the M.A. degree with or without thesis. The program without thesis precedes 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 30-hour M.A. degree without thesis is available in conjunction with a minor concentration in museology.

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

Either
113.240 Seminar: Social Anthropology
or
113.201 Seminar: Anthropological Theory

These four courses: 113.171 Anthropological Linguistics 113.268 Seminar: Anthropological Theory and Method 113.285 Seminar: Biological Anthropology 113.102 Anthropological Data Analysis

Two courses from the following subject areas:
Social institutions;
Linguistic (including courses in the Department of Linguistics); and
Archaeology.

No more than 9 semester hours of courses outside of anthropology and no more than 1 semester hour 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 partial fulfillment 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. Details of exhibit preparation and the general operational procedures or 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 a student at the University of Iowa currently may select includes archaeology, linguistic anthropology, and sociocultural anthropology.

Training in specialization will be guided by a Ph.D. committee composed of members of the faculty competent in the particular areas and topics chosen by the student. The only limitations in program selection are based on the faculty's expertise in given areas and the feasibility of arranging for training and guidance.

These are the requirements:

At least 72 semester hours of graduate course work.

Demonstration of a reading knowledge of one foreign language;

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

Ethnographic or archeological specialization in a major geographic area (for example, North America, Oceania, Southeast Asia, Cambodia, Europe, or the Middle East), approved by the student's Ph.D. committee, and a minor geographic area;

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

Preparation and oral defense of a dissertation.

The major topical area is the area of theoretical concentration and orientation for the dissertation. Kind of topic that may serve either as major or minor areas in socio-cultural or linguistic anthropology includes: kinship or social organization, ethnography, economic anthropology, language and culture, religions, cultural ecology, and urban anthropology. Examples of possible major topical areas for students in archaeology include settlement archaeology, environmental archaeology, and dating methods. The comprehensive examination ordinarily will be taken when the student's course work is completed or nearly completed. Successful passage of the language and research skills requirements have been passed, and before he or she begins fieldwork.

All doctoral candidates are required to carry several original anthropological works. Ordinarily, students conduct significant research work as their dissertation, occasionally, however, a research proposal may be carried out using only existing collections, other source materials.

All doctoral candidates are required to write a dissertation on the basis of their dissertation; occasionally, however, a research proposal may be carried out using only existing collections, other source materials.

Graduate Admission

Applications 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 a thesis in anthropology from another institution may proceed directly to a specialized 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 recognized among the departmental faculty.

Applicants for admission to the graduate program must complete the general admission requirements of the Graduate College (see "Graduate College") and will be required to submit a completed University application form, transcripts of all previous undergraduate and graduate work, three letters of recommendation from individuals competent to judge the candidate's potential for graduate training, scores from the aptitude portion of the Graduate Record Examination, and at least one typewritten example of previous work (for example, a term paper or an original experiment). An applicant with an M.A. degree from another university must submit a copy of his or her master's thesis; an applicant who earned an M.A. without thesis or whose thesis is not yet complete should submit typewritten copies of three papers completed in graduate school.

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

A graduate student from another degree program 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 Law Archaeological Collections through the Office of the State Archaeologist. Prof. Thomas H. Charlton maintains a field laboratory in Mexico. The University is a charter member of the Human Area Relations File, an extensively annotated set of source materials on the peoples of the world—their environments, behavioral patterns, social lives, and cultures. The HRAF and other library resources give anthropology students access to source materials on more than 400 different cultures.

Faculty

Members of the anthropology faculty have studied and worked in the Pacific Islands, Asia, Europe, the Caribbean, Mesoamerica, South America, and the Subarctic. Department faculty have recently conducted field research in Mexico, Bolivia, Guatemala, Micronesia, Thailand, the Canadian Subarctic, New Guinea, Tsimshian, St. Lucia, Great Britain, Hungary, Iceland, and lowes, Recent research interests of faculty include the functions of the precontact trade networks and the role of hydraulic cultivation systems in the emergence of civilization in the Valley of Mexico patterns of political and economic development of emerging nations, comparative ethnographic studies of hunting and gathering groups, and archeological investigations of Indian sites in Iowa, alcohol use and abuse in Micronesia and Melanesia, Mayan language, culture, and religious and economic decision making among rural populations in Thailand, Bolivia, and lowes.

Courses

For Undergraduates Only

1103 Anthropology and Contemporary World

Examination of world problems from an anthropological perspective, representing and comparing current disagreements and conflicts between diverse human groups in recent time and the distant past.

1103 Introduction to Anthropology and Physical Anthropology

Introduction to human evolution and cultural history.

115 Introduction to Prehistory

Data and theories on evolution of human cultures from end of hominids to emergence of complex societies, emphasis on prehistoric cultural and biological evolution of human species.

1155 Cultural and Social Evolution

Evolutionary processes affecting human cultures from end of hominids to emergence of complex societies, emphasis on prehistoric cultural and biological evolution of human species.

1155 Introduction to Middle Eastern History

Prehistoric and historical origins of peoples of the Middle East, and development of language, art, and communication.

125 Introduction to Minority Prehistory

Prehistoric cultural movements of Native American peoples in North America, emphasis on prehistoric culture history and the development of language, art, and communication.

1255 Prehistoric and Historical Origins of Peoples of the Middle East

Prehistoric and historical origins of peoples of the Middle East, and development of language, art, and communication.

1255 Introduction to Middle Eastern History

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professional artists to its permanent faculty. It was also among the first schools of art to job-study art with an art history faculty, reflecting the concept that the living artist will benefit from a formal study of the traditions of art, and that a prospective historian from personal experience with the creative process. The emphasis on the creativity and 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 and achieved national recognition for presenting large exhibitions of contemporary American painting and sculpture. Its national image and position are maintained not only through The University of Iowa Art Museum, its program of exhibitions, and its growing collection of art works of all periods and nations, but also through its continuing program of employing visiting artists and scholars of both national and international prominence. The fluidity of its undergraduate and graduate programs in art history continues with the support of an excellent full-time faculty 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 have enjoyed success as practicing professional artists, art historians, art department administrators, museum directors and curators, interior designers, and teachers. Residence of employment depression, graduation of the school have traditionally continued to find accordance of the best in their field or profession. Although the emphasis has always been placed on the fine arts and specifically commercial art courses are not part of the program, many graduates have taken positions as commercial designers.

As far as possible, the design of academic programs is arranged to meet the individual student's needs. It permits the student to choose as specific as well as general programs in studio arts and history. The major requirements of the undergraduate program are broad and flexible; specialization is discouraged. The art history major requires at least an introduction to studio work. The studio major requires development of a foundation in art history and at least six areas of studio art. The aim of the joint curriculum is to give students a basic understanding of studio arts and aesthetics; it does not focus on particular studio arts or fashion.
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 with original sources.

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.

At least one semester intermediate (100-level) course compared with at least a 3.0 grade in each of the following areas of art history:

- Ancient (to 300 A.D.)
- Medieval (300-1500)
- Renaissance to Baroque (1500-1700)

Nineteenth Century to Modern

- Oriental
- Primitive and Pre-Columbian

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

- 1H2924 Seminar: Methodology of Art History and Criticism 3 s.h.
- Two other art history seminars (with different instructors) 4-6 s.h.
- Additional History courses 14-21 s.h.
- Studio courses 0-6 s.h.
- Courses outside the school 0-9 s.h.

Students with little or no undergraduate studio experience are required to take two courses in different studio fields; students with substantial undergraduate studio training will be exempted from the graduate studio requirement. A student preparing to teach in both the art history and studio areas will take 12 to 15 semester hours of studio work, with a minimum of 9 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.

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

Within the first 20 semester hours of graduate work, the M.A. candidate will be expected to demonstrate the ability to read historical writings in an appropriate foreign language, normally German or French, though other languages, including Oriental languages, may be acceptable. This requirement may be satisfied by the Graduate School Foreign Language Test (GSFLT), examination by the appropriate University of two language departments, satisfactory completion of the final semester of a P.R.O. language reading, course, or satisfactory completion (at least a 3.0 grade-point average) of the fourth semester of a college or university language course.

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

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

Master of Arts in Studio

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

The degree requires:

- The B.A. or B.F.A. in art equivalent to that offered at the University of Iowa (undergraduate deficiencies, if any, may be made up concurrently with, but are in addition to, graduate requirements).

A minimum of 38 semester hours of graduate work, including at least 12 semester hours of major studio subject, a total of at least 21 semester hours in studio courses. 9 semester hours in history and theory of art, and up to 8 semester hours of courses outside art and art history.

Clearance for M.A. candidacy by faculty review and Studio majors may elect to take art history courses on the satisfactory/unsatisfactory basis.

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

A student preparing to teach in both the studio and art history areas may offer an art history minor of 15 semester hours, including 1H2924 Seminar: Methodology of Art History and Criticism, and one other seminar. These hours are in addition to the University's undergraduate requirement for an art history major (except for the second foreign language), and in combination with the undergraduate hours must satisfy the distribution requirement for art history.

Master of Arts in Art Education

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

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

Completion of 28 semester hours of graduate credit, including 18 semester hours of studio art history in a ratio of two to one (other 12 semester hours of graduate credit in studio and 9 in art history, or 9 in studio and 12 in art history), 8 semester hours in graduate seminars in art education and 12 semester hours to be specified after the student completes the program;

An oral and/or written examination in art education;

A written thesis based on research in art education or art history or a studio thesis, (a studio thesis must be accompanied by a brief statement of the student's technical, aesthetic, and/or psychological approach) and, as 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 studio'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, metalworking 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 30 semester hours of graduate work, including at least 12 semester hours in a major studio subject, at least 5 semester hours in a minor studio field, 9 semester hours in art history and theory of art, and 8 semester hours in courses originating outside the school; clearance for M.A. candidacy by faculty review and Studio majors in M.F.A. and Studio majors in M.A. program are not applicable toward the M.F.A. credit requirement.
Doctor of Philosophy (art history only)

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

No more than 38 semester hours of credit earned in an M.A. program may be applied toward the 72 semester hours required for the Ph.D.

Courses 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 10-28 s.h.
Courses outside the school 0-12 s.h.

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

Within the first 16 semester hours of graduate work beyond the M.A., the doctoral student must demonstrate ability to read art historical writings in two appropriate foreign languages. For majors in European art, one language will normally be German; for majors in Oriental art, Sanskrit, Chinese, or Japanese may be acceptable. The procedure for satisfying the Ph.D. language requirement is as explained in the description of the M.A. in art history program.

The student must take a comprehensive examination in one major field (9 semester hours) and two minor fields (3 semester hours each) selected by the student in consultation with the advisor and approved by the art history faculty. At least one minor field may be in a minor historical period and one year remote from the major field. One minor field may be related to the major; this field may be in a discipline or discipline outside 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 up to 6 semester hours of credit toward the art history course requirements for dissertation preparation. The student will formally present the dissertation topic for faculty approval. The student will then pass an oral examination on the dissertation.

Graduate Admission: Studio

Admission procedures for graduate studio programs include a committee review of application materials and a portfolio of work in the student's major field. Applicants must submit original artwork to the school for the committee to review. Ceramics, design, electronic arts, jewelry, multimedia, sculpture, or photography of the work in the student's major field is required. All programs have a minimum of 24 hours in the major field. Applicants must submit a curriculum vitae, a statement of purpose, three letters of recommendation, and a portfolio of five to twenty-five slides of their work. The portfolio should consist of written descriptions with a brief statement of the work. The student will also present a personal interview with the admissions committee.

Graduate Admission: Art History and Art Education

Applicants to the graduate program in art history must submit a term paper or other original work of ability to write in English and art history. Students must present a selection of slides or photographs of their creative work in two studio areas. A list of three letters of recommendation will be required. The student must take a comprehensive examination in one major field (9 semester hours) and two minor fields (3 semester hours each) selected by the student in consultation with the advisor and approved by the art history faculty. At least one minor field may be in a minor historical period and one year remote from the major field. One minor field may be related to the major; this field may be in a discipline or discipline outside 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 up to 6 semester hours of credit toward the art history course requirements for dissertation preparation. The student will formally present the dissertation topic for faculty approval. The student will then pass an oral examination on the dissertation.

These financial aids are generally awarded to students who have been in residence for at least one semester, so that these 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 media library containing 225,000 slides and 80,000 photographs; an in situ printmaking, furniture, and equipment for large-scale iron and bronze casting processes, as well as facilities for welding and fabrication of steel sculptures; a well-equipped darkroom; extensive kiln facilities, including provision for construction of various types of temporary and specialized kilns; a large shop for woodwork, metalwork, and industrial design; electroforming equipment; a paper-making mill; a typography studio; and video equipment.

Courses

Art History

Primarily for Undergraduates

615 Understanding the Visual Arts 3 s.h.

616 Introduction to American Art 3 s.h.

617 Introduction to European Art 3 s.h.

618 Introduction to Modern Art 3 s.h.

619 Introduction to Contemporary Art 3 s.h.

620 Introduction to Medieval Art 3 s.h.

621 Introduction to Prehistory and Early Civilizations 3 s.h.

622 Introduction to African Art 3 s.h.

623 Introduction to Islamic Art 3 s.h.

624 Introduction to South Asian Art 3 s.h.

625 Introduction to East Asian Art 3 s.h.

626 Introduction to Southeast Asian Art 3 s.h.

627 Introduction to Native American Art 3 s.h.

628 Introduction to Latin American Art 3 s.h.

629 Introduction to Oceanic Art 3 s.h.

630 Introduction to American Art 3 s.h.

631 Introduction to European Art 3 s.h.

632 Introduction to Medieval Art 3 s.h.

633 Introduction to Prehistory and Early Civilizations 3 s.h.

634 Introduction to African Art 3 s.h.

635 Introduction to Islamic Art 3 s.h.

636 Introduction to South Asian Art 3 s.h.

637 Introduction to East Asian Art 3 s.h.

638 Introduction to Southeast Asian Art 3 s.h.

639 Introduction to Native American Art 3 s.h.

640 Introduction to Latin American Art 3 s.h.

641 Introduction to Oceanic Art 3 s.h.

642 Introduction to American Art 3 s.h.

643 Introduction to European Art 3 s.h.

644 Introduction to Medieval Art 3 s.h.

645 Introduction to Prehistory and Early Civilizations 3 s.h.

646 Introduction to African Art 3 s.h.

647 Introduction to Islamic Art 3 s.h.

648 Introduction to South Asian Art 3 s.h.

649 Introduction to East Asian Art 3 s.h.

650 Introduction to Southeast Asian Art 3 s.h.

651 Introduction to Native American Art 3 s.h.

652 Introduction to Latin American Art 3 s.h.

653 Introduction to Oceanic Art 3 s.h.

654 Introduction to American Art 3 s.h.

655 Introduction to European Art 3 s.h.

656 Introduction to Medieval Art 3 s.h.

657 Introduction to Prehistory and Early Civilizations 3 s.h.

658 Introduction to African Art 3 s.h.

659 Introduction to Islamic Art 3 s.h.

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661 Introduction to East Asian Art 3 s.h.

662 Introduction to Southeast Asian Art 3 s.h.

663 Introduction to Native American Art 3 s.h.

664 Introduction to Latin American Art 3 s.h.

665 Introduction to Oceanic Art 3 s.h.

666 Introduction to American Art 3 s.h.

667 Introduction to European Art 3 s.h.

668 Introduction to Medieval Art 3 s.h.

669 Introduction to Prehistory and Early Civilizations 3 s.h.

670 Introduction to African Art 3 s.h.
The Program in Asian Studies

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

Students majoring in Asian studies must complete 30 semester hours of courses on Asia distributed as follows:

3-6:10-11 Second Year Chinese or Japanese 12 s.h.
3-6:10-12 Second Year Chinese or Japanese 12 s.h.
3-6:23-24 Second Year Sanskrit 8 s.h.

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

3-6:133 History of Ancient and Traditional India 3 s.h.
3-6:134 Imperialism and Modern India 3 s.h.
3-6:153 Traditional China 3 s.h.
3-6:164 China: Opium War to Mao 3 s.h.
3-6:152 Prereform Japan 3 s.h.
3-6:154 Modern Japan 3 s.h.
3-6:193 Aesthetics: East and West 3 s.h.
Other courses on Asia 100-level or above for those taking Chinese or Japanese 12 s.h.
for those taking Sanskrit 18 s.h.

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

Students completing the major will satisfy the general education requirements in foreign civilization and culture, foreign language, and 6 semester hours of the requirement in historical perspectives.

Chinese, Japanese, or Sanskrit

This program is intended for students who wish to achieve an ability to speak, understand, read and write Chinese or Japanese, or to "read" Sanskrit; and to gain knowledge of the literature of China, Japan, or South Asia.

Majors are required to complete advanced courses distributed as follows:

For students of Chinese:
3-6:10-11 Second Year Chinese 12 s.h.
3-6:10-12 Third Year Chinese 12 s.h.
3-6:141-142 Chinese Literature: Poetry and Prose 8 s.h.
For students of Japanese:
3-6:10-11 Second Year
3-6:12-13 Second Year
3-6:141-142 Japanese Literature: Poetry and Prose 3 s.h.
3-6:142 Japanese Fiction 3 s.h.

For students of Sanskrit:
3-6:23-24 Second Year Sanskrit 12 s.h.
3-6:186-187 Third Year Sanskrit 6 s.h.
3-6:186-187 Indian Language I 6 s.h.
3-6:183 Indian Religious Texts 3 s.h.

With the approval of the departmental advisor, students may substitute two of the following courses for Third Year Sanskrit:
3-6:123 History of Ancient and Traditional India 3 s.h.
3-6:124 Imperialism and Modern India 3 s.h.
3-6:186 Painting of India 3 s.h.
3-6:181 Art of India 1 3 s.h.

Students are strongly urged to fulfill the general education requirement in Historical Perspectives by completing 11:50-56 Civilizations of Asia.

Students completing the major will satisfy the general education requirements in foreign civilizations and culture, foreign language, and 3 semester hours of the requirement in humanities.

Honors

Students with junior status who maintain a 3.25 grade-point average or above are encouraged to enroll in the Honors Program. With the permission of the departmental chair and a faculty sponsor selected from among Asian specialists in any department, the student will register for 3-6:181 Honors Tutorial and 3-6:186 Senior Honors Thesis. To receive an A.U. with honors, the student must complete an acceptable thesis based on original research in an appropriate area of Asian Studies.

Master of Asian Studies

Graduate study in Asian civilization is designed to prepare students for careers in high school teaching, government service, or commerce, in which a knowledge of an Asian language and culture would be helpful, it also provides excellent preparation for advanced study on the doctoral level.

All students are required to write an M.A. thesis in English using Chinese, Japanese, or Indian language sources. The thesis may count for 4 semester hours of the 30 required. All students must maintain a 3.0 grade-point average.

Students will be required to demonstrate language competence by passing a departmental examination at the conclusion of the program. Language competence for students of Chinese and Japanese will be at the level of the completion of fourth-year modern and first-year classical language; for students of premodern South Asia, at the level of the completion of third-year Sanskrit; for students of modern South Asia, at the level of the second-year Sanskrit.

In addition, students will be examined on the history of China, Japan, or South Asia, and in two appropriate areas from among Chinese, Japanese, or South Asian history, literature, art, or religion; Chinese linguistics, or philosophy; Japanese anthropology, linguistics, or politics; or South Asian social sciences. The department can accommodate native speakers of Chinese or Japanese who wish to work toward professional competence in Asian civilization. A curriculum for such a student would exclude any modern language work, and would include 26 semester hours of content courses on Asia, as well as 4 semester hours for the M.A. thesis. All candidates are expected to fulfill the general requirements of the Graduate College.

Graduate Admission

Applicants for admission must meet the general admission requirements of the Graduate College, except that a minimum grade-point average of 3.7 is required for conditional admission, 3.0 for regular admission. In addition, applicants must submit a specimen of their writing—such as a term paper, seminar paper, or graduation thesis—to the Department of Asian Languages and Literature.

All applications for graduate awards for the following academic year are due March 15. Applications for admission without support will be accepted until July 15. For spring semester admission, December 15 is the spring semester. The Graduate Record Examination at an early date, since an admission decision cannot be made until scores are received.

Library Facilities

Since 1960 the library has acquired at least one book on Asian language, culture, history, and philosophy, and it is constantly being augmented by purchases of books and periodicals necessary for research or contemporary society. The library regularly receives periodicals in Chinese, Hindi, and English.
Courses

Undergraduate Language

28. 1 Chinese
Introduction to spoken and written Chinese culture. Prerequisite: None. Open to freshmen. Offered fall semesters.

28. 2 Chinese I
Further study of spoken Mandarin. Prerequisite: None. Open to freshmen. Offered fall semesters.

28. 3 Third-Year Chinese
On the Chinese language, culture, literature, and society. Prerequisite: 28. 2 or 28. 4. Open to all students.

28. 4 Fourth-Year Chinese
On the Chinese language, culture, literature, and society. Prerequisite: 28. 3 or 28. 4. Open to all students.

28. 5 Second-Year Chinese
Speaks Chinese. Prerequisite: 28. 4 or 28. 1 or 28. 2. Open to all students.

28. 6 Third-Year Chinese I
Introduction to spoken Chinese and Chinese culture. Prerequisites: None. Open to all students.

28. 7 Third-Year Chinese II
Introduction to spoken Mandarin and Chinese culture. Prerequisites: 28. 1 or 28. 2 or 28. 4. Open to all students.

28. 8 Chinese I
Introduction to spoken Chinese and Chinese culture. Prerequisite: None. Open to all students.

28. 9 Chinese II
Further study of spoken Mandarin. Prerequisite: 28. 8 or 28. 1. Open to all students.

28. 10 Classical Chinese
On the Chinese language, culture, literature, and society. Prerequisite: 28. 9 or 28. 10 or 28. 4. Open to all students.

28. 11 First-Year Chinese
Introduction to spoken Chinese and Chinese culture. Prerequisite: None. Open to all students.

28. 12 Second-Year Chinese I
Introduction to spoken Chinese and Chinese culture. Prerequisite: 28. 1 or 28. 2 or 28. 4. Open to all students.

28. 13 Chinese Script
Introduction to the Chinese language and culture. Prerequisite: None. Open to all students.

28. 14 Advanced Chinese
Further study of spoken Mandarin. Prerequisite: 28. 13 or 28. 14. Open to all students.

28. 15 Second-Year Chinese I
Introduction to spoken Chinese and Chinese culture. Prerequisite: None. Open to all students.

28. 16 Chinese I
Introduction to spoken Chinese and Chinese culture. Prerequisite: None. Open to all students.

28. 17 Chinese II
Further study of spoken Mandarin. Prerequisite: 28. 16 or 28. 1. Open to all students.

28. 18 Chinese I
Introduction to spoken Chinese and Chinese culture. Prerequisite: None. Open to all students.

28. 19 Second-Year Chinese I
Introduction to spoken Chinese and Chinese culture. Prerequisite: None. Open to all students.

28. 20 Third-Year Chinese I
Introduction to spoken Chinese and Chinese culture. Prerequisite: None. Open to all students.

28. 21 Fourth-Year Chinese
Introduction to spoken Chinese and Chinese culture. Prerequisite: 28. 20 or 28. 21. Open to all students.

28. 22 Chinese I
Introduction to spoken Chinese and Chinese culture. Prerequisite: None. Open to all students.

28. 23 Second-Year Chinese I
Introduction to spoken Chinese and Chinese culture. Prerequisite: None. Open to all students.

28. 24 Chinese I
Introduction to spoken Chinese and Chinese culture. Prerequisite: None. Open to all students.

28. 25 Chinese I
Introduction to spoken Chinese and Chinese culture. Prerequisite: None. Open to all students.

28. 26 Chinese I
Introduction to spoken Chinese and Chinese culture. Prerequisite: None. Open to all students.

28. 27 Chinese I
Introduction to spoken Chinese and Chinese culture. Prerequisite: None. Open to all students.

28. 28 Chinese I
Introduction to spoken Chinese and Chinese culture. Prerequisite: None. Open to all students.

28. 29 Chinese I
Introduction to spoken Chinese and Chinese culture. Prerequisite: None. Open to all students.

28. 30 Chinese I
Introduction to spoken Chinese and Chinese culture. Prerequisite: None. Open to all students.

28. 31 Chinese I
Introduction to spoken Chinese and Chinese culture. Prerequisite: None. Open to all students.

28. 32 Chinese I
Introduction to spoken Chinese and Chinese culture. Prerequisite: None. Open to all students.

28. 33 Chinese I
Introduction to spoken Chinese and Chinese culture. Prerequisite: None. Open to all students.

28. 34 Chinese I
Introduction to spoken Chinese and Chinese culture. Prerequisite: None. Open to all students.

28. 35 Chinese I
Introduction to spoken Chinese and Chinese culture. Prerequisite: None. Open to all students.

28. 36 Chinese I
Introduction to spoken Chinese and Chinese culture. Prerequisite: None. Open to all students.

28. 37 Chinese I
Introduction to spoken Chinese and Chinese culture. Prerequisite: None. Open to all students.

28. 38 Chinese I
Introduction to spoken Chinese and Chinese culture. Prerequisite: None. Open to all students.

28. 39 Chinese I
Introduction to spoken Chinese and Chinese culture. Prerequisite: None. Open to all students.

28. 40 Chinese I
Introduction to spoken Chinese and Chinese culture. Prerequisite: None. Open to all students.

28. 41 Chinese I
Introduction to spoken Chinese and Chinese culture. Prerequisite: None. Open to all students.

28. 42 Chinese I
Introduction to spoken Chinese and Chinese culture. Prerequisite: None. Open to all students.

28. 43 Chinese I
Introduction to spoken Chinese and Chinese culture. Prerequisite: None. Open to all students.

28. 44 Chinese I
Introduction to spoken Chinese and Chinese culture. Prerequisite: None. Open to all students.

28. 45 Chinese I
Introduction to spoken Chinese and Chinese culture. Prerequisite: None. Open to all students.

28. 46 Chinese I
Introduction to spoken Chinese and Chinese culture. Prerequisite: None. Open to all students.

28. 47 Chinese I
Introduction to spoken Chinese and Chinese culture. Prerequisite: None. Open to all students.

28. 48 Chinese I
Introduction to spoken Chinese and Chinese culture. Prerequisite: None. Open to all students.

28. 49 Chinese I
Introduction to spoken Chinese and Chinese culture. Prerequisite: None. Open to all students.

28. 50 Chinese I
Introduction to spoken Chinese and Chinese culture. Prerequisite: None. Open to all students.

28. 51 Chinese I
Introduction to spoken Chinese and Chinese culture. Prerequisite: None. Open to all students.

28. 52 Chinese I
Introduction to spoken Chinese and Chinese culture. Prerequisite: None. Open to all students.

28. 53 Chinese I
Introduction to spoken Chinese and Chinese culture. Prerequisite: None. Open to all students.

28. 54 Chinese I
Introduction to spoken Chinese and Chinese culture. Prerequisite: None. Open to all students.

28. 55 Chinese I
Introduction to spoken Chinese and Chinese culture. Prerequisite: None. Open to all students.

28. 56 Chinese I
Introduction to spoken Chinese and Chinese culture. Prerequisite: None. Open to all students.

28. 57 Chinese I
Introduction to spoken Chinese and Chinese culture. Prerequisite: None. Open to all students.

28. 58 Chinese I
Introduction to spoken Chinese and Chinese culture. Prerequisite: None. Open to all students.

28. 59 Chinese I
Introduction to spoken Chinese and Chinese culture. Prerequisite: None. Open to all students.

28. 60 Chinese I
Introduction to spoken Chinese and Chinese culture. Prerequisite: None. Open to all students.

28. 61 Chinese I
Introduction to spoken Chinese and Chinese culture. Prerequisite: None. Open to all students.

28. 62 Chinese I
Introduction to spoken Chinese and Chinese culture. Prerequisite: None. Open to all students.

28. 63 Chinese I
Introduction to spoken Chinese and Chinese culture. Prerequisite: None. Open to all students.

28. 64 Chinese I
Introduction to spoken Chinese and Chinese culture. Prerequisite: None. Open to all students.

28. 65 Chinese I
Introduction to spoken Chinese and Chinese culture. Prerequisite: None. Open to all students.

28. 66 Chinese I
Introduction to spoken Chinese and Chinese culture. Prerequisite: None. Open to all students.

28. 67 Chinese I
Introduction to spoken Chinese and Chinese culture. Prerequisite: None. Open to all students.

28. 68 Chinese I
Introduction to spoken Chinese and Chinese culture. Prerequisite: None. Open to all students.

28. 69 Chinese I
Introduction to spoken Chinese and Chinese culture. Prerequisite: None. Open to all students.

28. 70 Chinese I
Introduction to spoken Chinese and Chinese culture. Prerequisite: None. Open to all students.

28. 71 Chinese I
Introduction to spoken Chinese and Chinese culture. Prerequisite: None. Open to all students.

28. 72 Chinese I
Introduction to spoken Chinese and Chinese culture. Prerequisite: None. Open to all students.

28. 73 Chinese I
Introduction to spoken Chinese and Chinese culture. Prerequisite: None. Open to all students.

28. 74 Chinese I
Introduction to spoken Chinese and Chinese culture. Prerequisite: None. Open to all students.

28. 75 Chinese I
Introduction to spoken Chinese and Chinese culture. Prerequisite: None. Open to all students.

28. 76 Chinese I
Introduction to spoken Chinese and Chinese culture. Prerequisite: None. Open to all students.

28. 77 Chinese I
Introduction to spoken Chinese and Chinese culture. Prerequisite: None. Open to all students.
Biochemistry/LIBERAL ARTS

36.367 Seminar: Advanced in India 3 a.h.
36.368 Seminar: Teaching in a selected Latinod-Slavic or Scandinavian, same as 36.367.
36.369 Topics in Far Eastern Chinese History 3 cr.
36.371 Readings in the History of India 3 cr.
Advanced readings in socio-economic history of ancient and modern India. Same as 16.352.

Individual Study for Advanced Students

36.391 Individual Study 3 cr.
36.391 Individual Studies 1 a.h.
36.392 S. A. Thesis 3 cr.
36.392 S. A. Thesis 1 a.h.
36.393 S. B. Thesis 3 cr.
36.393 S. B. Thesis 1 a.h.

Astronomy

See "Physics and Astronomy."

Biochemistry

Department head: Edward C. Hark
Degree 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 actively developing sciences, and promises to remain so for a considerable time to come.

Biochemists generally work in laboratories and/or classrooms. Those with the bachelor's degree are most often employed as research associates 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 teaching, research, and/or administrative careers in universities, medical schools, hospitals, private research agencies, and government laboratories; and in the food, drug, cosmetics, chemical, petroleum, and allied industries as well as in recombinant DNA gene companies.

Bachelor of Science

The Bachelor of Science program in biochemistry prepares the student, upon graduation, to work as a biochemist in certain positions requiring no further formal training. It is also an excellent background for graduate study in biochemistry and related sciences, or professional degree work in the health sciences.

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

- 21M: 25-26 Calculus I-II or 21M: 35-36 Engineering Calculus I-II 8 a.h.
- 29:17-18 Introductory Physics I-II 8 a.h.
- 37:3 Principles of Animal Biology 8 a.h.
- 2:1 Introduction to Botany or 61:167 General Microbiology 4 a.h.
- 61:147 Survey of Immunology or biological area:
  - 4:13 Principles of Chemistry I 3 a.h.
  - 4:14 Principles of Chemistry II 3 a.h.
  - 4:18 Principles of Chemistry Lab I 1 a.h.
  - 4:121-122 Organic Chemistry I-II 6 a.h.
  - 4:131 Physical Chemistry I 3 a.h.
  - 4:132 Physical Chemistry II 3 a.h.
  - 98:126 Physical Biochemistry 4 a.h.
  - 4:114 Intermediate Chemistry Laboratory I 2 a.h.

Other biological area:

- 98:120 Seminar: Undergraduate 0-1 a.h.
- 98:120 The Chemistry of Biological Metabolism 3 a.h.
- 98:130 Maturbation 3 a.h.
- 98:140 Experimental Biochemistry 4 a.h.
- 98:150 Biochemistry of Informational Macromolecules 3 a.h.
- 98:150 Research: Independent Study at least 6 a.h.
  (may be taken for honors)

Other biological area:

- 4:13 Principles of Chemistry I 3 a.h.
- 4:14 Principles of Chemistry II 3 a.h.
- 4:18 Principles of Chemistry Lab I 2 a.h.
- 4:121-122 Organic Chemistry I-II 6 a.h.
- 4:130 Physical Chemistry for the Life Sciences 3 a.h.
- 98:100 Seminar: Undergraduate 0-1 a.h.
- 98:100 The Chemistry of Biological Materials 3 a.h.
- 98:130 Metabolism 3 a.h.
- 98:100 Experimental Biochemistry 4 a.h.
- 98:150 Biochemistry of Informational Macromolecules 3 a.h.
- Advanced science electives 9 a.h.

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

Biochemistry majors, especially in the B.A. program, may qualify for teacher certification by taking 26 semester hours of coursework in teacher education. For precise consultation with an advisor in the College of Education.

Honors Program

Qualified students may earn an honors degree by doing special work in 98:110 Experimental Biochemistry or more usually in 98:155 Research: Independent Study. The student presents the thesis in a report written in the form of a journal article and in an oral report in 98:100 Seminar: Undergraduate, or to a departmental seminar.

Other Combined Programs

It is possible, especially in the B.A. program, to include special courses or disciplines, such as pre-law, pre-pharmacy, or journalism, permitting individualization of the curriculum as Nevertheless, one of the growing 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 satisfy the requirements for remaining advanced science electives during the first year of dental or medical school.

Graduate Programs, Facilities, Courses

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

Coordinator: Express Special Degrees Officer: R.A. H. G.

The major in biology is designed to further students' understanding and appreciation of living organisms, and to prepare students for careers in which a detailed understanding of aspects or organisms is essential.

These careers include teaching, laboratory and field research and testing, clinical work, counseling, and administration in agricultural, environmental, and health sciences as well as numerous specialized and interdisciplinary areas. Potential employers include educational institutions, foundations, government agencies, publishers, industrial firms, hospitals, zoos, and museums.

Completion of an undergraduate major in biology generally prepares the student for work at a technical level, or for teaching secondary school (which also requires certification). It also prepares the student for entry into graduate or professional school in areas of biological science, medicine and other health professions, agriculture, environmental and conservation programs, and related areas.

Graduate or professional education is generally required for teaching positions in higher education, for independent clinical work, and for the direction of laboratory and field research.

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, marine biology, or courses which emphasize plant or animal systems.

Students interested primarily in field biology have ample opportunity for this emphasis through the program in ecology and evolutionary biology, and the program in use of the Madrille Field Station.

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

The science requirements are identical for the major in Botany and Bachelor of Science degree 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 3 s.h.
2:126: Fundamental Genetics 3 s.h.
or
37:126: Fundamental Genetics 3 s.h.
or
2:126: Fundamental Genetics Laboratory 2 s.h.
or
37:129: Fundamental Genetics Laboratory 2 s.h.
3:13:1 Evolution 4 s.h.
3:13:1 Evolution 4 s.h.
37:101: 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, 37:135 A Planet in Crisis, 61:184 Microbiology, and any other courses directed primarily at non-science students.

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

4:13-14 Principles of Chemistry 6 s.h.
1:19:18 Principles of Chemistry 1.5 s.h.
2:1:121 Organic Chemistry I 3 s.h.
90:120 The Chemistry of Biological Materials 3 s.h.
20:1:12 College Physics I 8 s.h.
or
20:1:17:18 Introductory Physics I/II 8 s.h.
22:3:25 Calculus I 4 s.h.
or
22:3:16 Calculus for the Biological Sciences 3 s.h.
or
22:3:15 Engineering Calculus I 4 s.h.
52:10 Expository Writing 3 s.h.

Biology students planning to apply for admission to the University of Iowa College of Medicine must take a comprehensive course in organic chemistry, with laboratory. This requirement may be satisfied by taking 4:121 Organic Chemistry I and 4:122 Organic Chemistry II plus 4:141 Intermediate Chemistry Laboratory I or by taking 4:151 and 90:120 The Chemistry of Biological Materials plus 90:140 Laboratory Biochemistry.

Biology students planning to teach in high schools should consult with advisors in the College of Education concerning psychology, education, and American government courses required for teaching certification.

Minor

A minor in biology is available for students majoring in other subjects. The biology minor requires 18 semester hours of credit in botany, microbiology, zoology, and/or geology (paleontology). Courses taken at The University of Iowa and including at least 12 semester hours in 100-level courses, excluding those designated primarily for non-science students. Biology courses taken at other institutions or taken on a pass-fail basis will not apply toward requirements for the minor in biology.

Honors

The Honors Program in biology gives the superior student membership in a small, active group of undergraduates with common interests, and association with one of the departments' research groups. It introduces the student to the pursuits of practicing scientists—experiments, discussions of current research, work on specialized topics, attendance at research lectures.

Students in the College of Liberal Arts and Honors Program may earn an honors degree in biology by completing at least 6 semester hours of honors or honors-level work in the departments of Botany and/or Zoology, including at least 2 semester hours in 2:198 Honors Laboratory Research or 37:195 Honors Laboratory Research at least 2 semester hours in 2:197 Honors Readings in Botany or 37:197 Honors Readings in Zoology, and at least 1 semester hour in 37:198 Honors Seminar in Biology or a graduate-level seminar. An honors undergraduate biology major must have a 3.5 grade-point average overall and at least a 3.3 average in the biological sciences of the major. This major must be approved by the research supervisor, is required.

Graduate Programs

The departments of Botany and Zoology offer the Master of Science degree programs in biology; for descriptions, see "Botany and Zoology" in this section of the Catalog.
Botany

Department chair: Jeff T. Schuller
Faculty: professors Robert W. Crites, Robert M. Matt, Jeff T. Schuller; associate professors Carol D. Cottrell, Robert W. Selman, Stephen D. Haines, Thomas E. Machalek, Robert H. Wild, Viet Tran; assistant professor David H. Deas; research professor Mayeul J. L. de Souza; technician: Michael A. Crites.

Botany is a science contributing to our understanding of plants, their significance in the earth's biota, their structure, function, reproduction, diversity, evolution, ecology, and relation to human affairs. Training of professional botanists for teaching and research positions in college, 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, pharmacy, and zoology.

Bachelor of Arts

In addition to the general requirements of the College of Liberal Arts, students majoring in botany are required to take:

211 Introduction to Botany 4 s.h.
373 Principles of Animal Biology 5 s.h.
2128 Fundamental Genetics 3 s.h.

A minimum of one course each from the following five areas (17-20 hours):

Structural Botany
2113 Plant Anatomy 4 s.h.

Physiology and Cell Biology
2109 Plant Physiology 4 s.h.
2110 Plant Physiology 4 s.h.
2114 Cellular Plant Physiology 3 s.h.
2129 Plant Physiology 3 s.h.
3710 Plant Physiology 4 s.h.

Vascular Plant Diversity
2111 Plant Diversity 4 s.h.
2113 Biology of Local Flora 4 s.h.
2191 Plant Taxonomy 4 s.h.
2131 Field Botany 3 s.h.
2120 Paleobotany 4 s.h.
1105 Plant Taxonomy 5 s.h.

Evolution and Ecology
2111 Plant Biology 4 s.h.
2116 Field Ecology 4 s.h.
2131 Evolution 4 s.h.
2132 Ecology 4 s.h.

Biological of Non-Vascular Plants
2105 Physiology 4 s.h.
2106 Bryology 4 s.h.
2107 Mycology 4 s.h.

One level course in Botany or a related science.

Chemistry
4114 Principles of Chemistry I 3 s.h.
4114 Principles of Chemistry II 3 s.h.
4118 Principles of Chemistry Lab I 2 s.h.
4121 Organic Chemistry I 3 s.h.
4122 Organic Chemistry II 3 s.h.

99120 Chemistry of Biological Materials 3 s.h.

Mathematics
22M-3 Mathematics Techniques II 3 s.h.
22M-15 Mathematics for the Biological Sciences 3 s.h.
22M-16 Calculus for the Biological Sciences 3 s.h.
22M-20 Discrete Mathematics 3 s.h.
22M-25 Calculus I 4 s.h.

Students preparing to teach in secondary schools should consult the "Catalog 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 their 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.

Biology Major

Students interested in majoring in biology now have this alternative available to them. See "Biology" in this section of the Catalog.

Graduate Programs

An advanced degree enhances career opportunities in botany. The department offers advanced degree work in many subspecialties. Graduate training frequently involves interdisciplinary study, and is in some fields, such as genetics and ecology, requires some coursework in cognate departments. Each graduate student is therefore assigned a faculty guidance committee to help him or her set educational goals and plan the course requirements necessary to meet them.

Master of Science in Botany

The department offers the degree with emphases in anatomy, bryology, cell biology, ecology, genetics, and development and morphogenesis, mycology, paleobotany, physiology, plant biochemistry, or taxonomy. The degree requires at least 30 semester hours of graduate study, including 6 semester hours in 22M-16 Research Methods in Botany. Preparation of a thesis is required.

Each student must:

Submit a program of study to be approved by a guidance committee composed of three members of the graduate faculty, at least one of whom may be from another department. Normally the program of study should be prepared during the first semester in residence as a regular graduate student.

Complete at least 6 semester hours of graduate courses in botany, as prescribed by the guidance committee. No more than six semester hours of 22M-16 Research Botany and 22M-18 Theses Botany may be included. Achieve a grade-point average of 3.0 on all courses.—other than Research—attempted up to the time of the final examination.

Take a written examination during the term in which he or she is to graduate. This is followed within a week by an oral examination. These examinations cover the course and research experience the student has had up to this point.

Master of Science in Biology

A student who has been regularly admitted to the Master of Science degree at either the Department of Botany or the Department of Zoology may select a course of study leading to the Master of Science degree in biology.

The degree requires at least 24 hours of graduate study without thesis, or 30 hours with thesis. Candidates for the degree without thesis must earn 4-5 semester hours of credit in research. Candidates for the degree with thesis must complete 6 semester hours of credit in research. Students can earn research credits by completing 22M-16 Introduction to Research, and/or 22M-303 Independent Study in Zoology. Each student must submit a program of study to be approved by the department in which the student is enrolled. The program must include at least 6 semester hours of graduate courses in each of the two departments, exclusive of research, and may include 6-10 semester hours taken in supportive areas including biochemistry, microbiology, geology, and mathematics.

The student must achieve a 3.0 grade-point average in all courses other than thesis. In addition, the student must pass a comprehensive final examination covering the graduate program. For thesis candidates, there is also an oral examination, based mainly on the work reported in the thesis.
Doctor of Philosophy

The doctoral student may specialize in any of the areas of emphasis listed for the master's degree in botany. The general requirements for the doctorate are the same as those for the Master's degree, except for the final examination; that is administered to the Ph.D. program, a student must:

Submit a program of study toward the degree for approval by a graduate committee.

Take a qualifying comprehensive examination, at a time agreed to by the graduate committee, testing the student's progress in understanding concepts and ideas in various divisions of botany, with some concentration in fields closely associated with the research specialty.

Submit a thesis to the Ph.D. final examination committee at least two weeks prior to the planned date of the final examination; and

Take the final examination, consisting of an oral defense of methods, results, interpretations, and conclusions presented in the thesis.

Graduate Admission

All prospective graduate students should be thoroughly familiar with the requirements of the Graduate Council. Applicants should submit (Graduate Record Examination (GRE) Aptitude Test scores with their applications.

If the entering student has little or no training in botany or biology, some introductory coursework will be required in accordance with the academic needs of the individual. Such courses prescribed by the student's graduate committee should be made up during the first year of graduate courses may be taken for reduced graduate credit.

Students entering with a B.A. or B.S. degree from an accredited college or university should:

Scores on the GRE verbal and quantitative tests adding up to at least 1100.

A transcript of undergraduate record showing a grade-point average of 3.0 or better in all courses attempted equal to a 3.0 and Letters of recommendation from at least three of their professors.

Students entering with an M.S. degree should:

Scores on the GRE verbal and quantitative tests adding up to 1200;

A transcript showing a grade-point average of 3.4 or on all courses attempted at the graduate level; and

Letters of recommendation from at least three of their professors.

The numerical requirements listed above are not absolute. For example, a high level of academic achievement can compensate for a GRE score somewhat below the standard.

Special Facilities and Activities

There is an excellent departmental library in the Chemistry-Botany Building. Students conducting 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, photosynthesis, plant biochemistry, biochemical systematics, plant pathology, genetics, cell biology. These are two transmission electron microscopes in a special laboratory. Students and staff may use the Scanning Electron Microscope Laboratory in the Biome Science Building.

An herbarium for research and general study houses more than two hundred thousand specimens. These standard specimens include the collections of seed plants from Iowa and Iowa, and the midwestern research specimen from Mexico and Central America, the Coconard herbarium of bryophytes, and a growing repository of fossil fossiliferous plant.

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 ("Sierra Nevada Laboratory") in this section of the Great Lakes subregion in northeastern Iowa affords excellent conditions for summer study in field botany, taxonomy, plant ecology, and plant physiology. Students frequently participate in field expeditions in Mexico, and Central America. Qualified graduate students may use the University computing center in their research projects.

Courses

Primary for Undergraduates

3.20 Introductory Botany

Biology of plant the emphasizing structure, function, and form. Recommended for students in general science and biology, and for those preparing to teach science.

3.21 Plant Physiology

An introduction to the structure and function of plants. Emphasizes the structure and function of plant cells and tissues, photosynthesis, translocation, and growth.

3.22 Comparative Botany

An introduction to the diversity of plant forms and functions, with emphasis on the evolution of plant life and the development of the plant kingdom. Recommended for students in general science and biology, and for those preparing to teach science.

3.23 Molecular Botany

An introduction to the molecular biology of plants, including the genetics of plants, the regulation of plant development, and the role of plant hormones.

3.24 Plant Pathology

An introduction to the study of plant diseases and their control. Includes an overview of the microbial agents that cause plant disease, and the methods used to control them.

3.25 Plant Tissue Culture

An introduction to the techniques used to culture plant cells and tissues, including the use of bioreactors and bioreactor systems.

3.26 Plant Ecology

An introduction to the study of the relationships between plants and their environment. Includes an overview of the factors that influence plant growth and development.

3.27 Plant Genetics

An introduction to the study of plant genetics and genomics. Includes an overview of the methods used to study plant genetics, and the role of genetics in plant breeding.

3.28 Plant Breeding

An introduction to the techniques used to develop new plant varieties, and to improve the traits of existing plant varieties. Includes an overview of the methods used to develop new plant varieties, and the role of plant breeding in improving crop productivity.

3.29 Plant Biotechnology

An introduction to the techniques used to manipulate plant genes, and to improve the traits of existing plant varieties. Includes an overview of the methods used to manipulate plant genes, and the role of plant biotechnology in improving crop productivity.

3.30 Plant Physiology

An introduction to the study of the physiology of plants, including the regulation of plant growth and development, and the role of plant hormones in plant physiology. Recommended for students in general science and biology, and for those preparing to teach science.

3.31 Plant Pathology

An introduction to the study of plant diseases and their control. Includes an overview of the microbial agents that cause plant disease, and the methods used to control them.

3.32 Plant Tissue Culture

An introduction to the techniques used to culture plant cells and tissues, including the use of bioreactors and bioreactor systems.

3.33 Plant Ecology

An introduction to the study of the relationships between plants and their environment. Includes an overview of the factors that influence plant growth and development.

3.34 Plant Genetics

An introduction to the study of plant genetics and genomics. Includes an overview of the methods used to study plant genetics, and the role of genetics in plant breeding.

3.35 Plant Breeding

An introduction to the techniques used to develop new plant varieties, and to improve the traits of existing plant varieties. Includes an overview of the methods used to develop new plant varieties, and the role of plant breeding in improving crop productivity.

3.36 Plant Biotechnology

An introduction to the techniques used to manipulate plant genes, and to improve the traits of existing plant varieties. Includes an overview of the methods used to manipulate plant genes, and the role of plant biotechnology in improving crop productivity.

3.37 Plant Physiology

An introduction to the study of the physiology of plants, including the regulation of plant growth and development, and the role of plant hormones in plant physiology. Recommended for students in general science and biology, and for those preparing to teach science.
requirements in chemistry. These are the major requirements for the B.A. degree.
4:15-14 Principles of Chemistry I & II
4:15 Principles of Chemistry Lab I & II
4:17 Basic Measurement
4:50 Chemistry Orientation
4:51-125 Organic Chemistry I & II
4:111-112 Analytical Chemistry I & II
4:131-132 General Chemistry I & II
4:141 Intermediate Chemistry Laboratory
4:142 Advanced Chemistry Laboratory I
Integral calculus (22M:35-36 Engineering Calculus I & II recommended; 22M:25-25 Calculus I & II accepted.
Introductory physics (22S:17-18 Introduction to physics I & II recommended; 22G:13-14 College Physics accepted)
A minimum of four semesters in one language, either German, French, or Russian
Advanced courses in chemistry, biology, mathematics, physics, or other scientific areas are recommended.

Teacher Certification
The chemistry courses required for the B.S. or B.A. degree satisfy the major requirements for teaching in secondary schools. Chemistry courses through organic chemistry satisfy the requirements for a teaching minor in chemistry (see the "College of Education" section of the Catalog).

Master of Science
The department offers the M.S. degree, with or without thesis, in analytical, inorganic, organic, and physical chemistry, and in chemical physics. Candidates for the M.S. degree are required to obtain minimum grades of C in three of the following courses or to meet the requirement by examination.
4:170 Advanced Inorganic Chemistry
4:171 Advanced Analytical Chemistry
4:172 Advanced Organic Chemistry
4:173 Advanced Physical Chemistry
Entering students will be given the opportunity to take examination exemptions to demonstrate competence in the areas listed above.
A minimum grade-point average of 2.5 is required to apply for the master's examination.

Doctor of Philosophy
A program of study for the Ph.D. degree is the areas listed for the M.S. degree includes the courses required for the M.S. degree and courses in the major field of interest. Students must present a thesis covering the research. Students who have demonstrated the required competence in the four areas of chemistry and who have maintained a minimum grade-point average of 3.0 are admitted to the oral examination upon presentation and preliminary approval of their research proposal.
A final oral examination is required of all candidates for the Ph.D. degree. The student must successfully defend the Ph.D. thesis and a manuscript of the publishable portion of the thesis before an examining committee.

Interdisciplinary Programs
The Department of Chemistry's interdisciplinary programs apply mathematical sciences and in physical sciences (see "Graduate College" section in the Catalog). Students with undergraduate degrees in chemistry, physics, mathematics, or engineering are eligible.

Language Requirement for Graduate Students
The department requires graduate students majoring in organic chemistry to demonstrate reading competence in German.

Teaching Requirement for Graduate Students
The department reserves all graduate students in chemistry to teach as part of their training.

Graduate Admission
An applicant for graduate admission should have a bachelor's degree in chemistry with a grade-point average above 3.0. Most of the graduate students are admitted receiving financial support, and application forms may be obtained by writing to the Department of Chemistry. Most applications and other information for the following academic year are due by April 1, but there are occasional openings at the beginning of the second semester.

Facilities
The department is housed in a five-story building containing two auditoria, 5 lecture rooms, 15 undergraduate laboratories, 43 graduate research laboratories, a computer laboratory, and a number of special-purpose instruction rooms. Modern scientific equipment is available for research. The department's excellent library facilities are available to all students. The library contains standard reference works and complete volumes of chemical and chemical engineering journals, and subscribes to a large number of current scientific journals.

Courses
Primary for Undergraduates
Students planning to take more than one year of chemistry should take 4:15, 4:16, and 4:18. Students requiring only one year of chemistry may take 4:7, 4:8, and 4:10.
4:000 Cooperative Education Internship
4:7 General Chemistry I
Introduction to basic concepts of chemistry for students who do not plan to take more than one year of chemistry.
4:8 General Chemistry II
Introduction to laboratory techniques for students taking 4:6. Prerequisite or corequisite: 4:6.
4:13 Principles of Chemistry I
Introduction to basic principles of chemical bonding and chemical relations. Prerequisite: 4:8 or high school equivalent.
4:14 Principles of Chemistry II
Introduction to laboratory techniques for students taking 4:13. Prerequisite or corequisite: 4:6.
4:15 Principles of Chemistry Lab
Introduction to laboratory techniques for students taking 4:13. Prerequisite: 4:15 or 4:7.
4:68 Principles of Chemistry Lab
Introduction to laboratory techniques for students taking 4:16. Prerequisite: 4:15 or 4:7.
4:7 General Chemistry
4:77 Basic Measurements
Introduction to basic principles of chemical bonding and chemical relations. Prerequisite: 4:8 or high school equivalent.
4:177 Basic Measurements
Introduction to laboratory techniques for students taking 4:16. Prerequisite: 4:15 or 4:7.
4:20 Chemistry Data
Chemistry of inorganic materials; advanced techniques on qualitative and quantitative analyses. Prerequisites: 4:25 and 4:7.
4:31 Analytical Chemistry I
Principles of modern analytical chemistry with emphasis on applied laboratory analysis. Prerequisites: 4:15 and 4:16.
4:32 Analytical Chemistry II
Introduction to infrared, ultraviolet, and nuclear magnetic resonance spectroscopy. Prerequisite: 4:25.
4:33 Organic Chemistry
Introduction to organic chemistry. Preparation by preparation and study of typical representations of organic and organometallic compounds. Prerequisite: 4:10 or 4:12.
4:37 Organic Chemistry Lab
Introduction to laboratory techniques for organic chemistry.
4:50 Introduction to Polymer Chemistry
Introduction to polymer synthesis. An introduction to polymer chemistry. Prerequisites: 4:13 and 4:15.
4:59 Physical Chemistry for the Life Sciences
Principles and applications of thermodynamics, statistical mechanics, transport phenomena, diffusion, and the interfacial properties of matter. Prerequisite: 4:10 or 4:12, and concurrent registration in 4:10 or 4:12.
4:61 Physical Chemistry I
Application of principles to chemical phenomena. Prerequisites: 4:10 or 4:12 and 4:15 (or 4:16 or 4:25).
4:62 Physical Chemistry II
Application of principles to chemical phenomena. Prerequisites: 4:10 or 4:12 and 4:15 (or 4:16 or 4:25).
4:63 Introduction to Quantum Chemistry
Interpretation of quantum symmetry arguments applied to quantum chemistry problems. Prerequisite: 4:15.
transmitted the culture of Greece to the West.
The candidate for a B.A. degree with a major in Latin must earn a minimum of 30 semester hours of major credit, of which at least 24 semester hours must be in Latin language courses. These courses, or their equivalents, are required:
20:1-2 Elementary Latin 6 s.h.
or
20:15 Latin Review 4 s.h.
20:16-17 Intermediate Latin I-II 6 s.h.
20:21-22 Latin I-II 6 s.h.
20:23-24 Advanced Latin I-II 6 s.h.
20:171 Elementary Latin Composition 3 s.h.
20:272 Latin language courses, 100-level or above 6 s.h.

Major in Classics (Greek and Latin)
The B.A. degree with a major in classics requires a minimum of 38 semester hours of major credit, of which 20 semester hours must be in Greek and Latin language courses. These courses, or their equivalents, are required:
14:1-2 Elementary Greek 8 s.h.
14:11-12 Second-Year Greek 8 s.h.
20:1-2 Elementary Latin 6 s.h.
20:16-17 Intermediate Latin I-II 6 s.h.
14:121-122 Homer and Herodot I-II 6 s.h.
or
20:21 Age of Cicero 3 s.h.
and
20:22 Age of Augustus 3 s.h.
14:171 Elementary Greek Composition 5 s.h.
or
20:171 Elementary Latin Composition 3 s.h.

Major in Ancient Civilization
This major is sponsored by the School of Art and Architecture and the departments of Classics, History, and Religion.
The major concentrates on the ancient civilization of the Mediterranean world and draws on courses currently offered by various departments of the University. It is not primarily a preparation for a graduate degree program; nevertheless, it could be used as a very sound test for preparation of teachers at the secondary and junior college levels. In addition to the normal college requirements for the B.A. degree, the following are the specific requirements of the major:
Ancient art 6 s.h.
Ancient history 6 s.h.
Ancient philosophy or religion 6 s.h.
Classics—either "Classics in English" courses, or Latin or Greek language courses 6 s.h.

Appropriate courses in art, history, philosophy, religion, or linguistics 3 s.h.
14:194 Senior Seminar in Ancient Civilization 3 s.h.

Honors
For exceptional seniors who attained a 3.5 grade-point average in their first three years of classics courses, two courses are offered in honors reading, one each semester of the senior year, for 3 semester hours of credit each semester. The readings and discussions are on either an ancient author or a field in ancient history or literature chosen by the student and the instructor. During the first semester the student presents an essay every other week; at the end of the second semester the student presents a long paper which is examined by at least three members of the department.

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

Graduate Program
For the general requirements of the Graduate College, including the comprehensive examinations, see the "Graduate College" section of the Catalog.
Graduate students in classics may include in their programs no more than 6 semester hours of courses numbered 101-199.

Master of Arts
The department offers the M.A. degree in Latin, Greek, or classics. The candidate must earn a minimum of 30 semester hours of major credit in courses numbered 101 and above. Normally, students in the Latin program who have had no Greek are also expected to include at least elementary Greek in their programs.

Doctor of Philosophy
The department offers the doctoral degree in classics. The candidate must meet these requirements:
Ability to read and write Greek and Latin, as tested in qualifying examinations
The reading of considerable portions of Greek and Latin literature as outlined on a reading list prepared by the student and his or her advisor and approved by the department
A tested reading knowledge of German and French
Passing written comprehensive examinations in ancient history, Greek, Latin literature, and a special field or author, together with a one-hour oral final examination
Writing and defending a dissertation embodying original research or interpretation of a classical subject
Required courses are:
* 14:204-205 Rapid Readings in Greek 6 s.h.
* 20:204-205 Rapid Readings in Latin 6 s.h.
* 14:172 Advanced Greek Composition 3 s.h.
* 20:172 Advanced Latin Composition 3 s.h.
* Ancient art above 200 level 3 s.h.
* 20:266 Seminar I 3 s.h.
* 14:203 Intro-European Philology 3 s.h.
* 14:206 Greek Paleography 3 s.h.
* 14:281-282 Greek Seminar 6 s.h.
* 20:281-282 Latin Seminar 6 s.h.
* May be satisfactory by examination.

One of the seminars normally is taken after comprehensive examinations.

Special Facilities
Extensive collections of classical texts and periodicals in the University library and the art library facilitate research in the major areas of Greek and Roman civilization.
The department has a varied collection of slides on classical subjects, and a small library.
Associated with the department, the classical museum contains a valuable collection of coins, vases, and faience figures from Mycenaean, 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
14:111 Elementary Greek 4 s.h.
14:112 Elementary Greek 4 s.h.
14:113 Elementary Greek 4 s.h.
Solutions from Greek authors. Continuation of 14:11, which is prerequisite.
14:206 Greek Paleography 3 s.h.
Fundamentals of the New Testament Greek, practical knowledge of Greek not expected, nor in text with any other foreign languages. Offered summer session.
Communication and Theatre Arts

Department chair: John W. Sowers

Facilities: graduate studio, exhibition space.

Graduate programs: Master of Arts, Doctor of Philosophy.

Research: Exploring the intersection of communication and theatre arts, focusing on audience engagement and critical theory.

Graduate students: 10 full-time, 20 part-time.

Graduate faculty: 8 full-time, 4 part-time.


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.

A student may specialize in communication, theatre arts, and film studies.

The additional requirements for these majors are cited in the division sections.

Master of Fine Arts in Dramatic Art

See "Theatre Arts" section.

Educational Specialist (for Junior College Teaching)

Departmental requirements for the Educational Specialist degree are:

A minimum of 60 semester hours, including 33 hours to Research; a course in the teaching of communication; an approved seminar; and at least 15 semester hours completed in the College of Education.

Successful completion of a research report:

A semester's internship 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 additional examinations as may be specified by the departmental division in which the student's work is concentrated.

Bachelor of Arts

Regardless of area of 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;

A minimum of eight semester hours of production/performance courses; and

A minimum of eight semester hours of nonproduction/teacher/foremen courses in the department.

A student may specialize in communication, theatre arts, and film studies.

Broadcasting and Film.

The requirements for this major are cited in the division sections.
Doctor of Philosophy

The program leading to the Ph.D. degree in rhetorical studies is designed to give candidates a mature grasp of the various specialties and perspectives embraced in this division and to develop research competencies essential to a life of productive scholarship.

Work in related departments—often, in political science, history, sociology, English, comparative literature, American studies, philosophy, and journalism—complements rhetorical studies' course offerings. Many Ph.D. candidates also do extensive work in "Communication Research" and "Broadcasting and Film" to improve their range of teaching opportunities and their research skills.

For basic requirements, see the initial sections of this department's description. Teaching and research appointments are available, if the premises and their development to February 16 each year.

Courses

391213: Greek and Roman Public Address 342.1h
Rhetorical and critical study of public and written communication from the fifth century B.C. to the four century A.D.; study of relevant social, philosophical, and educational practices in relation to the discourses of each era; consideration of oratory, especially Aristotle's orations, Cicero, and other early orators.

391232: British Public Address 343.1h
Historical and critical study of public and written communication from the second century B.C. to the nineteenth century; emphasis on the evolution of the Roman public address during the Roman and Hellenistic periods.

391353: British Public Address 344.1h
Historical and critical study of public and written communication from the five centuries B.C. to the sixteent century; emphasis on the evolution of the Roman public address during the Roman and Hellenistic periods.

391353: Greek and Roman Public Address 345.1h
Rhetorical and critical study of public and written communication from the fifth century B.C. to the four century A.D.; study of relevant social, philosophical, and educational practices in relation to the discourses of each era; consideration of oratory, especially Aristotle's orations, Cicero, and other early orators.

391353: British Public Address 346.1h
Historical and critical study of public and written communication from the second century B.C. to the nineteenth century; emphasis on the evolution of the Roman public address during the Roman and Hellenistic periods.
courses from other divisions of the department. A total of 24 hours is
required.

Graduate Programs
The Master of Arts degree emphasizes research in critical, theoretical, historical, and policy issues relating to broadcasting and film. M.A. candidates in film can earn a production degree if they plan to study the artistic and scholarly aspects of the field. The Ph.D. programs in both broadcasting and film are individually tailored by each candidate and an advisory committee to develop competence in research.

Facilities
The broadcasting and film division is housed in the University’s Television Center. The center houses fine broadcasting and film production facilities devoted exclusively to instruction. A large television studio/ sound stage is equipped with modern television equipment, including color cameras. Students have the opportunity to use a variety of forms of video and audio recording equipment in both studio and on-site production settings, along with video as well as audio editing facilities.

The University’s two radio stations, WUSU (AM) and KSJU (FM), offer facilities for radio production classes and independent study. A large pool of film equipment is also available for students in broadcasting and film courses. Film students can gain experience with a variety of cameras, sound and lighting equipment, editing equipment (including filtered editing machines), and all film courses except the first year of classes are taught with 16mm equipment.

The University Library contains an outstanding collection of books, film, and broadcasting materials.

Courses
300-315 Mass Media and Mass Society
Introduction to the history and theory of the mass media of communication, with emphasis on radio, television, and the moving picture. Same as 650-315.

300-320 Introduction to Broadcasting and Film Production
For students with no previous experience, the course is project oriented with emphasis on development of new ideas, and audio sound production, writing, editing, and sound effects production from concept to completion. Same as 650-320.

300-330 Introduction to Film Analysis
Basic techniques of film analysis, with emphasis on critical/interpretative works from the American and European traditions. Methodological studies include short-about Short Shorts, Intertextuality, text and version. Same as 650-330.

300-340 American Broadcasting
Career as a broadcast journalist. History, audiences, regulation, economics, and programming of the electronic media in the United States.

300-351 Survey of Film
Introduction to the motion picture history, theory, and criticism, including study of relationship to other art forms. screenings included.

300-362 Film and Society
The role of the motion picture in contemporary society, consideration of issues of responsibility and influence on social issues.

300-363 Relationship of Sports and Broadcasting Sports programming and production, audience, coverage, finances. Same as 650-363.

300-364 Audio/Video Production Special section of 300-364 for graduate students who are not majors in communication and theatre arts.

300-365 Radio Production Principles and practices of contemporary radio production and programming. Same as 650-365.

300-366 Radio Production Workshop Special section of 300-366 for graduate students who are not majors in communication and theatre arts.

300-367 Communication and Media Studies Design
Emphasis on selected media on specific areas.Weeks of reception of messages, media; audience studies. Media literacy: social changes in society. Some of 700-300.

300-368 Television Production: Studio Technique Emphasis on the studio as a production facility. Equipment, lighting, directing, shooting, editing, story development, production. Same as 650-368.

300-369 Television Production: Field Techniques Emphasis on the techniques of television production, the role of the producer in the creative process, the commercial and other forms typical of the local station or network production. Some of 700-369.

300-371 Telecommunications: Dynamic Forms Directing the large scale dynamic production emphasizing on development of a community production team in problems of production management and design, shooting and editing, and audience reception. Same as 650-371.

300-373 Animation and Special Techniques
Animation of motion for use in film. Design, layout, drawing, shooting, and editing. Same as 650-373.

300-374 Television Production: Special Topics
Occasionally offered to fulfill program requirements in visual arts, communication and mass society. Same as 750-374.

300-375 Film Production: Forms and Styles
The motion picture film form, its history, its place in the development of modern mass communication. The study of the cinema form, its role in the development of modern mass communication. Same as 750-375.

300-376 Film Production: Tense Technique
Tension in the art of film production. Method of seeking and maintaining the level of excitement or suspense in visual cinema. Same as 750-376.

300-377 Film Production: Special Topics
Occasionally offered to fulfill program requirements in visual arts, communication and mass society. Same as 750-377.

300-378 Film Production: Special Topics
Occasionally offered to fulfill program requirements in visual arts, communication and mass society. Same as 750-378.

300-379 Film Production: Special Topics
Occasionally offered to fulfill program requirements in visual arts, communication and mass society. Same as 750-379.
307:43 Elements of Design
3 s.h.
Two courses from Group I:
307:45 Costume Design I
307:46 Lighting Design I
141 Historic Styles I or II
One course from Group II:
307:157 Advanced Scene Design
307:158 Advanced Costume Design
307:159 Advanced Lighting Design
One course from Group III:
307:142 Drawing for Theatrical Design
307:143 Rendering
307:144 Scene Painting
307:145 Make-Up
307:146 Draughting I
One course from Group IV:
307:147 Technical Production I
307:150 Machinist Shop Practice
307:151 Props and Special Effects
307:152 Costume Crafts: Drafting & Design
307:153 Costume Crafts: Fabric
307:154 Costume Crafts: Corsetts and Padding
307:155 Costume Crafts: Accessories
307:156 Electrical Control in the Theatre

Directing Emphasis:
307:70 Directing I
3 s.h.
307:71 Directing II
3 s.h.
307:431 Elements of Design
3 s.h.
307:42 Acting I
3 s.h.
Two Courses of the following:
6 s.h.
307:178 American Theatre History
307:114 Contemporary Theatre Practice
307:113 Decades of the Twentieth Century

Any Dramatic Literature course

Master of Arts

The M.A. program is designed for students who anticipate teaching at the high school and junior college levels, and for those who want to earn an advanced degree and do not plan to enter the doctorate. The program consists of a combination of prescribed and elective courses covering the general areas of dramatic literature, criticism, theory, history, and production. A thesis or graduation seminar in theatre, literary theory, or criticism of drama or theatre is required.

Master of Fine Arts

Students who demonstrate exceptional ability in acting, directing, playwriting, design, technical direction, costume direction, production stage management, or arts management, may apply for admission to the program of study and production leading to the M.F.A. Admission is based upon interview and, on a portfolio of relevant artistic work, in addition to undergraduate record, other records of artistic accomplishment, and letters of recommendation. This degree is available in residence and the requisite number of graduate credits in the individual programs are required, and students must pass by examination each year. Substantial creative work of high quality is expected of all candidates.

Facilities

The division's commitment to an extensive and varied production program is reflected in its use of four quite different theatrical studios: a large, flexible space in which class projects, highly experimental productions, and readers' theatre productions are performed with limited scenery before small audiences. The Old Army Theatre is a 200-seat house with a large thrust stage. New sets are assembled in a converted lecture hall in MacLean Hall. The E.C. Daley Theatre is an excellently equipped proscenium theatre which offers seating for almost 600 patrons.

The division also stages plays in the Hencher Auditorium, Steiling 2880, this facility is used by the numerous professional touring shows which perform in Iowa City, and boasts the latest and most sophisticated stage machinery available.

To support its continuous production schedule and to provide its students with an appropriate range of experiences, the division maintains several shops for the building, maintenance, and storage of its scenery, costumes, and properties. Using the three scene shops, students can learn to work in metal and plastics as well as canvas and wood. In lighting and sound, students are exposed to a range of equipment from the manual resistance lighting control and the two-channel sound systems of the Old Army Theatre to the fully computerized lighting controls and the five-channel sound system used in Hencher Auditorium.

Courses

For Undergraduates

307:57 The Studio The Studio
An introduction to the artistic disciplines that constitute the theatre as an art form, including acting, directing, playwriting, design, technical direction, and general administration. Includes study of theatre history and production.

307:58 Shakespeare
Some on 9/6

307:11 Theatre History I
3 s.h.
Focus on the literature of production conditions and theatrical communities in the United States and British Isles from the Restoration through Expressionism. Course required for graduation. Must be taken in sequence.

307:12 Shakespeare
Some on 9/7

307:12 Modern Drama
3 s.h.

307:13 Modern Drama
3 s.h.

307:15 Theatre History II
3 s.h.
Continuation of 307:11 from eighteenth-century to present. May be taken out of sequence.

307:13 Shakespeare
Some on 9/7

307:12 Modern Drama
3 s.h.

307:12 Modern Drama
3 s.h.

307:11 Theatre History I
3 s.h.

307:15 Theatre History II
3 s.h.
subcultures? How are linguistic and nonlinguistic symbols expressed in various media? What are the effects of linguistic and nonlinguistic symbols on attitudes and behavior? What evaluative criteria are appropriate for various classes of symbol using behavior? Diverse methods are appropriate for the study of communication. The scientific approach includes hypothesis generation, theory development, measurement, and other standard features of social science. Communication also can be studied with the critical and speculative tools of historians and philosophers.

The undergraduate program requires a minimum of 27 semester hours of major credit to be gained in consultation with an advisor in order to emphasize multidisciplinary approaches to communication. Four courses are required for all majors:

122/101 Introduction to Linguistics 3 a.h.
122/80 Communication and Contemporary Culture 3 a.h.
122/81 Mass Media and Mass Society 3 a.h.
122/82 Communication Theory in Everyday Life 3 a.h.
122/100 Cultural and Historical Foundations of Communication 3 a.h.
122/89 Senior Seminar 1-3 a.h.

Courses

122/00 Communication and Contemporary Culture 3 a.h.
122/90 Mass Media and Mass Society 3 a.h.
122/05 Communication Theory in Everyday Life 3 a.h.
122/00 Honors in Communication Studies 3 a.h.
122/88 Senior Seminar 12 a.h.
122/05 Senior Internship 12 a.h.
122/50 Senior Practicum 12 a.h.
122/50 Senior Internship 12 a.h.
122/40 Senior Practicum 12 a.h.
122/30 Senior Practicum 12 a.h.
122/20 Senior Practicum 12 a.h.
122/10 Cultural and Historical Foundations of Communication 3 a.h.
122/10 Introduction to Linguistics 3 a.h.
122/10 Cultural and Historical Foundations of Communication 3 a.h.

Communication Studies

Program chair: John W. Wells
Faculty: see below.

In communication studies, the primary interest is in instrumental symbolic behavior, important questions include: How do we learn to use symbols? How does symbol usage differ across cultures and subcultures? How are linguistic and nonlinguistic symbols expressed in various media? What are the effects of linguistic and nonlinguistic symbols on attitudes and behavior? What evaluative criteria are appropriate for various classes of symbol using behavior? Diverse methods are appropriate for the study of communication. The scientific approach includes hypothesis generation, theory development, measurement, and other standard features of social science. Communication also can be studied with the critical and speculative tools of historians and philosophers.

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122/80 Communication and Contemporary Culture 3 a.h.
122/81 Mass Media and Mass Society 3 a.h.
122/82 Communication Theory in Everyday Life 3 a.h.
122/100 Cultural and Historical Foundations of Communication 3 a.h.
122/89 Senior Seminar 1-3 a.h.

Courses

122/00 Communication and Contemporary Culture 3 a.h.
122/90 Mass Media and Mass Society 3 a.h.
122/05 Communication Theory in Everyday Life 3 a.h.
122/00 Honors in Communication Studies 3 a.h.
122/88 Senior Seminar 12 a.h.
122/85 Senior Practicum 12 a.h.
122/50 Senior Internship 12 a.h.
122/20 Senior Practicum 12 a.h.
122/10 Cultural and Historical Foundations of Communication 3 a.h.
122/10 Introduction to Linguistics 3 a.h.
122/10 Cultural and Historical Foundations of Communication 3 a.h.

Communication Studies

Program chair: John W. Wells
Faculty: see below.

In communication studies, the primary interest is in instrumental symbolic behavior, important questions include: How do we learn to use symbols? How does symbol usage differ across cultures and
36 semester hours in courses distributed as follows:

Comparative Literature
48:40-41 Major Texts of World Literature 1.5 h.
48:85 Seminar in Comparative Literatures 3 h.
48:100 Introduction to Critical Problems 3 h.
Two elective comparative literature courses at the 400 level 6 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: 9 h. (one course in composition and conversation may count toward the major).

Related Areas
Courses in a related area (e.g., English and American literature, film, linguistics, anthropology, philosophy, history) or courses in a second foreign literature: 9 h.

Master of Arts
The degree of Master of Arts in comparative literature requires 36 semester hours of study or literature in an international context, concentrating on two or more related national literatures and on the theory and study of literature in general. The student, in consultation with faculty advisors, combines courses in the program and in the individual allied disciplines to design a coherent course of study.

Formal degree requirements may be satisfied by a written examination on reading lists agreed upon by student and advisor, or by a written thesis and 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 3.55, and successful completion of the comprehensive examination for the Ph.D.

Doctor of Philosophy
Students seeking the doctorate in comparative literature study at least three literatures in an interdisciplinary focus and in historical depth, and two others in limited areas 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 interests of the student at the time of admission are determined by the student in consultation with appropriate faculty members.

Some typical critical and comparative areas are:

European Renaissance
Romanticism
Structuralism and post-Structuralism
Narrative theory
Symbalistic poetics and modern literature
Post-Kantian philosophy and literature
Skepticism, 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 that or criticism. A translation of a work of sufficient significance and linguistic complexity, preceded by a critical introduction, may be acceptable as a dissertation. The final oral examination centers on the dissertation and its background.

Admission
A study of literature across linguistic boundaries requires special training in languages. A thorough knowledge of at least one foreign language is required for admission to the M.A. course of study; knowledge of at least two foreign languages is a prerequisite for doctoral study.

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

Courses
48:40 Major Texts of World Literatures I 3 h.
Reading and analysis of major literary texts from the Renaissance to the Romanticism sequence of texts on the Internationalization of Structure and History. Same as 48:10.

48:41 Major Texts of World Literatures II 3 h.
Reading and analysis of major literary texts from the post-Romanticism sequence of texts on the Internationalization of Structure and History. Same as 48:11.

48:40 Introduction to Film Analysis 3 h.
Introduction to film analysis as an independent literary mode, with emphasis on the narrative aspects of cinema. Same as 48:85.

48:85 Seminar in Comparative Literature 3 h.
Seminar which focuses on a single text or critical problem; course content varies to reflect current interests in regular and visiting lecturers, students will develop independent research projects.

48:93 Hebrew Tutorial 3 h.

48:94 Individual Tutorial 3 h.

48:50 Individual Tutorial in Critical Problems 3 h.
Seminar which focuses on a single text or critical problem; course content varies to reflect current interests in regular and visiting lecturers; students will develop independent research projects.

48:100 Advanced Comparative Literature 3 h.
A four-year sequence of courses, including major texts from the major world literatures, with emphasis on the development of the Comparative Literature as a field of study.

48:115 Library Seminar in Comparative Literature 3 h.
A seminar in which students are exposed to the research methodology of major literary works read in Latin or other languages, history, historical novels, novelization, etc. Same as 48:100.

48:115 Library Seminar in European Literature II 3 h.
Concentration of 48:115. Same as 48:120.

48:116 History and Theory of Translation 3 h.
Survey of the tradition of translation, primarily the English translation, and the development of the practice and theory of translation, from classical antiquity to the modern age. Same as 48:150.

48:121 Comparative Studies in Poetry 3 h.
Same as 48:137.

48:121 Medieval Poetry and Prose 3 h.
Same as 48:140.

48:126 Comparative Studies in Fiction 3 h.
Same as 48:145.

48:127 Literature and Society 3 h.
Same as 48:170.

48:129 Literary Theory and Anthology 3 h.
Same as 48:190, 192.

48:135 The Literary Text
Examination of textual features and social contexts of selected major literary works in written and oral form. Same as 48:135.

48:136 East-West Literary Studies 3 h.
Same as 48:190.

48:137 Linguistics and Philosophy 3 h.
Study of philosophical problems in the study of language. Same as 48:190.

48:138 Psychoanalysis and the Novel 3 h.
Study of the novel in the context of psychoanalysis. Same as 48:190.

48:139 Women's Studies 3 h.
Women's Studies 3 h.

48:147 Literature and Society
Study of the interplay of not only the social and political context but also the consciousness of society and the cultural responses of literature, from an interdisciplinary perspective. Same as 48:175.

48:172 Literature and the Film 3 h.
Same as 48:190, 202, 205.

48:174 Systems and Post-Contemporary Studies 3 h.

48:177 Literature and Art 3 h.
Same as 48:177.

48:182 Aesthetics in the Visual Arts 3 h.
Same as 48:190.

48:190 Theory and Romance Poetry 3 h.
Same as 48:140.

48:220 Literary and Theological Studies 3 h.
Study of literary works in the context of religious thought. Same as 48:190.

48:221 Comparative Studies 3 h.
Same as 48:190.

48:222 Remedial Literature 3 h.
Same as 48:220.

48:230 Women's Studies Workshop 3 h.
Women's Studies Seminar 3 h.

48:231 Women's Studies Seminar 3 h.
Women's Studies Seminar 3 h.

48:257 Theories of Translation 3 h.

48:261 History of English Literature 3 h.
Study of the history of English literature from the Middle Ages to the Age of Reason. Same as 48:261.

48:261 History of English Literature 3 h.
Study of the history of English literature from the Middle Ages to the Age of Reason. Same as 48:261.

48:261 History of English Literature 3 h.
Study of the history of English literature from the Middle Ages to the Age of Reason. Same as 48:261.

48:261 History of English Literature 3 h.
Study of the history of English literature from the Middle Ages to the Age of Reason. Same as 48:261.

48:261 History of English Literature 3 h.
Study of the history of English literature from the Middle Ages to the Age of Reason. Same as 48:261.

48:261 History of English Literature 3 h.
Study of the history of English literature from the Middle Ages to the Age of Reason. Same as 48:261.

48:261 History of English Literature 3 h.
Study of the history of English literature from the Middle Ages to the Age of Reason. Same as 48:261.
Economics

Department chair: Donald H. McNichol
Professor: William Atwood, Jerald Bernard, Jerry Butler, James Jones, Hyman Kish, Monda McNeill, Donald H. McNichol, David Rudolph, Thomas Page, Larry Spence, Calvin Street, B. Y. Yu

Prerequisite: English 058; Math 061

Economics is concerned primarily with the analysis and description of the production, distribution, and consumption of goods and services in society. It involves the systematic study of topics such as wealth and poverty, money and banking, income and consumption, government expenditure and taxation, prosperity and depression, inflation and unemployment, and hundreds of other matters which intimately affect the way people live.

The Department of Economics teaches students how complex economic systems work and underlines to train them in methods of economic analysis that can be applied to a broad set of economic problems. The department offers a wide range of course work to meet the needs of the nonmajor as well as the major.

Undergraduate Programs

The baccalaureate programs in economics provide an excellent background for a variety of positions in business and government. Graduates find employment in banking, financial institutions, industrial firms, and trade organizations, and in federal, state, and local government agencies dealing with economic policy, regulations, and analysis. Economics is also considered excellent preparation for law school for graduate study in such fields as business management, public administration, health and hospital administration, urban and regional planning, transportation, journalism, political science, and electricity.

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 course 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.S. 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:

22-25: Elementary Statistics and Inference

4, 5: Quantitative Methods I

22-5: Quantitative Methods II

20: Thirty semester hours of credit in 100-level economics courses, including 6E:103 Microeconomics and 6E:105 Macroeconomics.

Most 100-level courses in economics have no prerequisites other than 6E:1 Principles of Economics and 6E:2 Principles of Economics, or senior standing. 6E:1 and 6E:2 satisfy the general education requirement in social sciences.

Credit gained in 6E:100 Price, Employment, and Protection 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:

22-23: Calculus I

22-120: Probability and Statistics

8E:182 Statistical Methods in Economics

8E:900 Two semester hours of 100-level economics courses, including 6E:103 Microeconomics, and 6E:105 Macroeconomics, and 8E:184 Methods of Quantitative Economics.

Credit earned in 6E:100 Price, Employment, and Protection Theory or 8E:185 Statistical Methods in Economics cannot be counted toward the required 20 semester hours of 100-level course credit.

Minor

A student is 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 hours in courses numbered 100 or above.

Students interested in an economics minor must obtain prior recognition concerning course selection from the department.
Honors
undergraduate students working toward the B.A. or B.S. degree in 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 BE-103 and BE-105, before the senior year. They must also register for BE-157 Senior Theses in Economics for three hours of credit both semesters of the senior year, complete a senior thesis under direction of an economics faculty member of post-baccalaureate rank, and take (during the final semesters 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 BE-1:2 Principles of Economics satisfies the College of Liberal Arts general education requirement in social sciences, and provides an introduction to specialized topics of upper-division courses. Students with limitations in economics may examine the economics bachelor's degree program in BE-1:6 Contemporary Economic Problems and Policy.

Course work in economics can be related to majors in many other fields—for example, environmental studies majors might take BE-133 Economic Growth and Environmental Decay and BE-105 Microeconomics; political science majors might take BE-1:19 Economics of the Government Sector and BE-1:14:1 Economics of American Agriculture.

A number of students combine related interests by pursuing double majors in economics and in fields such as computer science, geography, history, mathematics, political science, sociology, or statistics.

Graduate Programs
The department offers Master of Arts and Doctor of Philosophy degree programs. Each program has a separate theory and quantitative core enhanced by a set of field courses.

The M.A. degree program is designed to provide in-depth training in economics, without the requirement of specialization. Students in the M.A. program usually complete it within 18 months.

Within the M.A. program, the department offers concentrations in economic development, 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, macroeconomic theory, mathematical economics, and econometrics. In addition, the student assesses a major area for intensive study and specialization. The usual time required to complete the Ph.D. program is four years.

Special Seminar
Each year the department offers a seminar program involving eminent economists from other universities and government, as well as presentations by faculty and student members of the department.

Courses Primarily for Undergraduates
Note: BE-1 and BE-2 may be taken in either order or concurrently; they may be taken simultaneously; they satisfy the general education requirement in social sciences.

BE-100 Cooperative Education Training Internship 0.5 ah
BE-1:1 Principles of Economics 4.0 ah
Organization and operations of modern economic systems, role of financial institutions, economic analysis of business cycles and various aspects of national and international economic policies, international trade, labor market analysis, industrial efficiency, comparative labor costs, labor relations, labor market, money and the price level, analysis of the use of aggregate production function, determination of the dynamic of inflation and the problem of deflation. Prerequisites: BE-1 and BE-100 or senior standing.
BE-1:11 Labor Economics 3.0 ah
Microeconomics of labor markets and economic institutions. Labor supply decisions made by workers, labor demand decisions made by firms, and resulting patterns of employment and wages; economic analysis of laws, causes of unemployment, and government programs for unemployment: role of government in labor market.
BE-1:13 Health Economics 3.0 ah
Structure of America's medical care industry and applications of economics to health care decision making, cost-benefit analysis, performance measurement, and cost-effectiveness of health care programs and policies. Prerequisites: BE-1 and BE-100 or senior standing.
BE-1:14:1 Economics of the Government Sector 3.0 ah
Economic functions of government in a market economy; economic decision-making in government; public income and wealth determination; fiscal policy; government expenditures and taxation; public finance; determinants of inflation, economic growth and stability. Prerequisites: BE-1:1 and BE-100 or senior standing.
BE-1:15 Political Economy of the Military-Industrial Complex
Recent literature on the theory of the "military-industrial complex," contrasts these views with those of the intellectual scholar on national security. Analysis of the changing role of the military-industrial complex in the overall economy. Prerequisites: BE-1:1 and BE-100, or senior standing.
BE-1:16 International Economics 3.0 ah
Foreign exchange and balance of payments; foreign policy and international trade; balance of payments; international trade. Prerequisites: BE-1:1 and BE-100 or senior standing.
BE-1:17 Natural Resources in the World Economy: Control and Conflict 3.0 ah
Economic issues concerning the "new scarcity" of natural resources. Resource allocation, resource depletion, cycle of development, and social conflicts. Prerequisites: BE-1:1 and BE-100 or senior standing.
BE-1:18 Economic Development: International Aspects 3.0 ah
Theories of underdevelopment in Third World countries; examination of theories and policies of economic development. Prerequisites: BE-1:1 and BE-100 or senior standing.
BE-1:19 Agricultural Policy
Examination of major elements in the tax policy design of the income level of farmers. Analysis of current farm policies in the context of the overall economic system, government commodity programs, supply control, income stabilization, and the domestic and agricultural policy. Prerequisites: BE-1:1 and BE-100.
BE-1:20 Economic Growth and Environmental Decay 3.0 ah
Classes and consequences of economic growth in developed countries; possible-resource and energy limitations or economic growth; measurement of economic growth; methodologies of measurement; environmental and ecological variables; environmental control policies; policies for environmental protection in industrial societies. Prerequisites: BE-1:1 and BE-100, or senior standing, or consent of instructor.
"Theory of production and industrial development: issues of international trade, utilization of resources, and trade policies, and measurement and economics decisions; conditions for efficient resource allocation by the market mechanism. Prerequisites: BE-1:1 and BE-100.
BE-1:22 Measurement of National Product, Employment, and Income 3.0 ah
Measurement of national product, national income, and related output and income concepts, and the role of economic growth and development in providing employment opportunities and the solution of economic problems. Prerequisites: BE-1:1 and BE-100.
BE-1:23 General Economic Equilibrium: The Theory of Prices and Income 3.0 ah
A basic course in microeconomic and macroeconomic theory. Prerequisites: BE-1:1 and BE-100 or senior standing.
0.54 Monetary Theory
3.4b
Opinion surveys of money, models of monetary management, and welfare functions. Emphasis on the role of surveys in control of government and monetary policy. Also the role of surveys in the control of monetary activities and their consequences for individuals, different national institutions, and the different national economies. Emphasis on the role of surveys in control of government and monetary policy. Also the role of surveys in the control of monetary activities and their consequences for individuals, different national institutions, and the different national economies.

0.55 Labor Economics
3.4b
Critically review and present research issues with emphasis on prospects for original research; develop theoretical models of labor supply and demand. Emphasis on the role of surveys in control of government and monetary policy. Also the role of surveys in the control of monetary activities and their consequences for individuals, different national institutions, and the different national economies. Emphasis on the role of surveys in control of government and monetary policy. Also the role of surveys in the control of monetary activities and their consequences for individuals, different national institutions, and the different national economies.

0.56 Health Economics
3.4b
Emergence from Frances optimism on health care reform. Possibilities for increased funding, increased participation, and exploitation of health care financing. Emphasis on the role of surveys in control of government and monetary policy. Also the role of surveys in the control of monetary activities and their consequences for individuals, different national institutions, and the different national economies. Emphasis on the role of surveys in control of government and monetary policy. Also the role of surveys in the control of monetary activities and their consequences for individuals, different national institutions, and the different national economies.

0.57 Economic History of the North American Economy
3.4b
Analysis of long-term growth patterns of American economy. Review of changes in structure of economic activity, emphasis on the role of surveys in control of government and monetary policy. Also the role of surveys in the control of monetary activities and their consequences for individuals, different national institutions, and the different national economies. Emphasis on the role of surveys in control of government and monetary policy. Also the role of surveys in the control of monetary activities and their consequences for individuals, different national institutions, and the different national economies.

0.58 History of Economic Thought
3.4b
Economic doctrines and social and political background of development of economic thought. Emphasis on the role of surveys in control of government and monetary policy. Also the role of surveys in the control of monetary activities and their consequences for individuals, different national institutions, and the different national economies. Emphasis on the role of surveys in control of government and monetary policy. Also the role of surveys in the control of monetary activities and their consequences for individuals, different national institutions, and the different national economies.

0.59 History of Economic Thought
3.4b
Development of economic thought. Emphasis on the role of surveys in control of government and monetary policy. Also the role of surveys in the control of monetary activities and their consequences for individuals, different national institutions, and the different national economies. Emphasis on the role of surveys in control of government and monetary policy. Also the role of surveys in the control of monetary activities and their consequences for individuals, different national institutions, and the different national economies.

0.60 Industrial Organization
3.4b
Development of industrial organization. Emphasis on the role of surveys in control of government and monetary policy. Also the role of surveys in the control of monetary activities and their consequences for individuals, different national institutions, and the different national economies. Emphasis on the role of surveys in control of government and monetary policy. Also the role of surveys in the control of monetary activities and their consequences for individuals, different national institutions, and the different national economies.

0.61 Trade Union and Wage Policies
3.4b
Explains public policy options for improving both the efficiency and the distribution of income between individuals. Emphasis on the role of surveys in control of government and monetary policy. Also the role of surveys in the control of monetary activities and their consequences for individuals, different national institutions, and the different national economies. Emphasis on the role of surveys in control of government and monetary policy. Also the role of surveys in the control of monetary activities and their consequences for individuals, different national institutions, and the different national economies.

0.62 Essentials of the Government Bureaucracy
3.4b
Role and effects of federal, state, and local government agencies. Emphasis on the role of surveys in control of government and monetary policy. Also the role of surveys in the control of monetary activities and their consequences for individuals, different national institutions, and the different national economies. Emphasis on the role of surveys in control of government and monetary policy. Also the role of surveys in the control of monetary activities and their consequences for individuals, different national institutions, and the different national economies.

0.63 Essentials of Government Bureaucracy
3.4b
Role and effects of federal, state, and local government agencies. Emphasis on the role of surveys in control of government and monetary policy. Also the role of surveys in the control of monetary activities and their consequences for individuals, different national institutions, and the different national economies. Emphasis on the role of surveys in control of government and monetary policy. Also the role of surveys in the control of monetary activities and their consequences for individuals, different national institutions, and the different national economies.

0.64 Federal Policy
3.4b
Effects of federal policy on resource allocation; measures and analysis of policy with decision-makers and the general public. Emphasis on the role of surveys in control of government and monetary policy. Also the role of surveys in the control of monetary activities and their consequences for individuals, different national institutions, and the different national economies. Emphasis on the role of surveys in control of government and monetary policy. Also the role of surveys in the control of monetary activities and their consequences for individuals, different national institutions, and the different national economies.

0.65 State and Local Government Finance
3.4b
Financial problems and policies of state and local governments. Emphasis on the role of surveys in control of government and monetary policy. Also the role of surveys in the control of monetary activities and their consequences for individuals, different national institutions, and the different national economies. Emphasis on the role of surveys in control of government and monetary policy. Also the role of surveys in the control of monetary activities and their consequences for individuals, different national institutions, and the different national economies.

0.66 Methods of Regional Analysis: Economic and Demographic
3.4b
Methods of regional analysis including integrated input-output and regional economic models, spatial interaction models, and regional economic and demographic models. Emphasis on the role of surveys in control of government and monetary policy. Also the role of surveys in the control of monetary activities and their consequences for individuals, different national institutions, and the different national economies. Emphasis on the role of surveys in control of government and monetary policy. Also the role of surveys in the control of monetary activities and their consequences for individuals, different national institutions, and the different national economies.

0.67 Union Theory
3.4b
Economic analysis of labor market; exchange of labor services and capital, profit maximization, scales of organization, concentration as interrelated economic concepts. Emphasis on the role of surveys in control of government and monetary policy. Also the role of surveys in the control of monetary activities and their consequences for individuals, different national institutions, and the different national economies. Emphasis on the role of surveys in control of government and monetary policy. Also the role of surveys in the control of monetary activities and their consequences for individuals, different national institutions, and the different national economies.

0.68 Trade Unions and Wage Policy
3.4b
Explains public policy options for improving both the efficiency and the distribution of income between individuals. Emphasis on the role of surveys in control of government and monetary policy. Also the role of surveys in the control of monetary activities and their consequences for individuals, different national institutions, and the different national economies. Emphasis on the role of surveys in control of government and monetary policy. Also the role of surveys in the control of monetary activities and their consequences for individuals, different national institutions, and the different national economies.

0.69 Working in the Macro Economy
3.4b
Observation and economic analysis of the national economic system and its relationship to regional and international economic systems. Emphasis on the role of surveys in control of government and monetary policy. Also the role of surveys in the control of monetary activities and their consequences for individuals, different national institutions, and the different national economies. Emphasis on the role of surveys in control of government and monetary policy. Also the role of surveys in the control of monetary activities and their consequences for individuals, different national institutions, and the different national economies.

0.70 Working in Applied Economics and Statistics
3.4b
Observation and economic analysis of the national economic system and its relationship to regional and international economic systems. Emphasis on the role of surveys in control of government and monetary policy. Also the role of surveys in the control of monetary activities and their consequences for individuals, different national institutions, and the different national economies. Emphasis on the role of surveys in control of government and monetary policy. Also the role of surveys in the control of monetary activities and their consequences for individuals, different national institutions, and the different national economies.

Education
3.4b
See "College of Education."
In conference with their academic advisors, students work out programs of study designed to satisfy their interests and secure their more distant goals. Normally they begin with courses emphasizing close reading of poetry, fiction, drama, and expository or argumentative prose. Later they study particular literary forms and the literature and culture of selected historical periods.

English majors have courses in such diverse subjects as folklore, 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 drama) or functional writing (exposition or argument in the fields of journalism, business, science, or the arts).

To hositress their understanding of literature, English majors are encouraged to choose elective courses from such fields as history, classical or modern foreign literature, speech, and the fine arts. Students planning to teach in primary or secondary schools will add appropriate courses in education. Those seeking careers in other fields may select courses in business pre-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 advise them according to their major. In the English office, too, they may obtain a copy of the Undergraduate Major Program, and MajoMr, and other printed material about major programs, courses, and special events.

Minor

A minor in English requires 16 semester hours as Department of English courses. Twelve of these hours should be in advanced courses (3-11) and should be chosen from the courses listed in the major. General education requirements do not contribute toward the minor in English.

Honor

The English major with honors is designed to encourage talented students to explore a wide range of literary experience to achieve mastery of literary works. During the junior year, an honors student takes a special seminar, and the final examination qualifies the student to continue in the program. The student will complete his or her seminar paper, a minimum of a 30-page paper, either critical or creative, which is advised by any faculty member and evaluated by the honors committee. Honor student is planned in consultation with both the English honors advisor and members of the honors committee. The sequence of courses is designed to adapt 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 excellence of its creative writing program. With the consent of his or her advisor, any student may elect the undergraduate courses in this program. These are ENG 33 Creative Writing, CM 131 Fiction Writing, and CM 132 Poetry Writing.

Admission to the undergraduate workshops in fiction and poetry is by audition. Students who wish to take part in these workshops must submit samples of their poetry or fiction to the Writers Workshop no earlier than a week before registration, and no later than the last day of registration.

English and Education

The department offers a flexible undergraduate program for students planning to teach English in elementary and secondary schools. Students completing this program satisfy the requirements for a general major in English and for teaching certification. Students who wish to be certified to teach English in our secondary schools should select courses which fulfill the state guidelines for teachers of English. It usually takes seven to twelve semesters.

Literary study for students planning to teach English should emphasize a range of close-reading experiences in different kinds of literature, from the very ancient to the very modern. Shakespeare, British literature of the sixteenth and seventeenth centuries, American literature, literature for adolescents, literature of American ethnic groups, literature by women (folk literature), and U.S. literature. Students planning courses which will help them in their first teaching experiences should remember that they will have to work with details of expression in English.

They will need advanced training in writing—fiction, poetry, and fiction are all important—because these courses will help students understand and utilize linguistic, metrical, 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 elementary learning of meaning, to advanced stages when a reader comes increasingly to understand and respond to details of meaning and nuance of expression.

All these areas of study can be satisfied by courses within the department except the exploration of the processes of reading. That area can be satisfied by courses in the College of Education. Prospective English teachers should remember that an undergraduate degree represents only minimal training, so they should plan a program which will permit graduate study at a later time.

English majors seeking teacher certification must plan with their advisors appropriate educational 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 for secondary teaching in fields other than English may seek minor certification in English. This is particularly appropriate for students studying creative writing or journalism. Such a student must complete 20 semester hours of English, excluding freshman courses in rhetoric, speech, or writing.

The English minor certification program must include a course in each of these areas: advanced composition, linguistics, Shakespeare, American literature from the nineteenth to the twentieth century, and American literature. In addition, 20 semester hours of English, the student is required to take 75:116 Methods English in the College of Education's Division of Secondary Education.

While this program meets minimum requirements for certification, the decision to enter this minor or to pursue deeper study to teach English should have considerable bearing on the student's student's future career.

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 periods, movements, and major works of English and American literary history, as well as an overview to critical and theoretical language as a medium of expression. Each student, in consultation with an
Doctor of Philosophy

The Ph.D. program is designed as preparation for the teaching, publishing, and research 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, overapplied literature, and linguistics.

Requirements for the Ph.D. include:
- Formal admission to candidacy by a vote of the department.
- Demonstration of a high level of competence in two foreign languages or mastery of a single foreign language and its literature.
- Distributed course work in specified historical areas, two seminars.
- A part-written, part-oral comprehensive examination in three areas, one of which must be in a historical period of English and American literatures.
- 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 placement in the broad field options of the rhetoric and literature core programs of the College of Liberal Arts.

Interested students should write to the department's director of financial aid and general admissions for more detailed explanations.

Financial Aid

Aid is available to graduate students in the form of teaching and research assistantships, and teaching and research assistantships. It is awarded on a competitive basis. Since sources are limited, normally the need stated at the time of entry will be the only one considered for financial aid.

Aid is available from the department and the University Office of Admissions.

Admission

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.

Master of Arts in Translation

This program features the theory, practice, and pedagogy of translation and would be of interest to students wishing to become translators or critics of translation. The program, which includes 48 semester hours of graduate credit, is available in the M.A. in Writing Workshop program. The program requires 48 semester hours of graduate credit, including a minimum of 12 hours of Translation Workshop, a collection of translated poetry, fiction, or drama, and an examination in practical criticism involving problems of translation.
applicants should submit samples of their poetry or fiction to the director of the Creative Writing Program. M.A. in Expository Writing applicants should submit a sample of expository prose and a statement of purpose to the director of that program, and Ph.D. applicants should submit a representative sample of their writing—a course paper, seminar paper, or thesis chapter—to the department’s director or 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 became the first institution of higher education to accept creative dissertations for advanced degree programs.

Founded in 1920, 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 teaching of English and rhetorical theory. It is one of the few academic institutions in the nation which offers a full range of graduate courses in this area.

Facilities

The University Library is serving in all areas of English and American literature. It is especially noteworthy for its collection of materials published in English, its holdings in nineteenth- and twentieth-century works, including the Leigh Hunt collection, and its manuscript collections of famous American authors.

The department provides a wealth of opportunities for student involvement in critical 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 gain editorial experience by working with The Iowa Review, Philological Quarterly, and the Wordpower Press.

Students are welcome to participate in the activities of the English Graduate Student Society, the Humanities Society, the Friends of Old-Time Music, and the Midwest Modern Language Association. Visiting writers and critics are on the campus almost every week, and various conferences and literary “festivals” complement the schedule of class work.

Courses

Individual descriptions for the English courses listed below are not included because the content and emphasis of many courses varies considerably from semester to semester. Detailed course descriptions (or all offerings in a specific semester) are available in the English department office well in advance of the beginning of each semester.

For Undergraduates

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

0560 Comparative Education Internship 3 a.h.
511 Modern Fiction 3 a.h.
512 Modern Poetry 3 a.h.
513 Modern Drama 3 a.h.
514 The Short Story 3 a.h.
516 Classical and Medieval Literature 3 a.h.
518 Shakespeare 3 a.h.
517 The Renaissance in Europe 3 a.h.

Introductory Close Reading of Texts

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

520 Critical Approaches to Literary Works 3 a.h.
525 Reading Poetry 3 a.h.
526 Reading Plays in World Literature 3 a.h.
605 Survey of British Literature I 3 a.h.
606 Survey of British Literature II 3 a.h.
610 World Ways of English Literature 3 a.h.
611 Major British and American Poetry 3 a.h.
612 Major British and American Prose I 3 a.h.
641 Modern Fiction 3 a.h.
618 American Literary Classics 3 a.h.
620 Selective Works of the Middle Ages 3 a.h.
621 Shakespeare’s Contemporaries 3 a.h.
623 Selective Works of the Elizabethan Era 3 a.h.
624 Selective Renaissance English Works 3 a.h.
625 Selective Early Modern Works 3 a.h.
626 Selective Works of the Twentieth Century 3 a.h.
651 Shakespeare on the Renaissance 3 a.h.
652 Shakespeare on the Modern World 3 a.h.

Major Authors

The following are limited-enrollment discussion courses. Each author is represented by several major works. Combinations of authors are changed regularly. With permission of the instructor, a student may repeat registration for some course number if authors have been changed.

671 Chaucer 3 a.h.
673 Shakespeare 3 a.h.
574 Selected American Authors 3 a.h.
575 To Print the Person 3 a.h.
576 Selected Modern Authors 3 a.h.
577 Selected Authors 3 a.h.

Seminars for Undergraduate Majors

680 Language, Literature, and Law 3 a.h.
685 Essay Prerequisite: English major or consent of instructor.
689 Undergraduate Seminar 3 a.h.
Prerequisite: English major or consent of instructor.

For Undergraduate and Graduate Students

Literature and Culture

Primarily for upperclass students and graduating students, these lecture courses are designed to present major works and authors within the context of the social, political, intellectual, and artistic movements of their time. Students who have established backgrounds in history or related arts are especially welcome. Undergraduate majors in English are urged to include at least one course of this type in the latter half of their majors.

610 Introduction to Critical Problems 3 a.h.
611 Literature and Culture of the Middle Ages 3 a.h.
612 Literature and the Culture of the Renaissance 3 a.h.
613 Literature and the Culture of the Eighteenth Century 3 a.h.
614 Literature and the Culture of the Nineteenth Century 3 a.h.
615 Literature and the Culture of the Twentieth Century 3 a.h.
616 Literature and the Culture of the Modern World 3 a.h.
617 American Literature and Culture 3 a.h.
618 European Literatures of the Nineteenth Century 3 a.h.
620 American Literature and Culture 3 a.h.
621 American Folk Literature 3 a.h.
626 American Folk Literature 3 a.h.
628 American Folk Literature 3 a.h.

These courses are open to both undergraduates and graduate students.
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 specified purposes and audiences.

DE 111 Writing for the Humanities 3 s.h.
DE 112 Writing for the Sciences 3 s.h.
DE 113 Writing for Business and Industry 3 s.h.
DE 121 Numbered 1-4: New Journalistic Writing 3 s.h.
DE 131 Forum of Writing 3 s.h.
DE 151 First-Year Creative Writing 3 s.h.
Same as EN 151.
EN 175 Computer Text Editing 1-2 s.h.
EN 185 Undergraduate Project or Expository Writing 3 s.h.
EN 230 Workshop in Expository Writing 3 s.h.
EN 290 Critical Writing 3 s.h.
EN 290 Seminar in Writing 1-3 s.h.

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 111 Principles of Expository Writing 3 s.h.
EN 254 Approaches to the Teaching of High School English 3 s.h.
EN 256 Writing Workshop for Teachers 3 s.h.
EN 257 History of Rhetoric 3 s.h.
EN 258 Theories of Style 3 s.h.
EN 259 Argument in Rhetoric 3 s.h.
EN 312 Principles of Language and the Delivery of Writing 3 s.h.
EN 320 Statistical Methodology: Analysis and Application 3 s.h.
EN 354 Techniques of Writing 3 s.h.
EN 444 Approaches to Teaching College Writing 3 s.h.
EN 454 Methods in Teaching Freshmen Composition 3 s.h.
EN 455 Course in the Teaching of Writing 3 s.h.
EN 462 Supportive Theories of Writing 3 s.h.
EN 463 Problems in Rhetoric 3 s.h.
EN 490 and Special Project in Expository Writing 3 s.h.

Creative Writing

General Interest

These courses are designed to serve the general interests and needs of undergraduates and graduate students in all areas of the University. They offer practice in various expository forms and forms of creative writing.

EN 352 Creative Writing 3 s.h.
EN 318 History and Theory of Expository Writing 3 s.h.
EN 354 Forum of Writing 3 s.h.
EN 360 Poetry Writing 3 s.h.
EN 360 Basic Reporting 3 s.h.
EN 360 Advanced Reporting 3 s.h.
EN 361 Advanced Fiction Writing 3 s.h.

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.

EN 361 Undergraduate Writing Workshop: Fiction 3 s.h.
EN 362 Undergraduate Writing Workshop: Poetry 3 s.h.
EN 363 Undergraduate Writing Workshop: Playwriting 3 s.h.
EN 364 Undergraduate Writing Workshop: Non-Fiction 3 s.h.
EN 365 Workshop in Fiction Writing 3 s.h.
EN 366 Workshop in Poetry Writing 3 s.h.
EN 367 Workshop in Playwriting 3 s.h.
EN 368 Workshop in Expository Writing 3 s.h.

Independent Study

Same as EN 175.
EN 320 Forum of Writing 3 s.h.
EN 430 Problems in Style 3 s.h.
EN 480 Seminar: Problems in Fiction Writing 1-3 s.h.
EN 481 Seminar: Problems in Poetry Writing 1-3 s.h.

French and Italian

Department Chair: Jean L. Horgan
French and Italian have long been the courses interested in French literature for or combining the study of French literature with a major in another area, such as English, comparative literature, cinema, or history. The literature course requires a total of six semester hours of credit in French, including:

9:27-28 3rd-Year Composition and Conversation 8 s.h.
9:11-12 3rd-Year Composition 8 s.h.
9:12-13 French Conversation: Third Level 8 s.h.
9:13 French Conversation: Fourth Level 8 s.h.
9:13 French Conversation: Fourth Level 8 s.h.
9:14 Advanced French Pronunciation 2 s.h.

Minimum of four 100-level courses in literature (at least two of which must be above the 180 level), plus a fifth 100-level course in a discipline of literature, advanced language, or civilization, totaling 15 semester hours.

Civilization Track

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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 5 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 two courses above the 180 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.
9:176 Advanced French
Pronunciation 2 s.h.
9:128 French Conversation: Third
Level 2 s.h.
9:136 French Conversation: Fourth
Level 2 s.h.
A minimum of five 100-level courses, of which at least two are in literature and two in civilization, totaling 15 semester hours and including at least one course above the 180 level.
The student who wishes to pursue 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 30 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.
9:115 Business French 3 s.h.
9:129 French Conversation: Third
Level 2 s.h.
9:136 French Conversation: Fourth
Level 2 s.h.
9:155 Commercial and Technical
Translation 3 s.h.
9:197 Translation Project 3 s.h.
Two courses each in French civilization and modern French 12 s.h.
Electives recommended as an adjunct are courses in French stylics and textual analysis, another language, economics, political science, and/or business electives.

Bachelor of Arts in Italian
Requirements for the major in Italian include:
18:111-112 Intermediate Italian 6 s.h.
18:111-112 Advanced Composition and
Conversation 8 s.h.
18:106-108 Introduction to Italian
Literature 6 s.h.
18:119-120 Dante and His Times 8 s.h.
18:101 Literature of the Nineteenth
Century 3 s.h.
or A Course in Twentieth Century
Literature 3 s.h.
Total 26 s.h.

Honors
The department participates in the College of Liberal Arts Honors Program. For an honors degree in French, the student must complete:
18:106 Honors Readings 3 s.h.
18:108 Honors Seminar 3 s.h.
An additional course numbered above 180 in French literature, language, or civilization

Summer Program in France
The department is in charge of a summer program in France for students enrolled in the three lower French universites. 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 Aix-en-Provence, the program combines formal classwork in language skills with an integrated course in the culture and civilization of France, including visits to sites 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 which places students in French cooperative educational opportunities around the Big Ten universities and the University of Chicago. Attended 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 and to introduce them to the heritage and cultural traditions of a unique and vital segment of North American life.

Language House
The French and Italian department maintains close connections with the Maison Francaise and the Foreign Language House at Westwego, a University residence hall. Residence students may initiate cultural and educational programs with the participation of the faculty and other students, providing a unique opportunity to combine living with language learning.

Graduate Programs
Master of Arts in French
The candidate must earn a minimum of 30 semester hours of graduate credit and pass a written and oral examination. The program must include:
3:175 Advanced French Prose Fiction 3 s.h.
3:209 Advanced Grammar and Lexicology 3 s.h.
3:210 Comparative Stylistics, and at least four graduate-level (200 and above) literature courses. With the permission of the departmental chair, the candidate may take up to 6 of the required 30 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’ credit for his or her thesis work. The candidate must defend the thesis at the time of the comprehensive examination.

Master of Arts in French Education
This program is intended primarily for prospective secondary school and junior college teachers. Requirements include a total of 30 semester hours of graduate credit. Of this total, it must be in education courses, and at least 9 must be in graduate (200 level) courses in French literature. The following courses are also suggested:
1:183 Stylistics: Analysis and
Application 3 s.h.
1:184 Textual Analysis 3 s.h.
3:175 Advanced Grammar and
Lexicology 3 s.h.
3:210 Comparative Stylistics 3 s.h.
3:110-111 French Civilization
3:160 Methods: Foreign Language
1:161 Language Laboratory Equipment
Procedures 3 s.h.
1:216 Contemporary France 3 s.h.
1:175 Advanced French Pronunciation 3 s.h.
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 satisfactory oral defense of a dissertation.
Specific requirements include 9:251 Introduction to Old French Grammar, and four semesters of college study or equivalent proficiency in a foreign language other than French.
Italian Courses

Primary for Undergraduates

10.11 Seminary Italian
Prerequisite: 10.11 or 10.12 or 10.15, or consent of instructor.

10.12 Conversational Italian
Prerequisite: 10.11 or 10.12 or 10.15, or consent of instructor.

10.13 Conversational Italian
Prerequisite: 10.11 or 10.12 or 10.15, or consent of instructor.

10.14 Commercial Italian II
Prerequisite: 10.12 or 10.15.

10.15 Special Work

For Undergraduates and Graduates

10.15.1 Italian of the Medieval Century
May be given in English for non-majors.

10.15.2 Italian Renaissance
May be given in English for non-majors.

10.15.3 Italian Renaissance
From earliest writings to sixteenth century. May be given in English for non-majors. Prerequisite: 10.15.1 or 10.15.2.

10.15.4 Italian Renaissance
From sixteenth century to present. May be given in English for non-majors. Prerequisite: 10.15.3 or 10.15.2.

10.15.5 Conversation and Composition
Prerequisite: 10.15.4 or 10.15.5.

10.15.6 Conversation and Composition
Prerequisite: 10.15.5.
A student who is admitted to The University of Iowa College of Dentistry or College of Medicine or to a University of Iowa professional program in medical technology, public health, medical technology, or physical therapy before completing requirements for the bachelor's degree, may enroll up to 30 semester hours of credit earned in the first year of professional training toward the 124-hour requirement for a bachelor's degree in general science, including a total of 8 semester hours of science credit toward the major requirement and, of these, 4 semester hours toward the 20-hour concentration requirement.

To be eligible to receive a Bachelor of Arts or Bachelor of Science Degree from The University of Iowa, a transfer student in any of the unit programs in general science must earn at least the last 30 semester hours of credit for the bachelor's degree at The University of Iowa College of Liberal Arts.

No credit earned in a science course in another college of the University may be applied toward the major credit requirements in general science unless the department of Biochemistry, Botany, Chemistry, Geology, Physics, and Astronomy, Microbiology, or Zoology certifies in writing that the course is equivalent to one offered by that department.

A student in a general science reaching program may earn a Bachelor of Arts or Bachelor of Science Degree by completing one of the approved sequences listed under "Science Education" in this section of the Catalog. The last 30 semester hours must be earned in the final two years of residence.

Students who want to teach in secondary schools must also satisfy certification requirements, which include a 20-semester-hour emphasis in education (see "Secondary Education" in the "Catalog" section of the Catalog).

Students majoring in general science are urged to take appropriate courses in basic and applied mathematics to prepare them for graduate study and quantitative research.

All general science students who are not in either the science education program or one of the health-related programs must complete one of the following: the mathematics courses, or an equivalent course, or a higher-level college mathematics course. 225.0: Quantitative Methods 1 4 s.h. 225.12: Calculus for the Biological Sciences 3 s.h. 226.20: Elementary Functions 3 s.h. Any 225 course except 225.12.

Students majoring in general science are expected to meet the College of Liberal Arts language requirement with German, French, Russian, or Spanish; unless the student's academic advisor gives written approval of another language.

Completion of a minor in general science requires at least 18 semester hours of credit in any field of the science-mathematics area listed for the major above; or, if none, all 18 semester hours must be in 100-level courses.

The preceding description pertains only to The University of Iowa College of Liberal Arts requirements for a bachelor's degree with a major in general science, and no inference should be drawn from it concerning the specific requirements of any professional training program.

Genetics

Program chair: James D. Spitzer
Faculty: Richard A. Buskey, Henry (Demetrios), Thomas Conroy (Biology/Medicine), Doug Cronheim (Microbiology), Harald Drey (Psychology), John Drexler (Biology/Medicine), Michael Keller (Microbiology), Joseph Kuehl (Microbiology), Gary B. Guss (Microbiology), John Hegeman (Biology), William J. Heffernan (Biology), James Hildreth (Psychology), Joseph Hulten (Biology), Robert Jaffe (Biology), Kristin R. Kuehl (Microbiology), William T. Leary (Psychology), George W. Muenzer (Psychology), Simon P. Neel (Biology), Thomas O. Roten (Biology), John P. Schull (Psychology), John S. M. E. Shumway (Biology, Genetics), William J. Sillers (Biology), Joseph S. Sillers (Biology), Robert W. Smith (Biology), John C. Stadler (Biology), Carol M. Stoller (Biology), William T. Toepel (Biology), Kenneth V. Wold (Psychology).

The department of Biological Sciences offers a Ph.D. degree in genetics. The requirements for admission to the Ph.D. program are designed to prepare students for careers in research and teaching in genetics. Students should have a strong background in general science, particularly in molecular biology and genetics.

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Students entering the program are encouraged to obtain a broad background in genetics, ranging from molecular to population genetics. Within the context, however, courses requirements are flexible enough to permit students to tailor their coursework to fit their individual needs.

All students enrolled in the program are required to take 99.10 (Research Methods) and 221.0 (Genetics Seminar). In addition, they are required to earn at least three semester hours of credit in molecular and microbial genetics, cell and developmental biology, and quantitative and population genetics.

Even more important than formal coursework is the opportunity to do meaningful research. Students are encouraged to begin their own research as quickly as possible. Research interests of the participating faculty range from basic approaches to human medical genetics. In each area of genetics there is a group of faculty members with closely related interests. The University is also strong in several related disciplines, including microbial physiology, immunology, virology, molecular biology, and developmental, cell, and immunology biology. All of which contributes significantly to the overall training program.

In addition to completing research and coursework, students must also pass a comprehensive examination, which should be taken within the first two years of the program.

Admission

The prospective doctoral student in genetics should have a strong background in general science, including courses in general genetics, organic chemistry, introductory physics, biology, and mathematics, and a strong commitment to research and teaching in genetics. A student with deficiencies in a particular area can make them up during the first year of graduate study.

Admission to the program is based on the assessment of the applicant's undergraduate academic record, performance on the Graduate Record Examination (GRE), verbal, quantitative, and analytical aptitude tests, and letters of recommendation. Requirements for admission are not rigid. Although all students currently working toward the Ph.D. in genetics at The University of Iowa College of Liberal Arts grades of 3.0 (on a 4.0 scale) are required, and grade-point averages greater than 3.3 and GRE totals (verbal plus quantitative) exceeding 1500, students with lower grade-point averages and GRE scores may be admitted, depending on other indicators of academic potential.

The program accepts admission applications at any time.

Financial Aid

The financial aid office provides information on all available financial aid programs.

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Geography

Department: geography
Graduate Program

Geography seeks to explain spatial patterns of phenomena and processes through detailed studies of significant aspects of human and physical systems. The discipline is concerned with the "location" or "environment" and the forces which promote change within and between human and physical systems.

Graduate students elect courses in geography that develop insights and methodological approaches to understanding aspects of the complex problems confronting different societies. For example, the distribution and consumption of natural resources, air and water pollution, the growth and development of urban areas, increasing populations, transportation problems, spatial inequities, food services, and conflicts between nations are some of the issues which will be dealt with during geographical training.

Studies in geography also provide students with concepts and methods for managing such spatial units as urban areas, metropolitan regions, school districts, health service areas, drainage basins, and areas of environmental concern. Thus, geographers can make substantial contributions towards understanding the behavior of individuals, of societies, and of their relations with the environment.

Career opportunities for majors in geography exist in many branches of government and in business. There is a demand for persons capable of dealing with resource management, economic development, market analysis, and other problems related to the distribution and spatial interaction of physical, economic, social, and political phenomena.

Courses in geography are common to required levels of training for the elementary and secondary school levels, of students who wish to work in urban and regional planning, and as a base for many related professions, including law, health care, environmental or transportation engineering, and business administration.

Undergraduate Program

The geography faculty has developed an undergraduate instructional program which provides educational opportunities for a variety of students: for those majoring in one or more elective courses as they relate to a liberal education, or for those interested in electing a cluster of courses in conjunction with another discipline or for the B.S. degree; and for students interested in acquiring a major in geography. The department also offers significant interdisciplinary programs involving global, urban, and environmental concerns.

Programs for the Undergraduate Major

Students majoring in geography may choose alternative programs depending on their interests. The substantive strengths of the department fall into three areas: environmental studies, urban and regional studies, and international development studies. Students may choose to develop expertise in one of these areas, or they may choose to develop an individualized program within the curriculum offered by the department.

Students planning advanced training or seeking careers in geography should elect the Bachelor of Arts degree.

Requirements

All geography majors must complete a minimum of 26 semester hours of general education coursework, at least 15 of which must be at the 100 level. Many students will choose to elect more than the minimum requirements for mastery of a specific field.

All geography majors must complete:

- 44:10 Spatial Organization
- 44:150 Undergraduate Seminar in Geography Majors

1. The following statistical courses:

- 225:127 Applied Statistical Methods and Computations
- 225:35 Elements of Political Analysis
- 226:101 Biostatistics
- 225:122 Introduction to Statistical Methods

In addition, Bachelor of Science students must complete a mathematics requirement covering at least:

- 236:3 Mathematical Techniques II
- 255:16 Fundamentals of College Mathematics
44:11 Introduction to Social Geography
44:15 Introduction to Political Geography
44:30 Introduction to Economic Geography
44:35 World Cultures
44:115 Localized Conflict
44:116 Urban Political Geography
44:125 Environmental Impact Analysis
44:130 Location of Services
44:131 Medical Geography: Health Services
44:132 Industrial Location
44:133 Introduction to Transportation
44:134 Urban Transportation
44:135 Urban Geography
44:136 The Great City
44:137 Urban and Regional Modeling
44:138 Urban Problems

Also strongly recommended:
44:167 Maps and Mapping
44:106 Computer Methods in Geographical Analysis

Under the direction of their advisors, students should select courses in related disciplines from the following:
113:118 Urban Anthropology
18:187 At-Home American History 1914- Present
30:111 Municipal Government and Politics
34:172 Social Dynamics of Urban Life
102:101 Introduction to Planning and Policy Development
102:102 Case Studies: Urban and Regional Planning
102:110 Regional Development Policy and Planning

International Development Studies

The concentration in international development studies is designed for students interested in international affairs; in the social, economic, 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 and advised to select courses (at least 21 semester hours) from among the following:
44:1 Introduction to Human Geography
44:2 Introduction to Physical Geography
44:11 Introduction to Social Geography
44:16 Introduction to Political Geography
44:30 Introduction to Economic Geography
44:125 Economic Crises
44:115 Localized Conflict
44:124 Introduction to Global Environment
44:161 African Development
44:162 The Third World
44:163 The Changing World
44:191 Energy in Contemporary Society

Under the direction of an advisor, students should select courses from the following disciplines among the following:
50:90 Introduction to World Politics
30:127 Policy Problems in Industrial Societies
50:150 The Political Economy of the Third World
50:150 International Politics
30:150 Politics of War and Peace
66:123 Political Economy of the Military-Industrial Complex
66:129 Economic Development of Developing Areas
10:89 Culture and Politics of Latin America
10:89 Introduction to Modern Latin America
18:170 Modern African History
18:106 China: Opium War to Mao

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

The department participates in the interdisciplinary global Studies Program.

Individual Programs

students with more general interests who wish to pursue a Bachelor of Arts degree may design their own individual programs of instruction with the help of their advisors. Such programs must include at least 24 semester hours of geography, at least 15 of which must be at the 102 level. They 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

44:102 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 research in geography involving the use of theory, modeling, and formal verification methods, and to prepare students for positions in research, teaching, or some area of applied geography. The achievement of these goals is demonstrated in large measure by the demand for University of Iowa graduates in such areas as government and university faculties, in research-oriented institutions, and in business and government.

The department offers specialized instruction in the teaching of geography at the college level for those interested in academic careers. Opportunities are provided for all 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 that emphasizes the acquisition of teaching experience. Within an overall analytical framework, students develop a broad area of competence that can be tailored to meet the contemporary demands of business, government, and the teaching profession. Recent graduates have obtained positions in health planning, community planning, transportation, and market research.

The M.A. degree is also frequently taken by students whose ultimate goal is the Ph.D. degree.

As soon as possible during the first year of residence, students, in close consultation with their advisor and other faculty members, should select a concentration in geography for study for their degree program. This should be consistent with the content of the student's interests and should identify clearly the general area (or areas) within geography in which the student wishes to concentrate. The program of study should also emphasize relevant problem-solving methods, and philosophy and epistemology in geography.

The M.A. degree requires a minimum of 30 semester hours of graduate work, of which 15 semester hours must be 200- and 300-level courses and at least 6 semester hours of specific requirements for the degree arc:
At least 4 semester hours chosen from among the following courses: 240:201-202 Geographical Analysis I and II
300:250 Quantitative Analysis I

An additional 12 semester hours in geography.

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

Students who enter with sufficient background are frequently able to complete the program in one full year. The M.A. degree is available with or without thesis. A maximum of 6
semester hours of credit may be earned for thesis work.

Students must pass a written and/or oral final examination.

Doctor of Philosophy

The Doctor of Philosophy program is designed to prepare students for positions in college and university teaching and in advanced research. It provides programs of study leading to (1) broad knowledge of a field of geography and its literature as well as (2) a specific field of competence and special expertise. 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 a portion of the requirements of 44:201-202 Geographical Analysis I & II and 44:203-206 Quantitative Analysis I & II. The eight minor-courses comprising 44:201-202 should be taken within the first two years in residence, and must include minor-courses offered by at least six different faculty members. The minor courses must include two courses taken during the first year in residence. Students may meet these requirements with a satisfactory performance in written examinations.

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 44:350 Research Seminar. Staff each semester while they are in residence.

The remainder of the Ph.D. program includes appropriate graduate courses, seminars, workshops, and electives in geography; courses in disciplines closely related to geography; and an understanding of the objectives and interests; and courses which are related to the Ph.D. candidate's work. Research tool requirements for Ph.D. candidates are the courses 44:203 Quantitative Analysis II and another appropriate course, as approved by the faculty at the time the student declares his or her specific area of specialization.

By their fourth semester of 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 prepared 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 a specified field of study must submit an original research paper to the department, with the approval of their advisor.

Students who have been admitted with advanced graduate credit for 24 semester hours or more, are encouraged to submit this paper earlier. The faculty will pass upon the merits of the research; thus, those who have submitted 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, geography of regional analysis; regional economic theory, macroeconomic theory, and operations research. Doctoral candidates in the field of regional science also are expected to complete courses in philosophy and epistemology 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 a master's degree in economics as a part of their master's and doctorate in Geography, because completing the Ph.D. in regional science requires satisfying most requirements for the master's in economics.

Graduate Admission

In addition to the 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 during the last year or two of his or her junior and senior years; scores on the Graduate Record Examination Aptitude Test: three letters of recommendation; and an essay in which the applicant sets forth the reasons for wanting to study geography at The University of Iowa. An applicant with an undergraduate grade-point average of 3.5 and 2.75 will be admitted only for the M.A. degree and on the condition that he or she achieve a grade-point average of 2.75 or better on the first 12 semester hours of graduate work approved by the department.

Foreign students and those from under-graduate institutions that evaluate students on a basis other than grade-point averages, will be 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 Graduate Record Examination verbal and quantitative sections, and have a 3.5 undergraduate or graduate grade-point average, to be appointed to an assistantship. These appointments should be confirmed by the office of the Vice President for Finance before being accepted.

Facilities

The department possesses a unique complete graphics hardware system in the NILAC SDS-4 mini-computer that supports a GRAP-PEN OF-3 scientific digitizer. The SDS-4 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 graphics applications. This system is linked to one of four PRIME 750 systems, each with supporting terminals and all linked to the IBM 370/ 195. Complementing these hardware systems are an increasing number of sophisticated software packages that will dramatically improve interactive computing capabilities.

The Map Library contains more than 75,000 maps, a total of 2,600 atlases and reference works, and about 80,000 small-scale photoglyphs, primarily of Iowa. The library is a depository for maps of the United States, the Geographic Command, formerly Army Map Service.

The Geology Library contains approximately 40,000 maps, including both geologic maps and U.S. Geologic Survey topographic maps. The Department of Geography has its own collection of topographic maps, maps of large urban centers, and aerial photography for use by students in laboratory exercises.

Courses

Most courses open to undergraduate students may be taken in any order or simultaneously; it is recommended, however, that students planning to take 44:110 and 44:111 in that sequence. All courses below the 110 level are open to freshmen; 44:1, 44:2, 44:11, 44:19, and 44:20 are available on an on-demand basis for the general education requirement in social sciences.

Primarily for Undergraduates

4000 Comparative Education Training Assignment 0 u.

461 Introduction to Human Geography 0 u.

489 Application of geographic principles to contemporary problems. The impact of urban growth; problems of the ghetto, effluence of stresses, territoriality and perception.
agencies. Some interested to enter law, business, or other fields such as urban planning, environmental studies, engineering, archeology, science education, or oceanography are advanced areas. Geology is suited to all these.

The program stresses the basic aspects of geology more than the engineering or agricultural phases of the discipline. The department specializes in relating scientific thought to the study of the earth. Its resources include a major paleontology facility (invertebrate, vertebrate, paleoanthropology), a terminal link to the University computing center, the Iowa Geological Survey (located in the same building as the department), and research equipment for fields such as mineralogy, petrology (igneous, sedimentary, and economic), remote sensing, and exploration geophysics.

Geology majors receive at least an academic year's work in all scientific areas—physics, chemistry, biology, and mathematics—in addition to a course in each major area of geology.

Each year more than 1,100 students enroll in 1123 Earth History and Resources and 1124 Man and His Physical Environment, a team-taught, laboratory-lecture-course designed to fulfill the College of Liberal Arts general education requirement for natural science studies. Other offerings for nonmajors include a lecture sequence for person who have achieved a general understanding of Earth's surface and prehistory, mineralogy, and several advanced courses with few prerequisites—paleontology, geology of Iowa, energy in contemporary society, a planet in crisis, remote sensing, geomorphology, and oceanography.

Undergraduate Programs

Students majoring in geology must meet the 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 appropriate seminars in history, economics, geography, and/or anthropology.

Bachelor of Science

The Bachelor of Science professional program in geology is designed primarily as preparation for graduate study and for employment in industry. Required courses in this program:

12:5 Introduction to Geology 4 s.h.
12:5 Evolution of the Earth 4 s.h.
12:41 Mineralogy 4 s.h.
12:52 Elementary Petrology 4 s.h.
12:113 Summer Field Course 6 s.h.
12:121 Principles of Paleontology 3 s.h.
12:191 Structural Geology I 4 s.h.
12:192 Structural Geology II 3 s.h.

At least two elective geology courses 8 s.h. Total At least 38 s.h.

(Note: The student may substitute 1123 Earth History and Resources for 12:5 Introduction to Geology, but 12:5 is preferred.)

The geology major requires at least 10 semester hours of college mathematics, including 22M:26 Calculus II or 22M:36 Engineering Calculus II. Computer science or statistics courses may be counted toward the ten-hour requirement. Additional mathematics is strongly recommended.

Eight semester hours of physics, 6 semester hours of chemistry, and a 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 available in such areas as conservation and environmental problems. Course requirements for the B.A. in geology:

12:5 Introduction to Geology 4 s.h.
12:5 Evolution of the Earth 4 s.h.
12:41 Mineralogy 4 s.h.
12:52 Elementary Petrology 4 s.h.
12:121 Principles of Paleontology 3 s.h.
12:116 Field Trip (two sections) 4 s.h.
Geology electives 12 s.h.
Total 39 s.h.

(Note: The student may substitute 1123 Earth History and Resources and/or 1124 Man and His Physical Environment for 12:5 Introduction to Geology, but 12:5 is preferred for the major.)

The B.A. in geology requires at least 10 semester hours of university-level mathematics, which may include computer science or statistics.

Eight semester hours of chemistry are also required, and the student may choose 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 enroll a faculty member or graduate student with a current research project, or initiate a small-scale project involving a combination of field, laboratory, and library investigation. Independent study is encouraged. Undergraduate courses have produced term/reports which subsequently were published.

Honors

A student in "with honors" in geology is offered. Students in the honors program can elect a senior thesis.

Graduate Programs

Students planning to take graduate work in geology should have completed geology and supporting courses equivalent to those required for an undergraduate major in geology at The University of Iowa. Students with deficiencies may remedy them at the beginning of graduate study.

All beginning graduate students in geology must take 12:107 Geolopin Orientation. All graduate students in geology must perform research, write, or related authoritative services as part of the degree program.

Prospective graduate students in geology should consult the "Notes and Regulations" in the "Graduate College" section of the Catalog for general admission and graduate study required.

Master of Science

The M.S. degree programs are designed to complete the student's baccalaureate program in geology and the supporting sciences. They prepare the student for a professional career in geology, or for more advanced and specialized studies—although in certain situations and with faculty approval the student may pursue an already specialized program at the master's level.

Entering graduate students are assigned to a general graduate adviser. Before the end of the second semester, the student should have selected a research area and related thesis topic. The chair then approves a thesis adviser and two additional faculty members who turn the student's advisory committee. The student is responsible for getting the committee's approval of a suitable program of course work, and for satisfactory development of research plans as outlined in a thesis proposal which is submitted for departmental approval.

The degree requires at least 30 semester hours. At least 15 of these must be graduate level course work, including not more than 7 additional hours from seminars and research credit, and at least 24 semester hours in residence at The University of Iowa.
Master's degree candidates complete at least one-half of the Ph.D. language and tool requirements as part of the master's program. Course work taken to satisfy these requirements does not count toward the semester-hour requirements for the degree.

To qualify for admission to the final master's examination, the candidate must have at least a 3.0 grade-point average on those graduate courses which are being offered toward the 30 semester hours minimum requirement for the degree. Additionally, the grade-point average on all graduate geology courses is to be at least 3.0. Not more than 6 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 earth fold 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 at least three months' experience working under supervision of a professional geologist, or equivalent experience as a geologic activity.

If possible, the student should receive prior faculty approval to apply the experience toward the degree.

The student should submit a formal report on the activity and on the geologic principles involved to the student's advisor and to more broadly applications and implications. No college credit is granted for this activity.

The M.S. degree without thesis requires at least 36 semester hours of graduate course work, of which at least 8 hours must be earned in other departments of the University.

The faculty may also require the student to write 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 16 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 tools. In exceptional circumstances the faculty may approve other languages or tools.

Courses in such related disciplines as botany, chemistry, physics, 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 Illinois. 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, all subdivisions of one major field and one subdivision in each of three other major fields. It is also presumed that the doctoral candidate is proficient in the basic elements of general geology, as presented by current elementary textbooks.

These are the major and minor fields:

- Economic Geology
- Petroleum
- Economic Deposits
- Mineral Economics
- Crystallography
- Determinative Mineralogy
- Crystal Chemistry and Mineralogy
- Igneous and Metamorphic Petrology
- Igneous Petrology
- Metamorphic Petrology
- Sedimentary Geology and Thermodynamics
- Structural Geology
- Geodynamics
- Structural Analysis
- Remote Sensing
- Geophysics
- Exploration Geophysics
- Gold-Earth Geophysics
- Rock Petrology
- Stratigraphy
- Physical Stratigraphy
- Biostratigraphy
- Depositional Environments
- Sedimentary Petrology
- Sedimentation
- Sandstone and Carbonate Petrology
- Physical Stratigraphy
- Pleistocene Studies
- Pleistocene Geology
- Variscan Paleontology
- Quaternary Paleontology
- Paleontology
- Paleobotany
- Palaeoecology
- Biostratigraphy
- Geomorphology
- General Geomorphology
- Glacial and Pleistocene Geology
- Environmental Geology
- Hyrogeology
- Remote Sensing
- Engineering Geology
- Other Minor Subjects
- Biology
- Zoology
- Chemistry
- Physics
- Materials Engineering
- Geography
- Hydraulics
- Archaeology-Antropology
- Science Education
- Others

Facilities

Resources and equipment available for research in the Department of Geology include mineralogy/petrology lab (X-ray diffraction, powder cameras, wet chemistry lab, A.A. spectrophotometer, microscopic sedimentology lab (thin-section lab, petrographic facilities, cathodoluminescope), paleontology
German

Department chair—James P. Fassan
Faculty: graduate Edward Overstreet, James P. Sandrowski, Andrew H. Koch, John A. Hagg, Amanda J. Amighi, Kimberly L. Adams, Jennifer E. Harris, Mark A. Smith, and Catherine A. Wozniak.

The primary function of the Department of German is to transmit to interested American liberal arts students a knowledge of the language, literature, and culture traditionally designated as German, including West and East Germany, Austria, and Switzerland.

University graduates with degrees in German frequently enter the teaching profession. They may also find positions in government, foreign service, and commercial enterprises.

Undergraduate Program

Students majoring in German choose one of two major tracks: the humanities track or the applied German track.

The humanities track enables the student to concentrate in German language, literature, and culture, both past and present. It is recommended for students who wish to explore the German word of ideas and their influence through the ages. This track is required for students who plan to pursue graduate study in German and for those who plan a career in teaching.

The applied German track is designed to give the student practical skills and proficiency in the language for use in business and government. It is especially useful when combined with a business-oriented curriculum.

Each track normally requires 24 semester hours of course work in the department, beyond the basic program. The following course sequences, or their equivalents, are required for students who begin a major in German with no previous experience with the German language.

Basic Program

13.11 First-Semester German 4 s.h.
13.12 Second-Semester German 4 s.h.
13.21 Third-Semester German 4 s.h.
13.22 Fourth-Semester German: Reading 3 s.h.
13.23 Fourth-Semester German: Elementary Composition and Conversation 3 s.h.

Humanities Track

13.31 Introduction to Modern German Literature 3 s.h.
13.32 Introduction to Modern German Literature 3 s.h.
13.33 Intermediate Composition and Conversation 3 s.h.
13.34 Intermediated Composition and Conversation 3 s.h.

Fourth Year

13.101 Advanced Composition and Conversation 3 s.h.
13.102 German Cultural History 3 s.h.
13.111 Survey of German Literature 3 s.h.
13.112 Survey of German Literature 3 s.h.

Students who intend to go on for an advanced degree are encouraged to enroll in 13.103 German Phonology (three semester hours) to the above.

Applied German Track

Third Year

13.33 Intermediate Composition and Conversation 3 s.h.
13.34 Intermediate Techniques and 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

13.101 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.

German majors, graduate as well as undergraduates, are urged to supplement their degree programs with relevant courses in German history, philosophy, business, etc.

A student with native proficiency in German should declare German only as a second major, and is expected to complete a full first major in a subject in which he or she has no such obvious advantage over his or her peers.
Teacher Certification

Because the College of Education requires for teacher certification could conflict with the sequential requirements of the major in German, it is imperative that the student consult with the undergraduate adviser to help ensure the successful completion of the certification program.

In addition to the basic program requirements for the first and second year, a student must take the following courses or their equivalents for teacher certification in German:

13:31 Introduction to Modern German Literature I 3 s.h.
13:32 Introduction to Modern German Literature II 3 s.h.
13:33 Intermediate Composition and Conversation 3 s.h.
13:34 Intermediate Composition and Conversation 3 s.h.
13:101 Advanced Composition and Conversation 3 s.h.

Honors in German

This program is open to juniors and senior students who are majors in German and have grade-point averages of at least 3.0 overall and 3.5 in German. During the junior and senior years the honors student in German is expected to engage in extra readings and discussions, and to write a term paper (3 pages) 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 terminate 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 linguistics at all levels of study.

The Foreign Language House is available to undergraduate and graduate students as an on-campus housing option.

Foreign Study

The Department of German participates in the Regents Study-Abroad Program in Austria. Sponsored by the three Iowa regents universities, this program is open to students in all disciplines.

A three-week session is conducted at St. Radegund Abbey. Class instruction in both 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 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 campus coordinator.

Graduate students are eligible to apply. All students, in addition, 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 graded level work, and fulfillment of other requirements of the Department of German and the Graduate College (see the "Graduate College" section of the Catalog) for the Master of Arts.

If the student has not completed major courses, or equivalents, in the department's undergraduate program, he or she will include them along with the courses required for the Master of Arts. Under some circumstances, the candidate may qualify for graduate credit for such make-up work.

With the graduate adviser's approval, some of the 30 semester hours required for the degree may be taken outside the department, in related subjects in history, philosophy, history, linguistics, or other languages.

Normally, the student may receive two semester hours of credit for satisfactory completion of the thesis. The thesis may be either linguistic or literary, and is subject to the approval of the faculty.

Before the M.A. exam can be administered—after acceptance of the M.A. thesis—the candidate must demonstrate competence in a foreign language other than German, at a level equivalent to two years of college study or four years of high school study, with a grade of B or higher.

Master of Arts without Thesis

A graduate student preparing for secondary school teaching, government service, translation, etc., may elect the master's degree program without thesis. This program requires a minimum of 30 semester hours of course work and is considered a terminal degree.

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 adviser, 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. Candidates for the "Graduate College" section of the Catalog, with a concentration in either Germanic linguistics or Germanic 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 adviser.

A candidate concentrating in literature must demonstrate a reading knowledge of Polish, Czech, or Russian, or another language with which he or her adviser believes is pertinent to the student's research interests. For doctoral candidates in Germanic linguistics, a reading knowledge of French or Russian and of one of the following: Germanic linguistics, Dutch is required. Competence in these languages may be demonstrated by two years of college study or four years of high school study, with a grade of B or higher, or through testing. The student must meet the language requirements before taking the comprehensive exams.

Financial Aid

Teaching assistantships, research assistantships, and research fellowships, and tuition scholarships are available for qualified graduate students.

The department awards the Wilson and the Funk prizes to students of distinction.

Courses

Primary for Undergraduates

13:11 First Germaner Deutsch 4 s.h.
Undergraduate students are encouraged to study German with understanding; introduction to pronunciation and elementary speech patterns.

13:12 Second Germaner Deutsch 4 s.h.
Concentration of grammar-reading approach, with expanded reading of simple texts in Deutsch; continued study of pronunciation and speech patterns. Frenchprerequisite: 13:11 or equivalent.
Global Studies

Committee chair: Joel Berman (Political Science) Committee members: Boven Asan (International Relations), Arnold Bernard (Economics), Robert Carluccio (Social Work), Lyud Henry (Global Studies), Nelma Kim (Physics), James Linder (Geography), James McClellan (Religion), Scott Sannet (Sociology), Michael Secky (Geography), Douglas Siegel (Anthropology), Jeness Mawrey (Political Science), Andrew Horowitz (Economics), John Hambro (The Sidney Foundation), Christopher Raj (Art and History), Daniel Schimmelpenn (English), Jay Tammers (Biology), and Boven Westra (Law)

The Global Studies Program at The University of Iowa is designed to provide undergraduate students multidisciplinary study of major contemporary, interrelated global problems concerned with war, peace, and security; development; environmental concerns; and global resources; and cross-cultural understanding.

Undergraduate majors in any department, in any college, are eligible to enroll in the program. In each case, a student will complete all requirements for a departmental major and, in addition, the requirements of the Global Studies Program. Students completing all requirements of the program are awarded a certificate of Global Studies at the time they receive their bachelor's degree. Students pursuing the certificate is Global Studies may also apply specifically Global Studies as their minor.

Candidates for the Bachelor of Global Studies (B.G.S.) degree may also be admitted to the program. However, because B.G.S. candidates have no departmental concentration, they will require very careful 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 will be encouraged to go beyond this minimal requirement. Each student completing the program will receive a certificate, and the concentration in global studies will be noted on his or her transcript.

The Global Studies Program requires the completion, with at least a 2.0 grade point average, of 24 semester hours of approved courses, distributed as follows:

- **Introductory Course**
  - The student normally takes this course, 47:1 Global Interdependence and Human Survival, in the freshman or 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-connectedness, and identification of some current efforts to deal with them.

- **Multidisciplinary Senior Seminar**
  - This course, 47:100 Global Studies Seminar, is offered at least once a year and is required of all students in the program. Normally its senior year it is designed to provide an in-depth exploration of a particular global problem or geographic area. Course content will vary from year to year, but in any case the method will be multidisciplinary and will feature distinguished speakers from on and off campus.

- **Global Studies Courses**
  - Two special courses offered by the Global Studies Program are 47:7 Contemporary Africa, a multidisciplinary survey of the political, economic, and cultural life in sub-Saharan Africa, and 47:100 Problems in Global Studies. The subject of the latter course may change from year to year.
  - Other courses are occasionally offered by University departments, organized for Global Studies program purposes under four major headings. The student usually elects one course (3 semester hours) under each major heading, and two additional courses (6 semester hours) under one of the headings, for a total of six courses (18 semester hours).
  - The four major program headings and the courses offered under these headings are indicated below.

- **I. War, Peace, and Security**
  - This component of the Global Studies Program deals with the use or threat of force for purposes of international ends on a continuum ranging from potential global nuclear war to the individual act of terrorism. The various approaches will consider causes, effects, limitation, and resolution of violence in the contemporary setting.

All students must take either:
- 30:154 Military Affairs or
- 16:146 War and Society

Students who elect to take three courses in this area will, in addition, take one of the following:
- 30:167 Arms Races and Arms Control or
- 65:129 Political Economy of the Military-Industrial Complex

And one from this group:
- 30:148 The Politics of Southern Africa or
- 30:161 The United Nations or
- 30:165 Political War and Peace or
- 30:167 Arms Races and Arms Control or
- 30:172 Introduction to International Law or
- 30:198 Historical Background of Contemporary Issues

When the course deals with issues of particular relevance to global studies students:
- 10:146 War and Society
- 10:156 U.S.A. in a World at War, 1931-1945
- 9:162 Literature of Peace and War
- 65:129 Political Economy of the Military-Industrial Complex

II. Development

This component of the Global Studies Program deals with the problems of poor and developing countries, as analyzed according to economic, sociological, and political lines. Of special interest are the ways in which developed and developing countries interact, and how these interactions are thought to influence the character of and to the countries for the developing countries.

All students must take either:
- 113:161 Sociology of the Third World (same as 54:151) or
- 65:129 Economic Development: Underdeveloped Areas

Students who elect to take three courses in this area will, in addition, take any courses from this list:
- 30:146 African Development (same as 44:153)
- 30:150 The Political Economy of the Third World
- 65:125 International Economics
- 65:127 Natural Resources in the World Economy: Control and Conflict
- 65:129 Economic Development: Underdeveloped Areas
- 66:188 The Political Economy of Social Welfare
- 44:39 World Cities
- 44:192 The Third World
- 113:151 Sociology of the Third World (same as 54:151)
- 34:174 World Problems

- 77:104 Education in the Third World

- 12:150 Seminar in General Literature
- 12:151 Seminar in Early German Literature
- 12:152 Seminar in German Literature of the Eighteenth Century
- 12:153 Seminar in German Literature of the Nineteenth Century
- 12:154 Seminar in German Literature of the Twentieth Century
- 12:155 Theory of Literature
- 12:40 N.R. Schulter
III. Environmental Concerns and Global Resources
This component of the Global Studies Program is concerned with awareness, use, and disposal of global resources. Over the past decade, the environmental problems arising from the transformation of these resources by humankind using modern technology.

All students must take either:
44:19 Contemporary Environmental Issues
or
44:14 Introduction to Global Environment

Students who elect two courses in this area would, in addition, take one of the following courses:
44:10 Contemporary Environmental Issues
44:12 Geography of Natural Resources
44:14 Introduction to Global Environment
44:16 Energy in Contemporary Society
37:125 A Planet in Crisis
34:174 World Population Problems

IV. Cross-Cultural Understanding
Global issues will require for their analysis and solution persons educated to understand that perceptions, values, and beliefs vary among societies; that these differing values complicate the process of people communicating about and arriving at possible solutions to global problems; and that it is risky to assume that any single method or model of analysis, 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 sensibilities required for dealing more productively with most global issues; and to encourage students to clarify their own values, as these bear on the analysis of global problems and proposes for their amelioration.

Two options are available for fulfilling the requirements of this program component:

Option 1
Students electing Option 1 must take either:
32:159 World Order and Conflicting Values
or
115:3 Introduction to the Study of Culture and Society

Students who elect, through Option 1, to take three courses in this program component must also take two additional courses from the following list:
32:158 World Order and Conflicting Values
42:187 World Futures
30:165 Human Rights
91:193 Human Rights in the World Community: Problems of Law and Policy
(unsupported)
89:165 The Political Economy of Socialism
19:190 Comparative Communications Systems
16:191 Contemporary Asia: News Culpitation (same as 44:105)
47:7 Contemporary Africa
115:3 Introduction to the Study of Culture and Society
113:10 Anthropology and Contemporary World Problems
113:14 Language and Human Behavior
113:168 Women's Roles: A Cross-Cultural Perspective
113:172 Language and Culture
113:181 Race, Ethnicity, and Intercultural Relations
(same as 45:15)

Option 2
Students electing Option 2 may fulfill the requirements of this program component by taking three courses in the history and culture of one of the principal world geographical areas. The selection of these three courses is subject to the approval of the program's faculty committee. It is especially desirable for students electing this option to fulfill the program's language requirement through the study of a language of the geographical area.

In addition to supervising its academic program, the Global Studies Committee organizes talks and conferences of interest to the general public as well as students.

Courses
47:11 Global Interactions and Their Impact 3 l.5
Instructional Survey in the Global Interaction Program leads to understanding the relationship of each of the problems, clarification of the interdependences, and identification of courses you fit deal with them.
47:10 Politics in the Global Studies 3 l.5
Current political problems on the subject matter of a particular session, it could substitute for one of the listed courses during the four divisions of Global Studies, May be repeated with consent of instructor.
47:10 Global Studies Seminar 3 l.5
In-depth exploration of a particular global problem or geographical area, course credit varies from year

Greek
See "Classics."

History
Department Chair: John B. Hespinger
Faculty Professor: Lawrence E. Detlefsen, Ralph L. Hoefler, Loyd J. Mis, Charles A. Rata, Ellis K. Harlow, John R. Hespinger, Harry K. Horvitz, Sharon M. Kornblith, Susan L. Lawhi, Donald McCracken, Josephine Peabody, Benson J. Finney, Samuel Yellin, Albert R. Slater, David Schoenbrun, professor emeritus William A. Askeland, Sidney Mead, John Person

The purposes of the Department of History is to increase knowledge of human experience and to provide students with opportunities to gain information about and learn methods for understanding the world in the light of its past. In addition to offering these essential elements of liberal education, the department trains professional historians and teachers of history, serves those who require a knowledge of a particular aspect of history as a background for their own specialized work in other fields, and participates in several interdisciplinary programs such as American civilization, Afro-American studies, Asian studies, Latin American studies, and women's studies.

Undergraduate Program
Baccalaureate graduates in history go into a variety of positions in business, public and private agencies, planning further training in history, law, religion, library science, or social work. 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 bodies of information and approaches to understanding the ways societies and cultures work. It is, for example, strongly recommended that the College of Liberal Arts degree requirement in a foreign language be met by selecting a language which fits in with the major student's areas of interest.

The general major is for students with a general interest in history. The program requirements are:

A minimum of 44 semester hours' courses offered by the Department of History, of which at least 15 semester
hours must be in non-U.S. History courses. This limitation is imposed to ensure a balance with the history of at least one other society besides our own.

Three semester hours in 18:51 Colloquium for History Majors. A colloquium consists of a small number of students collectively studying ways in which given teaching and experience in group discussion, analysis, and criticism. It is best taken after the student has finished a number of other history courses.

Of the 24 semester hours of history required for the major, 12 (excluding the 3 hours of colloquium) must be taken in residence at The University of Iowa.

A minimum of 16 to 18 semester hours of course work in related areas, such as anthropology, economics, fine arts (excluding studio art), geography, geography, history, philosophy, political science, psychology, religion, and sociology; or a second major in one of these areas. Courses taken to satisfy requirements in general education will not be counted toward the related-areas requirement.

Students majoring in history may waive three semester hours of the general education requirement in historical perspectives. They may not receive credit toward this requirement by taking any lower-division courses taught by members of the history faculty. 11:29-30 Problems in Human History, 11:31-32 Western Civilization, and 11:55-56 Civilizations of Asia (a total of 3 semester hours) but may count such a course towards the general education requirement in historical perspectives. They must complete the professional courses in the College of Education which are required for the Teacher Certification (a total of 23 semester hours). They must also take 18:51 Colloquium for History Majors.

They must choose an <<universal requirement>> and meet these requirements:

American History Concentration Courses in U.S. History 20 s.h.
Courses in related areas 36-44 s.h.

Students must select three of the following six related areas: economics, geography, world history (non-U.S.), political science, psychology, sociology. They must take 13 semester hours of courses in each of the three areas they choose, except psychology, in which they must take 20 semester hours.

Courses in these subjects which have been taken to satisfy the general education requirement in social sciences may be applied to the required hours in related areas, but no more than one such course may be applied to any one related area.

World History Concentration Courses in non-U.S. History 20 s.h.
Courses in the College of Liberal Arts 8 s.h.

Students must select three of the following six related areas: economics, geography, American history, political science, psychology, sociology. They must take 20 semester hours. Courses in these subjects which have been taken to satisfy the general education requirement in social sciences may be applied to the required hours in related areas, but no more than one such course may be applied to any one related area. Three semester hours from general education courses in historical perspectives (11:29-30, 11:31-32, 11:55-56) may be counted toward the required 30 semester hours in non-U.S. History.

Students seeking the teaching major in history should consult an advisor in social studies education (see the "College of Education" section of the Catalog).

Honor's 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. Applicants should be made early in the junior year. Successful completion of 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 hours must be in non-U.S. History; minimum of 16 to 18 hours in related courses (See General Major in History); at least 9 hours in the Department's honors offerings, which may include up to 5 semester hours of honors essay credit. Successful defense of an honors essay.

Honors credits may be obtained in honors seminar, 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 on some research in primary sources. A committee of three faculty members will hear a defense of the essay, usually in the student's last semester.

Graduate Programs

The graduate programs in history prepare students to teach in high schools or colleges, and for such occupations as publishing, commercial research, and government or other public service. With additional specialization, students of history become qualified for careers in archival work, library work, or historical site preparation and display. Some students enter the program leading to 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. Five to six hours may be in seminars or one seminar and one reading course. Twelve semester hours must be in the area of the student's essay topic, and at least 6 must be in a second division, including either a seminar or a readings course.

The essay in the major division must be in the student's major field and should be in the vicinity of 10,000 to 15,000 words in length. Work on the essay is normally begun in the seminar in the major division and should be completed with 10-20 individual Study. Graduate, in which supervision will be continued under the guidance of the supervisor. In exceptional cases where the student or the essay completed in seminar is judged to be of outstanding quality, other courses may be substituted for 16-29 hours.

Students who complete the M.A. under the above alternatives 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-year graduate-level course. The program must also include at least 6 hours beyond those of the other divisions in history or 6 hours in one other division in history and 6 hours in a related department. These hours must
The committee may omit and delimit the individual fields for examination; it may also set, separate for each field, the character of the written portion of the comprehensive examination, which may take the form of a syllabus, an oral colloquium, a topical paper, or any other form or combination of these or other forms that the committee deems suitable. The one portion of the comprehensive examination will focus on issues and problems arising from the examination papers.

**Graduate Admission**

All applicants for admission, whether for the M.A. or the Ph.D. program, must meet the general requirements for admission to the Graduate College. In addition, they must submit a specimen of their writing—such as a term paper, seminar paper, or M.A. thesis—to the departmental office. 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 academic sessions. An applicant must take the Graduate Record Examination aptitude tests 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 Graduate College's Guide to Graduate Study, sent to all applicants for admission. The Graduate College publishes a new edition every spring to include the latest changes in the faculty, courses to be offered the following year, and the research interests of the members of the faculty, as well as detailed regulations on study toward advanced degrees and other important information of interest to prospective students.

**Special Facilities**

The University Library is strong in all areas of U.S. and European history. The holdings in the Henry A. Wallace papers and related collections, as well as other unique materials. In European history, the special strengths are in French and English materials. The Iowa State Historical Society in Iowa City and the Herbert Hoover Presidential Library in West Branch possess additional research materials of great value.

**Courses**

16:90, 16:91, 16:92, 16:93, 16:94, 16:95, and 16:96 are open to freshmen. 16:91 and 16:93-104 are open to freshmen provided they have already satisfied the general education requirement in historical perspectives. Most courses numbered below 200 are offered in alternate semesters. Most courses numbered 200 and above are offered as occasion demands.
assist individuals and families with their needs and problems.

Through study, understanding and use of design, education, health, nutrition, home economics education and textiles and clothing, home economics contributes to the physical, psychological, social, and aesthetic development of people. Home economics as a career offers a wide range of opportunities: teaching, dietetics, merchandising, interior and textile design, product development and quality control in textile and food industries, consumer relations, family life education and services, food service systems management, and service with community or government agencies.

Undergraduate Program

The undergraduate program prepares students for immediate employment as professional home economists, and also for advanced study.

Concentrations in family development: food and nutrition; home economics education; interior design, textile design, housing; or textiles and clothing makes it possible for undergraduate majors to develop specialization. The home economics core provides a central body of knowledge and a basic understanding of relationships among the various areas of specialization within home economics. Joint programs may be arranged with other fields such as journalism, art, social work, and psychology.

In meeting the general requirements for the B.A. or B.S. degree of the College of Liberal Arts, students majoring in home economics need to select courses in other departments which also are prerequisites for home economics courses.

All students majoring in home economics compare the core:

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>17:106 Basic Aspects of Aging</td>
<td>2-3 h.</td>
</tr>
<tr>
<td>17:112 Personal Financial Management</td>
<td>3 h.</td>
</tr>
<tr>
<td>17:118 Marriage and Family Inter.</td>
<td>3 h.</td>
</tr>
<tr>
<td>17:114 Parent-Child</td>
<td>3 h.</td>
</tr>
<tr>
<td>17:115 Parent-Child Relationships in the Exceptional Family</td>
<td>3 h.</td>
</tr>
<tr>
<td>17:199 Great Debates in Family Dev.</td>
<td>arr.</td>
</tr>
<tr>
<td>17:122 Materials and Methods in Family Life Education</td>
<td>3 h.</td>
</tr>
<tr>
<td>31:1 Elementary Psychology</td>
<td>3-4 h.</td>
</tr>
<tr>
<td>34:1 Introduction to Sociology: Principles</td>
<td>3-4 h.</td>
</tr>
<tr>
<td>34:192 The Family in Various Societies</td>
<td>3 h.</td>
</tr>
<tr>
<td>or 24:161 The American Family</td>
<td>3 h.</td>
</tr>
</tbody>
</table>

Electives from home economics, education, social work, economics, psychology, and sociology are recommended.

Food and Nutrition

This program prepares students for careers in dietetics and the food industry, and for service with community and government agencies. A concentration in food and nutrition requires:

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>17:151 Food Study</td>
<td>2 h.</td>
</tr>
<tr>
<td>17:152 Food Study Laboratory</td>
<td>2 h.</td>
</tr>
<tr>
<td>17:153 Meal Management</td>
<td>2 h.</td>
</tr>
<tr>
<td>17:154 Experimental Food I</td>
<td>3 h.</td>
</tr>
<tr>
<td>17:155 Experimental Food II</td>
<td>2 h.</td>
</tr>
<tr>
<td>or 17:146 Nutrition Laboratory</td>
<td>3 h.</td>
</tr>
<tr>
<td>24:13-14 Principles of Chemistry I</td>
<td>6 h.</td>
</tr>
<tr>
<td>41:16 Principles of Chemistry I</td>
<td>3 h.</td>
</tr>
<tr>
<td>41:121 Organic Chemistry I</td>
<td>3 h.</td>
</tr>
<tr>
<td>31:141 Intermediate Home Economics Laboratory</td>
<td>3 h.</td>
</tr>
<tr>
<td>61:167 General Microbiology</td>
<td>4 h.</td>
</tr>
<tr>
<td>22:130 Human Physiology</td>
<td>4 h.</td>
</tr>
<tr>
<td>or 24:110 Biochemistry</td>
<td>3 h.</td>
</tr>
</tbody>
</table>

Electives should be selected from home economics and the natural sciences.

A concentration in nutrition with emphasis on dietetics requires:

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>17:151 Food Study</td>
<td>2 h.</td>
</tr>
<tr>
<td>17:152 Food Study Laboratory</td>
<td>2 h.</td>
</tr>
<tr>
<td>17:153 Meal Management</td>
<td>2 h.</td>
</tr>
<tr>
<td>17:154 Experimental Food I</td>
<td>3 h.</td>
</tr>
<tr>
<td>17:155 Experimental Food II</td>
<td>2 h.</td>
</tr>
<tr>
<td>17:167 Food Service Systems Administration</td>
<td>3 h.</td>
</tr>
<tr>
<td>17:142 Nutrition</td>
<td>3 h.</td>
</tr>
<tr>
<td>17:148 Nutrition Laboratory</td>
<td>3 h.</td>
</tr>
<tr>
<td>or 17:147 Oral Therapy</td>
<td>3 h.</td>
</tr>
<tr>
<td>41:13-14 Principles of Chemistry I</td>
<td>6 h.</td>
</tr>
<tr>
<td>41:16 Principles of Chemistry Lab I</td>
<td>2 h.</td>
</tr>
<tr>
<td>41:121 Organic Chemistry I</td>
<td>3 h.</td>
</tr>
</tbody>
</table>

Bachelor of Arts

Family Development

This program prepares students for careers with agencies and services concerned with the total family and its functioning, family life education, and for the extension services. The following courses are required:

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>17:108 Growth and Development of the Young Child</td>
<td>3 h.</td>
</tr>
<tr>
<td>or 17:118 Adolescence and the Family</td>
<td>3 h.</td>
</tr>
</tbody>
</table>

Home Economics/LIBERAL ARTS

92:110 Biochemistry                    | 2-3 h.  |
92:111 Principles of Economics         | 4 h.    |
96:115 Personnel Management            | 3 h.    |
77:176 Educational Psychology and Measurement | 3 h.  |
or 77:131 Educational Psychology       | 3-4 h.  |
34:1 Introduction to Sociology: Principles | 3-4 h. |
or 31:1 Elementary Psychology          | 3-4 h.  |
61:157 General Microbiology            | 4 h.    |
72:130 Human Physiology                | 4 h.    |
113:3 Introduction to the Study of Culture and Society | 3 h.  |
Electives should be selected according to the student's professional objective.

Homes Economics Education

This program leads to certification and educational approval in home economics.

Grades are qualified to teach home economics in vocational and nonvocational secondary schools, to work in home economics extension and other agricultural and to teach in nonacademic settings. Required course for this concentration is:

17:31 Introductory Food Study          | 2 h.    |
17:131-132 Food Study, Food Study Laboratory | 4 h.  |
17:112 Personal Financial Management   | 3 h.    |
17:113 Marriage and Family             | 3 h.    |
or 17:114 Parent-Child                 | 3 h.    |
Rwanda or Burundi                      | 3 h.    |
17:121 Curriculum: Home Economics      | 3 h.    |
17:126 Evaluation: Home Economics      | 3 h.    |
17:133 Meat Management                 | 3 h.    |
17:155 Houssel: Planning and Structural Design | 3 h.  |
or 17:168 Houssel: Social and Psychological Aspects | 3 h.  |
17:170 Custom and Contemporary Tailoring | 3 h.  |
or 17:171 Fitting Problems and Flat Pattern Design | 3 h.  |
18:1 Elements of Art                   | 2-3 h.  |
or 18:5 Elements of Art                 | 2-3 h.  |
Textile Science

This program prepares students for positions in the textile industry and for graduate study. In addition to courses listed for the B.A. degree in textiles technology, the following are required for the B.S. degree:

1. 4101 Elementary Quantitative Analysis 4 s.h.
2. 4121/122 Organic Chemistry I-II 8 s.h.
3. 2242 Calculus I 4 s.h.
4. 2262 Calculus II 4 s.h.
5. 2264 Computer Laboratory for Calculus and Linear Algebra
6. 29 11-12 College Physics

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 are concentrating in family development; home economics education; interior design, textile design, housing; or textiles and clothing, and who meet the department's requirements, may apply to the department's cooperative education committee for participation in this program. Students register for 17.000 Cooperative Education Training Assignment in all terms of their work experience and for 17:105 Home Economics Internship during the subsequent semester.

Honors

To be eligible for honors, the student must have junior standing, 30 semester hours, and a cumulative grade-point average of 3.5 or above, a grade-point average of 3.0 or above in all home economics courses, and at least 12 semester hours completed in home economics. Honors work is identified by an H before the course number. Honors Seminar, 191 Home Economics, and 17:192 Honors Program, 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 for excesses the number of graduates with advanced degrees. The master's degree graduate may qualify for positions in colleges, secondary schools, business, industry, and research.

The graduate programs enable students to obtain qualifications for specialization in one of five subject areas: family development; food and nutrition; home economics education; interior design, textile design, housing; and textiles and clothing. The department offers both thesis and nonthesis options. The thesis option is recommended for students preparing for teaching and research in colleges and universities, for positions in industry, and for continued study beyond the master's degree. The thesis option permits more intensive experience in research procedures or the opportunity for extensive creative work. The thesis may be undertaken in the department, or in cooperation with related departments.

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A course in statistics 5 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 eligible for positions in educational institutions at all levels, home economics extension service, social agencies, and businesses.

Applicants must have completed requirements for a teacher's certificate. At least two of the courses outside the department are the student's option and three in the nonthesis option must be from the same department.

The program's course requirements are:

17:287 Seminar: Readings in Home Economics Education 2 s.h.
17:289 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 200-level home economics course 2-3 s.h.

Interior Design, Textile Design, Housing

Graduate study in interior design, textile design, housing may be planned as a specialized program in interior design or textile design or as a more general program including a wide variety of courses. Applicants to the program must provide a portfolio which emphasizes the specialization the student intends to pursue, prior to admission.

A variety of career opportunities are available to the M.A. graduate in interior design, textile design, housing. These include design teaching, interior design, textile design, historic preservation and renovation, positions in business and industry. Required courses (depending on previous coursework) are:

17:280 Seminar: Design and Housing 2 s.h.
17:280 Seminar: Home Economics Research 2 s.h.
Courses in interior design specialization:

17:103 Interior Design: Principles and Practice 3 s.h.
17:104 Interior Design: Principles and Practice 3 s.h.
17:155 Survey of Historic Interiors 4 s.h.
17:166 Survey of Modern Interiors 2 s.h.
17:255 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 inUnified Home Economics 3 s.h.
One course in textile design 3 s.h.
Courses for textile design specialization:

17:156 Survey of Modern Interiors 2 s.h.
17:157 Historic Textiles and Apparel 2 s.h.
17:160 Textile Design: Printing and Dyeing 3 s.h.
17:161 Textile Design: Weaving 3 s.h.
17:164 Textile Design: Forms and Fibers 3 s.h.
17:181 Textile Finishing, Dyeing and Dyeing 3 s.h.
17:280 Studio Workshop in Fiber 4 s.h.
17:285 Advanced Textile Studio Problems 4 s.h.
Another course in textile design 3 s.h.
Two studio art courses 6 s.h.

Financial Awards

Severe annual departmental awards recognize outstanding students for their outstanding qualities and accomplishments. The Adeline M. Hoffman Writing Award recognizes outstanding essay work completed in home economics courses. The Family Book Award recognizes the sophomore home economics major with the highest grade-point average. The Margaret Foster Holt Award is a fall in-state tuition scholarship given to a student for his or her senior year. Four Hilah M. Chancellor Merit Scholarships are awarded to undergraduate majors with the highest grade-point average in the College of Business. The Byrna Lee Sprangler Memorial Award is given to an outstanding home economics senior.

Two awards are for graduate students. The Mary Campbell Tow Scholarship is given to a student beginning graduate study. The other scholarship is provided by the Iowa Home Economics Association. A limited number of scholarships are available to graduate students.

Courses

Primary for Undergraduates

11:701 Cooperative Education Training Assignment 0 s.h.
17:001 Human Development and the Family 3 s.h.
17:050 Introduction to In-Depth Human Development: special emphasis placed on "way of the family.
17:805 Human Development in the Family 3 s.h.
Study of the physician, cognitive, emotional, and social development of the young child. Focuses on the relationships between children and families.
### Mass Communication

#### Laboratory Sequence

This sequence offers students an opportunity to develop proficiency as professional communication workers who can identify and analyze problems that need formal research and production and conceptual courses within the content of their intellectual and media interests. Seniors in 19-181 Mass Communication Lab are trained in enterprise level tasks for clients, including independent productions, or projects for clients served by professional communications services. These projects may include research, production and communication services. These projects may include research, production, and communication services. The courses include workshops on public relations departments, advertising agencies, public information offices, independent production companies, as well as other print or broadcast journalists.

- **Foundation courses**: 12 s.h.
  - One reporting course, selected from:
    - 10-112 News Reporting and Writing
    - 10-128 Broadcast Journalism Workshop
    - 10-152 Photocommunication I
    - 10-169 Graphic Design and Production
  - 19-131 Mass Communication Lab 2 s.h.
  - 19-165 Contemporary Issues and Problems in Mass Communication 1 s.h.
  - Journalism electives 6 s.h.
  - Total 30 s.h.

### Mass Communication Inquiry Sequence

This sequence emphasized the acquisition of knowledge about communication and the development of the study of communication as a way of comprehending society and human interaction. Students take courses which focus on historical, philosophical, and social scientific modes of understanding. Career possibilities for students in this sequence include public relations, media research and public opinion polling, or other related careers. Many students will continue with graduate studies in journalism or mass communication or other disciplines. These are the required journalism courses:

- **Foundation Courses**: 12 s.h.
  - 19-174 Communication Research Methods 3 s.h.
  - One course, selected from:
    - 19-169 Communication and Public Relations
    - 17-178 Media and Society
    - 19-182 Special Topics in Communication
  - Journalism electives 6 s.h.
  - 19-165 Contemporary Issues and Problems in Mass Communication 1 s.h.
  - Total 30 s.h.

### Two Degree Programs: B.A. and B.S. Degrees

#### B.A. Requirements

- Four semesters of foreign language; Foundation Courses;
- Sequence Courses;
- 19-165 Contemporary Issues and Problems in Mass Communication;
- Fulfillment of the school’s second area of concentration requirement in one of two ways:

### B.S. Requirements

- Two semesters of a foreign language;
- Foundation Courses;
- Sequence Courses;
- 19-165 Contemporary Issues and Problems in Mass Communication;
- Six semester hours of social or natural science methods courses;
- Fulfillment of the school’s second area of concentration requirement in one of two ways:

### Honors

- Freshmen and up to ten students with outstanding academic records may participate in the Honors Program. They are urged to meet the departmental Honors Program advisor as soon as possible.
- Applicants for the Honors Program must fulfill the requirements:
  - Carry out additional work under the guidance of an instructor in the content of one of the advanced conceptual courses in journalism or mass communication;
  - Either 19-198 Honors Colloquium, 3 s.h.

### Minor in Journalism

To meet the requirements for a minor in journalism, students must complete at least 18 semester hours of journalism or mass communication, 12 of which must be in the following courses:

- 19-101 Cultural and Historical Foundations of Communication 3 s.h.
- 19-103 Social Scientific Foundations of Communication 3 s.h.
- 19-110 Introduction to Journalism Writing 3 s.h.
- 19-130 Legal and Ethical Issues in Communication 3 s.h.

### Transfer Work in Introductory Courses

Transfer work in introductory courses will be considered toward the minor but must be approved by the School of Journalism and Mass Communication.
Courses for the minor requirement may be taken pass-fail. A student must have at least a 2.0 grade-point average in the minor courses. At the time they apply for a degree, students must inform the Office of the Registrar of their desire to have a minor listed on their transcript.

Transfer Students
The school's policy is to accept journalism transfer credits from another institution for up to, but not more than, 20 percent of the student's total number of credits toward a major in journalism at Iowa. Other course work taken elsewhere might be applicable toward fulfilling elective and/or second area of concentration requirements. Any transfer credit intended to meet School of Journalism and Mass Communication requirements must be 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 two separate emphases: professional journalism, or communication and mass communication. Applicants should indicate the emphasis to which they are seeking admission.

Both emphases require 30 semester hours of approved course work, the completion of a master's project thesis, and the successful completion of the final examination. The specific requirements of each emphasis are listed below.

Professional / Journalism Emphasis
This emphasis is intended for students seeking to improve their technical and analytical skills and broaden their understanding of the role and function of mass communication in contemporary society, but who do not plan to enter Ph.D. work.

Program requirements for students with no academic or professional experience in journalism and communication:
18:200 Rept. Writing 3 s.h.
18:201 Reporting and Writing 3 s.h.
(does not count toward M.A. degree)
18:240 News Principles and Practice 4 s.h.
18:245 Specialist/Editorial Reporting or Editing 3 s.h.
18:181 Mass Communication Lab 3 s.h.
(18:181 option intended for students with special interest in public relations or organizational communication)
Electives 15-17 s.h.
18:251 Master's Research 3 s.h.

Final examination, last period of enrollment
Program requirements for students with professional experience in journalism or communication:
18:200 Master's Seminar 3 s.h.
Electives in the seminar 9 s.h.
Electives in other departments up to 15 s.h.
18:251 Master's Research 3 s.h.
Final examination, last period of enrollment
The student must complete a major professional project (18:251) under supervision of a graduate faculty member during the last period of enrollment.
The student selects elective courses in the school and in other departments in consultation with his or her advisor.

Communication and Mass Communication Emphasis
This emphasis offers a specialization in the study of communication phenomena with special emphasis upon theory and methodology. Qualified individuals may petition the graduate admissions committee of the School of Journalism and Mass Communication for admission to the Ph.D. program after successful completion of their M.A. work.

Program requirements:
18:200 Master's Seminar (two semesters) 2 s.h.
18:251 Approaches to the Study of Communication Methods and Concepts 3 s.h.
18:260 Communication Research: Data Collection and Analysis 3 s.h.
18:261 Introduction to Communication Research: Data Analysis 3 s.h.
18:262 Communication Research: Methodology 3 s.h.
Electives in communication and mass communication in other departments 10 s.h.
18:251 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; the nature and extent of the outside work is to be determined by the student and faculty advisor.

Doctor of Philosophy
The Ph.D. program emphasizes interdisciplinary inquiry into mass communication phenomena both within and between disciplines. Such perspectives imply that an understanding of these phenomena cannot arise solely out of narrowly focused analysis of present conditions. Rather, the approaches emphasize philosophical, evaluative, and critical inquiry into relationships between mass media and society across time and culture. The program's substantive nature is defined by the scholarly interests of its faculty, who tend most frequently to investigate the historical, legal, social and cross-cultural aspects of communication, both verbal and visual, and is organized in a series of courses and seminars.

The Ph.D. program is highly individualized. Drawing on the School of Journalism and Mass Communication and other academic units, each student develops a specific course of study that reflects his or her academic background, expertise, professional goals, and intellectual preferences. Applicants would be interested in the opportunity to join a small group of faculty and students working to understand mass communication in its cultural contexts.

Iowa Center for Communication Study
The center encourages and facilitates inquiry into communication problems by faculty members and students. Center services include consultation, training, publication, assistance in obtaining financial support for projects, and assistance in computer use and data analysis. The center also publishes the annual Journal of Communication Inquiry, which is student-edited and seeks to explore different approaches to communication theory and research.

Other Facilities
The School of Journalism and Mass Communication is housed in the three-story Communications Center. The school has special laboratories for photography, typography, audio-taping, printing, typesetting, editing, and computer printing, which are open to teachers and students. Many students use the newsroom and other facilities of the award-winning University student newspaper, The Daily Iowan, housed in the John L. Scott Center. The school also has its own Resource Center/Reading Room and gallery to further the school's mission in the area of communication photography and project displays.

Financial Aid
In addition to research and teaching assistantships for graduate students, more than $1,000,000 in scholarships and financial aid is available to both undergraduates and graduate students. To determine eligibility, write for more information.
The Iowa Lakeside Laboratory is a biological field station located approximately 40 miles southeast of Mason City, Iowa. The laboratory was established in 1909 under the leadership of Thomas H. Hinde, one of the Institute's first directors. The laboratory is situated on the shore of Lake Okoboji, which is located in the northwest corner of Iowa. The laboratory was founded as a place for the study of the natural sciences. Since its establishment, the laboratory has expanded its facilities and programs, and now serves as a hub for scientific research and education. The laboratory is open to the public, and visitors can participate in various scientific activities and tours. The laboratory is home to a diverse community of scientists and students who work on a variety of projects related to the natural sciences. The Iowa Lakeside Laboratory is a valuable resource for anyone interested in the study of the natural world. For more information about the laboratory and its programs, please visit their website or contact them directly.
Political Science
30:80 Introduction to World Politics 3 s.h.

Portuguese
38:100 Black Literature of Portuguese Expression 3 s.h.
(Course as 49:106.)
38:116 Modern Portugal 3 s.h.
(Taught in English.)
38:120 Women, Language and Society of the Hispanic World 3 s.h.

Sociology
54:150 Economic and Political Development: Women's Roles 3 s.h.

Spanish
35:114 Spanish Civilization 3 s.h.
35:120 Contemporary Hispanic Arts and Letters 3 s.h.
35:123 Introduction to Bilingualism 3 s.h.
(Same as 103:125.)
35:127 Chicano Puerto Rican Literatures 3 s.h.
(Taught in English.)
35:130 Business Spanish 3 s.h.
(Same as 103:125.)
35:133 Terminologies and Institutions of Hispanic Law: A Comparative Approach 3 s.h.
35:145 Chicano Language and Culture for Teachers 5 s.h.
(Taught in English and Spanish.)
35:150 Twentieth-Century Spanish Literature 3 s.h.

Library Science

Director: Del Oggeri
Assistant Director-Mary Varra, Joanne Oakum
associate professor Del Oggeri
assistant professors Karen Lawrence L. Laurenzo,
nasional librarians: Terence Broste, R. Patrick
Carpenter, James Ricks, Agnes Stathoulou
professor Kathleen Tausan
university libraries: Lise Brown;
associate professor George Strick
assistant professor Thomas Carney, Edwin
Harmon
Affiliated faculty: Dale M. Benz, J.K. Mather, Jerry
Brown
Degree offered: M.A.

The School of Library 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 advancement of librarianship through research, and to provide public service. The program is accredited by the American Library Association.

Program Goals and Objectives

The goals of the School of Library Science are:

To offer a graduate program of basic professional preparation in library and information science which reflects the variety and growth of information needs felt by society and individuals;

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;

To provide public service through continuing education and consulting, and through association and other professional service so that growth is fostered beyond the student's basic professional program, and so that people have the information service they need;

Instructional Objectives

Upon completion of the program the student will be able to:

Demonstrate an understanding of the history and theory of librarianship sufficient to recognize their relationship to the role of the library in today's society, and the library's importance in the communication process;

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 materials; and a determination to improve the quality of library service in response to the needs of all segments of society;

Demonstrate mastery of the techniques and procedures of effective information service (that is, the selection, acquisition, organization, storage, retrieval, and dissemination of information);

Demonstrate an appreciation for the contribution that reading, information, libraries, and lifelong learning can make to the richness of life, and the ability to convey that appreciation to others;

Identify and use bibliographic techniques and sources of information in a broad range of fields and media formats;

Articulate an understanding of management theory and its sufficiency to plan library and information services and perform the professional responsibilities of identifying needs, setting goals, analyzing problems, formulating programs and evaluating results; and make and evaluate research that helps in the advancement of the profession and one's career.

Plan for personal and professional career growth.

Research Objectives

To engage in research on library problems and areas related to library services which advance both the theoretical and practical knowledge of librarianship.

To give emphasis to research which directly supports the instructional program of the School of Library Science which may have special relevance to the library service in the state of Iowa.

Public Service Objectives

To offer library personnel and library trustees opportunities for continuing education to advance and update their awareness of current developments in library operations and services.

To provide consulting services to individuals, libraries, and organizations in order to promote better library service for the citizens of Iowa and surrounding areas.

To participate in professional organizations at local, state, regional, and national levels in the pursuit of common goals within the profession.

Undergraduate Study

Although there is no undergraduate major in library science, juniors and seniors may enroll in the introductory library science and children's literature courses (103:120 level). Further information. Normally open to all undergraduates.

Master of Arts

Professional preparation for careers in all types of librarianship is provided by the school's master of Arts program. The student also can design a graduate program for certification in school librarianship, as well as a certification program leading to the master's degree.

Librarians hold positions in public, school, academic, and special libraries, serving in such roles as administrators, librarians, catalogers, reference specialists, information scientists, and children's librarians.

The Master of Arts degree in library science requires 30 semester hours of graduate credit with a minimum grade-point average of 3.0. 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, plus additional required courses in a type of library, and electives. This plan of study should be carefully developed in relationship to career objectives.
Core courses (required of all M.A. candidates) 12 a.h.
21:151 Reference I
21:183 Cataloging and Classification
21:183 Catalog of Library Materials
21:231 Management of Libraries and Information Centers

Type-of-library course (one required) 3 a.h.
21:230 Special Libraries
21:231 The Public Library
21:232 The School and University Library
21:233 School Media Center

Administration

Electives 18 a.h.

It is strongly recommended that the student take Electives in bibliography courses 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 Science, and shall not exceed six semester hours for students having no previous courses in library science, nine hours for those with such previous preparation.

Only courses taken for graduate credit may be counted towards the 33-hour requirement.

The thesis option is not intended to replace courses in a student's basic preparation; it is available if the student completes the full 33-hour program in addition to thesis before or concurrently with the thesis, or if the student comes to the program with extensive background in library science, such as earned by work in library science and completion of 21:249 Research Methods or equivalent.

The purpose of the thesis option, then, is to extend research competence to include one means of independent study to a student with extensive preparation in library and information science.

The program normally requires two semesters and a single-semester independent study, or, in the case of students attending summer only, a minimum of four summer sessions. Maximum graduation requirements are 15 credit hours in regular semesters, 8 credit hours in summer sessions.

Public Library Work

Public funds support public libraries in order to provide informational, educational, and recreational circulating materials and a wide range of services for a diversified clientele. Public libraries usually receive a majority of funding from local taxes, but are often organized in a regional or statewide cooperative basis. The variety of uses, services, materials, and organizational structures of public libraries make 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 areas of the community. Management skills are often needed in these positions.

Required Courses

Core courses 12 a.h.
21:231 The Public Library 3 a.h.
Suggested Electives 18 a.h.
21:133 Library Services to Adults
21:246 Introduction to Information Science
21:246 Research Methods
21:251 Advanced Reference
21:252 Advanced Cataloging
21:282 Practicum in Libraries

Bibliography courses

Courses relating to service to children and young adults:
21:133 Literature for Children I
21:134 History of Children's Books
21:129 Literature and Storytelling for Children
21:132 Literature for Adolescents
21:234 Library Services to Children and Young Adults

SE204 Literature for Children II

College and University Library Work

The academic library, whether in a community college, or a university, provides instruction, 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 in classification and indexing, information systems, etc. may be necessary.

Required Courses

Core courses 12 a.h.
21:232 The College and University Library 3 a.h.
Suggested Electives 16 a.h.
21:246 Introduction to Information Science
21:249 Research Methods
21:251 Advanced Reference
21:252 Advanced Cataloging
21:255 Government Publications
21:282 Medical Librarianship and Bibliography
21:292 Law Librarianship, Bibliography, and Research Techniques
21:282 Practicum in Libraries

Bibliography courses

17:117 The Community College

(required for low endorsement 75 for work in community colleges)

Work in Special Libraries

Special librarianship includes careers in information centers serving banks, industrial firms, museums, historical societies, and law firms. The ability to design service programs for the parent organization, and substantial knowledge in the relevant areas are characteristics important in such a career. Indexing, abstracting, literature searching and analysis, design of information systems, translation, and current awareness services are more usually found in special library work than in more traditional libraries.

Required Courses

Core courses 12 a.h.
21:223 Special Libraries 3 a.h.
Suggested Electives 16 a.h.
21:232 The College and University Library
21:246 Introduction to Information Science
21:249 Research Methods
21:251 Advanced Reference
21:252 Advanced Cataloging
21:255 Government Publications
21:282 Medical Librarianship and Bibliography
21:292 Law Librarianship, Bibliography, and Research Techniques
21:282 Practicum in Libraries

Suggested Electives

21:133 Literature for Children I
21:124 History of Children's Books
21:129 Literature and Storytelling for Children

School Library Work

The school media center makes a wide range of print and audiovisual materials available to students and teachers. 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, producing new materials, offering reading guidance, and providing reference service.

State certification is required for a career as a librarian in elementary and secondary schools.

Required Courses

Core courses 12 a.h.
Suggested Electives

21:233 School Media Center Administration
21:282 School Media Center Practicum

Equivalent field experience

21:223 School Media Center Administration
21:282 School Media Center Practicum

or

Suggested Electives

21:133 Literature for Children I
21:124 History of Children's Books
21:129 Literature and Storytelling for Children
Certification in School Librarianship

The school offers approved programs for state certification in these areas: school librarian for kindergartener through grade 12 (two endorsements 34); director of library services for kindergarten through grade 12 (two endorsements 31); and librarian/learning resource specialist in an area vocational school or community college (two endorsements 75).

Students who complete an M.A. degree with the program listed under “School Library Work” and who hold a valid teaching certificate at the elementary or secondary level will qualify for endorsements 34 and 31. Endorsement 34 may also be earned without the M.A. degree by combining 20 hours of undergraduate and graduate course work approved by an advisor. In order to pursue such a non-degree program, however, a student must have been accepted and admitted to the School of Library Science.

Endorsement 75 requires completion of the M.A. degree with the program listed under “College and University Library Work.”

Joint Degree Programs

Joint degree programs between the School of Library Science and other units within the University have as their primary goal the integration of the two areas and the encouragement of the student to contribute to one discipline the insights and skills of the other. Although there is a mechanism by which departments may approve a joint program, the School of Library 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 Science to ensure the benefits of integration.

Objectives of a joint program will be consistent with the goals stated above, and as they will vary from student to student, will be a matter of advising. 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 side of librarianship or the management of the library as a complex organization. Yet another student may choose to seek the benefits a joint program could offer in records management and management information systems.

To enroll in a joint program the student must apply to and be accepted by the School of Library Science and the other unit chosen. Up to six hours of each study may be applied toward the M.A. in library science of the other unit. The M.A. or twelve hours to the J.D.

In no case can a student receive two degrees with fewer than 90 hours of graduate work, and joint programs would usually require substantially more than this.

Facilities and Resources

The School of Library 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, videotape programming, super-8mm filmmaking, filmstrip production, and simple film editing. A darkroom includes equipment for film developing, enlarging, and dry-mounting.

Computer Facilities

An online lab includes two CRT terminals, one printing terminal, and one portable terminal. They provide access to the University’s Weeg Computing Center Prime System, to national bibliographic databases, and to OCLC, a national online library utility. Students are taught, in various courses, to write programs on the Prime System, to conduct online information searching of databases, and to catalog, recall, and manipulate bibliographic records in the OCLC database.

Statewide Reference Service

The school serves as one unit of a state network of academic and public libraries. Students provide back-up reference service to libraries throughout the state, using learned skills to perform bibliographic verification and to answer reference questions. The service helps students reinforce and integrate classroom instruction and provides reference experience.

Departmental Library

The library science library, one of 12 departmental branches of the Main Library, is located in the School of Library Science. The collection contains approximately ten thousand volumes and two hundred periodical titles related to the study or practice of library and information science. A portable computer terminal circulates, and carrels contain AV equipment for viewing library materials. Tables, carrels, and easy chairs are provided, 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 4.3 million volumes in the Law Library and 13 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 includes the government publications, map, and special collections rooms, as well as all bound periodicals. The location of the School of Library Science on this floor allows quick access to these frequently-mused collections.

Other Libraries

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 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 to convert to a totally computerized catalog. Its service philosophy and contemporary management practices provide students with an innovative public library model.

Other Resources

Other Resources

Located across the street from the Main Library, houses the Learning Resources Center of the College of Education and the Weeg Computing Center. The reference center consists of the Video Lab, Computer Resource Lab, Audiovisual Production Lab, and Curriculum Resources Lab. The Curriculum/Resources Lab contains an extensive collection of book and non-book instructional materials for children in preschool through grade 12, especially valuable for library science students interested in school or public library work.

Weeg Computing Center provides instructional and research computing facilities and services for the University community. All University students, staff, and faculty may use the Center’s computer for University-related research, thesis preparation, and coursework. Each graduate student is provided with a small funded account by the Graduate College.
Faculty Advising
The School of Library Science has a low student-faculty ratio, a faculty advising system, and an atmosphere of friendly student-faculty interaction. Advising 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 aid in their academic and professional development. Conferences, short courses, workshops, seminars, field trips, and special courses 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 Student Advisory Board 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 maintains active placement assistance to its graduates by means of bulletin board announcement, seminars on job search and interviewing, and personal counseling. The University’s Educational Placement Service provides a weekly listing of job openings and provides counseling to individuals who are at various stages of their careers.

Admission
Scholastic requirements for admission to the M.A. program include:
A baccalaureate degree from an accredited college or university, with a minimum grade-point average of 2.5 on a 4.0 scale, and at least 85 semester hours of study in the liberal arts and sciences;
A combined verbal/quantitative score of 950 on the Graduate Record Examination (GRE) Aptitude Test.
Personal qualifications and aptitude for library work are assessed by means of letters of recommendation and a personal interview with the director of the school or the director’s assistant, and another member of the faculty. In the case of extreme difficulties, 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 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 GRE aptitude test.

Completed applications should be received by the school on or before March 1 for fall-semester consideration, October 1 for the spring semester, or February 1 for the summer session. 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 Science awards partial tuition scholarships, as well as other forms of financial assistance. These awards are considered on a competitive basis. Students must have at least a 3.0 graduate grade-point average (4.0 scale) and combined verbal/quantitative scores of 1200 on the Graduate Record Examination (GRE) Aptitude Test. Those who do not meet these requirements when entering the program may apply for financial aid after completing 12 semester hours of graduate work with a 3.0 grade-point average. Prospective students are urged to apply for these awards before March 1.

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

Courses
2102: Information Handling
Designed to provide students with ability to design and develop information systems in libraries and related fields.
2103: Literature for Children
Survey of the field.
2104: History of Children’s Books
Development of literature for children from oral tradition to print, trends in content and form, and characteristics of the contemporary children’s book. Field work on some aspect of children’s literature is required. Offered occasionally. Prerequisite: 2102 or consent of instructor.
2106: Library and Information Science
Survey of the field.
2107: Bibliography
Introduction to the principles of bibliography. Emphasis on AACR, modern bibliographic tools, classification, indexes, and computerized information systems in library and information science.
2109: Cataloging and Classification
Overview of cataloging systems and the cataloging tools and techniques. Introduction to bibliographic records, current AACR and MARC standards, and MARC databases.
2110: Management of Library Resources
Survey of methods in the management of academic libraries, including personnel and building; policies and procedures used by librarians in implementing selection policies.
2111: Libraries for Adults and Children
Survey of 157-158; 411-416.
2217: Management of Libraries and Information Centers
Survey of principles of personnel management, selection and training of staff, communication: measurement and evaluation.
2218: Library Services to Adults
Development of services and management skills related to the needs of adults of all ages. Emphasis on needs and evaluation; exploration of the library’s role in community education projects. Offered alternate terms. Corequisite: 2110.
2219: Multilingual Collections in Libraries
Nature and scope of library service beyond printed materials. Education for the academic libraries, utilization and local production. Offered alternate terms.
2233: History of the Book
Survey of the historical development of the book, from 1400 to the present, materials, production methods, and aesthetics; modern trends in the book, bibliography, publishing, printing, binding, and distribution.
2315: Special Libraries
Management; organization, history, solution, and maintenance of special libraries in various fields; organization and control of specialized data and information centers. Offered alternate terms. Prerequisites: 2111-115 and 2117, or consent of instructor.
2319: The Public Library
Survey of development of the modern public library as a social agency in community life, emphasis on organization, administration and standards. Current trends and problems. Offered alternate terms. Prerequisite: 2111-115 and 2117, or consent of instructor.
2238: The College and University Libraries
Functions, organization, and administration of academic libraries, emphasis on the role of the academic libraries in research and instruction. Offered alternate terms. Prerequisites: 2111-115 and 2117, or consent of instructor.
2239: School Media Center Administration
Organization and administration of media programs at school and district levels; objectives, planning and evaluation, programs and facilities, budgeting, personnel management. Offered alternate terms.
Linguistics/LIBERAL ARTS

Prerequisites: 21:151-150 and 21:201, or consent of instructor.

21:324 Library Seminar in Child and Young Adult Adult
3.0
High scores on verbal, analytic, and quantitative aptitude tests are indicators of success in linguistics. Although few aspects of the field deal with numbers, it is very important to be able to reason logically and explicitly, and to be able to deal with formulas and abstract symbols.

21:325 Individual Instruction in Library Science
3.0
Prerequisite: consent of director.

Linguistics

Department Chair: Gregory K. Vossen
Faculty: Anne-Marie C. Oliver, John C. McCluggage, Robert E. Mosher
Examiners: Patricia Garvey, W. C. Van, Catherine D. Hage
Administrative Assistant: Ellen Brownell, W. D. A.

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

Linguistics is the science which studies the organizing principles underlying human language.

There are many indicators that such a science exists in language. Children normally learn to use their native language before they enter school, and without much direct instruction. People can speak and understand sentences they have never heard before. All languages have several ways of saying the same thing and all have ambiguities. All languages change through time. Damage to a particular part of the brain may be related to a particular type of linguistic problem, whatever the language. All languages are systems with some unique properties, some universal properties, and some properties shared with other languages which may or may not be historically related.

Linguistics is a science that attempts to learn many of these languages. They consider the languages of the world as data to be analyzed by common principles.

Linguistics is a science with many laboratories. One of a linguist's laboratory may consist of a catalog and a pencil and tape. Another may consist of a laboratory with sound recording equipment. Others need computers. Some go into a spoken-related place to study, observe, and analyze little-known languages which may be in danger of extinction. Some go into their own communities to study the relationship between language variation and socioeconomic structure, or prepare, of course, a language change, spend time studying ancient language.

Linguistics is not limited to scientific research by its own. Linguists may teach English as a foreign language. They may design school programs for the deaf, or for children with autism. They may help intelligence test and achievement test makers avoid discrimination against those who are not middle-class white Americans, or work with speech clinicians to refine people with linguistic disabilities.

Undergraduate Program

High scores on verbal, analytic, and quantitative aptitude tests are indicators of success in linguistics. Although few aspects of the field deal with numbers, it is very important to be able to reason logically and explicitly, and to be able to deal with formulas and abstract symbols.

Depending on their vocational goals, prospective linguists should consider either majoring in their studies through the M.A. in Linguistics with a professional focus, or through the doctorate; or they should take a second major. Appropriate companion fields include foreign languages, English, anthropology, sociology, speech pathology, psychology, mathematics, computer science, philosophy, and elementary, secondary, and special education.

The Bachelor of Arts degree in Linguistics prepares the student to do basic language analysis in syntax- semantics (sentence patterns and their relation to meaning) and phonology (sound patterns). Elective courses in a variety of specialties enable students to tailor the program to their own interests.

The major in Linguistics requires 24 semester hours of work in the department. It includes a general introduction and courses in syntax, phonetics, phonology, and language history, as well as an elective in a course to be worked out in consultation with the undergraduate adviser.

Graduate Programs

Emphasis in all graduate programs is on theory and research. Students interested in nonuniversity careers may also consider either majoring in their studies through the M.A. in Applied Linguistics and other fields through the program with a doctoral work or an M.A. in the M.A. in Linguistics.

Master of Arts

All students take a required set of core courses followed by comprehensive examinations in phonology and syntax-semantics.

Students choosing to write a thesis at least 6 semester hours of elective courses, exclusive of thesis hours, and may have at least 6 semester hours of thesis credit for a total of 36 semester hours.

Students choosing to take a degree without thesis must complete a focus area of at least 12 hours of course work and take at least 9 semester hours of electives courses. The focus may either be designed in advance by the student (in consultation with departmental approval), or be one of a set of
predetermined options (for example, teaching English as a foreign language). All electives must be approved by the student's advisor, chosen from a list furnished by the department. Students should expect either to take at least 30 hours of course work and write a thesis, or to take at least 30 hours of course work. All students must have a minimum of 30 hours of graduate credit to receive the degree, regardless of prior preparation.

Doctor of Philosophy

The aims of the highly selective Ph.D. program are to provide students with a strong foundation in theoretical linguistics and to develop the skills necessary for exploring the close relationship between linguistics and related disciplines.

The core requirement for the program includes two upper-level syntax courses (e.g., 103:121 SYNTACTIC THEORY and 103:212 ADVANCED SYNTACTIC THEORY or 103:214 ADVANCED SYNTACTIC ANALYSIS) and two upper-level phonology courses (e.g., 103:122 PHONOLOGICAL THEORY and 103:511 ADVANCED PHONOLOGICAL THEORY), and at least two seminars, for a total of 18 semester hours. An approved 18-hour specialty area is also required, and students must achieve proficiency in at least two foreign languages (as specified by departmental regulations).

Comprehensive examinations covering phonology and syntax, syntactic theory, theory of language change (historical linguistics), and sociolinguistics will test the student's understanding of the specialty area. An oral defense of the dissertation and three years of residence are also required. In addition, all candidates are required to pass a supervised experience teaching in linguistics and research.

Facilities

The Department of Linguistics has limits their meeting space in the College of Liberal Arts and Sciences with a student-tenement. There is also a remote terminal connection to the University computing facilities.

The departmental reading room functions to allow a close relationship between faculty and students, a considerable influence of students upon departmental affairs, and a high degree of individual instruction. A large part of the student's educational program is conducted informally through daily conversations among students and faculty members.

Financial Aid

Teaching assistantships and research assistantships are available to qualified graduate students. Application should be made by March 1 for the following academic year. Students applying for financial aid and admission concurrently should submit their Graduate Record Examination scores and three letters of recommendation.

Courses

Special English Courses for Foreign Students

Three intensive English Program (103:1, 103:2, 103:3, 103:4) is a noncredit program consisting of 20 hours per week of English for foreign students, including conversation, pronunciation, listening comprehension, reading, vocabulary development, grammar and writing. Prerequisite: permission of department.

103:1 Intensive English Conversation 5 h.
103:2 Intensive English Listening Comprehension 5 h.
103:3 Intensive English Reading 5 h.
103:4 Intensive English Grammar and Writing 5 h. Prerequisite: permission of department.

103:100 Conversational Skills for Foreign Students 3 h. Prerequisite: 103:1.
103:125 Practice in Spoken English 3 h. Prerequisite: 103:2.
103:135 Practice in Written English 3 h. Prerequisite: 103:3.
103:140 Practice in English for Foreign Students 3 h. Prerequisite: 103:4.

103:100 Grammar for Foreign Students 3 h. Prerequisite: 103:1.
103:125 Practice in Spoken English 3 h. Prerequisite: 103:2.
103:135 Practice in Written English 3 h. Prerequisite: 103:3.
103:140 Practice in English for Foreign Students 3 h. Prerequisite: 103:4.

103:100 Grammar for Foreign Students 3 h. Prerequisite: 103:1.
103:125 Practice in Spoken English 3 h. Prerequisite: 103:2.
103:135 Practice in Written English 3 h. Prerequisite: 103:3.
103:140 Practice in English for Foreign Students 3 h. Prerequisite: 103:4.

For Undergraduates and Graduates

120:100 Introduction to Linguistics 3 h. Prerequisite: first-year college English.
120:121 Syntax, Society, and Evolution 3 h. Prerequisite: 120:100.
120:100 Teaching English as a Foreign Language 3 h. Prerequisite: 120:121.
120:122 Pragmatics 3 h. Prerequisite: 120:100.
120:123 Fundamentals in Teaching English as a Foreign Language 3 h. Prerequisite: 120:100.
120:124 Second Language Acquisition 3 h. Prerequisite: 120:100.
120:125 Sociolinguistics 3 h. Prerequisite: 120:100.
120:126 Language and Society 3 h. Prerequisite: 120:100.
120:127 Language and Thought 3 h. Prerequisite: 120:100.
120:128 Language and Cognition 3 h. Prerequisite: 120:100.
120:129 Language and Information 3 h. Prerequisite: 120:100.
120:130 Language and Computer Science 3 h. Prerequisite: 120:100.
120:131 Language and Computer Science 3 h. Prerequisite: 120:100.
120:132 Language and Computer Science 3 h. Prerequisite: 120:100.
120:133 Language and Computer Science 3 h. Prerequisite: 120:100.
120:134 Language and Computer Science 3 h. Prerequisite: 120:100.
120:135 Language and Computer Science 3 h. Prerequisite: 120:100.
120:136 Language and Computer Science 3 h. Prerequisite: 120:100.
120:137 Language and Computer Science 3 h. Prerequisite: 120:100.
120:138 Language and Computer Science 3 h. Prerequisite: 120:100.
120:139 Language and Computer Science 3 h. Prerequisite: 120:100.
120:140 Language and Computer Science 3 h. Prerequisite: 120:100.
120:141 Language and Computer Science 3 h. Prerequisite: 120:100.
120:142 Language and Computer Science 3 h. Prerequisite: 120:100.
120:143 Language and Computer Science 3 h. Prerequisite: 120:100.
120:144 Language and Computer Science 3 h. Prerequisite: 120:100.
120:145 Language and Computer Science 3 h. Prerequisite: 120:100.
120:146 Language and Computer Science 3 h. Prerequisite: 120:100.
120:147 Language and Computer Science 3 h. Prerequisite: 120:100.
120:148 Language and Computer Science 3 h. Prerequisite: 120:100.
120:149 Language and Computer Science 3 h. Prerequisite: 120:100.
120:150 Language and Computer Science 3 h. Prerequisite: 120:100.
120:151 Language and Computer Science 3 h. Prerequisite: 120:100.
120:152 Language and Computer Science 3 h. Prerequisite: 120:100.
120:153 Language and Computer Science 3 h. Prerequisite: 120:100.
120:154 Language and Computer Science 3 h. Prerequisite: 120:100.
120:155 Language and Computer Science 3 h. Prerequisite: 120:100.
in one of the professions, or in the humanities and social sciences. Courses in LSA are open to majors, seniors, and graduate students from any department or college. Freshman and sophomore students may occasionally be admitted by approval of the instructor.

Courses are conducted by round-table discussion, in a small group of students with two or more faculty representing different departments and disciplinary perspectives. The topics of these courses engage the special contributions of particular disciplines while they focus on important problems of value and importance for our times. Reading lists are chosen from outstanding works of past and present.

The following are the specific requirements beyond the general education courses, for the B.A. in Literature, Science, and the Arts.

- LSA 12 a.h.
- Natural, social sciences 12 a.h.
- Philosophy, religion, History 12 a.h.
- Literature beyond general education requirements 12 a.h.
- Fine arts 3 a.h.
- Foreign language: one semester beyond second year (foreign literature courses in the original language may also be used to satisfy the requirement in literature) 3 a.h.

Students considering an LSA major should begin the planning that year, at the end of the sophomore year.

Honors
Superior students who undertake a further program of independent study may earn the Bachelor of Arts degree "with honors." To be admitted as a candidate for honors, the student must have the endorsement of the chair of the Interdisciplinary Program in Literature, Science, and the Arts. An honors student submits an honors project and takes an examination on a personalized reading list, during the semester before graduation.

Courses
- 201: The Penult of Happiness 34 a.h.
- 212: Human Nature and the Ethics of Human Experience at Aristotle, Freud, Catholic, Stoic, Buddhist, Socrates, etc. etc. etc., 24 a.h.
- 220: Love in the Western World 24 a.h.
- 223: meaning, importance, and varieties of love as they appear in literature, music, art, philosophy, psychology, etc. etc. etc., 24 a.h.
- 237: Myth and Memory 24 a.h.
- 242: Interactions between Myth and Memory as symbols in Western Thought, reading from Sophocles, Plato, Aristotle, Shakespeare, etc., etc., 24 a.h.
- 247: The Bead Society 24 a.h.
- 248: The Social Reality of the Potentials of man’s life in society, as seen in works by Plato, Rousseau, Mill, Marx, Marx, Engels, etc. etc. etc., 24 a.h.
- 251: Values in the Contemporary World 24 a.h.
- 261: Problems in definition and choice of values, examined within settings of contemporary ethical thoughts and societies.

Division of Mathematical Sciences

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

Bachelor of Arts

Students must take at least seven additional approved courses from the division beyond one year of calculus (either 22M:35-36 Calculus I & II, or 22M:35-38 Engineering Calculus I & II). Each of these seven courses must carry at least 3 semester hours of credit.

- 231: General Principles of the Mathematics and the General Philosophy of Mathematics
- 232: Advanced Computer Organization and Architecture
- 233: Programming Language Foundations

Bachelor of Science

In addition to the requirements outlined above for the Bachelor of Arts degree, the Bachelor of Science requires two one-semester courses from the division, each carrying at least 2

- 232: Advanced Computer Organization and Architecture
- 233: Programming Language Foundations
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 22C:7 Introduction to Computing with PASCAL and 22C:17 Programming with PASCAL, and courses in numerical analysis, applied statistics, and operations research.

Actuarial Science
The student who plans to enter the actuarial profession should be guided in course selection by the program of education and examinations carried on by the principal actuarial organizations. Following a sequence in calculus and linear algebra (22M:25-26 Calculus I & II, 22M:29 Calculus III, and 22M:27 Introduction to Linear Algebra), 22M:30-33 Engineering Calculus I-III and 22M:38 Differential Equations for Engineers, the student should take 22S:8 Introduction to Actuarial Science, 22S:14 Mathematical Models of Life Insurance, 22S:100-104 Actuarial Mathematics I-IV, 22S:105 Actuarial Science, and 22S:180 Actuarial Science, and a course in operations research.

Additional courses of direct professional interest to actuaries include 22S:183 Demography and Life Table Construction, 22S:184 Risk Theory, and 22S:185 Theory of Finance. Students are encouraged to take at least one course in computer science and a substantial number of courses from the College of Business Administration. The 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:7 Introduction to Computing with PASCAL can be taken along with calculus) and with the basic ideas of probability and statistics (the courses 22S:183 Introduction to Probability and 22S:184 Introduction to Mathematical Statistics I are recommended). Probability and Statistics I and II are recommended.

To acquire an understanding of how mathematics is used in other areas, it is recommended that the student take a course or two in economics, which is provided by the Division of Mathematical Sciences. Students who plan to do graduate work in applied mathematics should take 22M:115 Introduction to Analysis I.

Mathematics Education
Mathematics education courses are as follows: 22M:25-26 Calculus I & II, 22M:30-33 Engineering Calculus I-III and 22M:38 Fundamental Principles of Spaces and Functions, and 22M:37 Fundamental Principles of Geometry. The student may substitute for any of these courses a 100-level course in some other subject area. The student must take 22M:66 before taking 22S:107, a course required for teaching certification in mathematics (see the College of Education section of Catalog for certification requirements).

A program in mathematics education might include any of the 100-level courses, and should include at least one in statistics, 22S:104 Foundations of Set Theory, 22S:100 Foundations of Logic, 22S:115-116 Introduction To Analysis I & II, 22S:120-121 Abstract Algebra I & II, 22S:120 Probability and Statistics, 22S:150 Methods of Statistical Inference, and/or 22S:104 Introduction to Mathematical Statistics I. Students in mathematics education also must have proficiency in one computer programming language.

Pure Mathematics

Probability and Statistics
The basis for this program is the calculus sequence 22M:25-26 Calculus I & II and 22M:27 Introduction to Linear Algebra, or 22M:35-36 Engineering Calculus I & II, together with one of these three sequences: 22S:115-120 Introduction to Probability and 22S:116 Introduction to Mathematical Statistics I; 22S:120 Introduction to Probability and 22S:125-130 Introduction to Stochastic Processes; or 22S:120 Probability and Statistics and 22S:125 Analyze and Design of Experiments or 22S:125-130 Regression Analysis.

Students should also select one or two courses in computer science from 22C:7 Introduction to Computing with PASCAL, 22C:17 Programming with PASCAL, 22C:18 Computer Organization and Assembly Language Programming, and one or two courses in mathematical analysis from 22M:95 Fundamental Properties of Spaces and Functions, 22M:106 Analyse for Applications, and 22S:115-120 Introduction to Analysis I. Substantial work in one of the biological, social, physical, or engineering sciences is also highly recommended.

Further courses in probability and statistics may be selected from courses in the Department of Statistics numbered 100 and above, excluding 22S:103.

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:
Either 22M:27 Introduction to Linear Algebra or 22M:38 Differential Equations and Linear Algebra;
At least three Division of Mathematical Sciences courses numbered 22M:50 or above (excluding 22M:50-01 and including at least one course numbered 100 or above) or 225:125 or above, and
At least three additional quantitative courses from one department outside the division, or, at the advisor's discretion, from two closely related departments.
In addition to the above, the Bachelor of Science degree requires two one-semester courses from the division, each carrying at least 2 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 may enter at least 9 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
Courses designated as upper-level for the purpose of satisfying minor field requirements in mathematical sciences are 22C:21 Data Structures and above (excluding courses not open to computer science majors for degree credit); 22M:28 Calculus II; 22M:30 Elements of Group Theory and above (excluding 22M:60 Theory of Arithmetic and 22M:61 Geometry for Elementary Teachers); and 225:103 Introduction to the Design of Business Surveys and above.
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 Science
Program chair: Kendall J. Allison
Faculty: Kendall Allison (Mathematics), Dennis Block (Systems Engineering), Tyrone Edey (Statistics), John Harnett (Mathematics), Jeff Knupp (Computer Science), William Noon (Physics), George Von (Physics), and Vadim Oliner (Mathematics)
Degree offered: Ph.D.
Applied mathematical scientists formulate scientific concepts and problems in mathematical terms; solve the resultant mathematical problems; discuss, interpret, and evaluate the solutions; explore new ideas for and areas of mathematical application; and develop mathematical theories in areas which have not hitherto been subjected to systematic mathematical treatment. Career opportunities include faculty positions in colleges and universities, research positions in industrial and governmental laboratories, professional consulting positions, and software computer consulting.
The program in applied mathematical science at The University of Iowa is an autonomous, broadly-based interdisciplinary program leading to the Doctor of Philosophy degree. The program seeks to help the student achieve a basic command of advanced mathematics, at least one science (behavioral, biological, engineering, physical, or medical), and the methods of applied mathematics. For his or her thesis research, the student is expected to identify a significant problem within his or her science, develop an appropriate mathematical model for that problem, test the model, and develop improvements if necessary.
Students may enter the program with either a bachelor's or a master's degree. Applicants are expected to have an excellent background in science and mathematics, together with a desire to apply mathematics to the solution of relevant scientific questions.
When a student enters the program, he or she and the program faculty plan a course of study to give the student a basic core of knowledge for work in applied mathematics together with a necessary background knowledge in the area of science in which the student will do his or her thesis research. A comprehensive examination over this course work will be given after approximately two to three years in the program. Following that, the student will complete a research thesis on a mathematical topic from his or her area of scientific interest.
Fellowships, graduate tuition scholarships, and some research and teaching assistantships are available to qualified applicants. Applications for these appointments should be received before March 1 for the fall semester. For application forms and further information about the academic year, write to the Chairman, Program in Applied Mathematical Science, Graduate College, The University of Iowa, Iowa City, Iowa 52242.
Courses
22C:107 Section B Applied Mathematical Science Prerequisite: consent of instructor.
22C:190 Reading and Research Prerequisite: consent of advisor.
Computer Science
Department chair: Theodore J. Spann
Faculty: professors Donald R. Asm, Donald L. Eges, Arthur C. Fisk, associate professors Robert J. Dev, Takeo S. D., Ph.D., Theodore J. Spann, assistant professor Adriana Orlando, Ray Ford, Dwayne M. Jones, Christopher O. Martin, Roger K. Brink, William F. Deckh
Degree offered: B.A., B.S., M.S., Ph.D.
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:

An overall grade-point average of 2.25 or better;
Completion of the four courses listed below (or their equivalent by transfer) with a grade-point average of 2.0 or better and a minimum of grade C at each:
22C:16 Introduction to Programming with Pascal
22C:17 Programming with Pascal
22C:18 Computer Organization and Assembly Language Programming
22K:25 Calculus I
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 computer science core courses are required:
22M:25 Calculus I
22M:26 Calculus II
4 s.h.
Bachelor of Science

For the B.S. degree, the student must take two additional courses (each having at least 3 semester hours' credit) in the Division of Mathematical Sciences. The undergraduate handbook, available at the Division of Mathematical Sciences office, includes information on elective courses, the core requirements for the computer science major, and other information.

Minor

For a minor in computer science, a student must complete 18 semester hours in computer science courses, including 12 semester hours taken from among:

- 22C:9 Programming with Coblentz
- 22C:11 Programming with Pascal
- 22C:21 Data Structures
- 22C:23 Programming Language Concepts
- 22C:21 Senior Syllabi and Computer Software

Total

39 semester hours

Master of Science

A Computer Science M.S. in computer science must have completed the following coursework.

- 22C:118 Operating Systems and Concurrent Programming
- 22C:122 Advanced Computer Organization and Architecture
- 22C:123 Programming Language Foundations
- 22C:135 Introduction to Computer Theory

A 200-level 22C course

Three additional graduate-level 22C courses

Approved courses outside of computer science

Total

30 semester hours

Outside courses must be selected to support the student's career objectives and must be approved by the student's advisor. The courses must either broaden a student's background through study of a new area or extend the student's earlier work outside of computer science.

Doctor of Philosophy

Doctoral students are expected to complete 30 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:118 Operating Systems and Concurrent Programming
- 22C:122 Advanced Computer Organization and Architecture
- 22C:123 Programming Language Foundations
- 22C:125 Data Abstractions Theory and Structures
- 22C:127 Compiler Construction
- 22C:135 Introduction to Computer Theory
- 22C:144 Design of Information Systems
- 22C:145 Artificial Intelligence I
- 22C:153 Design and Analysis of Algorithms I

The student must also complete the courses in one of the specialty groups outlined in the doctoral program handbook, and at least 16 semester hours of 200-level computer science courses work in addition to 22C:298 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 these outside areas:

- Mathematics
- Computer Science
- Electrical Engineering
- Statistics
- Operations Research

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 departmental graduate committee assigns the student a faculty advisor, and 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 proposal for a specialization in an area of expertise that will serve as his or her Ph.D. comprehensive examination. The dissertation committee administers the specialty examination after the student completes the required courses in an area, and the dissertation examination is described in the Graduate Handbook.

Graduate Service Courses

Graduate service courses are offered in the area of computer science. Students must have completed the above sequence and have a grade of B or better in the required courses.

Introduction to Programming with Pascal

Computer Programming with Pascal is strongly recommended. Students in fields in which other programming languages are heavily used may find 22C:100 Introductory Programming with Fortran, or 22C:108 Programming with COBOL more appropriate.
to take certain additional courses to cover the deficiency.

Doctor of Philosophy
Most of the recent graduates of the Ph.D. Program have found satisfactory 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 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 classroom teaching or seminar lecturing.

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

The candidate must also pass a comprehensive examination on his or her field of research: write a thesis; and pass a final examination.

The candidate will be required to demonstrate reading proficiency in French, German, Russian, or Japanese 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 their sequence offered by the appropriate foreign language department.

The dissertation must take place after the student has completed in graduate school. For information about the Ph.D. program in mathematics education, consult the brochure, Advanced Studies in Education, available from the College of Education.

The Department of Mathematics also cooperates in interdisciplinary doctorate programs with the program in Applied Mathematical Sciences.

Courses

Graduate: Lower Division
These courses are not open to graduate students except by special arrangement with the chair of the department.

22M:110 Calculus I
This course provides a comprehensive introduction to the calculus of functions of one variable. It is a prerequisite for all higher mathematics courses.

22M:111 Calculus II
This course provides a comprehensive introduction to the calculus of functions of several variables. It is a prerequisite for all higher mathematics courses.

22M:112 Calculus III
This course provides a comprehensive introduction to the calculus of vector-valued functions. It is a prerequisite for all higher mathematics courses.

22M:113 Calculus IV
This course provides a comprehensive introduction to the calculus of functions of multiple variables. It is a prerequisite for all higher mathematics courses.

22M:114 Calculus V
This course provides a comprehensive introduction to the calculus of functions of complex variables. It is a prerequisite for all higher mathematics courses.

22M:115 Calculus VI
This course provides a comprehensive introduction to the calculus of functions of distributions. It is a prerequisite for all higher mathematics courses.

22M:116 Calculus VII
This course provides a comprehensive introduction to the calculus of functions of functions. It is a prerequisite for all higher mathematics courses.

22M:117 Calculus VIII
This course provides a comprehensive introduction to the calculus of functions of matrices. It is a prerequisite for all higher mathematics courses.

22M:118 Calculus IX
This course provides a comprehensive introduction to the calculus of functions of tensors. It is a prerequisite for all higher mathematics courses.

22M:119 Calculus X
This course provides a comprehensive introduction to the calculus of functions of manifolds. It is a prerequisite for all higher mathematics courses.

22M:120 Calculus XI
This course provides a comprehensive introduction to the calculus of functions of distributions. It is a prerequisite for all higher mathematics courses.

22M:121 Calculus XII
This course provides a comprehensive introduction to the calculus of functions of functions. It is a prerequisite for all higher mathematics courses.

22M:122 Calculus XIII
This course provides a comprehensive introduction to the calculus of functions of tensors. It is a prerequisite for all higher mathematics courses.

22M:123 Calculus XIV
This course provides a comprehensive introduction to the calculus of functions of manifolds. It is a prerequisite for all higher mathematics courses.

22M:124 Calculus XV
This course provides a comprehensive introduction to the calculus of functions of distributions. It is a prerequisite for all higher mathematics courses.

22M:125 Calculus XVI
This course provides a comprehensive introduction to the calculus of functions of functions. It is a prerequisite for all higher mathematics courses.

22M:126 Calculus XVII
This course provides a comprehensive introduction to the calculus of functions of tensors. It is a prerequisite for all higher mathematics courses.

22M:127 Calculus XVIII
This course provides a comprehensive introduction to the calculus of functions of manifolds. It is a prerequisite for all higher mathematics courses.

22M:128 Calculus XIX
This course provides a comprehensive introduction to the calculus of functions of distributions. It is a prerequisite for all higher mathematics courses.
Elementary Topics of General Interest

These courses are not open to graduate students except by special arrangement with the instructor. Admission by arrangement for students who wish to obtain credit for work done under the guidance of an instructor.

250:05 Computation Laboratory for Calculus and Linear Algebra

250:15 Introduction to Ordinary Differential Equations

250:25 Introduction to Partial Differential Equations

250:45 Fourier Analysis

250:55 Introduction to the Theory of Functions of a Complex Variable

Undergraduate: Upper Division

250:75 History of Mathematics

250:85 History of Mathematics I

250:95 History of Mathematics II

250:105 History of Mathematics III

250:115 History of Mathematics IV

250:125 History of Mathematics V

250:135 History of Mathematics VI

250:145 History of Mathematics VII

250:155 History of Mathematics VIII

250:165 History of Mathematics IX

250:175 History of Mathematics X

250:185 History of Mathematics XI

250:195 History of Mathematics XII

250:205 History of Mathematics XIII

250:215 History of Mathematics XIV

250:225 History of Mathematics XV

250:235 History of Mathematics XVI

250:245 History of Mathematics XVII

250:255 History of Mathematics XVIII

250:265 History of Mathematics XIX

250:275 History of Mathematics XX

250:285 History of Mathematics XXI

250:295 History of Mathematics XXII

250:305 History of Mathematics XXIII

250:315 History of Mathematics XXIV

250:325 History of Mathematics XXV

250:335 History of Mathematics XXVI

250:345 History of Mathematics XXVII

250:355 History of Mathematics XXVIII

250:365 History of Mathematics XXIX

250:375 History of Mathematics XXX

250:385 History of Mathematics XXXI

250:395 History of Mathematics XXXII

250:405 History of Mathematics XXXIII

250:415 History of Mathematics XXXIV

250:425 History of Mathematics XXXV

250:435 History of Mathematics XXXVI

250:445 History of Mathematics XXXVII

250:455 History of Mathematics XXXVIII

250:465 History of Mathematics XXXIX

250:475 History of Mathematics XL

250:485 History of Mathematics XLI

250:495 History of Mathematics XLII

250:505 History of Mathematics XLIII

250:515 History of Mathematics XLIV

250:525 History of Mathematics XLV

250:535 History of Mathematics XLVI

250:545 History of Mathematics XLVII

250:555 History of Mathematics XLVIII

250:565 History of Mathematics XLIX

250:575 History of Mathematics L

250:585 History of Mathematics LI

250:595 History of Mathematics LII

250:605 History of Mathematics LIII

250:615 History of Mathematics LIV

250:625 History of Mathematics LV

250:635 History of Mathematics LVI

250:645 History of Mathematics LVII

250:655 History of Mathematics LVIII

250:665 History of Mathematics LIX

250:675 History of Mathematics LX

250:685 History of Mathematics LXI

250:695 History of Mathematics LXII

250:705 History of Mathematics LXIII

250:715 History of Mathematics LXIV

250:725 History of Mathematics LXV

250:735 History of Mathematics LXVI

250:745 History of Mathematics LXVII

250:755 History of Mathematics LXVIII

250:765 History of Mathematics LXIX

250:775 History of Mathematics LXX

250:785 History of Mathematics LXXI

250:795 History of Mathematics LXXII

250:805 History of Mathematics LXXIII

250:815 History of Mathematics LXXIV

250:825 History of Mathematics LXXV

250:835 History of Mathematics LXXVI

250:845 History of Mathematics LXXVII

250:855 History of Mathematics LXXVIII

250:865 History of Mathematics LXXIX

250:875 History of Mathematics LXXX

250:885 History of Mathematics LXXXI

250:895 History of Mathematics LXXXII

250:905 History of Mathematics LXXXIII

250:915 History of Mathematics LXXXIV

250:925 History of Mathematics LXXXV

250:935 History of Mathematics LXXXVI

250:945 History of Mathematics LXXXVII

250:955 History of Mathematics LXXXVIII

250:965 History of Mathematics LXXXIX

250:975 History of Mathematics XXX

250:985 History of Mathematics LXXXX

250:995 History of Mathematics LXXXXI

250:1005 History of Mathematics LXXXXII

250:1015 History of Mathematics LXXXXIII

250:1025 History of Mathematics LXXXXIV

250:1035 History of Mathematics LXXXXV

250:1045 History of Mathematics LXXXXVI

250:1055 History of Mathematics LXXXXVII

250:1065 History of Mathematics LXXXXVIII

250:1075 History of Mathematics LXXXXIX

250:1085 History of Mathematics LXXXXX

250:1095 History of Mathematics LXXXXXI

250:1105 History of Mathematics LXXXXXII
Mathematical Statistics
This program is designed to prepare students for graduate study in statistics. The required courses in the program are:

22M:35-26 Calculus II-H
22M:37 Introduction to Linear Algebra
22M:38 Calculus III
22M:153 Introduction to Probability
22M:154 Introduction to Mathematical Statistics I
22M:155 Introduction to Mathematical Statistics II
22M:156 Fundamental Properties of Spaces and Functions
22M:157 Introduction to Analysis I
22M:158 Applied Time Series Analysis
22M:159 Design and Analysis of Experiments I
22M:160 Regression Analysis
22M:162 Introduction to Stochastic Processes

Statisticians are encouraged to learn a programming language and to take at least four courses in some area where Statistics is an important tool (Economics, 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 recommendation is usually based on two two-hour written exams 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 two-hour 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 requirement for M.S. programs are given below. The minimum grade-point average required for each of these programs is 2.75.

Actuarial Science
(with or without thesis)
22S:153 Introduction to Probability
22S:154 Introduction to Mathematical Statistics I
22S:155 Actuarial Principles of Life Insurance
22S:180-182 Actuarial Theory I-II-III
22S:177 Numerical Analysis for Actuaries
22S:297 Seminar: Actuarial Theory
at least three courses from:
22S:183 Demography and Life Table Construction
22S:184 Risk Theory
22S:185 Theory of Pension Funding
An approved course in operations research

The 22S:153-154 requirement will be waived only if the student has passed Part Two of the Examinations of the Society of Actuaries.

Theoretical Statistics and Probability
(with or without thesis)
22M:116 Introduction to Analysis I
22M:153 Introduction to Probability
22M:154 Introduction to Mathematical Statistics I
22M:157 Introduction to Stochastic Processes
At least two of these:
22M:172 Topics in Statistics
22S:230 Introduction to the Theory of Nonparametric Statistics
22S:247 Theory of Statistics I
22S:255 Linear Models
22S:256 Multivariate Analysis
22S:264-265 Theory of Probability I

Applied Statistics
(without thesis)
22M:153 Introduction to Probability
22M:154 Introduction to Mathematical Statistics I
22M:156 Analysis and Design of Experiments I
22M:162 Regression Analysis
22M:173 Statistical Computation and Consulting
At least two of these:
22S:133 Quality Control, Reliability, and Engineering Statistics
22S:157 Bayesian Statistics I
22S:158 Analysis and Design of Experiments II
22S:159 Introduction to Mathematical Statistics II
22S:165 Applied Time Series Analysis
22S:182 Applied Statistical Decision Theory
22S:181 Application of Multivariate Statistical Techniques
22S:230 Analysis of Categorical Data
22S:239 Introduction to the Theory of Nonparametric Statistics
22S:230 Bayesian Statistics II
22S:255 Linear Models
22S:256 Multivariate Analysis
22M:170 Numerical Analysis: Nonlinear Equations and Approximation Theory
The remainder of the program will consist of selections from the above lists or other courses approved by the advisor.

Experience in a computer language (PL/I or FORTRAN) is required. If the student satisfies the requirement by taking a course, that course may not be counted toward the M.S. seminar-hour requirement.
The applied statistics program is designed to be flexible, so that a student may concentrate on an area of application in addition to the required statistics courses.

A program oriented towards biostatistics, for example, could include:

226:181 Application of Multivariate Statistical Techniques
225:153 Regression Analysis and electives chosen from among:
63:158 Principles of Epidemiology
63:178 Biostatistical Methods
63:101 Dynamics of Health
63:102 Men and the Environment
63:299 Chronic Disease Epidemiology

Students interested in operations research, for example, could electives from among
225:156 Introduction to Mathematical Statistics II
225:193 Applied Statistical Decision Theory
225:157 Introduction to Stochastic Processes
56E:141 Operations Research II
56E:142 Production—Inventory Models
56E:143 Quantitative Investment Analysis
56E:149 Digital Systems Simulation I
56E:249 Digital Systems Simulation II
56E:242-243 Mathematical Programming I
56E:246 Stochastic Service Systems
56E:245 Integer Programming and Network Flows

Programs oriented towards other applied areas are also possible.

For a general program in applied statistics (without area of application), most students should take courses in the Department of Statistics. The student should consult 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 statistics area such as strong, a program in another department may be more appropriate; for example, educational measurement and statistics (education), operations research (industrial and management engineering), and biostatistics (preventive medicine and environmental health).

Applied Statistics (with Areas)
225:153 Introduction to Probability
225:154 Introduction to Mathematical Statistics I
At least two of these:
225:156 Regression Analysis and Design of Experiments I
225:181 Application of Multivariate Statistical Techniques
225:182 Nonparametric Analysis
225:186 Analysis and Design of Experiments II
At least two of these:
225:133 Quality Control, Reliability, and Engineering Statistics
225:138 Bayesian Statistics I
225:155 Introduction to Mathematical Statistics II
225:158 Applied Time Series Analysis
225:158 Analysis and Design of Experiments I
225:160 Applied Statistical Decision Theory
225:161 Application of Multivariate Statistical Techniques
225:162 Regression Analysis
225:173 Statistical Computing and Consulting
225:200 Analysis of Categorical Data
225:230 Introduction to the Theory of Nonparametric Statistics
225:239 Bayesian Statistics
225:245 Linear Models
225:255 Multivariate Analysis
225:170 Numerical Analysis: Nonlinear Equations and Approximation Theory

The remainder of the program will consist of selections from the above courses or, with the advisor's approval, courses in other fields related to the thesis.

Experience in a computer language (PL/1 or FORTRAN) is required. If the student specifies 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 statistical method. It generally requires 3 semester hours of 225:191 Individual Study for two semesters.

Doctor of Philosophy
To satisfy the course requirements for a Ph.D. in statistics, a student must successfully complete:
225:153 Introduction to Probability
225:154-155 Introduction to Mathematical Statistics I-II
225:162 Regression Analysis
225:267 Introduction to Stochastic Processes
"225:173 Statistical Computation and Consulting
225:15-110 Introduction to Analysis I-II
225:173 Theory of Statistics
At least 2 semester hours of any combination of the following:
225:291 Seminar: Mathematical Statistics
225:293 Seminar: Probability
At least two of the following:
225:156 Applied Time Series Analysis
225:161 Application of Multivariate Statistical Techniques
225:168 Analysis and Design of Experiments I
225:186 Analysis and Design of Experiments II
At least five of the following:
225:220 Analysis of Categorical Data
225:230 Introduction to the Theory of Nonparametric Statistics
225:255 Linear Models
225:264 Analysis of Categorical Data
225:246 Theory of Probability I-II
"It is recommended that students take 225:173, for at least two hours' credit, in two different semesters.

In addition, each semester a graduate student is registered for six or more credit hours, the student's registration must include at least one course of at least two hours' credit offered by the Department of Statistics, other than 225:191 Individual Study, 225:197 Readings in Statistics, and the Actuarial Science, or 225:299 Reading Research.

During the graduate program, students may wish to take course work or seminars in other departments for the achievement of certain auxiliary goals of the doctorate degree in statistics—to relate his or her area of specialization to other fields of knowledge, to acquire the ability to use electronic digital computing equipment, or to learn the language skills needed to read foreign scientific journals and be able to respond in personal contacts with foreign statisticians.

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

Students desiring to request financial assistance for the third year must have taken the qualifying examination no later than the spring semester of the second year.

The qualifying examination covers topics such as those studied in 225:153 Introduction to Probability, 225:154-155 Introduction to Mathematical Statistics I-II, and 225:162 Regression Analysis.

Students desiring to take the qualifying examination must pass two of the course work in his or her approved plan of study, typically near the end of the third year.

The student must achieve at least a 3.25 grade-point average on completed courses in the plan of study.

A program which does not conform to the above procedures, but which is of high excellence, may be approved by the department chair.

Special Features
Because statisticians are often teamed with other scientists in research projects, it is important that students gain knowledge of other efforts. In several courses, the department tries to provide a flavor of other science. In addition, the department houses the Statistical Consulting Center, which offers
Microbiology

Degree plan: living P. Crawford
Department of Bio., B.S., M.S., Ph.D.

Microbiology is concerned with the identification, structure, and activities of bacteria, fungi, phycota, viruses, and parasites. It also includes immunology, a discipline dealing with the response of immune and animals to foreign materials.

Microbiology involves the study of the distribution of microorganisms in nature, their relationships to each other and to other living things, their beneficial and harmful effects on humans, animals, plants, and the physical and chemical changes they produce in the environment.

All branches of the science—general microbiology, food and dairy microbiology, soil microbiology, plant microbiology, water and sewage microbiology, medical and veterinary microbiology, dental microbiology, immunology, pharmacological microbiology, marine microbiology, and geomicrobiology—have rapidly expanded in recent years and offer rewarding career opportunities to qualified persons.

For the graduate with a bachelor’s degree in microbiology, research opportunities are available in government, hospitals, public health and industrial control laboratories. Students who continue beyond the bachelor’s degree have career opportunities in government labs, national laboratories, national parks, national forests, national monuments, national wildlife refuges, national parks, and national forests. Students with master’s degrees are needed in public health laboratories.

The following is a typical B.S. program. These courses are required:

4:1 Principles of Chemistry 5 s.h.
4:18 Principles of Experiments 3 s.h.
4:18 Principles of Chemistry Laboratory I 2 s.h.
4:21 Organic Chemistry I 3 s.h.
4:22 Organic Chemistry II 3 s.h.
4:14 Intermediate Chemistry Laboratory I 2 s.h.
29M:15 Mathematics for the Biological Sciences 4 s.h.
or
29M:20 Elementary Functions 3 s.h.
3:11:12 College Physics I 5 s.h.
3:7:3 Principles of Animal Biology 5 s.h.
81:157 General Microbiology 4 s.h.
82:120 The Chemistry of Biological Materials 3 s.h.
90:130 Metabolism 3 s.h.

Honors Program

Open to seniors with a grade-point average of at least 3.0 (intermediate and a 3.2 in microbiology courses), the Honors program in microbiology involves taking 20 semester hours of coursework in microbiology, including 6 semester hours in 61:171 and 172 Honors Microbiology. These honors courses constitute an introduction to experimental research. At the end of the research, the student presents a written report. A student successfully completing these requirements receives the B.S. degree with honors.

Graduate Study, Faculty Roster, Courses

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

Military Science

(Army ROTC)

Department Head: Lieutenant Colonel Michael J. Davies

Faculty: professor Dk.-kur. Barry B. Davies (Lieutenant Colonel)

Professor: Dean A. J. Mustard (Major), William B. Schottell (Capt.), John R. Scott (Capt.), William R. Schottell (Capt.), Michael A. Nastler (Capt.)

Supervisor: Joe G. Henn, SCD, Meadow J. Chesebro (Co.)

The Department of Military Science is the academic unit administering the Army ROTC program at The University of Iowa. Participation in the program is voluntary. Courses in the program carry credit applicable toward a degree.
The ROTC Basic Course for freshmen and sophomores provides academic instruction in the fundamentals of leadership and management plus an introduction to the military role of the American society and current military organization and capabilities. Military history is highlighted in tracing the development of military principles and doctrine utilized in modern military operations and organizations.

The ROTC Advanced Course for junior and senior students addresses the dynamics of organizational leadership from the small group level to large and diversified organizations. Practical instruction in developing individual leadership skills is emphasized. Between the junior and senior years, students attend a six-week, paid, advanced training camp at Fort Lewis, Washington. Selected students may also participate in active Army training programs such as Ranger School, Air Assault School, Northern Warfare School, and Avborne Training. Students who successfully complete the Advanced Course receive a commission as a second lieutenant in the U.S. Army and serve either on active duty or with the National Guard or U.S. Army Reserve near their home. Those choosing active duty serve a minimum of three years.

Students who have not taken the basic course may qualify for the advanced course by attending a basic camp during summer, all expenses paid, or by participating in an on-campus summer leadership program. Students may qualify for the advanced course by taking an ROTC course in the Military Organization and Operation.

Credit For Prior Training

Students with prior military training or experience may qualify for Basic Course credit by allowing entrance into the Advanced Course. Prior service personnel are considered for early placement within the ROTC program and are eligible for a commission within two years. Although the full Army ROTC program normally takes four years, it can be completed in two, three, or four years by students, with departmental approval.

Graduate School

Students commissioned as lieutenants upon graduation from The University of Iowa may apply for a delay in active duty to attend graduate school. No academic requirement is required on active duty for such delays. Delays of up to three years are allowed for medical, dental, and law schools are normally granted.

Special Programs

The Black Barons is a traditional organization, engaging in intercollegiate military skills competition. The department also sponsors a small-bore rifle team that competes in national competition. Cadets compete for individual skill and national titles for leadership, academic achievement, athleticism, and military proficiency. The department sponsors a military-oriented patriotic and social activities. At cadet initiated events such as the annual military ball, a formal dinner called Cadet Corps Dinning-in, and an awards ceremony.

Special Facilities

The department uses several areas near Iowa City for practical field training and military skills instruction. It uses a variety of military equipment, such as helicopters and radio, in practical leadership training 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 support equipment. Junior-year cadets also use the Camp Dodge leadership reaction course, orienteering courses, and rappelling facilities.

Financial Aid

Reserve Officers Training Corps scholarships, dormitory, books, laboratory fees, and a $100-per-month, tax-exempt subsistence allowance. These are available to eligible junior and senior students enrolled in military science courses. Three-, two-, and one-year scholarships are also available. Scholarships are to the best interest of the United States Army. Awarded annually to the best officer candidate. 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 support equipment. Junior-year cadets also use the Camp Dodge leadership reaction course, orienteering courses, and rappelling facilities.

Military Training

The department offers courses which provide a fundamental background in the historical foundations of science museums, exhibits, and design, preparation techniques, and general museum operational procedures. Courses have been offered continuously since 1900. The museum instruction 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 museums are establishing university occupational positions as directors, curators, and exhibit educators in
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Music/LIBERAL ARTS

25:149 Analysis of Music Literature, 1750-1825 3 s.h.
25:155 Analysis of Music Literature, 1825-1900 3 s.h.
25:161 History of Music Literature, 1850-1918 3 s.h.
25:165 Analysis of Music Literature, Special Topics 3 s.h.
25:163 Keyboard Harmony 2 s.h.
22:312 Gregorian Chant 3 s.h.
25:212 Violin 3 s.h.
25:213 Violin 3 s.h.
4 years of applied music

Participation in a major ensemble each semester of residence. 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 ensemble director. String majors shall participate in University Orchestras and in Symphonie or Chamber Orchestras. Keyboard majors may substitute accompanying in place of major ensemble participation for two semesters during their junior and/or senior years, with the consent of their advisors. Any request for adjustment of this requirement shall be submitted in writing to a reviewing committee consisting of the directors of all ensembles involved, the advisee, the major teacher, and a representative from the Director's Office. This committee will meet regularly at its first and each early registration period.

Major Ensembles
25:188 University Chorus - Concert Band - University Band
25:191 University Chorale - University Singers
25:193 University Choir - Kantorei
25:192 Orchestra
25:213 Chamber Orchestra - Gliotetza

The student may take advanced electives in performance (including chamber music and piano accompanying), theory, composition, music education, music history, and literature, orchestration, and conducting.

Music History Major

In addition to the general requirements for the major, students majoring in music history are required to complete additional requirements as follows:

A senior thesis replaces the recital required of applied music majors and consists of a paper that demonstrates the student's ability to conduct research.

Music Education

Areas of concentration in music education are instrumental music, vocal music, or music therapy. In addition to the B.A. or B.M. requirements in music and liberal studies, the student must complete a major in music education in Iowa schools requires satisfactory completion of specific requirements in the area of concentration. Requirements in the instrumental and vocal areas are listed below:

String Majors

Victoria and viola majors take one year of

Violin and cello majors take one year of

Violin 2.5 s.h.

Class Strings 2 s.h.

(Soprano and alto are available)

107 Instrumental Conducting I 1 s.h.

108 Instrumental Conducting II 1 s.h.

150 String Methods and Materials 4 s.h.

144 Methods and Materials: Elementary School Instrumental Music 2 s.h.

191 Observation and Laboratory Practice in the Elementary School 6 s.h.

192 Laboratory Practice in the Elementary School 6 s.h.

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 in residence at the University. Students may substitute marching band program techniques for marching band, with permission of their advisor and the Director of Bands. Courses required:

143 Instrumental Techniques 6 s.h.

147-108 Band Conducting 1 s.h.

144 Methods and Materials: Elementary School Instrumental Music 6 s.h.

136 Preparatory Band Instrument Care and Repair 1 s.h.

140 Band Methods and Materials 3 s.h.

191 Observation and Laboratory Practice in the Secondary School 6 s.h.

192 Laboratory Practice in the Elementary School 6 s.h.

187 Seminar: Curriculum and Student Teaching 1 s.h.

Vocal and Keyboard Majors

147 Choral Methods and Conducting 3 s.h.

148 Choral Literature and Conducting 3 s.h.

115-116 Choral Literature and Conducting 4 s.h.

145 Methods and Materials: Elementary School General Music 3 s.h.

142 Methods and Materials: Secondary School General Music 3 s.h.

78:191 Observation and Laboratory Practice in the Secondary School 6 s.h.

78:192 Laboratory Practice in the Elementary School 6 s.h.

78:187 Seminar: Curriculum and Student Teaching 1 s.h.

Keyboard majors preparing for music teacher certification must pass the proficiency examination of 25:71-72 Group Instruction in Piano I/II. Keyboard majors lacking satisfactory competence in voice also must register for 25:17 Keyboard for two semesters.

Keyboard Majors (Nonvocal)

Keyboard majors who elect to teach in the nonvocal area must complete the requirements in either the brass-woodwind-percussion or string areas, and pass the proficiency examination of 25:71-72 Group Instruction in Piano I/II.

Teaching Minor

A student qualifies for certification as an elementary school general music teacher by completing the approved certification program for elementary teachers and 22-23 semester hours as follows:

119 Beginning Guitar 3 s.h.

143 methods and Materials: Elementary School General Music 3 s.h.

192 Laboratory Practice in the Elementary School 2 s.h.

219 Elementary Band (chorus, band, or orchestra) 2 s.h.

Two of the following:

121 Literature and Theory I 3 s.h.

122 Literature and Theory II 3 s.h.

25:10 Fundamentals of Music 3 s.h.

1130-40 Masterpieces of Music 6 s.h.

A student who wishes to complete an area of specialization in music without teacher certification may substitute other courses numbered 191-192 with the advisor's approval.

Music Therapy

Admission to the program in music therapy is based on demonstrated minimum keyboard skills and successful completion of 25:114 Orientation to Music Therapy. The number of students admitted to the program is limited by the types and amounts of clinical experience available on campus. In addition to the specific courses in music therapy listed below, specific courses are required in biology, sociology, abnormal psychology, and social psychology.

A six-month internship in an approved off-campus clinical facility is required before the completion of the degree and certification as a registered music therapist (RMT). For more job opportunities, students are also 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 Practice 1-3 s.h.
25:96 Recreational Music Technique 2 s.h.
25:114 Orientation to Music Therapy 2 s.h.
75:401,403 Psychopharmacology of Music 2 s.h.
75:149 Behavioral Research in Music 3 s.h.
25:126 Music Therapy Techniques: Adult 3 s.h.
25:128 Music Therapy Techniques: Adult 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 of theory courses.

The thesis replaces the senior recital required of applied music majors, and consists of one or more original compositions, approved by the Composition/Theory faculty and performed on regularly scheduled School of Music recitals, and/or a faculty-approved scholarly paper dealing with theoretical issues.

Until admitted to the Composition/Theory Program, the candidate must take private lessons on his or her major instrument or voice. Following admission, the student undertakes applied music study as recommended by the advisor.

Ensemble participation is 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 in honors status and the student has maintained a minimum grade-point average of 3.0 on all previous work undertaken at the University.

A student maintaining the minimum 3.0 average eligibility for graduation "with honors" by completing satisfactorily from 8 to 12 semester hours in 25:97 Honors in Music, Types of honors projects for which credit is given in 25:97 are honor performances, solo and/or ensemble; honors compositions, orchestrations, arrangements; and honors thesis, research papers, editions, transcriptions, etc.

A combination of at least two of these types of projects is required. None of the projects may duplicate those assigned in other courses or required for graduation, such as 25:144 Senior Recital.

Honors students in music are encouraged to take graduate-level courses. Advanced course work in music history, music theory, and languages is particularly recommended. An honors committee of at least those members is appointed by the honors sponsor to evaluate the student's work.

Financial Aid

A number of music activity scholarships are available to qualified undergraduate minors majors. For information, write to the School of Music.

Graduate Programs

The entering graduate student must take the School of Music advocacy examination in music theory (harmony, ear training, forms, and counterpoint), and history and literature, before his or her first registration. The advisory examination is given each session or the two days (excluding Sunday) before registration. A leaflet describing the general content of the examination may be obtained from the director's office, School of Music. (For general graduate admission, degree, and examination requirements, see the "Graduate College" section of the Catalog.)

Theory Minor

Candidates for graduate degrees in music may elect a minor in music theory by completing the following courses:
25:145 Colloquium 3 s.h.
25:147 Total Piano (unless excused by advisory exam) 5 s.h.
25:234 Observation and Practice Teaching in Theory 1-2 s.h.
25:236 Methods and Techniques of Teaching Basic Theory 3 s.h.
plus two courses from the following:
25:148 Analysis of Music Lit 1600-1750 3 s.h.
25:149 Analysis of Music Lit 1750-1825 3 s.h.
25:150 Analysis of Music Lit 1825-1900 3 s.h.
25:151 Analysis of Music Lit 1900- Present 3 s.h.
25:152 Analysis of Music Lit Special Topics 3 s.h.

Master of Arts

The Master of Arts with thesis is offered in the areas of performance (including conducting), composition, music theory, and musicology. The Master of Arts without thesis is offered in the areas of music education and instrumental or vocal pedagogy (including accompaniment). Both require a minimum of 30 post-baccalaureate semester hours. Information about specific admission and curriculum requirements for each degree is available from the School of Music. All curricula must include the requirements listed below:

General

25:331 Introduction to Graduate Study in Music
25:145 Comparative Forms or
25:147 Total Piano

One elective in analysis of music literature (25:148-163) or equivalent.

If excused from either 25:145 or 25:147 as a result of the advisory examination, the student must take the other course and the analysis of music literature elective. If excused from both 25:145 and 25:147, the student need take only the analysis of music literature elective.

Any serious music theory and ear training deficiencies revealed in the advisory examination are to be removed through 25:11 Review Theory.

Music History

25:301-302 Advanced History and Literature of Music I & II or equivalent, or satisfactory advisory examination.

If excused from 25:301 and/or 25:302, as a result of the advisory examination, the student should elect another course from the music history sequence 25:303-314, 25:318 & 317, 25:353, 25:355-356, and may elect other musicology courses.

Ensemble Participation

Students shall participate in a major ensemble each semester of residence (see previous list of the major ensembles). During the summer term, students shall be available for ensemble participation as needed. Ensemble assignments are made at the discretion of the major teacher and the ensemble director. Keyboard majors may substitute accompaniment for participation in a major ensemble, at their advisor's discretion. Theory, composition, musicology, and music education majors may, with their advisor's permission, substitute other electives. Any requests for adjustment of the requirement must be submitted in writing to the chair of the college committee consisting of the ensemble directors involved, the advisor, the major teacher, and a representative from the Department of Music. This committee will meet regularly at the end of each early registration period.
Admission
Before an applicant will be considered for admission, he or she must have submitted an application form, accompanied by a nonrefundable fee of $25 (international students are charged $75).

Composition—representative musical scores
Theory—analyses or research papers
Music education—no materials required
Performance (including conducting)—audition
Musicology—research papers, theses

Musical theater—contact School of Music Information about specific admission and curricular requirements for each area is available from the director of the office.

Master of Fine Arts
The M.F.A. is for students of aspiration ability in the areas of composition, instrumental or vocal performance, conducting, and opera theater directing. It requires a minimum of 46 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 (25.401 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 25-149-152 or equivalent;
One or more additional courses in the history of music chosen from those listed in the master's degree requirements
25-285 Physics of Sound and Music or equivalent;
Reading proficiency in at least one foreign language (must be completed before comprehensive examination); music education students may substitute four courses in statistics for the requirement;
Dissertation
Doctoral students shall be available for participation in a major ensemble 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.

Doctor of Philosophy
Requirements for the Ph.D. degree in performance and pedagogy are the general doctoral requirements of the school, except that the D.M.A. dissertation consists of a full-length recital or two recitals and a concert performance with orchestra or other appropriate ensemble. Vocalists may substitute the execution of one or more major recitals 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
Theory—analyses or research papers
Music education—research papers
Music literature—research papers and additional 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 who are interested in music and have an avocational interest in it include: 11-32 40 Masterclasses of Music; 25-159 Late Eighteenth- and Nineteenth-Century Composers; 25-160 Early Eighteenth- and Twentieth-Century Composers; the sequence 25-103-104 World Music I-III for students interested in non-Western music; and 25-30 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 ensembles is open to all university students with the ensemble director's approval (see overview list of major ensembles). Nonmajors interested in performance should consult with music advisors regarding appropriate coursework in applied music.

Special Programs
The Center for New Music provides an environment for innovative composition and a vehicle for the performance of new works. Its repertoire includes the works of little-known young composers and works using electronics and produced sounds, as well as compositions by recognized modern composers. The Center for the New Performing Arts is an interdisciplinary unit unit involving the University's schools of musical and fine arts and the theater, dance, and creative writing areas. The center's basic purpose is to encourage talented young artists to develop their creative skills through composition, performance, and media classes; projects, and performances.

Facilities
The University of Iowa Center for the Arts has one of the nation's finest facilities for music study and performance. In addition to the main performance facilities, the building also includes 55 teaching studios, 32 practice rooms, a large library, two electronic music laboratories, a recording studio and listening facilities with 50 teaching posts, four large rehearsal halls, an orchestra practice hall, and its own orchestra. The building also includes a 1,000-seat recital hall, a 250-seat recital hall, and the 500-seat Carver Auditorium. The Carver Auditorium seats 2,560 people for concerts, 3,200 for opera and other stage productions. The building also includes the University's library, which contains more than 60,000 volumes and a large number of journals, more than 2,000 records of microfilm, a microfiche file approximately 300 titles, ready 5,000 Lp records, and 175 periodicals in several languages. The library's computerized card catalog places particular emphasis on a strong reference collection characterizing resources for musical research and performance. The library's quarters in the Music Building provide 24 study carrels, a microfiche reader, a card catalog, and a number of large books rooms, a large reading area, and a separate area for the Golden Bell.
Library, one of the world's most famous collections of band music.

Courses

Primarily for Undergraduates

Theory and Composition
25:1 Literature and Theory 1 3 s.h.
Lecture, with assignments emphasizing study of music and fundamentals of harmony. Corequisite: 25:1.

25:2 Literature and Theory 2 3 s.h.

25:3 Aural Skills I 1 s.h.
25:4 Aural Skills II 1 s.h.

25:5 Literature and Theory 3 3 s.h.

25:6 Literature and Theory 4 3 s.h.

25:7 Aural Skills III 1 s.h.
25:8 Aural Skills IV 1 s.h.

25:9 Fundamentals of Music 3 s.h.
Musical notation: elementary rhythmic, harmonic, and harmonic theory. Basics: acoustics; for students with little or no previous experience. Not open to music majors.

25:11 Rhythm Theory 4

25:12 Fundamentals of Music 3 s.h.

25:15 Composition Fundamentals 3 s.h.
Prerequisite: 25:2.

History and Research
19:1 World Music and Art 1800-World War II 3 s.h.

25:1 Theory of Music 3 s.h.
Prerequisites: 25:1 literature and theory, 25:2 and 25:3, or equivalent; for non-majors, consent of instructor.

25:2 History of Music I 3 s.h.
Continuation of 25:1. Not 18:1 may be counted as an independent unit. Prerequisite: 25:1 or equivalent.

25:3 Undergraduate Seminar Individual historical research in music, with emphasis on communicating both orally and in written form. Prerequisites: 25:1-2 or consent of instructor.

25:5 Masterpieces of Vocal Music 3 s.h.

25:6 Masterworks in Vocal Music 3 s.h.
May be repeated.

25:8 Aspects of American Popular and Folk Music 3 s.h.

25:9 Survey of Opera 3 s.h.

Courses for Undergraduates and Graduates

Music Education
Other music education courses are offered by the divisions of Elementary Education and Secondary Education in the College of Education. See those sections of the Catalog for listings and descriptions. Where dual majors are indicated, students preparing for music teacher certification should register under the education number.

35:1 Group instruction in Music 1 s.h.
Beginning instruction for music majors whose previous practical experience is in an orchestra or home-wood band; study includes development of skills in sight reading, technique, harmonization, transposition, improvisation, and simple counterpoint.

35:2 Group instruction in Piano 1 s.h.
Elementary to early intermediate instruction in music majors whose previous performance skills in an orchestra or home-wood band are insufficient in training; study of fundamental skills involved in 25:7; introduction of easy arias and ensemble literature. Prerequisite: 25:1 or proficiency examination.

35:3 Group instruction in Voice 1 s.h.
Intermediate instruction for music majors whose previous practical experience is in an orchestra or home-wood band; study of skills introduced in 25:7; study of ensemble arias and ensemble literature. Prerequisite: 25:1 or proficiency examination.

35:4 Basic Theory: Practical 1 s.h.
Prerequisite: Basic music literacy. Corequisite: 25:1.

35:5 Basic Theory: Practical 1 s.h.
Corequisite: 25:1.

25:15 Advanced Conducting 4 s.h.
Prerequisite: elementary conducting skills. Corequisite: 25:7 or equivalent.

25:17 Advanced Singing Methods and Literature 3 s.h.
Prerequisite: consent of instructor.

19:9 Special Studies in Music Theory 3 s.h.
Individual research on special problems in music theory. May be repeated. Prerequisite: consent of instructor.

Theory and Composition

Writing and analysis. Prerequisites: 25:1; 25:6, -11, or writing and analysis.

25:17 Advanced Conducting 4 s.h.
Prerequisite: 25:1 or equivalent.

25:18 Advanced Singing Methods and Literature 3 s.h.
Prerequisite: consent of instructor.

19:9 Special Studies in Music Theory 3 s.h.
Individual research on special problems in music theory. May be repeated. Prerequisite: consent of instructor.

25:17 Advanced Conducting 4 s.h.
Prerequisite: elementary conducting skills. Corequisite: 25:7 or equivalent.

25:17 Advanced Singing Methods and Literature 3 s.h.
Prerequisite: consent of instructor.
Courses Primarily for Graduates

Music Education
The division of Elementary Education and Secondary Education is the College of Education of other music education courses. See those sections of the Catalog for listings and descriptions.

25000 Seminar: Band Problems
25010 Principles of Voice Production
25020 Theory and application of musical improvisation, professional, and interpretive vocal production; vocal production experiences. Prerequisites: 25010 and 25015. Special fee: $25.00. Same as 25015.

25020 Methods of Teaching Voice
Comprehension of a variety of pedagogical techniques of better singing in assessment of attitude, technique, vocal quality, and potential. Topics to include: vocal function, voice science, vocal and articulatory characteristics, vocal health, how to identify resonance, phrasing, and articulatory behavior; vocal hygiene; performance theory, student teacher relationships, administration in total teaching, and professional organization. Prerequisite: 25020. Same as 25020.

25020 Advanced Choral Conducting
A study of the director's role inchoal; 25020. Same as 25020. Comprehensive of how the director is to be influenced by the music. Some aspects of 25010, 25015, and 25020. Comprehensive of the Dorsey choral group. Same as 25010.

25020 AdEd Choral Conducting 2
A study and performance for choral music from the Renaissance to the Greco-Roman period. Same as 25020.

25020 AdEd Choral Conducting 2-3
A study of the director's role inchoal; 25020. Comprehensive of the Dorsey choral group. Same as 25020.

25020 AdEd Choral Conducting 2-3
A study and performance for choral music from the Renaissance to the Greco-Roman period. Same as 25020.

25020 AdEd Choral Conducting 2-3
A study and performance for choral music from the Renaissance to the Greco-Roman period. Same as 25020.

25020 AdEd Choral Conducting 2-3
A study of the director's role inchoal; 25020. Comprehensive of the Dorsey choral group. Same as 25020.

25020 AdEd Choral Conducting 2-3
A study and performance for choral music from the Renaissance to the Greco-Roman period. Same as 25020.

25020 AdEd Choral Conducting 2-3
A study and performance for choral music from the Renaissance to the Greco-Roman period. Same as 25020.

25020 AdEd Choral Conducting 2-3
A study of the director's role inchoal; 25020. Comprehensive of the Dorsey choral group. Same as 25020.

25020 AdEd Choral Conducting 2-3
A study and performance for choral music from the Renaissance to the Greco-Roman period. Same as 25020.

25020 AdEd Choral Conducting 2-3
A study of the director's role inchoal; 25020. Comprehensive of the Dorsey choral group. Same as 25020.

25020 AdEd Choral Conducting 2-3
A study and performance for choral music from the Renaissance to the Greco-Roman period. Same as 25020.

25020 AdEd Choral Conducting 2-3
A study of the director's role inchoal; 25020. Comprehensive of the Dorsey choral group. Same as 25020.

25020 AdEd Choral Conducting 2-3
A study and performance for choral music from the Renaissance to the Greco-Roman period. Same as 25020.

25020 AdEd Choral Conducting 2-3
A study of the director's role inchoal; 25020. Comprehensive of the Dorsey choral group. Same as 25020.

25020 AdEd Choral Conducting 2-3
A study and performance for choral music from the Renaissance to the Greco-Roman period. Same as 25020.

25020 AdEd Choral Conducting 2-3
A study of the director's role inchoal; 25020. Comprehensive of the Dorsey choral group. Same as 25020.

25020 AdEd Choral Conducting 2-3
A study and performance for choral music from the Renaissance to the Greco-Roman period. Same as 25020.

25020 AdEd Choral Conducting 2-3
A study of the director's role inchoal; 25020. Comprehensive of the Dorsey choral group. Same as 25020.

25020 AdEd Choral Conducting 2-3
A study and performance for choral music from the Renaissance to the Greco-Roman period. Same as 25020.

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25020 AdEd Choral Conducting 2-3
A study of the director's role inchoal; 25020. Comprehensive of the Dorsey choral group. Same as 25020.

25020 AdEd Choral Conducting 2-3
A study and performance for choral music from the Renaissance to the Greco-Roman period. Same as 25020.

25020 AdEd Choral Conducting 2-3
A study of the director's role inchoal; 25020. Comprehensive of the Dorsey choral group. Same as 25020.

25020 AdEd Choral Conducting 2-3
A study and performance for choral music from the Renaissance to the Greco-Roman period. Same as 25020.

25020 AdEd Choral Conducting 2-3
A study of the director's role inchoal; 25020. Comprehensive of the Dorsey choral group. Same as 25020.

25020 AdEd Choral Conducting 2-3
A study and performance for choral music from the Renaissance to the Greco-Roman period. Same as 25020.

25020 AdEd Choral Conducting 2-3
A study of the director's role inchoal; 25020. Comprehensive of the Dorsey choral group. Same as 25020.

25020 AdEd Choral Conducting 2-3
A study and performance for choral music from the Renaissance to the Greco-Roman period. Same as 25020.
Nuclear Medicine Technology

See "Division of Associated Medical Sciences" in the "College of Medicine" section of the Catalog.

Philosophy

Department chair: Laura Andus
Faculty: professors Laura Andus, Mary Brudnicki, Patrice Desorces, Philip Goodwin, Margaret Hsu, professors emeritus Susan Beagan, associate professors James Durnford, Erwin Fales, Roland Fumerton, associate professor Christopher Leto, Phyllis Meyer, associate professors Christopher Leto, Phyllis Meyer.
Degrees offered: B.A., M.A., Ph.D.

Undergraduate Program

The undergraduate program in philosophy is designed to impart knowledge of the fundamental issues and the main developments in Western philosophy while strengthening the logical and analytical skills of the student. A major in philosophy is valuable preparation for graduate or professional study in many fields (religion and law, for example) and for any position in government, education, or business that requires a general education and a capacity for clear and systematic thinking. Advanced degree work is necessary for a college teaching position in philosophy.

Bachelor of Arts

The Bachelor of Arts degree requires a minimum of 27 semester hours of credit in courses numbered from 26:102 to 26:190, and must include:
26:103 Introduction to Symbolic Logic
26:111 Ancient Philosophy
and either
26:115 Seventeenth-Century Philosophy
26:116 Eighteenth-Century Philosophy

At least the final 12 semester hours of philosophy coursework that are used to complete these experimental requirements must be taken at The University of Iowa. An undergraduate major in philosophy is excused from a semester hour of the Liberal Arts general education program in historical perspectives.

Honors

The department administers an honors program for undergraduate students of superior ability. A grade point average of at least 3.5 is required for admission to the program, a student who is interested in the program should consult the advisor for undergraduate majors in philosophy.

Graduate Program

The graduate program in philosophy is designed to train teachers and scholars in philosophy. The main areas in the graduate curriculum are metaphysics, epistemology, history of philosophy, ethics, logic, and philosophy of science.

Master of Arts

The Master of Arts degree requires a minimum of 30 semester hours of graduate credit and may be taken without thesis. Requirements include courses in metaphysics and epistemology, history of philosophy, logic and philosophy of science, and ethics. The student must pass an oral final examination. There is no foreign language requirement.

Doctor of Philosophy

The Doctor of Philosophy degree requires a minimum of 72 semester hours of graduate credit by the time the dissertation is finished. Candidacy for the doctoral program is determined by a formal vote of the entire faculty of the department, and after the student has completed thirty six semester hours of graduate study in residence.

Requirements include courses in metaphysics and epistemology, history of philosophy, logic and philosophy of science, and ethics. The student must also pass a written comprehensive examination consisting of a dissertation area examination, a special area examination, and a prospectus of the dissertation. The comprehensive examination may be taken only after the student has shown competence in French, German, Greek, or Latin.

Courses

Undergraduate Only

26:131 Problems of Modern Life 3 hrs.
Philosophical study of ethical theories and their implications in everyday life.
26:139 Problems of Political Philosophy 3 hrs.
Philosophical study of the good society and the relation of the individual to the state.
26:140 Philosophy and Social Values
Philosophical and psychological treatment of recent concepts of human nature and the relation of society, knowledge, religion, science, and action. The student must be taken before or after 26:139, Syllabus 11:24.
26:141 Philosophy and Human Values
Philosophical and psychological treatment of ethical theories of human nature and the relation of society, knowledge, religion, science, and action. The student must be taken before or after 26:139, Syllabus 11:24.
26:155 Principles of Natural Science 3 hrs.
An introductory study of logic and its applications.
26:156 Introduction to Philosophy
An introductory survey and discussion of fundamental human problems in philosophy.
Undergraduates and Graduates

26:181 Introduction to Ethics 3 hrs.
An introductory survey and discussion of fundamental human problems in philosophy.
26:182 Introduction to Symbolic Logic
An introductory survey and discussion of fundamental human problems in philosophy.
26:183 Introduction to Philosophy
An introductory survey and discussion of fundamental human problems in philosophy.
26:184 Intermediate Symbolic Logic
An introductory survey and discussion of fundamental human problems in philosophy.
26:185 Advanced Symbolic Logic
An introductory survey and discussion of fundamental human problems in philosophy.
26:191 Ancient Philosophy
An introductory survey and discussion of fundamental human problems in philosophy.
26:192 Medieval Philosophy
An introductory survey and discussion of fundamental human problems in philosophy.
26:193 Seventeenth-Century Philosophy
An introductory survey and discussion of fundamental human problems in philosophy.
26:194 Eighteenth-Century Philosophy
An introductory survey and discussion of fundamental human problems in philosophy.
26:195 Nineteenth-Century Philosophy
An introductory survey and discussion of fundamental human problems in philosophy.
26:196 Twentieth-Century Philosophy
An introductory survey and discussion of fundamental human problems in philosophy.
26:999 Philosophy Seminar
Three credits may be used in place of other credits.
26:999 Special Topics
Three credits may be used in place of other credits.
26:999 Directed Study
Three credits may be used in place of other credits.

Graduate Only

26:299 Philosophy of Science
Philosophical treatment of scientific theories, including the relation of science, knowledge, and action.
26:391 Philosophy and Political Theory
26:394 Intermediate Symbolic Logic
29:315 Senior Philosophy of Science
May be repeated.
3.5 a.
29:316 Senior Ethics
May be repeated.
3.5 a.
29:319 Senior History of Philosophy
May be repeated.
3.5 a.
29:326 Principles of Theory
May be repeated.
3.5 a.
29:337 Research Methods in Philosophy
May be repeated.
3.5 a.
29:402 History of Ideas and Major Works of Philosophy
May be repeated.
3.5 a.
29:321 Ethics
May be repeated.
3.5 a.
29:324 Logic
May be repeated.
3.5 a.
29:326 Principles of Theory
May be repeated.
3.5 a.
29:337 Research Methods in Philosophy
May be repeated.
3.5 a.
29:325 Ethics
May be repeated.
3.5 a.

**Physical Education—Field House**

Department chair: Dave M. Ackroyd


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

**Undergraduate Programs**

**Bachelor of Science in Teaching and Coaching**

The Bachelor of Science degree program in teaching and coaching prepares students for teaching physical education and education subjects in elementary and secondary schools, and for coaching athletic teams. Through an intensive and certification in athletic coaching training, the recog short Mark a high level of competition among applicants for teaching positions, graduates in physical education from this department have had a high percentage of successful placements.

Program requirements include:

10:21-22 Physical Education Skills 2.0 a.
27:11 Introduction to Physical Education 0.0 a.
27:21-22 Teaching of Recreational Activities 2.0 a.
27:31 Teaching of Gymnastics 2.0 a.
27:12 Teaching of Swimming 2.0 a.
27:12 Human Anatomy 2.0 a.
27:12 First Aid 0.0 a.
27:12 introduction to Athletic Training 2.0 a.

The program also recognizes these seven coaching courses:

27:32 Coaching of Gymnastics 2.0 a.
27:32 Coaching of Football 2.0 a.
27:32 Coaching of Baseball 2.0 a.
27:32 Coaching of Track and Field 2.0 a.
27:32 Coaching of Basketball 2.0 a.
27:32 Coaching of Competitive Swimming 2.0 a.
27:32 Coaching of Wrestling 2.0 a.

These courses are required for teaching certification in physical education:

**7E:711 coached in Motor Development**

7E:73 Methode and Materials in Elementary School Physical Education 2.0 a.
7E:27 Teaching of Dance 2.0 a.
7E:75 Educational Psychology and Development 3.0 a.
7E:91 Pre-education Practicum 1.0 a.
7E:91 Methods in Secondary Physical Education 3.0 a.
7E:91 Methods in Physical Education 1.5 a.
7E:91 Observation and Laboratory Practice in the Secondary School 3.0 a.
7E:91 Laboratory Practice in Elementary School 3.0 a.

Bachelor of Science in Physical Education (Alternative Career)

The Bachelor of Science degree in Physical Education includes courses in business to prepare students for management roles in sports clubs, health clubs, YMCAs, YMCA-YWCAs, commercial recreation, and industries in which physical fitness of employees is an important factor. Students are also prepared for private enterprise, such as the operation of sporting goods stores.

Program requirements include:

10:21-22 Physical Education Skills 2.0 a.
commercial potential, such as aerobics, archery, badminton, billiards, bowling, canoeing, cycling, dance, jogging, new games, physical fitness, racquetball, self-defense, scooters, squash, tennis, table tennis, tennis, or weight training, and team or individual activity that involves a trip and trip planning, such as rock climbing, sailing, or skiing.

27:11 Introduction to Physical Education 0 a.h.
27:21 Teaching of Recreational Sports 2 a.h.
27:31 Teaching of Gymnastics or 2 a.h.
27:37 Teaching of Swimming 2 a.h.
27:53 Human Anatomy 2-3 a.h.
27:98 First Aid 0 a.h.
Red Cross Standard First Aid Card
Certification
27:15 Introduction to Athletic Training 2 a.h.
27:96 Special Projects 1-3 a.h.
27:107 Biomolecules of Physical Education 3 a.h.
27:106 Teaching Motor Skills 3 a.h.
27:141 Elementary Exercise Physiology 2 a.h.

College of Business Administration course work (students with majors in business administration)
17:01 Food, Nutrition, and You 3 a.h.
72:101 Human Physiology 4 a.h.

Two of the following:
104:106 Recreation Program 3 a.h.
104:109 Administration of Recreation 1-4 a.h.
104:303 Park and Recreation Facility Management 3 a.h.
104:305 Principles of Outdoor Education 3 a.h.
10-13 semester hours from the following:
27:30 Leadership Training III 1 a.h.
27:36 Precision in Special Physical Education 3 a.h.
27:103 Administration of Physical Education and Athletics 2-3 a.h.
27:147 Knowledge and Performance Tests in Physical Education 2 a.h.
28:143 Contemporary Issues of Health Education 3 a.h.
7C:199 Counseling for Related Professions 2-3 a.h.
1E:71 Growth and Motor Development 2 a.h.
7P:106 Child Development 3 a.h.
7P:153 The Adolescent and Young Adult 3 a.h.
31:19 Psychology in Business and Industry 3 a.h.
31:156 Psychology in Management 3 a.h.
16:155 Communication and Public Relations 3 a.h.

The department also recommends that the student earn certification as an eligible teacher at American College of Sports Medicine.

Bachelor of Arts
The predoctoral Baccalaureate Program is open only to students with superior academic records. The program is designed to prepare students for graduate work in physical education with emphasis on exercise physiology, adapted physical education, exercise science, sports medicine, or evaluation and administration. The curriculum consists of a core of courses in physical education, and selected courses in mathematics, the biological sciences, and the physical sciences, which are basic to advance study in the area in which the student is interested.
Because the student need not meet certification requirements for teaching in the public schools, the curriculum offers considerable latitude in the choice of courses to fit individual interests and needs.
Required major courses:
41:14 Principles of Chemistry 6 a.h.
41:12 Organic Chemistry I 3 a.h.
72:164 College Physics I 3 a.h.
Required professional courses in physical education and related areas:
27:111 Introduction to Physical Education 2 a.h.
27:21-22 Teaching of Recreational Sports II 4 a.h.
27:53 Human Anatomy 2-3 a.h.
27:97 Leadership Training I 1 a.h.
27:105 Adapted Physical Education 2 a.h.
27:107 Biomolecules of Physical Education 3 a.h.
27:105 Teaching Motor Skills 3 a.h.
72:100 Human Physiology 2 a.h.
72:002 Exercise Physiology 2 a.h.
17:305 Physiology of Exercise Laboratory 2 a.h.
90:500 The Chemistry of Biological Materials 3 a.h.
99:150 Metabolism 3 a.h.

Minor in Physical Education
The minor requires completion of 18 semester hours from the following courses:
27:96 Special Projects
27:109 Administration of Physical Education and Athletics 2-3 a.h.
27:107 Biomolecules of Physical Education 2 a.h.
27:108 Teaching Motor Skills 5 a.h.

27:137 School Physical Education Programs 2-3 a.h.
27:141 Elementary Exercise Physiology 2 a.h.
27:149 Psychology of Sport 3 a.h.

Endorsement for Coaching
The Iowa Department of Public Instruction has provided for the endorsement of certified teachers for the coaching of athletic teams in schools. This endorsement is intended for teachers who have major in subjects other than physical education but who wish to coach interscholastic athletic teams. The endorsement does not prepare the teacher for teaching 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 2-3 a.h.
27:36 First Aid 0 a.h.
27:27 Introduction to Athletic Training 2 a.h.
Coaching of sport of interest 2-5 a.h.
27:03 Administration of Physical Education and Athletics 2-3 a.h.
27:101 Biomolecules of Physical Education 3 a.h.
27:108 Teaching Motor Skills 2 a.h.
27:141 Elementary Exercise Physiology 2 a.h.
115:182 Observation and Laboratory Practice in the Secondary School 2 a.h.
"May be waived on the basis of appropriate coaching experience."

Endorsement for Athletic Trainers
The endorsement is provided for students who want to be certified as trainers for athletic teams at the postgraduate level. The secondary school level as part of their regular teaching program. The requirements designed to meet the criteria for the endorsement are set by the National Athletic Trainers Association include:
27:41 Food, Nutrition, and You 3 a.h.
31:1 Elementary Psychology 4 a.h.
72:183 Human Physiology 4 a.h.
28:142 Controversies of Health Education 3 a.h.
27:53 Human Anatomy 2-3 a.h.
27:97 Leadership Training I (or equivalent) 2 a.h.
Cardiorespiratory Recertification Certification
27:37 Introduction to Athletic Training 2 a.h.
27:105 Adapted Physical Education 2 a.h.
27:101 Biomolecules of Physical Education 3 a.h.
27:108 Teaching Motor Skills 3 a.h.
27:101 Administration of Physical Education and Athletics 3 a.h.
Graduate Programs

Master of Arts without Thesis

The program leading to the M.A. degree without thesis is designed as a terminal unit of advanced study for teachers of basic physical education and for athletics coaches. Emphasis is placed on the application of research findings to the organization, teaching, and evaluation of basic physical education programs for all students in schools and colleges, and to the coaching of interscholastic and intercollegiate athletic teams. The program focuses on problems associated with teaching and coaching in public schools and community colleges in Iowa.

The following undergraduate course work is required background for the nonthesis M.A. Program in physical education:

- Human anatomy 2 s.h.
- Human physiology 3 s.h.
- Paracultural hygiene (or equivalents) 2 s.h.
- Administrative physical education and athletics 2 s.h.
- Methods in physical education 2 s.h.
- Practice teaching (or equivalent) 3 s.h.
- Teaching swimming 1 s.h.
- Coaching (one sport) 1 s.h.
- Electives in physical education and related areas 13 s.h.

Total 30 s.h.

Credit may be given for experience and for competence in techniques when such competence is demonstrated by examination.

For the M.A. degree without thesis, the student must complete a minimum of 30 semester hours, at least 24 of which must be physical education, including 27:301 Non-thesis Seminar and at least one course from each of these three groups:

Group I

- 27:105 Adapted Physical Education 2 s.h.

Group II

- 27:245 Supervision of Physical Education 3 s.h.
- 27:257 Public School Curriculum in Physical Education 3 s.h.
- 27:308 Human Perceptual-Motor Performance 3-4 s.h.
- 27:148 Psychology of Sport and Recreation 3 s.h.
- 27:157 Biomechanics of Athletics 3 s.h.
- 27:241 Scientific Principles of Physical Conditioning 3 s.h.

Master of Arts with Thesis

The thesis program leading to the M.A. degree in physical education is designed primarily as a first step toward 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 take doctorates. The thesis program for the M.A. degree in physical education places 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 viewed 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. Specific courses in mathematics, chemistry, physics, ecology, 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 specialization for the candidate, and by the M.A. advisor.

Candidates who have failed to complete their graduate study leading to the M.A. degree with thesis should have an undergraduate major in physical education.

These courses are required for the M.A. degree with thesis:

- 27:240 Professional Preparation in Physical Education 2 s.h.

Two courses outside the area of specialization, from the following:

- 27:153 Advanced Anatomy and Kinesiology 2 s.h.
- 72:300 Exercise Physiology 2 s.h.
- 27:302 Physiology of Exercise Laboratory 2 s.h.

27:205 Adapted Physical Education:

- Special Topics and Research 3-4 s.h.
- 27:242 Supervision of Physical Education 3 s.h.
- 27:257 Biomechanics of Human Movement 3 s.h.
- 27:267 Advanced Measurement and Evaluation in Physical Education 3 s.h.
- 27:308 Human Perceptual-Motor Performance 3 s.h.
- 27:337 Seminar: Research in Physical Education 3 s.h.

These tools of research:

- 7P:143 Introduction to Statistical Methods 3 s.h.
- 5H:161 Introduction to Biostatistics 3 s.h.
- 220:100 Introduction to Computing with FORTRAN 3 s.h.
- 7P:248 Data Processing 3 s.h.

Specialization area:

- 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 4-6 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, coaching and administration, curriculum in physical education, exercise physiology, measurement and evaluation in physical education, motor behavior, and therapeutics.

The Ph.D. 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 area of specialization are offered by department other than the Department of Physical Education—Field House. Professors from these departments participate in writing and evaluating the comprehensive examinations, serve on thesis committees for the final 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 and Biophysics in the College of Medicine. Such candidates graduate with a major in physiology.

The Ph.D. core requirements include:

- 31:405 Thesis, Ph.D. 12 s.h.
- 7P/242 Selected Applications of Statistical Techniques 3 s.h.
- or 7P/243 Intermediate Statistical Methods and Experimental Design 4 s.h.
- or 83:185 Design and Analysis of Experiments in Biomedical Sciences 3 s.h.

The foreign language requirement differs for each area of specialization. All candidates are required to demonstrate proficiency in a foreign language must satisfactorily complete TP/358 Data Processing or 22C:100 Introduction to Computing with FORTRAN.

The candidate must complete a minimum of 30 semester hours of required and elective courses in his or her area of specialization. The courses required by area of specialization are:

**Adapted Physical Education**
- 7U/201 Adaptation of Special Persons 3 s.h.
- 27:201 Research 3-6 s.h.
- 27:205 Adapted Physical Education: Special Topics and Research 3-4 s.h.
- 60:188 Human Anatomy 4 s.h.
- 60:101 Human Anatomy and Neuroanatomy 4 s.h.

**Administration and Supervision in Physical Education**
- 27:242 Supervision of Physical Education 3 s.h.
- 73:201 Internship of School Administration 3 s.h.
- 27:201 Research 4 s.h.
- 27:207 Advanced Administration of Physical Education 3 s.h.
- 27:207 Advanced Administration of Athletics 3 s.h.
- 60:203 Gross Human Anatomy for Graduate Students 5 s.h.
- or 60:108 Human Anatomy 4 s.h.
- 60:108 Human Anatomy and Neuroanatomy 4 s.h.
- 37:112 Cell, Tissue, and Organ Biology 5 s.h.
- 27:153 Advanced Anatomy and Kinesiology 5 s.h.
- 27:295 Electromyography in Kinesiology and Biomechanics 3 s.h.

**Biomechanics**
- 57:152 Heating in Energy Engineering 6 s.h.
- 70:230 Mechanics of Fluids, Transfer Processes, and Deformable Bodies 3 s.h.
- 56:154 Intermediate Dynamics 3 s.h.
- 68:154 Biomechanics 3 s.h.
- 60:106 Human Anatomy 4 s.h.
- 27:205 Practicum in College Teaching 2-4 s.h.
- 27:295 Electromyography in Kinesiology and Biomechanics 3 s.h.
- 27:327 Research Techniques in Biomechanics 4 s.h.

**Curriculum in Physical Education**
- 7E:305 Design and Organization of Curriculum for Early Childhood, Elementary, and Middle Schools 3 s.h.
- 7E:201 Secondary School Curriculum 3 s.h.
- 7P/241 Introduction to Theories of Learning 3 s.h.
- 27:201 Research arr.
- 27:338 Seminar: Models and Theory in Curriculum 2 s.h.
- 26:243 Physiological Bases of Curriculum Construction 3 s.h.

**Exercise Physiology**
- 37:112 Cell, Tissue, and Organ Biology 5 s.h.
- or 60:205 General Histology for Graduate Students 5 s.h.
- 57:192 Endocrinology Laboratory 3 s.h.
- 7E:201 Clinical Exercise Physiology 3 s.h.
- 7E:201 Exercise Physiology 3 s.h.
- 7E:205 Physiology of Exercise Laboratory 2 s.h.
- 27:211 Medical Physiology 3 s.h.
- 27:247 Advanced Exercise Physiology Laboratory 3 s.h.
- 27:302 Advanced Exercise Physiology Laboratory 5 s.h.
- 99:130 Metabolism 3 s.h.

**Measurement and Evaluation**
- 7P:244 Intermediate Statistical Methods 4 s.h.
- 27:244 Correlation and Regression 3 s.h.
- or 280:153 Introduction to Probability and Statistics 3 s.h.
- or 280:154 Introduction to Mathematical Statistics I 3 s.h.
- 7P/246 Design of Experiments 4 s.h.
- 7P/245 Construction and Use of Evaluation Instruments 3 s.h.
- 7P/247 Educational Measurement and Evaluation 3 s.h.

**Motor Behavior and Learning**
- 27:201 Research 6 s.h.
- 27:312 Selected Topics: Information Processing and Motor Control 5 s.h.
- 27:314 Seminar in Motor Behavior Research 2 s.h.
- 7P/245 Design of Experiments 4 s.h.
- 80:110 Medical Neuronanatomy 3 s.h.
- 7E:202 Advanced Central Nervous System Physiology 2 s.h.
- 101:275 Evaluation of Selected Neurological Disorders arr.
- 101:212 Medical Instrumentation arr.

Three courses, one a graduate-level Pracicum, 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.

The Student's Program:

All Students
- 101:214 Advanced Seminar in Physical Therapy 2 s.h.
- 101:325 Analysis of Scientific Literature 2 s.h.
- 101:337 Research in Therapeutics 3 s.h.
- 101:280 Teaching Practicum arr.
- 101:283 Clinical Educational Practicum arr.
- or 101:284 Practicum in Research arr.

7W:262 Facilitating Learning in Health Education 3 s.h.
- 101:214 Advanced Seminar in Physical Therapy 3 s.h.
- 101:280 Teaching Practicum 2 s.h.
- 101:283 Clinical Educational Practicum or 101:284 Practicum in Research 3 s.h.
- or 101:284 Practicum in Research 3 s.h.
Musculoskeletal Emphasis
37:181 Neurophysiology
72:281 Advanced Neurophysiology
2 s.h.
101:205 Electrophysiology in Kinesiology and Biomechanics
2 s.h.
60:205 General Histology for Graduate Students
5 s.h.
or
657:190 Readings in Material Engineering
5 s.h.
Neuromuscular Emphasis
60:110 Medical Neuroanatomy
2 s.h.
72:282 Advanced Central Nervous System Physiology
2 s.h.
101:295 Electrophysiology in Kinesiology and Biomechanics
2 s.h.
or
37:180 introduction to Neurosciences
3 s.h.
or
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.S. or M.D. degree, and on his or her score in the Graduate Record Examination (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 physical therapy, the applicant must be an advanced graduate student of a program approved by the American Physical Therapy Association. He must also 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. Deadline for receipt of applications for admission is February 15 for notification by April 1 and May 15 for notification by July 1.

Facilities
The Recreation Building and Field House provide excellent facilities for use in the physical education skills program, in the undergraduate and graduate instructional programs, and for student participation in intramural sports, recreational activities, and athletics.

Research laboratories for physiology of exercise, stress, motor behavior, and biomechanics are located in the Field House and provide excellent facilities for instruction and research at both the undergraduate and graduate levels. Because of our cooperative efforts with other departments to facilitate specialization, physical education students use additional special facilities in other departments in the campus.

Courses
Primary for Undergraduates

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>211</td>
<td>Basic Physical Education</td>
<td>0.5 s.h.</td>
</tr>
<tr>
<td>213</td>
<td>Basic Physical Education</td>
<td>0.5 s.h.</td>
</tr>
<tr>
<td>313</td>
<td>Basic Physical Education</td>
<td>1 s.h.</td>
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<tr>
<td>318</td>
<td>Basic Physical Education</td>
<td>1 s.h.</td>
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</tbody>
</table>

For Graduates

<table>
<thead>
<tr>
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<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>211</td>
<td>Basic Physical Education</td>
<td>0.5 s.h.</td>
</tr>
<tr>
<td>213</td>
<td>Basic Physical Education</td>
<td>0.5 s.h.</td>
</tr>
<tr>
<td>313</td>
<td>Basic Physical Education</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>318</td>
<td>Basic Physical Education</td>
<td>1 s.h.</td>
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</table>

For Undergraduates and Graduates

<table>
<thead>
<tr>
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<tbody>
<tr>
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<td>0.5 s.h.</td>
</tr>
<tr>
<td>213</td>
<td>Basic Physical Education</td>
<td>0.5 s.h.</td>
</tr>
<tr>
<td>313</td>
<td>Basic Physical Education</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>318</td>
<td>Basic Physical Education</td>
<td>1 s.h.</td>
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</tbody>
</table>

Prerequisite: Prerequisites: For 313: 213 and 218. For 318: 313 and 218.
Physiological Education and Dance—Halsey Gym

37-132 Athletic Training Modalities and Therapeutics
Offered fall semester. Prerequisite: 28-185.

28-134 Laboratory Practice in Athletic Training
Not offered.

Primarily for Graduates

28-120 Problems
Not offered.

28-131 Research
Not offered.

28-129 Participation in College Teaching
Not offered.

28-135 Hospital Physical Education: Special Topics and Research
Not offered. Prerequisites: 28-133 and 28-135.

28-333 Advanced Administration of Physical Education
Not offered.

28-336 Seminar: Contemporary Issues in Motor Behavior
Not offered.

28-337 Special Problems in Exercise Science
Not offered.

28-338 Seminar in Sports Medicine
Not offered.

28-341 Seminar in Scientific Writing
Not offered.

28-410 Research Methods in Physical Education
Not offered.

28-460 Theses M.A.
Not offered.

28-460 Thesis Ph.D.
Not offered.

Not to exceed 15 semester hours.

Physical Education and Dance—Halsey Gym

Chair: N. Peggy Banks
Faculty: associate professor Margaret G. Fox, M. Gladdy Scott

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

The Department of Physical Education and Dance offers bachelor's degree programs with emphases in physical education (teaching and coaching majors), the coaching of sports, the teaching of dance, dance performance, and sport communications. It offers graduate programs leading to the Master of Arts and Doctor of Philosophy degrees in physical education.

Physical Education

Undergraduate Programs

Each undergraduate student in physical education elects a wide variety of courses and activities in preparation for careers in business and industry, sports journalism and broadcasting, fitness and health clubs, sport specialist and sports coaching, professional dance and theater, and public school teaching and coaching.

The student acquires theoretical background through anatomy, kinesiology, physiology, and health courses, with implications for the performance and teaching of movement skills.

The undergraduate programs are also designed to prepare the student for graduate work in physical education. (See "Graduate Programs" for areas of specialization.)

The student who plans to teach must meet certification requirements (see "College of Education" section of the Catalog, must maintain at least a 2.2 grade-point average, and demonstrate competence for teaching and/or co-teacher roles.

The professional major in physical education may lead to either the Bachelor of Arts or Bachelor of Science degree.

The programs are as follows:

Physical Education and Dance Teaching

Physical Education and Dance Core Requirements

28-129 Orientation to Physical Education
Dance 1 a.

28-383 Anatomy 3 a.

28-81 Kinesiology 3 a.

28-126 Psychological Implications for Teaching Physical Education 3 a.

28-129 Methods and Administration of Physical Education 3 a.

28-129 History and Appreciation of Dance 3 a.

or 28-132 History and Philosophy of Physical Education 1-2 a.

28-83 Psycho-Social Dimensions of Sport 3 a.

Professional Education Requirements

77-81 Educational Psychology and Measurement 3 a.

77-91 Pre-Professional Practice 2 a.

75-100 Introduction: Secondary School Teaching 1 a.

75-127 Seminar: Curriculum and Student Teaching 1 a.

75-161 Observation and Laboratory Practice in the Secondary School 6 a.

75-192 Laboratory Practice in the Elementary School 6 a.

75-198 Coaching Practice 1-3 a.

Areas of specialization

Students must complete one of these two areas.

Physical Education Area

28-25 Teaching of Sports (Team and Individual) 2 a.

28-27 Teaching of Dance 2 a.

28-31 Coaching 1 a.

28-37 Advanced First Aid/ CPR 3 a.

28-34 Leadership and Development 2 a.

28-72 Methods and Materials of Elementary Physical Education 2 a.

28-72 Physical Education for the Handicapped 3 a.

28-82 Measurement 2 a.

28-135 Contemporary Issues of Health Education 3 a.

28-118 Internships 1-2 a.

Team Sports 3 a.

1 semester hour must be in a field sport, 1 semester hour in an intermediate-level course; elect ion
basketball, volleyball, field hockey, field sports, softball; students must demonstrate beginning level competency in basketball, softball, and volleyball.)

Individual or dual sports 4 s.h.
(1 semester hour of a race course sport, 1 semester hour in an intermediate-level course: elect from gymnastics, swimming, track and field, tennis, golf, badminton, dance, bowling, archery; students must demonstrate beginning level competency in swimming, track and field, tennis, archery.)

Rhythms 2 s.h.
(1 semester hour of ballroom dance, 1 semester hour of modern dance or jazz)

Dance Education Area

285.29 Rhythmic Analysis of Dance 2 s.h.
285.73 Composition I 2 s.h.
285.74 Composition II 2 s.h.
7E: 129 Methods and Materials of Teaching Children's Dance 3 s.h.

One of the following: 3 s.h.
285.26 Dance Production
285.115 Twentieth-Century Dance
285.120 Dance in Education
285.125 Teaching of Modern Dance

At least 7 semester hours of the following: 15 s.h.
285.10 Modern Dance I 1-2 s.h.
285.10 Major Modern Dance I 1-2 s.h.
285.08 Jazz 1-2 s.h.
285.10 1010 Ballet I 1-2 s.h.
285.10 1011 Major Ballet I 1-2 s.h.
285.10 1012 Major Ballet II 1-2 s.h.
285.10 1013 Ballet III 1-3 s.h.
285.10 1017 Major Modern Dance II 1-3 s.h.
285.10 1018 Major Modern Dance III 1-3 s.h.
Team sports 1 s.h.
Individual or dual sports 5 s.h.
Rhythms 2 s.h.
(1 semester hour of ballroom dance, 1 semester hour of folk and square dancing)

Gymnastics 1 s.h.

Physical Education and Sport (nonteaching)

Physical Education and Dance Core Requirements

28:19 Introduction to Physical Education 3 s.h.
28:00 Anatomy 3 s.h.
28:01 Kinesiology 3 s.h.
28:108 Physiological Implications for Teaching Physical Education 3 s.h.
28:02 Measurement 2 s.h.
28:118 Methods and Administration of Physical Education 3 s.h.
28:121 History and Philosophy of Physical Education 3 s.h.
28:93 Psycho-Social Dimensions of Sport 3 s.h.

Sport Skills Requirements

Option 1 7 beginning level skills 2 intermediate level skills
Option 2 7 beginning level skills 2 intermediate or advanced level skills

Electives
At least 6 semester hours from: 18 s.h.
28:14 Coaching Women's Sports 2 s.h.
28:25 Teaching of Sports 2 s.h.
28:37 Advanced First Aid 3 s.h.
28:71 Growth and Motor Development 2 s.h.
28:105 Care of Athletic Injuries 2-3 s.h.
28:142 Contemporary Issues of Health Education 3 s.h.
28:182 Sports Analysis 3 s.h.

Recommended

17:142 Nutrition 3 s.h.
6A:1 Introduction to Financial Accounting 3 s.h.
6F:100 Introductory Financial Management 3 s.h.
6M:31 Marketing 3 s.h.
6L:100 Administrative Management 3 s.h.
66:1-2 Principles of Economics 8 s.h.

Internship Requirement

The student may elect to complete one internship for 6 semester hours of credit, or two internships for 3 semester hours each, in the following specialties:

Sports specialist
Fitness specialist
Sports administration
Sports marketing

Endorsement in Coaching

28:14 Coaching Women's Sports 2 s.h.
28:218 Advanced Coaching 2 s.h.
28:105 Care of Athletic Injuries 2 s.h.
28:108 Physiological Implications for Teaching Physical Education 3 s.h.
7E:71 Growth and Motor Development 2 s.h.
7P:108 Child Development 3 s.h.
7S:198 Coaching Practicum 1-3 s.h.

Health Education Secondary Approval

This secondary approval area (minimum standards, not a major) for low Education 30 teacher certification requires a minimum of 28 semester hours of credit, including these required courses:

17:10 Growth and Development of the Young Child 3 s.h.
17:41 Food, Nutrition, and You 3 s.h.
27:50 Human Anatomy or
28:60 Anatomy 3 s.h.
46:56 Non-Prescription Drugs 2 s.h.
27:56 First Aid 0 s.h.
28:37 Advanced First Aid 3 s.h.
or
Red Cross certification
28:106 Physiological Implications for Teaching/Physical Education 3 s.h.
7C:112 Human Sexuality 3 s.h.
28:142 Contemporary Issues of Health Education 3 s.h.
28:144 Administration of School Health Programs 3 s.h.
28:146 Methods: Health instruction for Secondary Grades 3 s.h.

Approval to Teach Health in Grades K-9

To qualify for approval to teach health in grades K-9 within the elementary education program (area endorsement 103), the student must earn at least 26 semester hours in that area of specialization, including these required courses:

17:41 Food, Nutrition, and You 3 s.h.
27:63 Human Anatomy 3 s.h.
28:60 Anatomy 3 s.h.
27:56 First Aid 0 s.h.
28:37 Advanced First Aid 3 s.h.
or
Red Cross certification
46:56 Non-Prescription Drugs 2 s.h.
28:106 Physiological Implications for Teaching/Physical Education 3 s.h.
7P:108 Child Development 3 s.h.
7C:112 Human Sexuality 3 s.h.
28:142 Contemporary Issues of Health Education 3 s.h.

Honors

The Honors Program is designed to serve the interests of superior students. It gives the participant some research experience and a perspective on certain aspects of graduate work. The honors student in physical education takes 28:93-94 Honors Readings, completes a research or reading 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 3.0 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 3.0 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 nurtured by recent graduates, and we continue to encourage high aspirations of both the young women and men we currently serve.

The curricula assume previous education in the respective fields. A program is planned with the individual with consideration given to his or her previous education and anticipated future career. Completion of the graduate degree usually leads to teaching, research, coaching, administration, or supervision in the schools or in a university.

The outstanding characteristics of the graduate programs are the flexibility of program planning for the individual student and the diversity of areas 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 entire University are available, as needed. Work outside the department provides a broader perspective. Students are assigned to the selected specialization of the master's and doctoral programs.

The most common areas of specialization have been adaptive physical education, recreation, instruction of athletics and physical education, methods and supervision, coaching, measurement and evaluation, socialization of sport, psychology of sport, and sports communications.

Internships are available in many areas, and are strongly encouraged for specialization in administration, supervision, coaching, and communications.

The graduate student group is composition and international in makeup.

A research laboratory is available in Haley Gymnasium. It is equipped primarily for psychosocial, measurement, and motor learning research. Other equipment needs may be met on an interpersonal basis. Computer terminals are available at Haley Gymnasium, and complete University computer service is available as needed 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 lead to teaching, coaching, certification, or preparation for advanced degree work in the chosen area of specialization.

Student must demonstrate competency in anatomy, kinesiology, physiology, physical education for the handicapped, measurement, history of physical education or sport, methods and administration of physical education or athletics, growth and motor development, and psychosocial dimensions of physical activity. Competency may be demonstrated by completion of a course or satisfactory performance on a written examination.

Required Courses

28:208 Techniques of Research 3-4 s.h.
28:302 Seminar: Perspectives in Human Movement 2 s.h.
28:401 Thesis 3 s.h. *(For students on thesis option)

Program Options

The M.A. student may elect either a general curriculum or a specialization in adaptive physical education, administration of athletics/physical education, coaching, dance, measurement and evaluation, methods and supervision, psychology of sport, sociology of sport, or sport communication. Students desiring another specialization 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 adviser in developing their program according to guidelines that have been set by the graduate committee.

Doctor of Philosophy

All doctoral students must complete a minimum of 72 semester hours of graduate work, including general requirements for the master's degree and credit for the dissertation.

Prerequisites

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 statistics course at an appropriate level at The University of Iowa. As their second research tool, students may choose one of a foreign language or computer science.

The language requirement may be satisfied by taking two semester hours of a given language with a minimum grade of C, by passing a Graduate Record Examination test in a given language, or by passing a Ph.D. language examination.

The computer tool requirement option may be satisfied by taking three semester hours as approved by the departmental graduate committee.

Required Courses

28:208 Techniques of Research 3-4 s.h.
28:302 Seminar: Perspectives in Human Movement 2 s.h.
28:401 Thesis 3 s.h.

Specialization

The student must complete a specialization of 30 semester hours, including dissertation. A student must also take approximately 27 semester hours in one or more departments other than physical education. The following specialization areas have been approved: administration of physical education/sociology, 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

The student writes an examination in the area of specialization, and may also be asked to do a part of the examination orally. The student and adviser set the date of the examination, and it is conducted according to the policies established by the departmental graduate committee. The program of study and dissertation topic must be fixed and the tool requirements met prior to taking the specialization examination.

Dissertation

All doctoral students are required to complete a dissertation. A final two-hour examination is held with an appropriate committee.

Residency Requirement

Two semesters of at least 9 semester hours in residence are required.

Dance

Bachelor of Arts

Required

28:20 Dance Production 3 s.h.
28:299 Analytic Movement of Dance 2 s.h.
28:72 Composition I 2 s.h.
28:74 Composition II 2 s.h.
28:80 Anatomy 3 s.h.
28:81 Kinesiology 3 s.h.
28:114 History and Appreciation of Dance 3 s.h.
28:115 Twentieth-Century Dance 3 s.h.
28:173 Composition II 2 s.h.
28:174 Composition III 2 s.h.
28:177 Beginning Labanotation 2 s.h.
25:247 Open Dance/Opera Production 4 s.h.
Electives
Twelve semester hours from the following:
28C0-91 Independent Study arr.
28C0-111 Methods and Materials of Teaching Children's Dance 3 s.h.
(same as 7E:120)
28C0-113 Ballet Pedagogy 2 s.h.
28C0-120 Dance in Education (same as 7E:120) 2 s.h.
28C0-122 Workshop: Advanced Dance 1-4 s.h.
28C0-128 Dance Production Laboratory 1-2 s.h.
28C0-130 Improvisation 1 s.h.
28C0-136 Teaching of Modern Dance 2 s.h.
28C0-141 Introduction to Movement, Dynamics and Personality Growth 3 s.h.
28C0-142 Introduction to Movement, Dynamics and Personality Growth 3 s.h.
28C0-170 Readings in Dance 3 s.h.
28C0-176 Dance Theory 3 s.h.
28C0-178 Criticism of Dance 3 s.h.
28C0-179 Intermediate Laboratory 3 s.h.
28C0-191 Dance Company Class 0-1 s.h.
28C0-195 Independent Choreography 1-4 s.h.

Technique Requirement
Dance majors must take a technique class each semester, with a maximum of 16 semester hours allowed toward a degree, and including a minimum of 4 semester hours of ballet and 4 semester hours of modern dance from the following:
28C0-109 Tap 1-2 s.h.
28C0-156 Modern Dance 1 s.h.
28C0-158 Major Modern Dance I 1-2 s.h.
28C0-159 Major Modern Dance II 1-3 s.h.
28C0-160 Major Modern Dance III 1-3 s.h.
28C0-170 Ballet 1-2 s.h.
28C0-111 Major Ballet I 2 s.h.
28C0-112 Major Ballet II 1-2 s.h.
28C0-113 Major Ballet III 1-3 s.h.
28C0-128 Intermediate for the Main Dance 3 s.h.

Dance Education
See the B.S. in physical education (dance specialization) program.

Master of Arts (Dance Specialization)
The 18 s.h. degree in physical education (dance specialization) is awarded on completion of at least 36 semester hours of graduate work including thesis. The curriculum may lead to teaching of dance or to further work toward a dance career.

Prerequisites
Audition 28D0-75/14 Composition I-II 4 s.h.
28D0-80 Harmony 3 s.h.
28D0-81 Class 3 s.h.
28D0-26 Rhythmic Analysis of Dance 2 s.h.
28D0-90 Dance Production 3 s.h.
28D0-114 History and Appreciation of Dance 3 s.h.

Required Courses
28D0-106 Major Ballet I 1-3 s.h.
28D0-110 Major Ballet III 1-3 s.h.
28D0-107 Major Modern Dance I 1-3 s.h.
28D0-108 Major Modern Dance II 1-3 s.h.
28D0-173 Composition II 2 s.h.
28D0-174 Composition IV 2 s.h.
28D0-177 Beginning Laboratory 3 s.h.
28D0-215 Physiological Functions in Physical Education 3 s.h.
28D0-110 Twentieth-Century Dance 3 s.h.
28D0-175 Dance Theory 3 s.h.
28D0-176 Criticism of Dance 3 s.h.

Eligible courses may be taken in related fields of physical education, music, theater, and/or art with the consent of the advisor.

Faculty
The faculty represents diversified backgrounds and specializations. Ability and interest are complementary. Most faculty members hold advanced degrees. Several bring educational backgrounds from abroad. All are experienced teachers. Graduate faculty members are experienced in research and writing and are available for the guidance of graduate students in their areas of specialization. Many hold significant leadership positions and are frequently called upon for lectures, speeches, and research presentations.

Facilities
Gymnasiums, dance studios, special exercise rooms, and pools are used in the various programs in Halsey Gymnasium, North Hall, the Field House, the Recreation Building, and the recreation area at the Memorial Union. A field for outdoor sports is near Halsey Gymnasium. The proximity of the river makes canoeing instruction feasible on a regular class schedule. The eucalyptus grove is located along the river in a rustic setting; outdoor fields and a track are available between the Field House and the Recreation Building. The University golf course is used for some classes.

Courses
Physical Education

Internship for Undergraduates
28D0-110 Basic Physical Education 1 s.h.
Physical education majors only. May be repeated.
28D0-118 Recreational Exercise Physical Education 1 s.h.
Elective, open to those who have completed requirements in physical education, may be repeated.
28D0-119 Coaching Women's Sports 3 s.h.
Introduction to the techniques and physiology of coaching.
28D0-121 Senior Life Saving and Water Safety Instructor's Course 1 s.h.
Leads to Red Cross Senior Water Safety Certificate or Instructor's Certificate. Register after consultation with instructor.
28D0-145 Orientation to Physical Education or Minor 1 s.h.
Study of the profession of physical education and related disciplines; seminar approach with guest speakers; bi-weekly conferences offered.
28D0-155 Teaching of Sports 3 s.h.
Methods of teaching team and individual sports.
28D0-157 Teaching of Dance 2 s.h.
Methods course for the teaching of ballet, tap, and square dance; includes observation of classes in progress, lesson planning, evaluative procedures. (Grades: A, B, C, D). Prerequisite: 1 semester of ballet dance or consent of instructor.
28D0-159 Minor Dance On Set Education 0 s.h.
Available at any University.
28D0-161 Officiating 1 s.h.
Officiating techniques for selected sports.
28D0-162 Officiating 1 s.h.
May enroll 28D0-161 or be taken as independent study.
28D0-165 Advanced First Aid 3 s.h.
Leads to certification for American Red Cross Advanced First Aid and Emergency Care Certificate.
28D0-166 1 s.h.
28D0-167 1 s.h.
28D0-168 1 s.h.
28D0-169 1 s.h.
28D0-170 1 s.h.
28D0-171 1 s.h.
28D0-172 1 s.h.
28D0-173 1 s.h.
28D0-174 1 s.h.
28D0-175 1 s.h.
28D0-176 1 s.h.
28D0-177 1 s.h.
28D0-178 1 s.h.
28D0-179 1 s.h.
28D0-180 1 s.h.
28D0-181 1 s.h.
28D0-182 1 s.h.
28D0-183 1 s.h.
28D0-184 1 s.h.
28D0-185 1 s.h.
28D0-186 1 s.h.
28D0-187 1 s.h.
28D0-188 1 s.h.
28D0-189 1 s.h.
28D0-190 1 s.h.
28D0-191 1 s.h.
28D0-192 1 s.h.
28D0-193 1 s.h.
28D0-194 1 s.h.
28D0-195 1 s.h.
28D0-196 1 s.h.
28D0-197 1 s.h.
28D0-198 1 s.h.
28D0-199 1 s.h.
28D0-200 1 s.h.
28D0-201 1 s.h.
28D0-202 1 s.h.
28D0-203 1 s.h.
28D0-204 1 s.h.
28D0-205 1 s.h.
28D0-206 1 s.h.
28D0-207 1 s.h.
28D0-208 1 s.h.
28D0-209 1 s.h.
28D0-210 1 s.h.
28D0-211 1 s.h.
28D0-212 1 s.h.
28D0-213 1 s.h.
28D0-214 1 s.h.
28D0-215 1 s.h.
28D0-216 1 s.h.
28D0-217 1 s.h.
30:15 Introduction to Research 3 h.

Dance

36:10 Dance Production 3 h.

36:33 Performance of Dance 3 h.

36:34 Aesthetic and Social Aspects of Dance 3 h.

36:35 History of Dance 3 h.

36:36 Dance Education 3 h.

36:37 Dance Orchestration 3 h.

36:38 Dance in the Schools 3 h.

36:39 Dance Composition 3 h.

36:40 Dance and Movement in Community Life 3 h.

36:41 Dance Criticism 3 h.

36:42 Dance Therapy 3 h.

36:43 Dance and Dance Therapy 3 h.

36:44 Dance and Dance Composition 3 h.

36:45 Dance and Dance Criticism 3 h.

36:46 Dance and Dance Education 3 h.

36:47 Dance and Dance Orchestration 3 h.

36:48 Dance and Dance Production 3 h.

36:49 Dance and Dance Performance 3 h.

36:50 Dance and Dance History 3 h.

36:51 Dance and Dance Composition and Performance 3 h.

36:52 Dance and Dance Education and Performance 3 h.

36:53 Dance and Dance Criticism and Performance 3 h.

36:54 Dance and Dance Therapy and Performance 3 h.

36:55 Dance and Dance Composition and Education 3 h.

36:56 Dance and Dance Education and Composition 3 h.

36:57 Dance and Dance Criticism and Composition 3 h.

36:58 Dance and Dance Therapy and Composition 3 h.

36:59 Dance and Dance Performance and Composition 3 h.

36:60 Dance and Dance History and Composition 3 h.

36:61 Dance and Dance Production and Performance 3 h.

36:62 Dance and Dance Education and Performance 3 h.

36:63 Dance and Dance Criticism and Performance 3 h.

36:64 Dance and Dance Therapy and Performance 3 h.

36:65 Dance and Dance Composition and Performance 3 h.

36:66 Dance and Dance Education and Performance 3 h.

36:67 Dance and Dance Criticism and Performance 3 h.

36:68 Dance and Dance Therapy and Performance 3 h.

36:69 Dance and Dance Composition and Performance 3 h.

36:70 Dance and Dance Education and Performance 3 h.

36:71 Dance and Dance Criticism and Performance 3 h.

36:72 Dance and Dance Therapy and Performance 3 h.

36:73 Dance and Dance Composition and Performance 3 h.

36:74 Dance and Dance Education and Performance 3 h.

36:75 Dance and Dance Criticism and Performance 3 h.

36:76 Dance and Dance Therapy and Performance 3 h.

36:77 Dance and Dance Composition and Performance 3 h.

36:78 Dance and Dance Education and Performance 3 h.

36:79 Dance and Dance Criticism and Performance 3 h.

36:80 Dance and Dance Therapy and Performance 3 h.

36:81 Dance and Dance Composition and Performance 3 h.

36:82 Dance and Dance Education and Performance 3 h.

36:83 Dance and Dance Criticism and Performance 3 h.

36:84 Dance and Dance Therapy and Performance 3 h.

36:85 Dance and Dance Composition and Performance 3 h.

36:86 Dance and Dance Education and Performance 3 h.

36:87 Dance and Dance Criticism and Performance 3 h.

36:88 Dance and Dance Therapy and Performance 3 h.

36:89 Dance and Dance Composition and Performance 3 h.

36:90 Dance and Dance Education and Performance 3 h.

36:91 Dance and Dance Criticism and Performance 3 h.

36:92 Dance and Dance Therapy and Performance 3 h.

36:93 Dance and Dance Composition and Performance 3 h.

36:94 Dance and Dance Education and Performance 3 h.

36:95 Dance and Dance Criticism and Performance 3 h.

36:96 Dance and Dance Therapy and Performance 3 h.

36:97 Dance and Dance Composition and Performance 3 h.

36:98 Dance and Dance Education and Performance 3 h.

36:99 Dance and Dance Criticism and Performance 3 h.

36:100 Dance and Dance Therapy and Performance 3 h.

36:101 Dance and Dance Composition and Performance 3 h.

36:102 Dance and Dance Education and Performance 3 h.

36:103 Dance and Dance Criticism and Performance 3 h.

36:104 Dance and Dance Therapy and Performance 3 h.

36:105 Dance and Dance Composition and Performance 3 h.

36:106 Dance and Dance Education and Performance 3 h.

36:107 Dance and Dance Criticism and Performance 3 h.

36:108 Dance and Dance Therapy and Performance 3 h.

36:109 Dance and Dance Composition and Performance 3 h.

36:110 Dance and Dance Education and Performance 3 h.

36:111 Dance and Dance Criticism and Performance 3 h.

36:112 Dance and Dance Therapy and Performance 3 h.

36:113 Dance and Dance Composition and Performance 3 h.

36:114 Dance and Dance Education and Performance 3 h.

36:115 Dance and Dance Criticism and Performance 3 h.

36:116 Dance and Dance Therapy and Performance 3 h.

36:117 Dance and Dance Composition and Performance 3 h.

36:118 Dance and Dance Education and Performance 3 h.

36:119 Dance and Dance Criticism and Performance 3 h.

36:120 Dance and Dance Therapy and Performance 3 h.

36:121 Dance and Dance Composition and Performance 3 h.

36:122 Dance and Dance Education and Performance 3 h.

36:123 Dance and Dance Criticism and Performance 3 h.

36:124 Dance and Dance Therapy and Performance 3 h.

36:125 Dance and Dance Composition and Performance 3 h.

36:126 Dance and Dance Education and Performance 3 h.
The Bachelor of Arts program is designed for students who wish to gain a considerable knowledge of physics but who do not plan to research-oriented career in physics. This degree program can be useful to those planning careers in medicine, law, science-related administration, business, technical writing, or secondary-school science teaching. The B.A. program requires fewer courses in physics 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 physics:

- 22M:26-28 Calculus I-B
- 22M:27 Introduction to Linear Algebra
- 22M:28 Calculus III
- 22M:35-37 Engineering Calculus I-B
- 22M:38 Differential Equations for Engineers
- 22M:19-20 Intermediate Physics

The Bachelor of Arts degree is designed for students who wish to gain a considerable knowledge of physics but who do not plan to research-oriented career in physics. This degree program can be useful to those planning careers in medicine, law, science-related administration, business, technical writing, or secondary-school science teaching. The B.A. program requires fewer courses in physics 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 physics:

- 22M:26-28 Calculus I-B
- 22M:22-28 Calculus II
- 22M:27 Introduction to Linear Algebra
- 22M:35-37 Engineering Calculus I-B
- 22M:38 Differential Equations for Engineers

The Bachelor of Arts program is designed for students who wish to gain a considerable knowledge of physics but who do not plan to research-oriented career in physics. This degree program can be useful to those planning careers in medicine, law, science-related administration, business, technical writing, or secondary-school science teaching. The B.A. program requires fewer courses in physics 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 physics:

- 22M:26-28 Calculus I-B
- 22M:27 Introduction to Linear Algebra
- 22M:35-37 Engineering Calculus I-B
- 22M:38 Differential Equations for Engineers

The Bachelor of Arts program is designed for students who wish to gain a considerable knowledge of physics but who do not plan to research-oriented career in physics. This degree program can be useful to those planning careers in medicine, law, science-related administration, business, technical writing, or secondary-school science teaching. The B.A. program requires fewer courses in physics 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 physics:

- 22M:26-28 Calculus I-B
- 22M:27 Introduction to Linear Algebra
- 22M:35-37 Engineering Calculus I-B
- 22M:38 Differential Equations for Engineers
29:17-18 Introductory Physics I, II 12 s.h.
29:18-19 General Astronomy 8 s.h.
29:115 Intermediate Mechanics 3 s.h.
29:116 Introduction to Quantum Mechanics 3 s.h.
29:119-120 Introduction to Astrophysics I, II 6 s.h.
29:126-130 Electricity and Magnetism 6 s.h.
29:132 Intermediate Laboratory 2 s.h.
29:137 Astronomical Laboratory 2 s.h.
29:191 Atomic Physics 3 s.h.

Undergraduate minors in astronomy who plan to pursue graduate study in astronomy 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.
29:131 Radio Astronomy 3 s.h.
29:171-173 Mathematical Methods of Physics 6 s.h.

Bachelor of Arts

The following courses or their equivalents are required for the Bachelor of Arts degree with a major in astronomy:

29:25-26 Calculus I, II 8 s.h.
29:27 Introduction to Linear Algebra 4 s.h.
29:17-19 Introductory Physics I, II, III 12 s.h.
29:11-12 College Physics I, II 6 s.h.
29:19 Introductory Physics III 12 s.h.
29:81-82 General Astronomy 6 s.h.
29:115 Intermediate Mechanics 3 s.h.
29:117 Optics 3 s.h.
29:118 Statistical Physics 3 s.h.
29:119-120 Introduction to Astrophysics I, II 6 s.h.
29:128 Electronics 3 s.h.
29:129 Electricity and 3 s.h.
Magnetism
29:132 Intermediate Laboratory 2 s.h.
29:137 Astronomical Laboratory 2 s.h.

Undergraduate Minor in Astronomy

The 18 s.h. of courses numbered above 100 required by the college must include 8 s.h. selected from the following list of courses.

29:119-120 Introduction to Astrophysics I, II 6 s.h.
29:121 Solar System Astrophysics 2 s.h.
29:131 Radio Astronomy 3 s.h.

29:137 Astronomical Laboratory is grand the other 10 semester hours from these courses or from appropriate physics courses.

Double major in Physics and Astronomy

It is possible to obtain a double major in physics and astronomy. Students who are interested in such a combination should consult with their advisor. For general requirements of the College of Liberal Arts, see the "College of Liberal Arts" section of the Catalog.

Honors

Selected junior and senior majors may take six to eight semester hours of 29:99 Honors Seminar and conduct an investigation with the guidance of a faculty member as part of their program for the Bachelor of Arts or Bachelor of Science with honors in physics or astronomy.

Graduate Program

Two advanced degrees are offered in physics, the Master of Science (with thesis or with a critical essay) and the Doctor of Philosophy, and one 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 in astronomy or astrophysics.

An M.S. degree is not prerequisite to the Ph.D.

The Department of Physics and Astronomy cooperates in an interdisciplinary doctoral program with the Program in Applied Mathematical Sciences (see the "Graduate College" section of the Catalog). Each entering graduate student is assigned to a faculty advisor who will assist in preparing a plan of study and in guiding the student's progress. A graduate student becomes a candidate for an advanced degree in physics or astronomy only after passing a qualifying examination in all principal areas of the subject at the level of advanced undergraduate work. The examination is given during the first week of the second semester each year and must be taken by all full-time graduate students. After a student has selected a research specialty, the appropriate thesis or essay advisor then becomes the candidate's graduate advisor and the chair of the final examination committee.

Master of Science in Physics

The M.S. degree in physics is offered with thesis or with a critical essay. Either degree may be an intermediate step toward a Ph.D. degree, or a terminal degree. The final examination is either a thesis or a critical essay. The seminar is offered in all four of the graduate years and the seminar is offered in one of the Graduate College.

The program for the M.S. degree with thesis requires 30 semester hours of graduate work and a thesis based on an original experimental or theoretical investigation by the candidate. No more than 6 of the minimal 30 semester hours may be for research (29:291 Research: Physics).

The program for the M.S. degree with a critical essay requires 30 semester hours of graduate work, an independent study of the literature on a chosen topic, and the presentation of a critical essay on that topic. No more than 6 of the minimal 30 semester hours may be for the critical essay (29:292 Individual Critical Study). Up to one-third of the graduate program may be in related scientific fields other than physics and mathematics, for example, chemistry, astronomy, geology, engineering, etc.

The candidate for either of the M.S. degrees must have satisfactorily completed the following courses or their equivalents as an undergraduate or a graduate:

29:115 Intermediate Mechanics 3 s.h.
29:118 Introductory Quantum Mechanics 3 s.h.
29:117 Optics 3 s.h.
29:118 Statistical Physics 3 s.h.
29:129-130 Electricity and Magnetism 6 s.h.
29:133 Advanced Laboratory (2 semesters) 4 s.h.
29:171-172 Mathematical Methods of Physics 6 s.h.
29:191 Atomic Physics 3 s.h.

And two additional courses selected from

29:192 Nuclear Physics 3 s.h.
29:193 Introductory Solid State Physics 3 s.h.
29:194 Plasma Physics 3 s.h.

The student's plan of study should provide for at least advanced work as applied and previous preparation permitted.

Master of Science in Astronomy

The M.S. degree in astronomy is offered with thesis or with a critical essay. The general requirements are the same as for the M.S. in physics (see above). Course requirements are:

29:115 Intermediate Mechanics 3 s.h.
Doctor of Philosophy in Physics

The program of study for the Ph.D. degree with a major in physics includes:

- Thorough course work in both classical and modern theoretical physics for all candidates, whether or not their specialized research is to be in
- A critical examination of advanced seminars; or
- Experience in advanced research in physics, ensuring not only that all aspects of advanced research are covered but also that the program of study is appropriately integrated with the candidate's specialization.

The following minimum number of courses is recommended as a preparation for the comprehensive examinations:

- 29:181 Atomic Physics 3 s.h.
- 29:192 Advanced Quantum Mechanics 3 s.h.
- 29:193 Introductory Solid State Physics 3 s.h.
- 29:194 Plasma Physics 3 s.h.
- 29:255 Classical Mechanics 3 s.h.
- 29:212 Statistical Mechanics I 3 s.h.
- 29:213-214 Classical Electrodynamics 6 s.h.
- 29:245-246 Quantum Mechanics I-2 6 s.h.

Advanced mathematics, such as the theory of functions of a complex variable and vector and tensor analysis, is used freely through advanced courses. An introduction to these fields is given in 29:176-177 Mathematical Methods of Physics. The selection of less advanced courses will depend on the adequacy of the student's preparation for graduate work. The student's choice of more advanced and specialized courses will depend on the direction in which his or her interests develop. No more than 16 of the minimal 72 semester hours may be in research and seminars.

Research and Facilities

The department has an excellent library and a number of well-equipped laboratories and observatories. The associated facilities of the University's Weeg Computing Center are available for research by students and staff of the department, and several other computers are available within the department. The central machine also is fully equipped and staffed with experienced instrument makers and technicians, and there are several electronics and mechanical shops for the use of advanced students and the research staff.

Experimental research is conducted in astronomy (optical and radio), low energy nuclear physics; plasma physics; solid state physics; magnetophysics; solar-terrestrial, interplanetary, and planetary physics; atomic and molecular physics; and low temperature physics. Physics; laser physics; and acoustics of musical instruments is also available.

A few experimental space physics programs are conducted in the department. Extensive facilities are available for research on satellites and spacecraft, for the reception of satellite telemetry, and for computerized decoding and analysis of data. An unusually versatile 5.0-MV Van de Graaff accelerator, which has been modified for energies up to 14 MeV, is used in studies of nuclear reactions induced by hydrogen, helium, lithium, and beryllium nuclei. Experiments on fundamental theoretical, electrical, and magnetic properties of metals, alloys, and compounds are carried out in the experimental solid state program, as are surface studies of metals and semiconductors. Several experimental double plasma physics programs are used to study confinement, nonlinear waves, and turbulence effects in low- and high-temperature, steady-state plasma. 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 instrument, a 24-inch reflector with a scanning spectrometer, is used for stellar and cometary studies. Research programs in galactic and extragalactic radioastronomy are carried out on the 18.5-meter paraboloid reflector located at the North Liberty Radio Observatory near Iowa City. Current long-term research activities include intercontinental VLBI and speckle studies of OHi masers.

Theoretical research is devoted to elementary particles and high-energy physics; plasma physics; astrophysics; atmospheric, space, and planetary physics; solid state physics; nuclear physics; and atomic and molecular physics.

Courses

Prerequisites and corequisites are specified as guides and may be waived by the instructor. An elementary course may not be repeated for credit or grade points if the student has already completed a higher level course for which the elementary course, or its equivalent, is a prerequisite. Courses 29:60, 29:61, 29:61-1, 29:61-18, 29:62, and or 29:61-62 are accepted toward the College of Liberal Arts general education requirement in the natural sciences.
in political science courses numbered above 100 is 11 semester hours.

Twelve semester-hours of courses in each of two of the following areas: American history, world history, economics, geography, and sociology. Twenty semester hours are required for psychology as a related field.

Completion of the sequence of professional education courses leading to certification (see the "College of Education" section of the Catalog).

Honors

The department also has a program leading to a B.A. degree with honors. It is open to a limited number of students with a minimum grade point average of 3.5 on at least 12 semester hours of work in political science. To graduate with honors, the student must maintain at least a 3.2 grade point average in political science and a general grade point average of at least 3.5. Honors students must take 30-180 Honors Introduction to Political Inquiry, and must complete at least two semesters of work in the advanced 30-182-183 Honors Seminar, with a grade of B or better each semester. Students may substitute one semester of 30-184 Honors Senior Research Project for one of the semesters of the advanced Honors Seminar. Students must check with their advisors before making substitutions. Students interested in seeking a B.A. degree with honors should contact the Honors advisor prior to the beginning of the junior year.

Graduate Programs

At the graduate level, the department emphasizes the 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 plan to enter public service, or to teach at the secondary or junior college level. 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 satisfy the requirements indicated in the schedule below, elective opportunities make possible a number of areas of specialization. Students are encouraged to consult with their advisor in a single semester (but not necessarily in a single department). Among those available are international relations, personal income distribution, public policy analysis, and qualitative methods in management. Planning the elective program should be undertaken in consultation with the director of the M.A. in public affairs program.

The M.A. in public affairs is a nonthesis program. The student must complete at least 36 hours of course work with at least a 3.0 grade point average, and must pass a written final examination. Although the schedule suggested below implies completion within a year, the program is sufficiently flexible to accommodate students who may require additional time to meet all degree requirements.

Fall Semester

30-221 Public Policy Analysis I 3 s.h.
30-228 Introduction to Administrative Computing 3 s.h.
30-229 Introduction to Social Research Methods 2 s.h.
68-119 Econometrics of the Government Sector 3 s.h.
Electives 5 s.h.

Spring Semester

30-230 Administrative Theory and Public Policy 3 s.h.
30-231 Urban Administration 3 s.h.
30-232 Public Policy Analysis II 3 s.h.
Electives 6 s.h.

Summer Session

30-391 Internships in Public Policy and Administration 3 s.h.
30-392 Practicum in Public Policy and Administration 3 s.h.
Electives 3 s.h.

Total 18 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 8 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 the thesis and course work.

Master of Arts without Thesis

If a student's first-year evaluation committee finds that his or her course work and research papers provide sufficient evidence of the research and writing skills ordinarily demonstrated in a master's thesis, it may recommend that he or she be allowed to proceed with a doctoral program without writing a thesis. The requirements for the M.A. without thesis include completion of at least 30 semester hours of graduate work with a grade-point average of at least 3.0, and review of the student's record by a final examination committee, which may waive the final oral examination.

The same requirements apply wherever a first-year examination 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 masters M.A. as a terminal degree.

Doctor of Philosophy

All doctoral students must acquire a level of competence in quantitative methods. This will require a thorough grounding in applied multivariate statistics which is demonstrated by taking 30-301 Advanced Research Methods and receiving a grade no lower than B. Any special tests or skills needed for conducting dissertation research—e.g., foreign languages, econometrics, or experimental design—must be acquired before taking comprehensive examinations. Students in doubt about whether they need such skills should discuss it with their faculty advisors in the first year of Ph.D. training.

Comprehensive Examination

Students must take the comprehensive examination after completing the sixth semester of residence, or in the first examination period following their attainment of 48 hours of graduate credit, whichever comes later. Candidates for the Ph.D. take written examinations in three of these areas: American Politics and Public Policy Comparative Politics International Politics Political Theory

Before taking the written examinations, candidates must present a written dissertation proposal, and must explain and defend the proposal in an oral examination, which may also deal with any matter relevant to the written examinations. Each candidate in political science must acquire at least four semesters of special supervised training in teaching and/or research. This instruction is normally given in association with the student's service as a teaching or research assistant. A comprehensive statement of departmental requirements is set forth in the Guide to Graduate Study in Political Science. For general graduate admission and degree requirements, see...
Students either enter program with a general introductory course, followed by one or more courses in psychology and add electives in several broad areas of psychology: animal learning and biopsychology, child and developmental, clinical, human experimental, and social. The department maintains excellent facilities to support teaching and research about human and animal behavior. All faculty members are actively engaged in research and they bring to their undergraduate teaching the excitement that such activity engender. Many opportunities exist for interested and capable students to participate in research projects being carried on in the department.

Bachelor of Arts

The student must satisfy the general College of Liberal Arts requirements for the B.A. degree and must complete at least 28 semester hours a psychology. At least 16 semester hours of the major must be completed in this department. Satisfactory completion of the requirements for the B.A. in psychology automatically satisfies 3 semester hours of the general education requirement in social sciences.

The B.A. program must include the following courses, or equivalents:

1. 3:1 General Elementary Psychology, or 3:13 General Psychology; 3:43 Evaluating: Psychological Research; one elective course, 3 hours from the areas of psychology, which are grouped below with at least two of the three courses being electives at 100-level courses.

The 3:43 requirement may be satisfied by a 3:13 General introduction to Statistics in Psychology and 3:120 Experimental Psychology. 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 45 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:

1. 3:1 General Elementary Psychology, or 3:13 General Psychology; 3:142 Introduction to Statistics in Psychology, 3:120 Experimental Psychology; one elective course from each of the five areas grouped below, with at least four of the five courses being electives at 100-level courses.

Candidates for the B.S. degree in psychology must complete the general education requirement in natural sciences in one of the following ways: one semester of chemistry and one
Social Psychology
31:18 Introduction to Social Psychology 3 s.h.
31:103 Development of Children’s Social Behavior 3 s.h.
31:100 Attitude Change 3 s.h.
31:107 Environmental Stress 3 s.h.
31:106 Small Group Processes 3 s.h.

"Only one of these courses can be used to satisfy an area requirement.

Honors
The department has an active honors program open to majors with at least a 3.3 grade-point average in psychology courses and at least 3.3 overall. The program includes research seminars and individual research collaboration with faculty members. Students ordinarily are selected to participate in the department’s 31:195 Honors Seminar in Psychology during the spring semester of the junior year. Interested majors should contact the department honors adviser early in the junior year.

Graduate Program
The graduate program in psychology is designed primarily for students seeking the Ph.D. degree. Except in very special circumstances, applications are considered only for that degree. For students entering without previous graduate work, it is a four-year program; those entering with previous graduate training will require at least two additional years in this department, depending on the nature of the earlier preparation.

The Ph.D. program has a strong emphasis on preparation for research, teaching, and scholarly endeavor, whether in academic settings or in industrial, governmental, or medical institutions. The intent is to produce a graduate who is deeply committed to the study of behavior, familiar with fundamental knowledge about behavioral processes, well trained in the methods and techniques for novel 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 required to identify one of these areas as primary and to follow a program which develops throughout an understanding of the substantive material and methods of investigation which are central to that subdiscipline. While pursuing specialty training, all students also meet course requirements in statistics and research methods, in learning, and in areas outside the primary one.

The training area programs are sufficiently flexible to permit a student who wishes to do so to develop a substantial competence in a second training area. Several such programs have been formulated and others can be developed as student interests dictate. Joint programs involve at least some of the courses in the individual's area of specialization, and research supervision or co-supervision by faculty members from both areas. The department also is prepared to help students develop additional expertise in any of the following interest areas: human factors, behavioral medicine, aging, organizational and consensual behavior, communications, and neuropsychological science. Preparation in one of these areas will involve some special advanced 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 satisfy, through one of several options, requirements in statistics and research methods, and in learning. A course in the philosophy of psychology is strongly encouraged. Each student also is expected to do some graduate work outside the primary training area to develop a reasonably broad background in the discipline of psychology as a whole. The student must complete the requirements, and their placement within the graduate program, very much among the training areas, and also with 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 courses, some of which are courses in the training area, and some of which are outside area electives. The student must become familiar with the literature, strategies and special techniques in one or more research areas through engagement in individually-sponsored 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.

During the fourth or fifth semester in the program the student is expected to complete the masters project and defend the thesis. A comprehensive examination covering material in the primary training area and in the
secondary area, if any, is given early in the fifth semester. Advanced to Ph.D. candidacy ordinarily occurs at the end of the fifth semester, after a faculty-wide review of the student's record of performance on the M.A. project, the comprehensive examination, in-course work, and in teaching, research, and service activities.

During the third year, while continuing selected course work in the training and interest areas, the student develops a perspective for the dissertation research. The fourth year is devoted primarily to advanced seminars and to the conduct of the Ph.D. study and the preparation of the dissertation in the Ph.D. filed examination. The student offers an oral defense of the dissertation and exhibits an ability to relate the dissertation work to broader 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 specific M.A. program. The Master of Arts degree with thesis is a required step for students in the Ph.D. objective. The degree requires:

- satisfaction of an academic work of at least 30 semester hours of graduate course work in psychology with at least 15 semester hours in this department. The course work must include a statistics course, a learning course, and at least one course outside the primary area. The student also must complete an acceptable successful oral or oral 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 analysis of learning and motivation in nonhuman species, through the application of behavioral and biological principles. Students in this program have the opportunity to learn the most modern analytical and laboratory methods in computer-assisted experimentation, electronic instrumentation, neurosurgical and histological techniques, and biochemical assay procedures. Special faculty strengths are in the fields of classical and operant conditioning, comparative psychology, motivation, neuropharmacology, neuroendocrinology, and neurochemistry.

Faculty members in the animal learning and biopsychology area interact extensively with colleagues from a number of basic sciences departments in the college of Medicine. These collaborative activities provide excellent research and training opportunities for students interested in such emerging interdisciplinary fields as behaviors, medicine, and behavioral science.

**Child and Developmental Psychology**

Students in the child and developmental program are expected to acquire a broad understanding of children's development in the social, cognitive, and perceptual domains. As the training program proceeds students may focus their preparation in any of these broad areas, or may choose to develop a more particular specialization in such areas as language development, learning, and memory, the development of social judgment, anxiety, development, and abnormal development. Most of these specializations require substantial preparation in at least one of the other primary areas in the department. The program does not have a specific field focus but instead the fields 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 faculty members from the Department of Speech Pathology and Audiology, the college of Medicine, and the Department of Pediatrics, and these relationships can be useful to students who wish to gain insights into background development aspects of the area of specialization or of behavioral medicine.

**Clinical Psychology**

The clinical program strongly emphasizes an empirical approach to the study of psychopathology. It is designed for students who are primarily interested in developing scholarly understanding of clinical phenomena and acquiring research skills necessary to the systematic investigation of such phenomena. Recognizing that students must become familiar with clinical material and competent in the application of clinical skills, the department closely integrates practical experience in the first year. C. S. Behavior Psychology Clinic with course work and supervised research experience.

Students in the clinical program may develop special competence in research areas as psychophysiology, personality, psychopathology, aggression, schizophrenia, the effective disorders, behavioral and cognitive therapies, sexual dysfunction, and child psychopathology. Faculty members are collaborating actively with colleagues from departments such as psychiatry, pediatrics, obstetrics and gynecology, and from agencies such as the Health Services Research Center, the Gerontology Project, and from nearby area Education Agencies. Partly as a consequence of such collaboration, innovative medicine and aging interest area in which a number of clinical faculty members are prepared to offer research supervision. Within the department, joint training programs in clinical-child and developmental, and in clinical-human experimental, have been established, and similar joint programs involving clinical training with work in other training areas can be arranged.

Advanced students have opportunities for gaining additional predoctoral experience through placements in clinical facilities maintained by local, state, and University agencies. Students ordinarily also complete a one-year internship at an accredited clinical facility, usually after completion of the four-year academic program. The clinical training program is fully approved by the American Psychological Association.

**Human Experimental Psychology**

Students admitted to the human experimental psychology program prepare in any of three broad subareas: experimental processes, experimental perception, and experimental child psychology. Students specializing in cognitive processes acquire expertise in perception, attention, memory, and language behavior. Students with interests in memory and perception may concentrate on visual and auditory acquisition processes, or mathematical modeling of cognitive processes, such as discrimination learning, problem solving, and transfer of training.

Faculty members in the human experimental, area are prepared to help students gain additional expertise in a variety of areas, including human factors, communications, aging, organizational and consumer behavior, educational and clinical methods. Collaborative research is underway with faculty members from the Department of Industrial Engineering, the Institute of Urban and Environmental Research, the Department of Speech Pathology and Audiology, the Department of Anthropology, the Health Sciences Research Center, and the Gerontology Project.
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 sub-areas: social psychology, dealing with social cognitive influences of social and psychological systems; social cognition, dealing with such topics as attitude acquisition and change, cognitive consistency, attribution, and persuasion; social influences on behavior, including social learning, social development, imitation, conformity, etc.; or the social psychology of groups, dealing with cooperation and competition, group decision processes, social facilitation, and distortion.

Students in the social psychology area also may acquire additional preparation for research and teaching in interest areas such as organizational and consumer behavior, communications, human factors and behavioral medicine. Such preparation, which ordinarily will involve selected coursework outside the department, e.g., in the College of Business Administration, and participation in special research projects, will broaden the student's employment prospects.

Graduate Admission

The graduate program in psychology is designed primarily to students seeking the Ph.D. degree; all applicants are considered on an individual 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 head before filing applications.

The deadline for applications is February 15. All materials to be on file by that date. The Graduate Record Examination will be required no later than the December date. Applications may be submitted at any time but are considered only once each year—between February 15 and March 15—for admission the following fall. Admission decisions are based on a composite consideration of prior academic performance, general educational background, scores on verbal, quantitative, and analytic sections of the Graduate Record Examination, and the applicant's statement about background and purpose. Initial review of admission materials is done by faculty members in the training area in which the applicant expresses primary interest.

An undergraduate major in psychology, including a laboratory course in experimental psychology, a course in statistics, and knowledge in the natural sciences and in mathematics, is desirable though not required. Students who have not had such background but who are strongly qualified on other grounds may be admitted; but will be expected to remedy deficiencies through special coursework or independent study prior to enrolling on the regular graduate program.

A student who has completed substantial graduate work at another institution at the time of admission to the program will be expected to present documents, such as the master's thesis or equivalent, which have significant engagement in research and scholarly writing. This material and the record of previous graduate coursework 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 as 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. These may include teaching assistantships, research assistantships, travel grants, fellowship scholarships, etc. No separate application for financial aid is required.

Faculty

National listings of graduate psychology programs consistently have shown this department to be among the top 10 in the nation. The widely recognized commitment of the faculty to research and scholarly involvement 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 active as editors, editorial associates, and regular consulting editors for major psychology journals.

Facilities

The department's facilities for graduate training and research are among the finest in the country. The Kunks W. Slavin Laboratories of Psychology, and adjoining space in Seashore Hall, include three separate animal facilities, several surgery, a histology laboratory, a number of small laboratory computers, automated data acquisition and reduction systems, observation suites with remote audiovisual control and recording equipment, soundproof chambers, closed-circuit television systems, electrophysiological recording rooms, conditioning laboratories, the Carl A. Seashore Psychology Clinic, and well-equipped electronic, mechanical, and woodworking shops. Specialized equipped research laboratories are available for use in studies conducted at schools and other locations.

The University's Weisp Computing Center has an IBM 370/168 and four 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 social agencies, including the University's General, Children's, and Psychiatric Hospitals, the Veterans Administration Hospital, the University Counseling Center, the Child Development Clinic, the Wendell J. Jones Speech and Hearing Clinic, the Health Science Research Center, the Institute of Urban and Regional Research, and the Gerontology Project.

Courses

For Undergraduates

Eligible 311 or 313 of equivalent, is prerequisite to all other courses in psychology. Only one of these two courses may be taken for credit.

311: General Psychology 3-4-5-6
313: General Psychology 3-4-5-6
4-5-6
4-5-6

311 and 313, 314, 315, 316, 317, 318, 319, 323 and 346 are open to freshmen who have completed an introductory psychology course, e.g., 311.

315 Elementary Psychology

316 Introductory to Clinical Psychology

317 Introductory to Personality

318 Introductory to Social Psychology

319 Introductory to Educational Psychology

320 Introductory to Developmental Psychology

324 Social Psychology

325 Industrial Psychology

326 Animal Psychology

327 Human Relations

328 Consumer Psychology

329 Family Psychology

330 Psychology of Exceptional Children

331 Clinical Psychology

332 Medical Psychology

333 Counseling Psychology

334 Professional Psychology

335 School Psychology

336 Educational Psychology

337 Psychological Aspects of Individual and Group Behavior

338 Psychological Aspects of Individual and Group Behavior

339 Psychological Aspects of Individual and Group Behavior
25/1/2017: Aesthetic Psychology
Review of the major aesthetic theories and principles of visual, auditory, and haptic perception, and the application of basic concepts to the aesthetic experience.

25/1/2017: Biological Psychology
Examination of the role of biological factors in behavior, including the effects of genetics, neurochemical processes, and the development of major mental disorders.

25/1/2017: Social Psychology
Study of the influence of social influences on behavior, including the effects of social norms, group dynamics, and social identity.

25/1/2017: Developmental Psychology
Overview of the psychological development across the lifespan, including the effects of genetic and environmental factors on intelligence, personality, and social behavior.

25/1/2017: Educational Psychology
Examination of the role of psychological principles in educational settings, including the effects of learning strategies, motivation, and assessment.

25/1/2017: Personality Development
Review of the major theories of personality development, including the effects of biological, environmental, and cultural factors on personality traits.

25/1/2017: Perception and Cognition
Study of the processes of perception and cognition, including the effects of attention, memory, and decision-making.

25/1/2017: Biopsychology
Examination of the role of biological factors in perception and cognition, including the effects of genetics, neurotransmitters, and brain structures.

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Examination of the role of social factors in behavior, including the effects of social norms, group dynamics, and social identity.
The student must also take 9 to 15 semester hours of courses in one of the areas of concentration described below.

Community Recreation

The community recreation concentration is designed for students preparing for positions in which they will be responsible for organizing and administering recreation programs, facilities, and departments. This concentration is oriented primarily to municipal, district, and county-level recreation and park departments.

Courses required for this area of concentration are:
104/130 Park and Recreation Facility Management
104/134 Introduction to Planning and Design of Recreation and Park Areas and Facilities
Three courses selected with advisor

Therapeutic Recreation

Therapeutic recreation focuses on preparing students to organize, plan, and lead recreation programs in treatment and non-treatment settings for people who are ill, handicapped, aged, disabled, and disadvantaged.

Courses required for this concentration are:
104/110 Recreation Orientation and Rehabilitation Setting
104/111 Orientation to Special Populations
104/135 Role of Therapeutic Recreation in Rehabilitation
Three courses selected with advisor

Leisure Studies

The leisure studies concentration is designed for students preparing for graduate work, or who have a major interest in leisure research or leisure as a contemporary social issue, or an interest in diverse fields of recreation, such as outdoor recreation, industrial recreation, etc. It is the most flexible of all concentrations and makes the maximum use of courses outside of the Program in Recreation Education. It is also ideal for students wishing to obtain a minor in recreation education.

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 state and national professional conferences, and every class in the professional core includes lectures by working professionals, as well as opportunities for field experience related to course content.

The practical emphasis is climaxd 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 a professional placement. More than 150 local, state, and national departments, agencies, and services provide fieldwork 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 30 semester hours of course work at the University, completion of at least 8 of the 30 semester hours of required major coursework, and at least a 3.0 grade-point average on all college work attempted or on all work attempted in recreation education.

To graduate with honors in recreation education, the student must successfully complete six semester hours of honors work. With the permission of the chair of the or her honors committee, the student may take up to six semester hours of honors work in another department.

Master of Arts

The master's program is designed to prepare students for administrative, supervisory, and teaching positions in recreation systems and in universities. It offers two areas of specialization: recreation administration and therapeutic recreation. It may be taken with thesis (33 semester hours) or without (28 semester hours). An introduction to scholarly activities and research is provided through 104/101 Leisure Research, or equivalent, and preparation of a thesis or research report. The research will result in a modest contribution to knowledge, a review of a report, or a synthesis of the design in the park and recreation field.

Recreation Administration

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 in these programs may be on special population groups such as inner-city and poverty 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 leisure. 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, geography, and psychology.

Therapeutic Recreation Administration

Therapeutic recreation relates to the development and administration of programs serving the mentally retarded, physically disabled, emotionally disturbed, and aging in both institutional and community settings. The program is designed toward understanding recreation's role in a comprehensive rehabilitation program, including both clinical and community facets, and thus prepares the student to work in a broad range of disability areas in either a medical setting or in the community. Through the use of related area courses, strengths in specific disability areas may be developed.

It is recommended that the student have had 10 to 12 semester hours of undergraduate credit in courses such as abnormal psychology, psychology of adjustment, kinesiology, the mentally retarded, and aging. The student should also have skills at least to two program levels.

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 are given 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 Schools, University Recreation Services, Iowa City Parks and Recreation Department, Systems Utilization and Counseling Services, and the Corena Department of Parks and Recreation.

Courses

Primarily for Undergraduates

104/00 Foundations of Recreation 3 s.h.
Basic philosophy, history, scientific methodology, and development in leisure and recreation; function and setting of organized recreation and survey of Philanthropic and agencies concerned with recreation.

104/101 Recreation Leadership 3 s.h.
Leadership practices in recreational settings; program activities.

104/107 Introduction to Rehabilitation Setting 1 s.h.
Introduction to community recreation, emphasizing programs for handicapped, institutionalized, emotional, or physically handicapped, correctional, elderly, and aged.
Graduate Programs

The School of Religion seeks to prepare a select and limited number of graduate students to become specialists in the study and teaching of religion. Graduate study is offered in five areas, including 13 fields:

- Jewish and Christian Scriptures
- Old Testament
- New Testament
- History of Christianity
- Early (to 1600)
- Modern (since 1500)
- Theology and Ethics
- Jewish
- Roman Catholic
- Protestant
- Asian Religions

Methodology
Religion in India, China, or Japan
Religion and Personality
Religion and Health

Master of Arts

Candidates for the M.A. in religion must complete 30 semester hours of courses, to be distributed among three areas of graduate study. A maximum of 6 semester hours of graduate credit may be transferred from another institution toward the M.A. degree. Four hours may be thesis research. The comprehensive examination is ordinarily taken before writing the M.A. thesis.

The master's candidate must demonstrate a reading knowledge of French or German. With the approval of the advisory committee, another language may be substituted for French or German when appropriate to the student's program of study.

A thesis is required. Its purpose is to enable the student to demonstrate mastery of the tools and techniques or scholarly work in one field.

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 coursework. Four may be transferred to the student's research. They may be transferred from another accredited graduate or professional school.

The program includes required courses in religion and personality, in related fields of ethics, religion in America, and other relevant fields outside the School of Religion. The student ordinarily takes the comprehensive examination before writing the thesis. Knowledge of a foreign language, statistics, or another research tool may be required, at the discretion of the student's advisory committee.

In addition to the general requirements for admission outlined below, the school generally requires an on-campus interview of applicants to the M.A. program in religion and health; however, if the interview cannot be conducted on campus, an accreditation 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 determination 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 additional language requirements.

Doctoral students prepare for the oral and written comprehensive examinations in 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 thesis programs:

- Judaism and Christianity in the Hellenistic world
- History of theology and religious thought in the West

Contemporary theology and religious thought

With the relating theology and other academic disciplines

History of Asian cultures

Interdisciplinary program in religion and personality

Application for admission to these programs may be made before or after enrollment for graduate study. The student is expected to have passed the doctoral language requirements at least 12 months before starting 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 term 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.

A student who fails the doctoral comprehensive examination may, with approval of the faculty, complete a thesis for a terminal Master of Arts degree.

More detailed information on degree requirements and graduate study policies of the School of Religion are in Information for Graduate Students, which is mailed to all applicants. It is regularly updated. Inquiries about any of the programs may be made to the director of the school.

Facilities

The University Hospitals and Clinics provide clinical opportunities for students in the program, 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 specify hospital personnel and facilities.

Graduate Financial Aid

The School of Religion has available three types of departments financial aid: assistantships, fellowships; teaching assistantships; and research assistantships. Awards are made annually on a competitive basis. First-year 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
Coordinating Editors: J. Oles
Faculty professors: Margareta E. Wien, Donamar J. Oles
Faculty professors: William D. Clark, Norman E. Hisman, Lyle Kiley, Gene E. King, Earl W. Willard, Samuel M. Hesse
Assistant professors: Nancy Jones, Carol Merchant, Donna Duhl

The Rhetoric Program offers students direct opportunities, through their own oral and written communication, to evaluate their experiences and to explore and improve possibilities for their personal and intellectual growth. Responsibility varies among sources of information and investigation, analyzing, evaluating, and responding to the ideas, beliefs, and attitudes of other writers and speakers are integral functions of rhetorical course work. Rhetoric instructors' primary responsibility, 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 "Curricula for Students" section of the Catalog).

Courses

134-135 Rhetoric
Introduction to practice in speaking, writing, and critical reading, with the focus on construction, criticism, development, composition in argument,-organizing, and developing ideas, including and using library resources for analyzing and supporting ideas, evaluating evidence for teachers and learners.

132-133 Rhetoric
Continuous instruction and practice in oral and written communication with the focus on critical thinking, empirical skill, and critical reading. Students will develop knowledge of procedures for establishing and organizing research, direct and written communication, and written and are required to submit three essays and one research paper. Instruction and practice in speaking, writing, and critical reading with the focus on composition, critical thinking, research, and organization. Students will develop knowledge of procedures for establishing and organizing research, direct and written communication, and written research paper.

134-135 Rhetoric
Introduction to practice in written communication; see 108 for focus and expectations.

132 Rhetoric
Teaching critical thinking, requiring critical thinking, and requiring critical thinking. Students will develop knowledge of procedures for establishing and organizing research, direct and written communication, and written research paper.

122 Business
Introduction to the initial sequence of writing, instruction, and critical thinking in the college. Students are required to submit three essays and one research paper. Instruction and practice in speaking, writing, and critical reading with the focus on composition, critical thinking, research, and organization. Students will develop knowledge of procedures for establishing and organizing research, direct and written communication, and written research paper.

Russian
Department chairs: Ray J. Parvis, Jr. and Norman Lutzenburg
Associate professor: Helen Bartolome
Associate professor: Ray J. Parvis, Jr. and Henry V. Mower
Assistant professor: Jan S. Wenig
Professor: B.A. B. A. Professor

The purpose of the Russian program is to give students training in both the written and spoken Russian language and in Russian literature. An important second objective of the program is to give students an understanding and appreciation of Russian civilization and culture. A knowledge of Russian is written as well as in itself but rather as an introduction to other vocation. The department encourages all of its beginning students to pursue a joint major and to develop their interests in other fields. With the increasing importance of Russian as a language of science and commerce, many students find that training in the language is an important asset to careers in the natural and physical sciences, engineering, medicine, and business. Students of journalism, library science, and the social sciences also have strengthened their career preparation through the study of Russian. Some students major in Russian before going into law, international relations, or another profession; others study Russian as preparation for graduate work in Slavic languages and literature, 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 regularly interview job candidates who have advanced training in Russian. Students who develop an excellent facility with the language may pursue careers as interpreters, translators, literary and technical translation, and interpretation.

Bachelor of Arts

Students who major in Russian must complete the general College of Liberal Arts degree requirements (see the "Curriculums for Students" section of the Catalog) and earn at least 26 semester hours of credit in advanced Russian courses. Required courses are:

141:111-112 Intermediate Composition and Conversation 3 hrs.
141:113 Advanced Composition and Conversation 3 hrs.

141:177-178 Readings in Representative Russian Literature 6 hrs.

Three of the following:
141:180 Russian Literature in Translation 1850-1860 3 hrs.
141:182 Russian Literature in Translation 1860-1877 3 hrs.
141:185 Turovsky and Goncharov 4 hrs.
141:187 Russian Literature 4 hrs.
141:188 Russian Civilization 4 hrs.

Students majoring in Russian are urged to include related courses in economics, geography, history, or political science among their electives.

All students majoring in Russian are strongly encouraged to enroll in the one-semester course 411:127 Phonetics and Pronunciation. With the consent of the instructor, students may enroll in 411:108 Special Readings in Instruction in Russian. For a minor in Russian the student must complete a minimum of 18 semester hours in the department, 12 of which must be advanced course selected with the approval of the department.

Honors

Russian majors of junior or senior standing with a grade-point average of at least 3.0 both in Russian and overall may enroll in the honors program in Russian. An extensive reading program with dissuasion, regular reports, and a seminar paper constitute each honors work unit of two semester hours. Students may take up to eight semester hours of honors in Russian.

Summer and Study Abroad Programs

The department regularly encourages undergraduates and graduate students to participate in intensive programs of language study through Inslad and in the Soviet Union. In recent years an increasing number of students have studied in summer and semester programs at Linfield College in Moscow. Students are generally well equipped for advanced work in Slavic languages and literature, comparative literature, English, or other humanistic disciplines.

Bachelor of Arts

Students who major in Russian must complete the general College of Liberal Arts degree requirements (see the "Curriculums for Students" section of the Catalog) and earn at least 26 semester hours of credit in advanced Russian courses. Required courses are:

141:111-112 Intermediate Composition and Conversation 3 hrs.
141:113 Advanced Composition and Conversation 3 hrs.
Special Activities

Each year the department presents several guest lecturers and sponsored films. Students sometimes put on Russian plays. Russian Circle is an organization open to graduates and undergraduates for social activities. Participation in Russian Circle also provides students with the opportunity to practice speaking Russian with other members of the department.

Language Laboratory

The University's Language Laboratory provides facilities for language learning, teaching, and research. Equipment in the lab includes standard and stereo wave radios, tape recorders, recore players, soundproof recording rooms, and drill rooms. An electronic classroom, a soundproof workroom, and a library of tape and disc recordings are also available.

Courses

For Undergraduates and Graduates

411 First-Year Russian I 2.5
412 First-Year Russian II Prerequisite: 411 or equivalent.
413 Second-Year Russian I Prerequisite: 412 or equivalent.
414 Second-Year Russian II Prerequisite: 413 or equivalent.
415-416 Russian for Business (3.5) Prerequisite: 414-415 or equivalent.
411-412 Russian Literature for Advanced Russian majors. Students not majoring in Russian may take this course concurrently with Russian majors, with the permission of the instructor. Students interested in Russian literature should have completed two semesters of Russian.
415 Advanced Conversation and Composition Prerequisite: 414 or equivalent.
416 Advanced Conversation and Composition Prerequisite: 415 or equivalent.
417 Russian for Professionals Prerequisite: 415 or equivalent.
418 Russian Literature in Translation 1900-1900 Prerequisite: 416 or equivalent.
431 Russian Literature in Translation 1900-1917 Prerequisite: 417 or equivalent.
451 History of the Russian Language Prerequisite: 415 or equivalent.
452 Old Church Slavic Conducted in English.
457 Studies in Russian Literature Conducted in English.
4571 Reading in Representative Russian Literature Prerequisite: 457 or equivalent.
4612 Russian Literature Conducted in Russian. Prerequisite: 411 or equivalent.
4617 Reading in Representative Russian Literature Prerequisite: 411 or equivalent.
4621 Conducted in Russian. Prerequisite: 411 or equivalent.
4622 Conducted in English. Prerequisite: 411 or equivalent.
4631 Conducted in Russian. Prerequisite: 411 or equivalent.
4632 Conducted in English. Prerequisite: 411 or equivalent.
4631 Conducted in English. Prerequisite: 411 or equivalent.
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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 50 million dollars in federal support since 1960. This support has helped establish a specific program for gifted and talented secondary school students, major 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 in science for all students while providing an appropriate option for students interested in science teaching, one of the medical professions, an allied health field, specific preparation for graduate study in science, engineering, or such areas as scientific journalism and law.

The science education major is not intended to prepare students for advanced study in any one area of science. When graduates of the Science Education Program enter undergraduate 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.

Since the Bachelor of Arts degree in general science requires a minimum of 44 semester hours and the Bachelor of Science degree requires 48 (see "General Science" in this section of the Catalog), the 58 semester-hour emphasis majors in science education qualify graduates for either degree. The language proficiency requirements are the only difference between the two degrees.

All of the emphasis areas in science education have the following characteristics in common:

- Depth in a general area of science, equivalent to two or four semesters of sequential study; Preparation in a second area of pure science, equivalent to two years or four semesters of sequential study.

- Introduction to two other fields of science. A specific proficiency in mathematics is a requirement of science (more mathematics is required for the physical science emphasis than the biological emphasis). A view of science from an historical/philosophical/cultural perspective, and experience with the application of scientific knowledge in a technological sense.

- Students who wish to qualify for secondary teaching certificates with endorsement to teach science must complete a total of 26 semester hours in specified courses (see "Secondary Education" in the College of Education section of the Catalog). Guidelines for the five areas of emphasis offered in science education are as follows:

**Biology Emphasis**

Courses in Biology

21:1 Introduction to Botany 4.0 h.
37:3 Principles of Animal Biology 5.0 h.
21:2 Fundamental Genetics 3.0 h. (Same as 57:130)
21:3 Evolution 4.0 h. (Same as 57:131)
21:2 Ecology 4.0 h. (Same as 57:132)
72:150 Environmental Physiology 4.0 h. Total 24.0 h.

Courses in Chemistry

41:14 Principles of Chemistry I 6.0 h.
41:10 Principles of Chemistry I Lab 2.0 h.
41:11 Organic Chemistry I 3.0 h.
Electives in Chemistry 5.0 h. Total 16.0 h.

Courses in Geology and Physics

29:5 Basic Physics 4.0 h. (Same as 57:133) Principles of Physical Geology 2.0 h. Total 6.0 h.

More advanced course sequences are recommended for students able to complete more than the required 6 semester hours.

**Mathematics as a Tool**

20:16 Mathematics for the Biological Sciences 4.0 h.

Additional courses are recommended.

Application of Science

Two approved courses (4 semester hours) 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**

97:126 Meaning of Science 2.0 h.
97:130 Science in Historical Perspective 2.0 h.

**Earth Science Emphasis**

Courses in Geology

12:5 Introduction to Geology 4.0 h.
11:23 Earth History and Resources 4.0 h.
12:24 Man and His Physical Environment 4.0 h.
12:5 Evolution of the Earth 4.0 h.
12:3 Geology of Iowa 5.0 h.
12:41 Mineralogy 4.0 h.
12:106 Introduction to Oceanography 2.0 h. Electives (credit hours) 4.0 h. Total 20.0 h.

**Supporting Science Courses**

4:13-14 Principles of Chemistry I & II 8.0 h.
25:11-12 College Physics 8.0 h.
26:50 Modern Astronomy 4.0 h. Total 16.0 h.

Courses in Geography

44:101 Weather and Climate 5.0 h. Total 5.0 h.

Mathematics as a Tool

22:250 Elementary Functions 3.0 h. Additional courses are recommended.

Application of Science

Two approved courses (5 semester hours) 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**

97:126 Meaning of Science 2.0 h.
97:130 Science in Historical Perspective 2.0 h.

**Environmental Studies Emphasis**

Courses in Biology

21:1 Introduction to Botany 4.0 h.
37:3 Principles of Animal Biology 5.0 h.
21:2 Fundamental Genetics (Same as 57:128) 3.0 h.
21:3 Evolution 4.0 h. (Same as 57:131)
21:2 Ecology 4.0 h. (Same as 57:132)
72:150 Environmental Physiology 4.0 h. Total 23.0 h.

Courses in Chemistry

41:14 Principles of Chemistry I 6.0 h.
4/12: 12 Organic Chemistry I/II 8 s.h.

Other Environmental Courses
Two approved courses (4 semester hours) 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.

44:19 Contemporary Environmental Issues 3 s.h.
44:101 Weather and Climate 3 s.h.
44:123 Environmental Conservation of the United States 3 s.h.
44:124 Introduction to the Global Environment 3 s.h.
44:125 Environmental Impact Analysis 4 s.h.
12:108 Introduction to Oceanoغرphy 2 s.h.
12:125 A Plant in Crisis 2 s.h.
12:114 Energy in Contemporary Society 3 s.h.
523:150 Principles of Environmental Engineering 3 s.h.
523:154 Environmental Microbiology 3 s.h.
523:158 Limnology 2-3 s.h.
63:101 Dynamics of Health 3 s.h.
63:102 Men and the Environment 3 s.h.
63:108 Community Health 1 s.h.

Mathematics as a Tool
22M:15 Mathematics for the Biological Sciences 4 s.h.
Addition courses are recommended.

Application of Science
Two approved courses (4 semester hours) chosen with the advisor’s assistance; a wide variety of transfer courses from such applied areas as engineering, agriculture, and technical schools with 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.

Physical Science Emphasis
In the physical science emphasis, the student chooses either a chemistry or a physics concentration and completes the courses listed for that concentration. Students in both concentrations complete all other courses listed for the physical science emphasis.

Chemistry Concentration
4/13 Principles of Chemistry I 3 s.h.
4/14 Principles of Chemistry II 3 s.h.
4/19 Principles of Chemistry Lab I 2 s.h.
4/141 Intermediate Chemistry Laboratory I 3 s.h.
4/101 Elementary Quantitative Analysis 4 s.h.
4/121 Organic Chemistry I 3 s.h.
2/121 College Chemistry I 4 s.h.
2/122 College Physics 4 s.h.
2/121 College Physics 4 s.h.
2/122 College Physics 4 s.h.
2/17-19 Introduction to Physics I, II 12 s.h.
Physics electives to total 24 s.h.

Mathematics as a Tool
22M:15 Mathematics for the Biological Sciences 4 s.h.

Course in Earth Science
26/30 Modern Astronomy 4 s.h.
26/31 Introduction to Geology 4 s.h.

Mathematics as a Tool
22M:15 Mathematics for the Biological Sciences 4 s.h.

Introduction to Science
Two approved courses (4 semester hours) 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.

A minimum of 9 semester hours in astronomy, geology, meteorology, or physical science must be included. 97:103 Societal and Educational Applications of Biological Concepts can be used to 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.

Minors
Basicly, the minors in science education have the same minimum requirements as in general science (see "General Science" in this section of the Catalog). All science education minors are designed to provide a set of courses necessary to qualify the student for a secondary teaching certificate in a specific area of science. All science teaching minors must include:

75:161 Science Methods: Individulizing Instruction in Science 2 s.h.
75:162 Science Methods II: Resources and Teaching Strategies 2 s.h.
75:181 Observation and Laboratory Practice in the Secondary School 3 s.h.
97:128 Meaning of Science 2 s.h.
97:130 Science in Historical Perspective 2 s.h.

Additionally, the student must meet three additional units in his or her emphasis area:

Biology
2/1: Introduction to Biology 4 s.h.
3/35 Principles of Animal Biology 5 s.h.
3/35 Principles of Botanical 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 Principles of Chemistry Lab I/II 2 s.h.
97:106 Societal and Educational Applications of Chemical Concepts 3 s.h.
Chemistry electives 10 s.h.
Physics
29:11-12 College Physics 8 s.h.
97:105 Societal and Educational Applications of Selected Concepts of Physics 3 s.h.
Physics electives 10 s.h.

General Science
2:1 Introduction to Botany 4 s.h.
29:61 General Anatomy 4 s.h.
12:3 Principles of Physical Geography 2 s.h.
or
12:4 Principles of Historical Geology 3 s.h.
4:13 Principles of Chemistry I 3 s.h.
29:11 College Physics 4 s.h.

Environmental Studies Emphasis
2:1 Introduction to Botany 4 s.h.
37:3 Principles of Animal Biology 5 s.h.
37:152 Ecology 2 s.h.
4:13 Principles of Chemistry I 3 s.h.
Electives in environmental engineering 3 s.h.
97:143 Problems in Interpreting the Teaching of Environmental Science 3 s.h.

Earth Science
12:3 Principles of Physical Geography 2 s.h.
or
12:4 Principles of Historical Geology 3 s.h.
29:61 General Astronomy 4 s.h.
Geology and astronomy electives 10 s.h.
97:102 Societal and Educational Applications of Earth Science Concepts and Topics 3 s.h.

Iowa-STEP
lowa-STEP is a special program for talented junior or senior high school students. The student registers as a special UI undergraduate student prior to high school graduation. The program includes research participation, enrichment courses, and/or field experiences.

lowa-UPSTEP
lowa-UPSTEP is a continuing program for UI undergraduate students interested in exploring science teaching as a career option. Students register for program seminars and a variety of practicum experiences. In addition to experiences with youth, with parents, and with regular courses, students are involved in excursions, social activities, and special action projects.

Graduate Programs
The Science Education Program offers graduate students leading to the degrees Master of Arts in Teaching, Master of Science, Educational Specialist, and Doctor of Philosophy. The M.A.T. program is designed for persons who have had strong undergraduate preparation in science and have decided after receiving the bachelor’s degree that they wish to teach science in secondary schools. The other graduate programs in science education are for persons desiring additional preparation in science and education for K-12 teaching, for persons interested in supervisory and/or administrative positions in schools, for persons interested in educational evaluation, for persons wishing to teach science and/or science education at the college level, and for persons interested in developing instructional 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**
TP:151 Educational Psychology 3 s.h.
TP:107 History of Western Education 4 s.h.
TP:117 Philosophy of Education 2 s.h.
TX:170 Human Relations for the Classroom Teacher 3 s.h.
TS:151 Science Methods I: Individualizing Instruction in Science 2 s.h.
TS:152 Science Method II: Resources and Teaching Strategies 2 s.h.
TS:150 Individual Projects in Laboratory Practice 1-3 s.h.
TS:191-192 Observation and Laboratory Practice in the Secondary School 12 s.h.
97:129 Meaning of Science 4 s.h.
97:130 Science in Historical Perspective 2 s.h.
Science (beyond 90 semester-hour undergraduate requirement) 10 s.h.
Minimum total 40 s.h.

**Master of Science without Thesis**
Advanced science education 12 s.h.
Major field of science (beyond emphasis area for undergraduate major) 12-18 s.h.
Minor science field 10 s.h.
Minimum total 36 s.h.

**Master of Science with Thesis**
Advanced science education 10 s.h.
Major field of science (when not part of undergraduate program) 4 s.h.
Advanced science research 4 s.h.
Applications of science 2 s.h.
Minimum total 36 s.h.

Minimum total 20 s.h.

**Educational Specialist**
Advanced science education 18 s.h.
History/philosophy/curriculum education 10 s.h.
Major area of science 18 s.h.
Practicum 4-6 s.h.
Applications of science 4 s.h.
Research 2 s.h.
Minimum total beyond master's degree 30 s.h.

**Doctor of Philosophy**
Advanced science education 20 s.h.
Research/Teaching/Advisory education 18 s.h.
Major area of science 28 s.h.
"Corrosive" studies 14 s.h.
Minimum total beyond master's degree 72 s.h.
(*includes intensified science preparation, enrichment science preparation, enviro/professional preparation, interdisciplinary 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**
lowa-ASSIST
lowa-ASSIST is a special program in science education which involves 300 inservice teachers each year in special curriculum revision and implementation efforts. Summer and academic year workshops provide the basic mode of operation for the program. Associated with lowa-ASSIST is a master's center which provides printed and laboratory materials for workshop and school program implementations. In addition, lowa-ASSIST administers a fall Science and Education Conference that attracts more than 500 teachers each year, 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, educators, and administrators.

**Chautauqua Short Course Programs**
The Science Education Center also administers the NSF-sponsored and AAS-sponsored Chautauqua Short Course programs for college science teachers. Over 300 college teachers of
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
- Individualized learning
- Educational technology
- Computer-assisted instruction
- Simulation systems
- Classroom interaction studies
- Creativity
- Piagetian development psychology
- Cross-cultural experiences
- Health education
- Instructional psychology
- Teacher behavior
- Mathematic activity
- Inquiry processes
- Instructional modes
- Concept formation
- Aptitude X Treatment interaction (ATI)
- Attributions and other affective outcomes of instruction
- Classroom sociometrics and climate

International Programs
Another dimension of the Science Education Center is the emphasis upon international issues. A sizable number of foreign students are enrolled. The faculty has been involved for extended periods in international programs and proposals as well.

Facilities
The physical facilities for science education research at the University of Iowa are exemplary.

The Science Education Center is located in the modern Physics Building near the center of the University campus. Facilities on the fourth floor include the main office of the Science Education Center; a photographic laboratory; a departmental conference room, a library, and a counseling center; a suite of offices for student program activities; space for the elementary school foci of the program; laboratory for the elementary school science methods courses; and two large teaching laboratories for the Fundamentals of Science program.

Third-floor facilities include an interactive curriculum laboratory and secondary-level methods laboratory; a computer and materials resource center; an office for coordinating Iowa-ASSIST, a model in-service program for assisting schools in implementing new national curriculum programs in Iowa schools; and a resource center including both living and expendable materials.

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 including laboratory and audiovisual materials; a large seminar room used as an instructional center for some of the secondary school education sessions, including many facets of the Iowa-UPSTEP program; multiple offices for graduate assistants; a common area for informal 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. The College of Education offers many basic courses in science education; for a list of specific offerings, inquire at the Science Education Program Office.

Primary for Undergraduates
- 9701 Cooperative Education Internship 3 A.H.
- 9717 Fundamentals of Science 4 A.H.
- 9719 Science topics and laboratory investigations draw from physics, bio., and earth science; focus on problem solving and process skills in problem solving.
- 9740 Introductory Science Education 3 A.H.
- 9744 Science for the Environment 3 A.H.
- 9746 Science Survey 3 A.H.
- 9748 Science for the Environment 3 A.H.
- 9749 Science for the Environment 3 A.H.
- 9750 Science for the Environment 3 A.H.
- 9752 Science for the Environment 3 A.H.
- 9754 Science for the Environment 3 A.H.
- 9756 Science for the Environment 3 A.H.
- 9758 Science for the Environment 3 A.H.
- 9760 Science for the Environment 3 A.H.
- 9762 Science for the Environment 3 A.H.
- 9764 Science for the Environment 3 A.H.
- 9766 Science for the Environment 3 A.H.
- 9768 Science for the Environment 3 A.H.
- 9770 Science for the Environment 3 A.H.
- 9772 Science for the Environment 3 A.H.
- 9774 Science for the Environment 3 A.H.
- 9776 Science for the Environment 3 A.H.
- 9778 Science for the Environment 3 A.H.
- 9780 Science for the Environment 3 A.H.
- 9782 Science for the Environment 3 A.H.
- 9784 Science for the Environment 3 A.H.
- 9786 Science for the Environment 3 A.H.
- 9788 Science for the Environment 3 A.H.
- 9790 Science for the Environment 3 A.H.
- 9792 Science for the Environment 3 A.H.
- 9794 Science for the Environment 3 A.H.
- 9796 Science for the Environment 3 A.H.
- 9798 Science for the Environment 3 A.H.
- 9800 Science for the Environment 3 A.H.
- 9802 Science for the Environment 3 A.H.
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- 9806 Science for the Environment 3 A.H.
- 9808 Science for the Environment 3 A.H.
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- 9814 Science for the Environment 3 A.H.
- 9816 Science for the Environment 3 A.H.
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- 9820 Science for the Environment 3 A.H.
- 9822 Science for the Environment 3 A.H.
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- 9834 Science for the Environment 3 A.H.
- 9836 Science for the Environment 3 A.H.
- 9838 Science for the Environment 3 A.H.
- 9840 Science for the Environment 3 A.H.
- 9842 Science for the Environment 3 A.H.
- 9844 Science for the Environment 3 A.H.
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- 9860 Science for the Environment 3 A.H.
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- 9902 Science for the Environment 3 A.H.
- 9904 Science for the Environment 3 A.H.
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- 9982 Science for the Environment 3 A.H.
- 9984 Science for the Environment 3 A.H.
- 9986 Science for the Environment 3 A.H.
- 9988 Science for the Environment 3 A.H.
- 9990 Science for the Environment 3 A.H.
- 9992 Science for the Environment 3 A.H.
- 9994 Science for the Environment 3 A.H.
- 9996 Science for the Environment 3 A.H.
- 9998 Science for the Environment 3 A.H.

Social Studies Education
Chair: Robert M. Pitt
Faculty: professor Robert M. Pitt, associate professor Richard W. Spanbauer, associate professor James E. Spanbauer

Bachelor of Arts
The major in social studies education is an interdisciplinary, nonprofessional major. It provides an excellent foundation for careers in law, social work, religion, urban planning and development, and government service at all levels. Its major purpose, however, is to provide a general education for students preparing to teach in secondary schools. Together with the professional requirements for certification, this major meets the standards for teaching social studies established by the North Central Association of Colleges and Secondary Schools.

Major requirements for the B.A. degree in social studies education total 60 semester hours of credit including departments cooperating in the social studies education program. Distribution of the coursework is as follows: 12

1200 Societal and Educational Applications of Selected Concepts of Physics
1200 Societal and Educational Applications of Chemical Concepts
1200 Societal and Educational Applications of Biological Concepts
1200 Societal and Educational Applications of Geographical Concepts
1200 Societal and Educational Applications of Historical Concepts

1210 Advanced Political Science and Education
1210 Social Studies Education
1210 Social Studies Education
1210 Social Studies Education
1210 Social Studies Education

semester hours in history; 12 semester hours each in economics, political science, and sociology; at least 9 semester hours in geography; and 9 semester hours in geography, anthropology, or psychology.

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 work.

Admission Requirements
Transfer students must have earned a minimum grade-point average of 2.75 on all work done in the subjects of the cooperating departments in order to be admitted to the program. Approval of candidacy for the bachelor's degree will be granted only to students who have a minimum 2.75 grade-point average in all college work undertaken in the cooperating departments.

Master of Arts
Some graduates of this program are classroom teachers and chairs of social studies departments in junior and senior high schools. Some are serving as curriculum consultants for school districts, while others are staff members in community colleges. A few have found the degree excellent preparation for their professional work in various correctional and pastoral 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 36 semester hours of credit to 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 more 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 full course in each of the student's fields of emphasis.

All candidates must also complete 98:201 Individual Instruction in Social Studies Education 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.

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 undergraduate 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 social studies up to 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 doctoral program have gone into administration in institutions of higher education and are serving as presidents, provosts, or deans of faculty in graduate schools. Some are department chairs in colleges of education or curriculum directors in large school districts. Many 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, minimum of tool 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, work in the disciplines chosen will comprise between 65 and 75 percent of the total 90 semester hours. Work in education between 25 and 40 percent.

Depending upon the area of study he or she chooses, the candidate will have an opportunity for regular classwork, small group instruction, seminars, 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 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 history or social science at 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 services 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 Educational Information Center, the Curriculum Laboratory, the Statistical Consulting Center, the Reading Clinic, the Weeg Computing 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
98:201 Individual Instruction in Social Studies Education
14sh.
Individually arranged; field studies; and individual problems. Prerequisite: Theory and Social Science or as problems of professional education, may be repeated. Prior approval of instructor.
98:202 Seminar: Social Studies Education
.5sh.
Reading and discussion of significant developments in social studies education; research in social studies education, research methods, experimental study required. Offers 10 semester hours. Prior approval of instructor. Same as 78:277.
requirement in social sciences. For general education requirement in natural sciences include 1121 Human Biology. The following courses are required for the major:

**Freshman/Sophomore Years**

- 31: Introduction to American Politics
- 10: The American Political System
- 31: Elementary Psychology
- 31: General Psychology
- 31: Introduction to Sociology: Principles

Any basic economics course 2-4 s.h.

**Junior/Senior Years**

- 21: Introduction to Social Work
- 31: Human Behavior In the Social Environment
- 21: Social Work Practice I
- 21: Social Work Practice II

- 21: Social Work and Deinstitution

- 21: Social Work and Research

- Approved courses from another department (see School of Social Work for list)

- 41: Social Welfare Policy and Practice

- 41: Social Welfare Research

- 41: Field Experience Seminar

- 41: Field Experience 8-12 s.h.

- A minimum of 12 semester hours of course work is required in one department listed below. Most students select either sociology or psychology. Course 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

**Honor**

The School of Social Work has an honors program leading to a Bachelor of Arts with honors in social work. Students interested in such a program should contact the school.

**Admission**

Admission to the undergraduate program in social work requires:

- Completion, with at least a C grade, of 42:22 Introduction to Social Work, which can be taken the sophomore year.

- At least a 2.25 grade-point average on a 4-point scale; and

- Completion of the written 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 generalist or in one of three concentrations. The common goals of the program, to be met through a set of core requirements, are to enable all students to understand the dynamics of human development and change; commit themselves to making human service organizations responsive to people; understand the linkages between the society and the individual; and acquire intervention skills for working with individuals, families, small groups, organizations, and communities.

The Master of Social Work degree requires at least 60 semester hours of credit in graduate courses approved by the school including at least 36 semester hours earned after admission to the program. The student may obtain advanced standing for up to 12 semester hours of graduate study completed before admission to the program. Students who have completed an accredited undergraduate major in social work may enter with 12-hour recreation of credit requirements. With their advisers, who play an active role in assisting students in their educational planning, students should explore additional mechanisms for waiving courses.

The program operates a 12-month program. The summer term is a full semester. Full-time students may enroll for a maximum of 13 semester hours each semester. Therefore, 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 or fall semester following fall admission). Students requiring extra 60 semester hours after admission generally complete the program the spring semester of their second year.

Students must maintain at least a 2.5 cumulative average on a 4-point scale, must be approved for M.S.W. candidacy, and must
Successfully complete a final examination project in lieu of the comprehensive examination the Graduate College generally requires. The student may elect a thesis option for credit, and the final examination is the oral defense of the thesis. Either the advanced research requirement or the final examination project/thesis must be related to the concentration selected.

The following is an outline of the M.S. degree requirements:

Core courses:
- 42:40 Human Behavior in the Social Environment 3 s.h.
- 42:141 Social Work Practice I 3 s.h.
- 42:142 Social Welfare Program and Policy 3 s.h.
- 42:144 Social Work Research 3 s.h.

Other required courses:
- 42:203 Interpersonal Communication and Change 3 s.h.
- 42:204 Human Service Administration 3 s.h.
- 42:269 Community Organization 3 s.h.
- 42:269 Advanced Research Seminar 2 s.h.
- 42:127 Social Work and Racism 2 s.h.

General option: an additional course in each concentration 6 s.h.

Concentration option: at least three additional courses in the concentration 9 s.h.

Practicum and practicum seminar 14 s.h.

Final examination project/thesis 0-6 s.h.

Electives 9-12 s.h.

Total 60 s.h.

Concentrations

After admission, students may choose one of four plans of study. They may elect either to pursue advanced work as a social work generalist or to choose from among three concentrations. Concentrations focus on intervention at one of three levels of social systems.

The generalist option is designed to provide students with basic knowledge and skills in all three concentrations. It is especially suitable for students who expect to practice in rural communities where they will be expected to perform a variety of functions. It may also be a suitable choice for students who wish to focus on a partial field of practice rather than a particular level or system of intervention. Generalists are required to take 9 semester hours of courses in each concentration, including the required advanced practicum courses. Each quarter class which can serve to meet the requirement will be made available upon entry into the program. Practica will include some opportunity for practice experience at each system level.

The concentration is individual, family, and small group services prepares students for intervention with these client groups. It seeks to develop practice competence in students both as counselors of personal change and as brokers/advocates for individuals and families. Topics include family law and family policy, work with children, working with couples and families, and working with groups.

The concentration in organization of human services is designed to develop practice competence for a variety of administrative roles in human service agencies as well as to enable students to act effectively in making such organizations more responsive to their clientele. Topics include program evaluation, grants development, administrative law, and health and family policy.

The social work concentration is designed to prepare students for intervention in neighborhoods, communities, and social institutions. An international perspective is part of this concentration. It focuses on developing a more humanistic form of organization and social norms, and on mobilizing the alienated and oppressed to obtain equity. Topics include international social welfare, social planning, women's roles, and organizational change.

Concentrators complete a minimum of 9 semester hours of practicum in their concentration. In addition, either the advanced research course or the final project must be related to their concentration.

Satellite Centers

In addition to offerings in the Iowa City campus, the school offers two class work and practicum learning in Des Moines, Sioux City, and Quad Cities satellite centers. Regular Schnell of Social Work faculty are available for student advising. Teaching 6-8 s.h. required courses.

The centers have three major purposes: to enrich educational programs of full-time students by providing greater diversity of practicum opportunities; to make pursuit of the graduate degree in social work geographically available to students; and to provide continuing education opportunities throughout the state for non-degree students.

For full-time students, the general plan is to begin the program in the fall semester in Iowa City. Depending on the student's academic prerequisites, practicum can begin as early as the second semester. Some students remain in the Iowa City/Cedar Rapids area for the remainder of their programs, but most are assigned to the Des Moines or Quad Cities Centers. This generally involves the student's relocation.

The Des Moines Center, 115 miles from Iowa City, is the location of the state capital. It is the largest city in the state. Many high practice opportunities are available in state government offices, child and family agencies, mental health programs, and a variety of other settings.

The Quad Cities Center is located on the Mississippi River in Davenport, 60 miles from Iowa City. As part of the Quad Cities metropolitan area of 750,000 people, this center also provides a wealth of practicum opportunities unavailable in Iowa City. Regional and advocacy planning, agencies serving racial and ethnic minorities, and programs for the elderly are just a few examples. Students relocating in the Quad Cities also have the opportunity to commute to Iowa City for some classes and special events.

The Siouxland Center, located in Sioux City in the northeaster corner of the state, provides opportunities for part-time degree study and continuing education.

It is different from the others in that a full program is unavailable there.

Intensive, short-term, split session courses are offered on the Iowa City campus in the summer to facilitate students from other centers taking on-campus courses.

Part-Time Program

The School of Social Work has one of the largest part-time programs in the nation. Degree and certificate requirements are the same as for full-time students but the program allows flexible attendance, working people, and others unable to pursue a degree on a full-time basis to complete the program. Part-time students complete the 69 semester hours required in two or more semesters with only two semesters of full-time registration (2 semester hours or more).

Students may complete the part-time program in Iowa City, the Quad Cities, or the Des Moines Centers. The Siouxland Center also provides opportunities for part-time study toward the master's degree, although students cannot complete the entire program there. They must complete at least 12 semester hours of course work on the main campus or at the Des Moines Center.

Joint Degree and Special Programs

The school has formal agreements with the College of Public Affairs and Community Service, Department of Urban and Regional Planning for joint degrees, which must be accepted by each department through its regular admissions process. Twelve credits in
each program are applied to requirements of the other, thus reducing the time it would normally take to pursue two degrees, individual arrangements may be made with other departments. Students have pursued joint degrees with the College of Business, the College of Education, the American Studies program, School of Religion, School of Journalism and Mass Communication; and others. Students are encouraged to take courses in other departments whether or not they are pursuing joint degrees.

Other special projects students may become interested in are the National Resource Center on Family-Based Services operated by the school, the Law and Gender Project, the Child Abuse and Neglect Resource Center, the Health Sciences Research Center, and the Institute on Urban and Regional Research.

Another feature of the school is the opportunity it affords its students to participate in travel/study seminars. Each spring, a policy seminar travels to Washington, D.C. Other urban, rural, and (inter)national seminars are available where there is sufficient interest.

Graduate Admission
The criteria for admission for full-time and part-time study in the M.S.W. program are:

A bachelor's degree from an accredited college or university, with a major in social science or a related field, is required. A minimum of 18 semester hours of 300-level social sciences coursework is required for full-time study. A minimum of 24 semester hours of 300-level social sciences coursework is required for part-time study. A minimum of 18 semester hours of 300-level social sciences coursework is required for part-time study. A minimum of 24 semester hours of 300-level social sciences coursework is required for part-time study.

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The criteria for admission for full-time and part-time study in the M.S.W. program are:

A bachelor's degree from an accredited college or university, with a major in social science or a related field, is required. A minimum of 18 semester hours of 300-level social sciences coursework is required for full-time study. A minimum of 24 semester hours of 300-level social sciences coursework is required for part-time study. A minimum of 18 semester hours of 300-level social sciences coursework is required for part-time study.

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The criteria for admission for full-time and part-time study in the M.S.W. program are:

A bachelor's degree from an accredited college or university, with a major in social science or a related field, is required. A minimum of 18 semester hours of 300-level social sciences coursework is required for full-time study. A minimum of 24 semester hours of 300-level social sciences coursework is required for part-time study. A minimum of 18 semester hours of 300-level social sciences coursework is required for part-time study.
34:1 Introduction to Sociology: Principles 4 a.h.
34:2 Introduction to Sociology: Problems 4 a.h.
14:10-11 Theory, Research, and Statistics 8 a.h.
14:12 Sociology 12 a.h.

The student should complete the two-semester sequence. 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 B.S. program in sociology requires the following:

26:103 Introduction to Symbolic Logic 3 a.h.
26:104 Introduction to Philosophy of Science 3 a.h.
225/226 Elementary Statistics and Inference 3 a.h.

One of these two combinations:

224:10 Fundamentals of College Mathematics I 4 a.h.
and 224:11 Fundamentals of College Mathematics II 4 a.h.
220:10 Fundamentals of College Mathematics and 12:16 Introduction to Programming with PASCAL 4 a.h.
and 22:17 Programming with PASCAL 3 a.h.

Students with exceptionally strong high school backgrounds in mathematics may substitute 22M:26-26 Calculus I-II for the mathematics option listed above. All majors are advised to take at least one basic course in history and philosophy, and at least one semester 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.

Minor

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 (23 semester hours).

Sociology courses taken to fulfill the general education requirement in social science requirements may also be counted toward the sociology teaching major. Other social science or history courses taken to satisfy general education requirements may not be counted toward the hours required in related fields.

Honors

Students who wish to graduate with honors in sociology must be admitted to the honors program, have a departmental advisor, and complete 34:160 The Development of Modern Social Theory and 34:199 Honors Research in their programs, and take an oral examination upon completion of their honors research.

Graduate Programs

The graduate programs in sociology are designed for students of advanced careers. Depending upon which 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 orientation. The master's programs prepare sociologists for positions in colleges and universities, research in academic, private, or government positions. Opportunities for research, working, survey, experimental, and observational methods, are available in the sociology department.

Master of Arts

The M.A. degree in sociology requires 30 semester hours with thesis or 36 semester hours without thesis. The program without thesis is intended for persons who desire a terminal degree and for whom a wider range of course content in sociology is appropriate. All candidates for the M.A. degree must complete 34:201 History of Sociological Theory, 34:214 Elementary Statistics and Data Analysis, and 34:215 Sampling.
M.A. in Criminal Justice and Corrections

This program is designed for individuals desiring to prepare for careers in the criminal justice system. It provides the student with training in the social and behavioral sciences, the administration of justice, counseling techniques, and administrative procedures. The program is administered by the Department of Sociology and has a strong sociological emphasis.

A limited number of students are admitted to the program each year, so a low faculty-student ratio is maintained. Internships are available with local criminal justice agencies. The program requires a minimum of 45 semester hours and a research paper.

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 entering the joint program toward the 90 hours required for the J.D., even though those hours are also credited toward the M.A. in sociology.

At the discretion of the student's M.A. committee, the Department of Sociology may count up to 12 hours of law course work toward the M.A. degree. This cross-credit allows a student to receive the J.D. and the M.A. by taking less course work than would be necessary if the two degrees were pursued simultaneously. The program is highly individualized and allows the student to explore various aspects of the relationship between law and sociology.

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. courses 34:217 Introduction to Sociological Research Methods and 34:217 Theory and Research Design. 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 one major and one minor area chosen from among the areas currently represented by the faculty, such as social inequality, industrial society, social deviance, criminology, family, social stratification, social networks, theory, methods, and statistics.

A detailed statement of regulations for graduate study is 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 1,100 from the quantitative plus verbal sections of the Graduate Record Examination. In addition to fulfilling the Graduate College requirements, students must meet the "Graduate College" section of the Catalog, the applicant completes a departmental application statement and uses its personal reference forms in obtaining three letters of recommendation.

Applications may be submitted at any time, but should be completed two months before the start of the academic term for which admission is requested. The deadline for applying is typically March 1st.

Admission decisions are based on a comparative consideration of prior academic performance, personal reference letters, scores on the Graduate Record Examination (GRE) Aptitude Test, and the applicant's statement of reasons for pursuing advanced work in sociology. The department has specific 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.S.W. or the Ph.D. degree in sociology. Inquiries concerning admission should be directed to the chair, Admissions Committee, Department of Sociology.

Admission to the M.A. program in criminal justice and corrections requires a B.S. or B.A. degree, a grade-point average of 2.5 and a total score of 1000 from the quantitative plus verbal sections of the Graduate Record Examination (GRE) Aptitude Test. Eligibility for the program is currently limited to five admissions per year. A descriptive application is published 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 awards. Students who receive assistantships work twenty hours each week for faculty members on either teaching or research assignments. The department maintains a "teaching fellowship" scholarship to students.

Facilities

The department maintains four interactive terminals for communicating with the University's mainframe computer. IBM (370-155) and the five PRIME 750s and with the University's Newell-Packard 22000 educational computers. Also available for faculty and students are the facilities of the Department of Sociology Research Laboratory and data archives unit, and the Iowa Urban Community Research Center (IUCRC). The Research Laboratory consists of 17 rooms specially designed for social psychological research. The facilities include a small group laboratory with audiovisual, videotape, and interactional process recording equipment; programming equipment; a shop for constructing apparatus; the data archives house the results of numerous surveys available to faculty and students for teaching and research purposes. The IUCRC maintains a research library, data bank, and laboratory. Surveys in the data bank are accessible for secondary analyses. See the "Research Activities" section of the Catalog.

Courses

For Undergraduates Only

Courses open to freshmen without prerequisites: 34: 1, 3-4, 15, 34: 50, 34: 51, and 34:52. All other undergraduate courses are open to those who have completed the basic courses.

34:1 Introduction to Sociology: Midwest

Examination of basic sociological concepts such as social groups, roles, deviant behavior, social inequality, social norms and institutions in the United States, the research process, ecology, and urbanization.

34:2 Sociology of Family

Emergence and distribution of selected social problems; the family as an institution. Topics may include population, inequality, female roles, family life cycle, and sex roles.

34:8 Theory, Research, and Methodology

3:2. a. Prerequisites: 34: 52; b. Sociology majors and minors, and sociology students majoring in another field such as economics or political science, may use this course as an introduction to theoretical thinking, the statement of research problems, and the legal and moral weighing of proof; c. Major textbook: "Introduction to the Research Process," general purpose associated with majoring social science major and minor.

34:15 Research Methods

Continuation of 34:12, with a major emphasis on quantitative techniques.

34:20 Medical Sociology: Research Methods and Analysis

34:36 Introduction to Social Science Research Methods: an introduction to the research process; research design; sampling, power, and the strategic importance of methodological considerations in research; and the practical application of methods such as content analysis, interviews, and surveys.

34:40 Women in Society

Analysis of the impact of society on women; selected aspects of interpersonal, structural, and institutional psychology; psychology, sociology, and anthropology as disciplines; and cultural or social factors, or a combination of them.
Spanish and Portuguese

department chair: George De Mello

Faculty: professors Ada Godoy-Lebaron, Olymia Fenderson, Joseph Sriman;

professors Leonard DeCicco, R. W. Hugg; associate professors George De Mello, Walter Dobner, P. Thomas Drougse, Deborah Fandrich-Loeffel, Robert Frank, Oscar Hahn, catalog writer: Manolo Sandoval;

assistant professors Melissa Rieke, Thomas E. Lown, John Meléndez-Monacov, Diana Villani, Janice Wiger;


The department provides courses work for undergraduate and graduate majors in Spanish or Portuguese, for the satisfaction of foreign language requirements for bachelor's and advanced degrees in other fields, and for the certification of the second

literature requirement for undergraduate majors in English or letters.

Knowledge of foreign languages 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-year and second-semester Spanish courses include the four-performance objectives—understanding, speaking, reading, and writing—through a four-skill format and a policy of frequent lecturing of these skills. Students thereby acquire a broadly based evaluation of their strengths and weaknesses and can calculate and plot their progress in preparation for future work.

Third- and fourth-quarter courses are conducted on a dual-track basis, allowing students to enroll in sections having either an oral-oral orientation or an emphasis on reading, writing, and content analysis.

Major in Spanish

The undergraduate major in Spanish consists of 36 semester hours of required coursework, according to the following program:

Language (12 s.h.)

35:117 First-Year Spanish I 4 s.h.
35:118 Third-Year Language II 4 s.h.
35:127 Fourth-Year Language I 4 s.h.

Literature (9 s.h.)

Three of the following (both the Peninsular and the Spanish American areas must be represented):

35:101 Renaissance and Golden Age Literature 3 s.h.
35:102 Modern Spanish Literature 3 s.h.
35:103 Contemporary Spanish American Fiction 3 s.h.
35:104 Spanish American Poetry 3 s.h.
35:105 Spanish American Drama 3 s.h.
35:106 Short Story of Spanish America 3 s.h.
35:107 Spanish American Literature of Fantasy 3 s.h.

35:110 Survey of Pre-Twentieth Century Spanish American Literature 3 s.h.
35:115 Contemporary American Novel and Short Story 3 s.h.
35:120 Twentieth-Century Spain and Women Writers 3 s.h.
35:151 Nineteenth Century Spanish Writers 3 s.h.
35:165 Spanish Novelist since the Civil War 3 s.h.

Electives (6 s.h.)

The electives may be 35:100 Accelerated Portuguese or any courses numbered 35:100 and above, except that no more than 4 semester hours may be elected in courses numbered 35:100 Spanish Conversation, Junior Level and 35:135 Spanish Conversation, Senior Level—no more than 3 semester hours may be elected in Spanish Work courses and the following courses may not be elected to fill this requirement:

35:125 Spanish Language Practice 3 s.h.
35:130 Methods: Foreign Language 3 s.h.
35:131 Language Laboratory Equipment Procedures 3 s.h.
35:135 Spanish Teaching Practice 3 s.h.
35:154 Accelerated Elementary Spanish 3 s.h.
35:155 Accelerated Intermediate Spanish 3 s.h.

One course given in English may be taken to satisfy 3 semester hours of this requirement, provided additional readings are done in Spanish.

High School Certification

Spanish majors who wish high school certification must complete the requirements below for a major in Spanish. Several courses in the Culture and Education are also required, as one semester of practice teaching, taken in the senior year.

Minor

A minor in Spanish requires 16 semester hours of coursework in Spanish taken at the University of Iowa or at the University of Iowa in courses taken at one of the above named institutions.

The six core courses listed above and one additional course are required. The additional course must be taken from the following:

35:125 Introduction to Bilingualism 3 s.h.
35:127 Chicano/Puerto Rican Literature 3 s.h.
35:129 Introduction to Don Quijote 3 s.h.
35:130 Introduction to Basque Language and Culture 3 s.h.
35:134 Spanish Language and Culture II 3 s.h.
35:145 Chicago Language and Culture for Teachers 3 s.h.
35:109 Latin American Studies Seminar 3-4 s.h.
35:179 Special Work 1-3 s.h.

Students who plan to use the Spanish major in teaching on the secondary level or in a bilingual program are encouraged to complete language study through 35:137 Fourth-Year Language I or its equivalent, and to elect additional courses in Spanish phonology, and Hispanic literature and civilization.

Transfer Credit
A maximum of 12 semester hours of credit in approved courses may be transferred from other institutions toward the requirements for the 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 3.0 overall grade-point average and a minimum 3.2 average in Spanish. Graduation with honors in Spanish requires, in addition to the honors described above, 8 semester hours earned in 35:127-128 Honors Literature and/or 35:123-124 Honors Spanish Language, an honor 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 language study or exposure. Classes are small, providing for 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 film and music.

The undergraduate major in Portuguese requires the following courses, or their equivalents, for a total of 24 semester-hours of course work beyond the second-year level.

Language (8 s.h.)
35:117 Advanced Portuguese I 4 s.h.
35:118 Advanced Portuguese II 4 s.h.

Literature (6 s.h.)
35:106 Brazilian Literature I 3 s.h.
35:109 Brazilian Literature II 3 s.h.

Civilization (6 s.h.)
35:115 Brazil People and Culture 3 s.h.
35:116 Modern Portugal 3 s.h.

Electives (4 s.h.)
35:103 Modern Brazilian Fiction I: Short Story 3 s.h.
35:104 Modern Brazilian Fiction II: Novel 3 s.h.
35:107 Introduction to Portuguese Literature 3 s.h.
35:108 Black Literature of Portuguese Expression 3 s.h.
35:109 Nineteenth-Century Brazilian Novels 3 s.h.
35:119 Taçutica in Portuguese Linguistics 3 s.h.

Minor in Portuguese
The undergraduate minor in Portuguese consists of 18 semester hours in Portuguese, including 12 semester hours of 100-level courses.

Offerings for Undergraduate Nonmajors
Undergraduate students in other disciplines may meet part of the College of Liberal Arts humanities and foreign civilization and culture general education requirements with 35:6 Contemporary Latin American Narrative, readings in English. The department offers several other literature and culture 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 satisfactorily competency in Spanish or Portuguese to be able to 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 undergraduate Spanish major.

Deficiencies may be remedied with the appropriate course work.

Required Course Work
Spanish phonology (either 35:157 Spanish Phonology I or phonology component of 35:260)
35:236-239 Graduate Spanish I (6 s.h.)
35:220 Cervantes's Don Quijote 3 s.h.
35:233 Seminar in Teaching 1 s.h.
35:251 Medieval Spanish Literature 3 s.h.
35:263 Historical Ibero-Romance Languages 2 s.h.
35:291 Course in Modern Spanish Literature 3 s.h.
35:292 Course in Spanish American Literature 3 s.h.
35:273 Electives bringing student's total to required minimum of 36 semester hours in the M.A. program

Maximun Study Loads
Maximum course registration is 15 graduate hours during the fall or spring semester, and 8 graduate 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 semester, and for not more than 6 semester hours in the summer of the academic year. Additional hours may be taken only with Graduate College approval.

Transfer Credit
A maximum of 9 semester hours of graduate credit in approved courses may be transferred from other institutions toward the 36-semester-hour requirement for the M.A. degree.

Teaching Certification
Exclusion of the practice-teaching requirement, graduate students may take the course 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 (both Spanish and Hispanic-American literature must be represented): I. Spanish linguistics; II. Medieval Spanish or Golden Age literature; and, III. More modern Spanish literature, Spanish-American literature or Neo-Brazilian literature.

Grading is on a 4.0 system, A being superior, B being average, and C being satisfactory. All other grades are unsatisfactory. Grades are computed only for the courses required for the major or minor in Spanish, and are not included in the computation of the grade-point average for graduation. Literature courses other than literature courses included in the required courses are not counted in the grade-point average for graduation. Grades not included in the grade-point average are written or signaled as Satisfactory (S) or Unsatisfactory (U).
Doctor of Philosophy in Spanish

Two doctoral programs are available.

One is dedicated to Hispanic literatures. Before entering the examination the candidate must become well acquainted with another Romance language and literature (a Portuguese-Brazilian program is specifically 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 whose A.U. 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 critiques of the works, as previously determined by the student and the department; an oral examination; and a research paper prepared at The University of Iowa. The second doctoral program provides for specialization in Spanish linguistics and literature with emphasis on linguistics. Before his or her comprehensive examination, the candidate must complete a course in linguistics and the equivalent of three semesters of college Latin, and demonstrate a graduate-level knowledge of a second approved foreign language and a reading knowledge of a third approved foreign language.

In both programs, the course work and individual or group research is designed to give the candidate a thorough knowledge of the Spanish language, its literature, and related civilization, from medieval to modern times; provide adequate exposure to the Romance languages; 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. The breadth of this University of Iowa Index in the areas of course work and reading and examination of the candidate is encouraged to pursue further studies in these and other area, 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 I 3 s.h.
35:252 Medieval Spanish Literature II 3 s.h.
One additional course in Medieval Spanish literature 3 s.h.
35:253 Historical Ibero-Romance Language I 3 s.h.
One additional course in Spanish or Romance linguistics 2 s.h.

Golden Age Literature
35:255 Drama at the Golden Age 3 s.h.
35:256 Cervantes’s Don Quixote 3 s.h.
35:257 Lyric Poetry of the Golden Age 3 s.h.
35:262 The Picaroscopic 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):
35:220 Nineteenth-Century Spanish Poetry 3 s.h.
35:221 Nineteenth-Century Spanish Poetry and Drama 3 s.h.
35:222 Twentieth-Century Spanish Poetry 3 s.h.
35:224 Twentieth-Century Spanish Novel I 3 s.h.
35:225 Twentieth-Century Spanish Novel II 3 s.h.
35:226 Twentieth-Century Spanish Essay 3 s.h.
35:241 Twentieth-Century Spanish Drama 3 s.h.

Latin American Literature
Four courses (12 semester hours) selected from a minimum of three of the following areas:

Area A
35:248 Novel of the Mexican Revolution 3 s.h.
35:271-273 Spanish American Novel of the Twentieth Century I-III 9 s.h.

Area B
35:220 Spanish American Essayists and Thinks 3 s.h.
35:242 Spanish American Literature of the Nineteenth Century 3 s.h.
35:268 Images of Women in Latin American Literature 3 s.h.

Area C
35:230 Post-Modernist Spanish American Poetry 3 s.h.
35:244 Spanish American Poetry of the Twentieth Century 3 s.h.
35:257 Modernism 3 s.h.

35:275 Latest Currents in Spanish American Poetry 1950-Present 3 s.h.

Area D
35:231 Spanish American Drama 5 s.h.
35:245 Spanish American Short Story 3 s.h.
35:264 Spanish American Short Story of the Century 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.
35:167 Spanish Phonology I or Phonology courses of 35:208

Literary Theory
35:204 Types of Modern Criticism 3 s.h.

Professional Training
35:211 Research Methods and Bibliography 3 s.h.
35:233 Seminar in Teaching 1 s.h.

Seminars
Two 100-level seminars in literature 4 s.h.

Specialization
Students in program I desiring to specialize in Medieval literature, Golden Age literature, Modern Spanish literature, Latin American literature, or another approved area may be allowed to 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 writing preparation in several areas.

Program II: Emphasis on Linguistics

History of the Spanish Language and Medieval Literature
35:251 Medieval Spanish Literature I 3 s.h.
One additional course in Medieval Spanish literature 3 s.h.
35:253 Historical Ibero-Romance Language I 3 s.h.
One additional course in Spanish or Romance linguistics, excluding courses listed below 3 s.h.

Comparative Linguistics
35:290 Comparative Romance Linguistics 3 s.h.

Golden Age Literature
35:255 Drama at the Golden Age 3 s.h.
35:256 Cervantes’s 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 Poetry and Drama
3 s.h.
One of the following:
35:223 Twentieth-Century Spanish Poetry
3 s.h.
35:224 Twentieth-Century Spanish Novel
3 s.h.
35:234 Twentieth-Century Spanish Novel II
3 s.h.
35:230 Twentieth-Century Spanish Essay
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
I
Contemporary Linguistics
35:197 Spanish Phonology I or Phenology course of 35:206
3 s.h.
Graduate-level phonology/phonetics
2 s.h.
35:200-202 Graduate Spanish Linguistics I-U
6 s.h.
Additional graduate linguistics (excluding seminars below)
2 s.h.

Literary Theory
35:284 Types of Minden
3 s.h.

Professional Training
35:211 Research Methods and Bibliography
2 s.h.
35:233 Seminar in Teaching
1 s.h.

Seminars
Two 200-level seminars in language
4 s.h.

Ph.D. Comprehensive Examinations
The doctoral comprehensive examinations assume a general knowledge of Spanish peninsular and Spanish American literatures and cover five broad fields, such as a literary genre or a historical literary period, chosen by the candidate so as to include at least two Peninsular and two Hispanic American Areas.
Candidates following the program with emphasis on linguistics take comprehensive examinations primarily, if not entirely, in linguistic areas, as determined by the candidate, with approval of the departmental faculty.
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 hour and four-hour or four-hour written examinations are administered, followed by a two and a half hour oral examination covering the candidate's main field of study (45 minutes), the remaining fields (60 minutes total), and the Ph.D. reading list (45 minutes).

Financial Aid
Teaching and research assistantships are available to qualified graduate student assistants, 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 reasonable period of time, but usually not over five years. A student wishing 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 devote 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 shortwave radio, tape recorders, record players, soundproof recording rooms, two drill rooms with 65 dual-channel tape recorders providing a simultaneous operation of duplicates and student record, an electronic classroom, a soundproof work room, 16mm and 8mm projection equipment and facilities, and a library of tape and disc recorders. The department offers to its majors a support in advanced language laboratory procedures.
The department sponsors a 30-minute Spanish-American "living program," "Oceanes de Espejo y Pulso" ("Happenings in Spanish and the World", broadcast weekly over University radio station WGL.

Spanish Courses
Primarily for Undergraduates
An undergraduate student who has had less than two years of high school study in Spanish will be placed in a first-or second-semester class. A student with two or more years of high school Spanish will be placed in a third-or fourth-semester class. Prospective and returning students should consult a departmental advisor. Students wishing more advanced placement may take the placement test. Transfer students who have taken courses in Spanish or related fields 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.

35000 Cooperative Education Internship
6 s.h.
361 Elementary Spanish I
4 s.h.
Prerequisite: 35:1 or equivalent.
362 Elementary Spanish II
Prerequisite: 35:1 or equivalent.
A complete two-year course satisfies requirements for demonstrating one year of college-level foreign language.
363 Elementary Spanish III
Prerequisite: 35:1 or equivalent.
364 Elementary Spanish IV
A complete three-year course satisfies requirements for demonstrating three years of college-level foreign language.
365 Spanish for Transfer
35:1 Introduction to Hispano-American Culture and Literature
Prerequisite: 35:1.
366 Spanish Culture and Civilization
Prerequisite: 35:1.

430 Latin American History
3 s.h.

432 Comparative Latin American History
3 s.h.

434 Advanced Latin American History
3 s.h.

441 Special Topics on Themes and Comparative Techniques in the Major Areas of the Language (300:441) as overview of cultural and sociopolitical aspects. Does not satisfy The University of Home Language Requirements. Offered only for students and Nonclass Program.
345 Contemporary Latin American Literatures
3 s.h.

Primary focus is on themes and comparative techniques in the major areas of the language. 300:401 as overview of cultural and sociopolitical aspects. Does not satisfy The University of Home Language Requirements. Offered only for students and Nonclass Program.
351 Repair Work
6 s.h.

Continuation of 35:1. Same as 35:6.
352 Spanish for Health Professionals
3 s.h.

Intensive conversation course designed to acquaint students with basic vocabulary used in health care. Does not satisfy The University of Home Language Requirements. Does not satisfy The University of Sunday Language Requirements. Offered only for students and Nonclass Program.
353 Advanced Academic Development
Prerequisite: 35:1 or equivalent.

450 Academic Spanish for the Social Sciences
3 s.h.

451 Academic Spanish for International Students
3 s.h.

452 Intensive Academic Spanish
3 s.h.

453 Academic Spanish for Teachers of Spanish in a Native Environment
3 s.h.

Prerequisite: 35:1 or equivalent.
354 Spanish for the Social Sciences
3 s.h.

455 Intensive Academic Spanish
3 s.h.

356 Spanish for Health Professionals
3 s.h.

Prerequisite: 35:1 or equivalent.
357 Special Topics
3 s.h.

Prerequisite: 35:1 or equivalent.
358 Spanish for the Social Sciences
3 s.h.

359 Special Topics
3 s.h.

400 Spanish for the Social Sciences
3 s.h.

410 Spanish for the Social Sciences
3 s.h.

420 Spanish for the Social Sciences
3 s.h.

Prerequisite: 35:1 or equivalent.
430 Spanish for the Social Sciences
3 s.h.

Prerequisite: 35:1 or equivalent.
440 Spanish for the Social Sciences
3 s.h.

450 Spanish for the Social Sciences
3 s.h.

455 Spanish for the Social Sciences
3 s.h.

460 Spanish for the Social Sciences
3 s.h.

500 Spanish for the Social Sciences
3 s.h.

510 Spanish for the Social Sciences
3 s.h.

520 Spanish for the Social Sciences
3 s.h.

530 Spanish for the Social Sciences
3 s.h.

540 Spanish for the Social Sciences
3 s.h.

550 Spanish for the Social Sciences
3 s.h.

560 Spanish for the Social Sciences
3 s.h.

570 Spanish for the Social Sciences
3 s.h.

580 Spanish for the Social Sciences
3 s.h.

590 Spanish for the Social Sciences
3 s.h.

600 Spanish for the Social Sciences
3 s.h.

610 Spanish for the Social Sciences
3 s.h.

620 Spanish for the Social Sciences
3 s.h.

630 Spanish for the Social Sciences
3 s.h.

640 Spanish for the Social Sciences
3 s.h.

650 Spanish for the Social Sciences
3 s.h.

660 Spanish for the Social Sciences
3 s.h.

670 Spanish for the Social Sciences
3 s.h.

680 Spanish for the Social Sciences
3 s.h.

690 Spanish for the Social Sciences
3 s.h.

700 Spanish for the Social Sciences
3 s.h.

710 Spanish for the Social Sciences
3 s.h.

720 Spanish for the Social Sciences
3 s.h.

730 Spanish for the Social Sciences
3 s.h.

740 Spanish for the Social Sciences
3 s.h.

750 Spanish for the Social Sciences
3 s.h.

760 Spanish for the Social Sciences
3 s.h.

770 Spanish for the Social Sciences
3 s.h.

780 Spanish for the Social Sciences
3 s.h.

790 Spanish for the Social Sciences
3 s.h.

800 Spanish for the Social Sciences
3 s.h.

810 Spanish for the Social Sciences
3 s.h.

820 Spanish for the Social Sciences
3 s.h.

830 Spanish for the Social Sciences
3 s.h.

840 Spanish for the Social Sciences
3 s.h.

850 Spanish for the Social Sciences
3 s.h.

860 Spanish for the Social Sciences
3 s.h.

870 Spanish for the Social Sciences
3 s.h.

880 Spanish for the Social Sciences
3 s.h.

890 Spanish for the Social Sciences
3 s.h.

900 Spanish for the Social Sciences
3 s.h.

910 Spanish for the Social Sciences
3 s.h.

920 Spanish for the Social Sciences
3 s.h.

930 Spanish for the Social Sciences
3 s.h.

940 Spanish for the Social Sciences
3 s.h.

950 Spanish for the Social Sciences
3 s.h.

960 Spanish for the Social Sciences
3 s.h.

970 Spanish for the Social Sciences
3 s.h.

980 Spanish for the Social Sciences
3 s.h.

990 Spanish for the Social Sciences
3 s.h.

1000 Spanish for the Social Sciences
3 s.h.

1010 Spanish for the Social Sciences
3 s.h.

1020 Spanish for the Social Sciences
3 s.h.

1030 Spanish for the Social Sciences
3 s.h.

1040 Spanish for the Social Sciences
3 s.h.

1050 Spanish for the Social Sciences
3 s.h.

1060 Spanish for the Social Sciences
3 s.h.

1070 Spanish for the Social Sciences
3 s.h.

1080 Spanish for the Social Sciences
3 s.h.

1090 Spanish for the Social Sciences
3 s.h.

1100 Spanish for the Social Sciences
3 s.h.

1110 Spanish for the Social Sciences
3 s.h.

1120 Spanish for the Social Sciences
3 s.h.

1130 Spanish for the Social Sciences
3 s.h.

1140 Spanish for the Social Sciences
3 s.h.

1150 Spanish for the Social Sciences
3 s.h.

1160 Spanish for the Social Sciences
3 s.h.

1170 Spanish for the Social Sciences
3 s.h.
"Diaspora" by the work of Binyavanga Wainaina; other authors studied include Maria Eugênia Viana, Vânia Horta, José Miguel Retamero, and Lourival Zanatta. In Portuguese, the book discusses themes such as colonialism, immigration, and the impact of globalization on the identity of the diaspora.

A critical work on the Spanish-American Shore of the 20th Century explores the influence of the work of Jorge Amado and the Brazilian writer's engagement with the themes of colonialism, Race, and gender. The book also analyzes the works of other prominent authors of the period, highlighting their contributions to the development of modernism in Portuguese literature.

The book "Diaspora" delves into the concept of "diaspora" in Portuguese literature, focusing on the works of writers such as Maria Eugênia Viana, Vânia Horta, José Miguel Retamero, and Lourival Zanatta. It examines the impact of globalization on the identity of the diaspora and discusses themes such as colonialism and immigration.
Speech Pathology and Audiology

Department chair: John M. Davis


Program assistants: James F. Curtice, Dorothy H. Bemben

Courses and degrees programs of the Department of Speech Pathology and Audiology are planned to meet the needs of students seeking to prepare themselves for career opportunities such as clinical service, college and university teaching, and research concerned with speech, language, or hearing problems and disorders. The offerings also include courses for students with vocational and professional goals in other fields, such as psychology, education, speech and dramatic arts, dentistry, and medicine, whose preparation may be enriched by the study of speech and hearing problems and their disorders.

The courses and degree programs of the Department of Speech Pathology and Audiology are planned to meet the needs of students seeking to prepare themselves for career opportunities such as clinical service, college and university teaching, and research concerned with speech, language, or hearing problems and disorders. The offerings also include courses for students with vocational and professional goals in other fields, such as psychology, education, speech and dramatic arts, dentistry, and medicine, whose preparation may be enriched by the study of speech and hearing problems and their disorders. Holders of advanced degrees in this field provide clinical services for people with speech, hearing, or language problems in hospitals, community clinics, rehabilitation facilities, and elementary and secondary schools; teach in colleges and universities; and/or conduct research in laboratories concerned with communication processes and disorders.

All professional programs leading to the M.A. degree are accredited by the Education and Training Board of the American Speech-Language-Hearing Association.

Undergraduate Programs

Since the master's degree is the equivalent of the minimum level of preparation for persons seeking professional careers in this field, the undergraduate courses leading to the B.A. or B.S. degree in speech and hearing science do not qualify an individual to work professionally in this field but have as a primary purpose to prepare the student 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:

- Introduction to Speech and Hearing Processes and Disorders 3.0
- 103:110 Articulatory and Acoustic Phonetics 3.0
- 110: Anatomy of Sound and Hearing Mechanisms 3.0
- 112: Fundamentals of Speech Science 3.0
- 113: Introduction to Hearing Science 3.0
- 117: Psychology of Language I 3.0
- 118: Psychology of Language II 3.0
- 113: Physics of Sound and Music 3.0
- 174: Introduction to Statistical Methods 3.0
- 115: Elementary Psychology 3.0
- 116: General Psychology 3.0

Psychology One of the following courses with "A" or "B" are preferred.

- 114: Introduction to Child Psychology 3.0
- 115: Development of Children's Social Behavior 3.0
- 111: Learning and Motivation in Children 3.0
- 116: Development of Social Judgment 3.0
- 114: Cognitive Development of Children 3.0
- 148: Individual Differences in Developmental Psychology 3.0
- 110: Growth and Development of the Young Child 3.0
- 115: The Child Development 3.0
- 114: Personality 3.0
- 115: Clinical Psychology 3.0
- 116: Personality 3.0
- 117: Psychology of Sex Differences 3.0
- 118: Abnormal Psychology 3.0
- 119: Behavior Disorders in Children 3.0
- 117: Behavior Modification 3.0

One additional course in psychology, anthropology, or sociology 3.0

Students majoring in speech and hearing science must also complete or have the equivalent of college algebra and trigonometry, college physics dealing with light and sound, and a course in the biological sciences.

Honors

The senior-year program leading to the B.A. or B.S. 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 over all major courses and all work at the University. For graduation with honors, the student must complete two semesters of clinical study in residence after entering the senior year honors program; maintain a minimum grade-point average of 3.0 overall; complete all courses in the major; and in the required 6 semester hours of departmental honors courses for seniors (97 Hours Seminar and 978 Hours Thesis) and be recommended for graduation with honors by the honors thesis adviser and the departmental honors adviser.

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 College of Liberal Arts and in this department by recommendation of the departmental honors adviser.

Graduate Programs

Master of Arts

The M.A. program in speech pathology and audiology may be a professional program for students who have completed a major in a related area of study. This program leads to a professional degree and requires additional study for the Ph.D. degree. The programs for the professional M.A. are specified to ensure that upon graduation, a student will meet the requirements for immediate professional employment. The general M.A. program allows greater flexibility in individual program goals.

The M.A. candidate usually has a background of undergraduate courses in speech, psychology, education, the science, etiology, pathophysiology, and human behavior of the major field of study in the University's college.

Before the final registration in the program, the entering M.A. degree candidate must take proficiency examinations covering the major and hearing coursework considered pertinent to the graduate study. The results of these examinations provide the student and faculty adviser with a basis for developing a plan of study.

Professional Program

The professional M.A. program is designed to prepare clinicians in speech-language pathology and audiology who will be able to function independently in a variety of clinical settings. A nonprofessional M.A. program meets all academic requirements for clinical certification by the American Speech-Language-Hearing Association. The department offers the professional M.A. with various emphases. Each requires a minimum of 38 semester hours of graduate credit for a master's degree in this program. Guidelines for the professional M.A. degree are not required to present a thesis, but students demonstrating research aptitude and interest are encouraged to do so. All candidates preparing for the professional M.A. degree without thesis are required to take final written comprehensive examinations. Requirements for the professional M.A. degree include the following:

A. All Majors

1. 218 Neurological Disorders of Speech and Language 3 s.h.
2. 216 Articulation Disorders 3 s.h.
3. 218 Hearing Loss and Audiology 4 s.h.
4. 224 Developmental Language Disorders 3 s.h.
5. 234 Rehabilitation Audiology 3 s.h.
6. 219 Counseling for Related Professions 3 s.h.
7. 500 Psychological Issues and Counseling Techniques for the Communication Disorders Professional 3 s.h.

B. Speech-Language Pathology, General Clinical Emphasis

Courses listed under A and:

1. 216 Stuttering 3 s.h.
2. 216 Voice Disorders 3 s.h.
3. 226 Neurophysiology of Speech and Language 3 s.h.
4. 227 Claire Patella 2 s.h.
Practicum, research, and elective courses to bring total to at least 38 semester hours.

C. Speech-Language Pathology, Emphasis on Clinical Work in Elementary and Secondary Schools

Courses listed under A and B, and:

1. 7E104 Remedial Methods in Speech and Hearing 3 s.h.
2. 7E192 Laboratory Practice in Elementary School 5 s.h.
Practicum, research, and elective courses to bring total to at least 38 semester hours.

Doctor of Philosophy

The Ph.D. program offers concentrations in the doctoral study of the clinician and researcher in speech and hearing processes and their disorders, and other intensive specialization in
particular clinical problems in which the student may have special interest.

The Ph.D. program is usually planned with specialization in speech-language pathology, audiology, speech science, psychology of language, or hearing science. Within each area the candidate and advisor may provide for further concentration through suitable selection of advanced seminars and research areas. Most students will find that their special interests lie in one or more of the listed areas.

The department encourages candidates with special interests and goals to develop individualized programs in consultation with their advisor and the faculty, provided they clearly define their purpose and present adequate plans in study.

In addition to the M.A. courses listed above, or their equivalents, the following coursework is recommended for the Ph.D. in speech pathology or audiology:

A. All Candidates

3.120 Fundamentals of Laboratory Instrumentation 3 s.h.
3.218 Language Acquisition 3 s.h.
3.218 Experimental Psychology I 3 s.h.
3.220 Advanced Laboratory Instrumentation 3 s.h.
3.250 Acoustics and Biomechanics of Speech 5 s.h.
3.560 Research Speech Pathology 4-5 s.h.
3.591 Research Audiology 4-5 s.h.
3.592 Research Experimental Phonetics 4-5 s.h.
Statistics beyond introductory course
Courses in computer science
Courses in psychology (psychological, learning, motivation, personality)

B. Speech-Language Pathology

Seminar in areas of interest
Clinical practicum

C. Audiology

3.254 Psychoacoustics 3 s.h.
3.256 Psychoacoustics Laboratory 4 s.h.
3.256 Physiology of Hearing 4 s.h.

Seminar in areas of interest
Clinical practicum

D. Speech and Language Sciences

3.254 Psychoacoustics 3 s.h.
3.256 Psychoacoustics Laboratory 4 s.h.

Seminar in areas of interest
Research linguistics and psycholinguistics
Coursework in biological and physical sciences and mathematics

E. Hearing Science

3.254 Psychoacoustics 3 s.h.
3.256 Psychoacoustics Laboratory 4 s.h.
3.256 Physiology of Hearing 4 s.h.
3.224 Sensory Processes Seminar in areas of interest
Coursework in biological and physical sciences and mathematics

Students following programs in speech and language science or hearing science are normally expected to register for research credit during each semester of residence. Coursework recommended for the Ph.D. beyond those included in the preceding seminars, are drawn mainly from the areas of physics, engineering, mathematics, statistics, psychology, neurology, anatomy, and physiology.

Doctoral students who have not written a master's thesis must complete the equivalent of a master's thesis project before taking the comprehensive examination for the doctorate. All doctoral candidates must pass the comprehensive examination, preferably before the end of the first year of full-time study in the Ph.D. program, and must successfully complete and submit a dissertation based on original research.

Admission and Appointments

The Department of Speech Pathology and Audiology has requirements for admission and graduate appointments which are contained in the Graduate Catalog. A brief summary of these requirements is presented below. For more detailed information, contact the department.

Application Form
All applicants for admission to graduate study in the Department of Speech Pathology and Audiology must complete the departmental information form, which can be obtained from the department.

Admission to M.A. Program

The department bases M.A. admission on the applicant's credentials relative to those presented by other applicants for the same term. While an undergraduate grade-point average above 3.0 does not ensure admission, the department admits few applicants with undergraduate grade-point averages below 3.0.

Completed applications must be received no later than February 1 for fall semester, and April 1 for spring semester. If later applications are received, they are considered only under special circumstances and only if the student is recommended for admission by the department.

Applicants to Ph.D. Program

Completed applications should be received at least two months prior to the beginning of the term for which the student wishes to be considered for graduate admission. In general, applications are reviewed immediately after receipt, and students are notified of action on their admission within sixty days after their applications are complete.

Applications for Graduate Assistantships

The following information applies to all financial appointments administered by the department:

Graduate appointments usually begin in the fall semester. Students beginning study in the spring semester or summer session are considered for appointments following the fall semester.

Scope of the Graduate Record Examination (GRE) Aptitude Test are required for consideration for financial assistance. Appointments are made after students are notified of admission in February. Initial appointment offers are generally made in March or April following the fall semester, and April following the spring semester. However, the department continues to make offers after this time.

Clinical Facilities

The clinical training program provides graduate students a learning experience that is suited to the needs of the University of Iowa. The University of Iowa is the health center of the state, and that it is able to provide services that are readily available for the clinical training of the student in speech-language pathology and audiology.

The University of Iowa Affiliated Speech and Hearing Centers include the University of Iowa Speech and Hearing Clinic; the division of speech and hearing in the Department of Otolaryngology and Maxillofacial Surgery; Speech and Hearing Services, University Hospital; Speech and Hearing Services, Pediatrics Specialized Child Health Services; Speech Pathology Service; Child Psychiatry; Audiology and Speech Pathology, Veterans Administration Hospital.

Directors of these programs form the Council on Speech, Language, and Audiology at the University of Iowa.

The University of Iowa Speech and Hearing Centers serve the University and the general public. Included in its services are outpatient evaluation and rehabilitation programs for speech, language, and hearing problems, and a six-week summer residential program for
important, are taught to all students as part of the core curriculum. As interest dictates, additional skill development is possible by selecting the appropriate elective course options.

The balance between core courses, a sectoral major, and elective courses allows students to acquire a rigorous and consistent foundation for policy planning, specialized knowledge to enhance entry-level employment prospects, and exposure to other specialties within the planning field.

Other Requirements

A core examination is required for all students. The exam reviews skills and concepts with emphasis placed on the ability to synthesize material from the various core courses. A sectoral major examination is also required. A variety of options for meeting this requirement exist, including a major paper, several short-term papers, or a written examination. The written examination may be 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 or 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 report summarizing the experience. Program faculty take an active role in aiding students to secure these internships. Alternatively, the student may elect to complete an additional course along with the opportunity for credit, bringing the total to 60 hours.

Joint Programs

Law and Planning

The Urban and Regional Planning Program and the College of Law cooperate in administering a four-year program which satisfies the degree requirements leading to an M.A. or M.S. in planning and a J.D. in law. This is a reduction of one academic year from the total requirements of the two programs taken separately. Separate admissions to both academic units are required.

Preventive Medicine and Environmental Health

A joint master's degree 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.
Urban Transportation

A number of departments and programs at the University of Iowa participate in a graduate certificate program which enables graduate students in the academic units to obtain a certificate in urban transportation.

As an effort to make use of technical skills and provide an applied-orientation education in such fields as travel behavior, transport systems design and management, evaluation of alternative investments, economic and environmental regulation of transportation, transport finance, and impact evaluation.

The Graduate Program in Urban Transportation is coordinated by the Center for Transportation Studies within the institute of Urban and Regional Research. Academic certification has been authorized by the Graduate College of the University of Iowa, and completion of the program is documented on the student's transcript. Eligible students include those with graduate standing in the following academic units: business administration, economics, geography, law, political science, psychology, sociology, urban studies, and regional planning. The program is completed in conjunction with the established graduate degree arrangements of the participating departments, programs, and colleges.

Curriculum Structure

Considerable flexibility exists within the program to enable students to pursue individual interests. The course of study consists of 18 semester hours; 12 of these semester hours must be in transportation courses and the remaining 6 semester hours can be in related courses outside the student's discipline. Transportation-related courses may include those in urban development, land use, environmental quality, urban service provision, logistics, regional science, marketing, analytic techniques, and planning processes.

Four core courses are required to obtain the certificate, as well as 2 of the following: 1. Urban Planning and Policy; 2. Transportation and Land Use; 3. Urban Transportation Planning; 4. Urban Transportation Planning.
Program Seminar. The latter seminar may be repeated, and students are asked to take it for one semester during their tenure in the urban transportation program. For discussion of various topics within the realm of transportation. Students are strongly encouraged to gain practical experience through internships or research assistantships. Faculty associated with the urban transportation program take an active interest in helping students find positions.

Research

Transportation research projects at IOWA are often focused on problems at the state and regional levels. Participation in projects administered by program faculty provides students with the opportunity to develop a broad base of skills in such fields as planning methods, project analysis, and impact assessment. Program faculty have recently conducted research funded by the National Science Foundation, the U.S. and IOWA Departments of Transportation, the Iowa Legislature, and numerous local and regional organizations.

As part of 102/211 Problems in Transportation and Land Use, students have conducted their own small-scale research projects for clients within the IOWA Department of Transportation or other public agencies. Early in the semester students meet with department staff to identify possible projects at the end of the semester the students formally present their findings. Beyond the substantive knowledge acquired through concentration on the research topic, research methods and communication skills are acquired.

An excellent environment for student research exists within the Institute of Urban and Regional Research, which houses the Center on the University’s Galbraith research campus. A selective collection of transportation materials, including census documentation, computer tapes, microfilms, and periodicals not available elsewhere on campus is maintained in the buffalet. The collection is augmented with extensive reliance made on transportation and related subject matters on the campus.

Advanced transportation facilities exist at the University as well. The WeeK Computer Center has a complete library of software packages tied to IBM 370, PDP-11, and Hewlett Packard 2020 computer systems.

Financial Aid

Research assistantships are awarded on a competitive basis, with the level of financial support normally ranging from quarter-time to half-time. Students receiving financial aid during the academic year are eligible for summer research assistantships. Out-of-state students receiving research assistantships are eligible for in-state tuition rates. Academic year and summer assistantships may be provided by participating academic units or in conjunction with projects funded through the Center for Transportation Studies.

Admission

Entry into the urban transportation program is limited to students pursuing graduate degrees in the academic units cited earlier. Interested students are encouraged to contact the director of the Center for Transportation Studies. The admission procedure consists of submitting to the director a current transcript, two letters of recommendation, and a brief statement relating the nature and extent of the applicant’s interest in transportation.

Courses

The following courses are part of the sequence in the Urban Transportation Program:

**44:103 Introduction to Transportation**
- (Same as 102:133.)
- 3 a.h.

**44:134 Urban Transportation**
- (Same as 102:134.)
- 3 a.h.

**555:113 Transportation Systems Analysis**
- 3 a.h.

**555:230 Travel Behavior in Large Areas**
- 3 a.h.

**555:230 Transportation Policy and Planning**
- 3 a.h.

**555:211 Problems in Transportation and Land Use**
- 3 a.h.

**555:232 Urban Transportation Planning Process**
- 3 a.h.

**555:205 Transportation Regulation and Finance**
- (Same as 44:235/235.5.)
- 3 a.h.

**557:372 Urban Transportation Planning**
- 3 a.h.

**557:311 Transportation Program Seminar**
- 1 a.h.

Women's Studies

The Women's Studies Program is a multidisciplinary program emphasizing the teaching and study of women in society and history. Its major site is to bring the University community to bear on women as a group frequently overlooked by traditional disciplines. By taking courses through many departments, students become acquainted with the growing knowledge about women in the humanities and social sciences and learn new analytical skills, often developed within feminist scholarship, which they may then apply as a field of concentration or apply to other majors.

Undergraduate Study

Undergraduate students may complete a minor in women's studies by taking 18 semester hours in departments associated with the program, including at least 12 semester hours in upper-level courses (numbered 100 or above), and maintaining a 2.0 grade point average in these courses.

Undergraduates in the Bachelor of General Studies program may choose a special area of concentration in women's studies.

Undergraduates may also elect women's studies courses from those listed below.

Graduate Study

Graduate students in master's or doctoral programs may choose a concentration in women's studies within existing disciplines. Graduate students who wish to pursue the Ph.D. in women's studies may do so by filling a plan of study for the ad hoc interdisciplinary Ph.D. through the Graduate College.

Women's Studies PROGRAM FACULTY

Professor: Patricia Nelson Limerick (History), and Kent Anderton (Anatomy). Associate Professors: Marilyn Wiser (Women's Studies), Margaret Smith (Mathematics), and Barbara A. Redwine (Public Relations). Assistant Professors: Martha Chernesky (Religion), Ruth M. Evans (Philosophy), and John C. Hearn (Religion). Associate Professors: Nancy J. Brown (English), and Carol J. Hearn (English and Women's Studies). Assistant Professors: Mary Jane Donahue (English), and Susan S. Eisen (Religion).
Honors Students in the college-wide honors program may earn an honors degree in zoology by completing a total of at least 8 semester hours in 37:168 Honors Laboratory Research. 37:197 Honors Readings in Zoology, and 37:188 Honors Seminar in Zoology. A 3.2 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 appoint 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 are designed to prepare students for different kinds of professional activities, including teaching at various levels; participation in research in private, educational, or government laboratories; or service involving some planning or administrative function. More than 50 percent of the doctoral students graduating from this department in the last two decades have been engaged in college or university teaching. A substantial number of students completing their training with the M.S. degree have obtained terminal or professional positions, some of which require independent responsibility or performance or training. Prior to registration in August, all 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, 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 all deficiencies in mathematics, chemistry, or physics during the first year. A student with a bachelor's degree other than biology or zoology may request modification of certain of the area requirements; the student's degree committee will decide whether the student may waive portions of the requirements. All members of the faculty in zoology engage in research. Areas of departmental research include cell biology, developmental biology, genetics, evolution, molecular biology, neurobiology, ecology, behavior, physiology, and parasitology. Most projects have auxiliary aspects involving work in other departments, sometimes with joint sponsorship of the faculty in those departments.

For purposes of graduate student advising, research in zoology is categorized in four general areas: development, behavioral biology, ecology, and genetics. Each of these general areas has one or more faculty members as its primary contact, and it 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 6 to 8 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 choice of courses will be tailored to the student's background and career goals. The student can receive credit for courses he or she is required to take based 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 mainly on the work reported in the thesis and on related subject matter.

The M.S. degree without thesis requires 34 semester hours of graduate credit and a library research report. More than 4 to 8 semester hours may be granted for the research report. Credit may be granted in consultation with 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 certain courses in zoology required to make up deficiencies revealed by the diagnostic examination (see above), may be included in the 34-semester hour minimum required for the research report. On completion of the hours requirement as specified in the research report, by the student's faculty committee, the student must pass a written examination covering his or her graduate program in zoology, including the area of the student's report.

Master of Science in Biology The M.S. program with thesis requires 30 semester hours of graduate credit. Ordinarily 6 to 8 semester hours apply to the research and writing, 6 to 12 semester hours to graduate courses in zoology. 8 semester hours to graduate courses in botany, and the remaining semester hours to free 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 on the work reported in the thesis.

Doctor of Philosophy in Zoology

Each Ph.D. student's formal course of study is determined by his or her dissertation advisor in consultation with the graduate faculty and the student's background and current and prospective research interests.

The committee also determines the program of formal coursework and the comprehensive examination to be taken by the student. The comprehensive examination will be taken before the student can proceed to the dissertation stage of study.

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 tuition are available through federally-funded interdepartmental training programs in cell and molecular biology and neurobiology. These programs also support postdoctoral fellows. Support through interdepartmental programs in genetics (predoctoral) and cancer (postdoctoral) is also available.

In addition, the department also participates in the University-sponsored program of teaching and research fellowship. 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 the laboratories on the campus, or at other appropriate field stations.

Most students, and other appointments for the following academic year are filled by April 1, but opportunities occasionally exist for appointments at other times, including the beginning of the spring semester.

Requests for appointment should include complete research experience, interest, and references. The closing date for all applications is usually by December 15 of each year.

Admission

Applicants are encouraged to申请 have a grade point average above 3.0 and a Graduate Record Examination (GRE) Analytic Test (verbal and quantitative) score above 1300. The applicant should also take the Graduate Record Examination Advanced biology test and, at least, a score of 300 on this test.

Although the department prefers applicants who have completed undergraduate programs in zoology, it will consider applicants with backgrounds in biology, botany, biophysics, and other related areas.

Facilities

The department is housed in a cluster of contiguous buildings. It has animal care facilities for mammals, birds, reptiles, amphibians, fishes, and invertebrates, including prairie, and special facilities for research with viruses, DNA sequencing, fruit flies, and marine organisms. It has 12 walk-in and reach-in environmental chambers for special culture or animal care needs. There are three transmission electron microscopes, including one for teaching and research purposes, and one with high-resolution capabilities. The department is equipped to carry out research at all levels in which graduate teaching in conducted. Light microscopes of a variety of types are available, including those with phase contrast and polarized light capabilities, and those with Nomarski optics. Cultivars of various sorts, including low, medium, high-speed, and ultra-high-speed models, are available.

Other equipment includes electron photomicroscope, electron high-pressure liquid, and high-performance liquid chromatography apparatus, electron amplifying and recording equipment, microanatomical and morphological microscopes, binoculars, binocular dissecting, and ultra-high-speed models, are available.

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The department also participates in the University-sponsored program of teaching and research fellowship. 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 the laboratories on the campus, or at other appropriate field stations.

Most students, and other appointments for the following academic year are filled by April 1, but opportunities occasionally exist for appointments at other times, including the beginning of the spring semester.

Requests for appointment should include complete research experience, interest, and references. The closing date for all applications is usually by December 15 of each year.

Admission

Applicants are encouraged to申请 have a grade point average above 3.0 and a Graduate Record Examination (GRE) Analytic Test (verbal and quantitative) score above 1300. The applicant should also take the Graduate Record Examination Advanced biology test and, at least, a score of 300 on this test.

Although the department prefers applicants who have completed undergraduate programs in zoology, it will consider applicants with backgrounds in biology, botany, biophysics, and other related areas.

Facilities

The department is housed in a cluster of contiguous buildings. It has animal care facilities for mammals, birds, reptiles, amphibians, fishes, and invertebrates, including prairie, and special facilities for research with viruses, DNA sequencing, fruit flies, and marine organisms. It has 12 walk-in and reach-in environmental chambers for special culture or animal care needs. There are three transmission electron microscopes, including one for teaching and research purposes, and one with high-resolution capabilities. The department is equipped to carry out research at all levels in which graduate teaching in conducted. Light microscopes of a variety of types are available, including those with phase contrast and polarized light capabilities, and those with Nomarski optics. Cultivars of various sorts, including low, medium, high-speed, and ultra-high-speed models, are available.

Other equipment includes electron photomicroscope, electron high-pressure liquid, and high-performance liquid chromatography apparatus, electron amplifying and recording equipment, microanatomical and morphological microscopes, binoculars, binocular dissecting, and ultra-high-speed models, are available.
Primarily for Graduates

27131 Senior Seminar (4) 3.48
Lectures, discussion, seminars on selected topics or problems. May be repeated. Prerequisite: 27106 or consent of instructor. Same as 61:215, 5:016. 9/15, 9/19.

27132 Senior Zoology (2) 3.48
Weekly reports on current research, invited speakers.

27135 Ecological Elective (5) 3.48
Lectures and laboratory on methods of field study, data gathering, site selection and testing, hypothesis testing, use, maintenance of ecotones, advanced topics, laboratory methods. Instructor. Prerequisite: 27150 or consent of instructor. Same as 9:016, 9:018.

27227 Senior: Endocrinology (5) 3.48
Selected topics of current research interest in basic endocrinology and nontoxicology of human action. Prerequisite: 27150 or equivalent.

27238 Senior: Hormones and Behavior (3) 3.48
Discussion, readings, and reports on topics related to hormonal control and hormonal regulation of neurobehavioral behavior. Prerequisite: 27145, 27150, or equivalent in psychology or physiology of behavior.

27240 Fundamentals of Toxicology (3) 3.48
Toxicology in Central America; sponsored by Organization of Tropical Studies; 39 student participants. During four-month semesters and summer sessions. Prerequisites: graduate standing and competitive application. Same as 29303.

27261 Senior: Entomology (2) 3.48
Current concept in ecology. Prerequisite: 27-130 or consent of instructor.

27265 Advanced Techniques in Light Microscopy (4) 3.48
Theory of modern techniques in light microscopy, with some demonstrations, including bright field, dark field, phase contrast, Nomarski, fluorescence.

27267 Senior: Entomology (2) 3.48
Current topics in entomological biology. May be repeated. Offered during semesters. Prerequisites: graduate standing and consent of instructor.

27269 Senior: Invertebrates (2) 3.48
Discussions, readings, topics relating to behavior and interdepartmental ecology. Prerequisite: a course in behavior, or consent of instructor.
College of Business Administration

The college is organized into six academic departments: Accounting, Economics, Finance, Industrial Relations and Human Resource Management, Science, and Marketing. The undergraduate and graduate programs of the college are fully accredited by the American Assembly of Collegiate Schools of Business. Research, executive development, and continuing education activities are supported by the external programs of the college. Industrial Relations Institute, Institute for Economic Research, Institute for Entrepreneurial Management, Institute for Insurance Education and Research, Labor Center, and Management 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 business studies either in the College of Liberal Arts or in another institution, and usually enters the College of Business Administration as a junior.

The college’s B.B.A. curriculum requires 120 semester hours for graduation, with at least 48 semester hours in business courses and at least 48 semester hours in nonbusiness courses. Limited specialization is possible through the student’s designated major.

The last 30 (or 45 of the last 60) semester hours must be earned in residence following admission to the College of Business Administration. At least 24 semester hours of credit in courses offered by the College of Business Administration, and at least 6 semester hours of credit in the student’s major must be earned at The University of Iowa.

A student who has not satisfied the quantitative methods, psychology/ sociology, accounting, and economics requirements when admitted to the college must undertake them in the first enrollment and continue them until successfully completed. In general, students must complete all common requirements by the end of the junior year.

To graduate, the B.B.A. candidate must have at least a 2.0 grade-point average in all college work, and must attempt at the University, in all business and economics course work attempted at the University, in all course work attempted in the major, and in all course work attempted at the University in the major.

Common Requirements

The B.B.A. candidate must satisfy these minimum common requirements:

- Quantitative methods
- Economics
- Statistical methods
- Accounting
- Management
- Economics

One of these courses will fulfill the requirement for a course in administrative processes under any curriculum:

- 60:165 Business Policy
- 60:185 Business Policy
- 60:188 Managing the New or Small Business

- Consult the college’s undergraduate office concerning methods for meeting the requirements listed above.

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. An undergraduate student in the College of Business Administration may elect to complete a minor in another college of the University. For the minor requirements, the student should consult with the department in which he or she wishes to minor. To have the minor recorded on his or her transcript, the student must inform the Registrar’s Office when applying for the degree.

Business Minor

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 eligible to pursue a Program
Requirements for Undergraduate Study) to be considered for admission to the business minor program. The course list below will satisfy all requirements for the minor in business administration:

- A computer programming course 3 s.h.
- A mathematics course numbered 2255 or higher 3 s.h.
- A statistics course numbered 2258 or higher 3 s.h.
- Principles of microeconomics 3 s.h.
- Principles of macroeconomics 3 s.h.
- 6A:1 Introduction to Accounting 3 s.h.
- Accounting 3 s.h.
- Accounting 3 s.h.
- Marketing 3 s.h.
- 6E:100 Introductory Financial Management 3 s.h.
- 6L:100 Administrative Management 3 s.h.
- 6L:47 Introduction to Law 3 s.h.

*Must be taken in junior or senior year

Interested students should be able to register for the first seven courses listed above before applying for admission to the business minor program. The first seven courses listed above may be used to satisfy elective hours toward a baccalaureate degree and in some instances specific College of Liberal Arts requirements. Admission to the program is limited and meeting minimum standards does not ensure admission.

The requirements for a minor in business administration may also be satisfied by taking the 100 sequence of M.B.A. core courses.

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 16 semester hours for a semester or 9 for a summer session require approval of the assistant dean.

Pass/Fail Grading

Of the total semester hours required for a B.B.A., a student may be taken on a pass/fail or pass/no-pass basis with the consent of the advisor and instructor. However, a student may not count more than 16 semester hours of pass/fail or pass/no-pass credit in his or her last 60 semester hours of coursework with the following exceptions: M.A., M.B.A., M.D., or Ph.D. students which are taken to satisfy the baccalaureate degree requirements may not be taken pass/fail; nor may courses in the student's major. Pass/fail or pass/no-pass 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 average of 60 or above is recorded as a P; otherwise, this grade earned (D or F) is recorded.

Second-Grade-Only Option

Unless otherwise specified and with permission of the assistant dean, a student may be permitted to repeat a University course and have only the grade and credit of the second registration used in calculating his or her cumulative grade point average. This option may be applied to a maximum of 16 semester hours of work.

Admission

The college normally admits undergraduate students at the beginning of their junior year. Second-semester sophomore may be admitted if an accelerated program readiness has been established. Unconditional admission requires at least a 2.25 grade-point average (A = 4.0) in all college-level courses undertaken, including all courses undertaken at The University of Iowa and all business and economics courses. The applicant should also have satisfied the following common requirements: rhetoric-communication, psychology and sociology, quantitative methods, accounting and economics, and other 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 over no more than two courses at The University of Iowa.

Pattentment of the minimum requirements does not ensure admission. The college's admission committee reviews all applications and selects the applicants who appear best qualified. Students who have minor deficiencies in meeting admission requirements may be granted conditional or probationary admission.

Interdepartmental Graduate Programs

The following interdepartmental graduate programs are offered in the College of Business Administration: Master of Arts (M.A.) in business administration, Master of 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 Graduate School, see "Department of Accounting" and "Department of Economics" sections of the Catalog.

Master of Business Administration

The Master of Business Administration (M.B.A.) program is designed for individuals preparing for professional administrative careers in business or public sector. The program enhances career opportunities for the individual and at the same time provides industry and government with professional personnel required in a dynamic economy.

The curriculum is designed for college graduates in any field. Prior courses are given for admission. From 32 to 60 semester hours are required, depending upon student's undergraduate academic background. For students with no prior business administration course work, 60 semester hours of course work will be required. For students with prior course work in business administration, some of the foundation courses may be waived on the basis of exemption examinations or equivalent course work of high quality.

Undergraduate students at any institution may take courses as part of their undergraduate degree program which are equivalent to one or more of the UI M.B.A. foundation courses. For advice on these equivalencies, contact the Graduate Programs in Business Office, College of Business Administration. In particular, seniors in the colleges of Liberal Arts and Engineering, or the University of Iowa may use M.B.A. foundation courses to satisfy elective requirements in their undergraduate degree programs. Similarly, advanced course work may allow such students to complete a bachelor's degree in four years and the M.B.A. degree in the fifth year.

Foundation Courses (27 semester hours)

- 6L:192 Financial Accounting—M.B.A. 3 s.h.
- 6E:190 Managerial Behavior 3 s.h.
- 6E:191 National Income Analysis 3 s.h.
- 6F:194 Managerial Finance—M.B.A. 3 s.h.
- 6C:193 Computer Applications—M.B.A. 3 s.h.
- 6C:197 Quantitative Methods—M.B.A. 3 s.h.
- 6L:191 Management of Organization—M.B.A. 3 s.h.
- 6L:194 Legal, Tax, and Business—M.B.A. 3 s.h.
- 6L:196 Marketing Management—M.B.A. 3 s.h.

In the M.B.A. integrated core and final examination, students must continue the broad study begun in the sequence of foundation courses listed above and pursue in greater depth more advanced study associated with their own career objectives.
Following are the integrated and applied core course requirements. (27 semester hours) and the area of concentration requirement (6 semester hours):

**Integrated Core (18 semester hours)**

- 6A214 Managerial Accounting—M.B.A. 3 s.h.
- 6C261 Administrative Science 3 s.h.
- 6C285 Administrative Policy—M.B.A. 3 s.h.
- 6D265 Administrative Policy—M.B.A. 3 s.h.
- 6C271 Statistical Methods—M.S.A. 3 s.h.
- 6C273 Managerial Economic Theory—M.S.A. 3 s.h.
- 6C276 Operations Research—M.B.A. 3 s.h.

**Applied Core (9 semester hours)**

Three of the following, or two of the following and an approved elective:

- 6C280 Management Systems
- 6D265 Industrial Relations—M.B.A. 3 s.h.
- 6M332 Marketing Management II—M.S.A. 3 s.h.

**Area of Concentration (6 semester hours)**

In addition to courses required of all students, students must select, with the approval of the assistant director of the M.B.A. program, an area of concentration which includes at least 6 semester hours of course work in that area. Areas of concentration include administrative studies, finance, industrial relations and human resources, management systems, managerial accounting, and marketing. Requests for other areas of concentration may be approved.

Evening courses offerings allow students to attend M.B.A. degree on a part-time basis in Iowa City, Cedar Rapids, and the Quad-Cities. Part-time students usually take one or two courses each semester and complete the program in three to five years.

**Executive M.B.A.**

A special program, the Executive M.B.A., also leads to the Master of Business Administration degree. Admission is limited to experienced executives who want to broaden their management skills without interrupting their professional careers. Course work is presented in two academic years. Classes begin with one full week in Iowa City followed by classes one day a week alternating Fridays and Saturdays. Participants progress through the program as a single group.

Further information about the program, fees, and application procedures may be obtained by contacting the director of the Executive M.B.A. Program, Graduate Programs in Business 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 or several areas of business administration. It permits a research emphasis which then qualifies students for research or teaching positions or employment in a business-related position.

The program is available on both the 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 provided 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 requirement of the American Assembly of the Collegiate Schools of Business (AACSBB). This means that candidates' undergraduates 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 nonprofit organizations.

Requirements for the Master of Arts degree with thesis include:

<table>
<thead>
<tr>
<th>Area</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major area</td>
<td>9 s.h.</td>
</tr>
<tr>
<td>Minor area</td>
<td>6 s.h.</td>
</tr>
<tr>
<td>Economic theory and/or organizational</td>
<td></td>
</tr>
<tr>
<td>behavior</td>
<td>6 s.h.</td>
</tr>
<tr>
<td>Electives</td>
<td>6 s.h.</td>
</tr>
<tr>
<td>Research methodology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>Research reports (2)</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>Total</td>
<td>30 s.h.</td>
</tr>
</tbody>
</table>

Requirements for the Master of Arts degree without thesis include:

<table>
<thead>
<tr>
<th>Area</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major area</td>
<td>12 s.h.</td>
</tr>
<tr>
<td>Minor area</td>
<td>6 s.h.</td>
</tr>
<tr>
<td>Economic theory and/or organizational</td>
<td></td>
</tr>
<tr>
<td>behavior</td>
<td>6 s.h.</td>
</tr>
<tr>
<td>Electives</td>
<td>6 s.h.</td>
</tr>
<tr>
<td>Research methodology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>Research reports (2w)</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>Total</td>
<td>35 s.h.</td>
</tr>
</tbody>
</table>

The minimum number of semester hours for either program is usually earned in courses exclusively for graduate students (200 level); where appropriate, the student may take courses at the 100 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.

**Doctor of Philosophy**

The Doctor of Philosophy program in business administration is designed to meet the career needs of individuals preparing for faculty research and teaching positions in academic institutions as well as for positions in business and government. The program is a broad, permitting students to develop a specialization according to their capabilities, background, and personal goals. Sufficient course work and related experience are provided so that students achieve competence in economic theory, statistical methods, teaching, and research as well as expertise in two areas of study.

Courses work in the Ph.D. program consists of prerequisites (as necessary), the Ph.D. core, major and minor areas of study, and dissertation research. Most students (including all with master's degrees from AACSBB accredited programs) take 60 semester hours of course work. Additional course work may require impositions on others to guarantee satisfaction of business prerequisites or the Graduate College minimum hours (72 semester hours of graduate credit, including a dissertation, taken before entering the Ph.D. program).

**Prerequisite Courses**

The common body of knowledge requirement of the AACSB must be satisfied for both the Master's and graduate courses. This requirement includes courses in accounting, finance, management, marketing, organizational behavior, qualitative methods, and the economic and legal environment pertaining to profit and nonprofit organizations.

**Core Courses**

Core courses are designed to develop research methods competency and to provide necessary background for study in more specialized courses. Graduate courses are required as follows:

- 9 behavioral sciences (3 s.h.), economics (3 s.h.), psychology (3 s.h.), or research methods (2 s.h.).
- 12 s.h. in behavioral sciences.

To reflect the background and interests of the individual candidate, each must consult with their advisers to establish satisfaction of core requirements.

**Major Area of Study**

A minimum of 12 semester hours of approved doctoral-level courses must be completed in one of the following areas: accounting, finance, human resources
Minor Area of Study
A minimum of 9 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 plus concentrations outside the College of Business Administration.

Comprehensive Examinations
Students must complete a written examination in both the major and minor areas of study and must demonstrate a mastery of content in the areas of examination. The examination committee is comprised of a minimum of three faculty members.

Upon completion of the written comprehensive examinations in both the major and minor areas of study, students must pass an oral comprehensive examination encompassing subject matter in the major, minor, and related areas. The examination committee is comprised of a minimum of five faculty members.

Dissertation
A dissertation proposal must be presented before a 5th hour attended by dissertation committee members and open to interested faculty and graduate students as established by departmental procedures. Students are required to complete 16 semester hours of dissertation credit. The completion of research and writing associated with the dissertation proposal 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 work in business must submit the Graduate College application form and fee, official transcripts of all courses taken, and official Graduate Management Admission Test (GMAT) scores to the Admissions Office, Cabin Hall. Three letters of recommendation from former instructors or employers should be submitted to the Graduate Programs in Business Office, College of Business Administration. Graduate Record Examination (GRE) scores may be submitted in place of GMAT scores in the applying to the P.H. in Business Administration program. See the "Graduate Programs in Business" section of the Catalog for more information.

Other Graduate Programs

Joint Programs
Joint programs have been established which allow students to pursue concurrently an M.A. or M.B.A. in the College of Business Administration and a J.D. in the College of Law, an M.A. in library science in the School of Library Science, or an M.S. in hospital and health administration in the College of Medicine. Such programs allow students to earn both degrees more rapidly by counting a portion of the graduate course work toward both degrees. These joint degree programs carry an exchange of 12 semester hours each between the J.D. and the M.B.A. and 9 semester hours each between the M.A. in library science or M.A. in hospital and health administration and the M.B.A.

In addition to the established joint programs listed above, individually tailored joint master's programs may be set up between an M.A. or M.B.A. in the College of Business Administration and other degree programs at The University of Iowa. Students should contact the Graduate Program in Business Office, College of Business Administration, M.A. in Accounting (See "Department of Accounting" in this section of the Catalog.) M.A. and Ph.D. in Economics (See "Department of Economics" in this section of the Catalog.)

Facilities
The College of Business Administration is located in Philips 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. It also contains a wide range of classroom facilities.

Extensive research materials for use by students are maintained in the Main Library, and the facilities of the University computing center are available to all students. Additionally, students have direct access to the 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 relations for the purposes of curriculum matters and research, and to conduct continuing education seminars and workshops for practitioners in the field or industrial relations.

Institute for Economic Research
The Institute for Economic Research facilitates cohesive and continuing economic research and establishes a formal mechanism for providing interaction with and economic advice to industry and government. The institute's main objectives are to provide economic information, service, and advice on a continuous basis to businesses and to public agencies; to provide a state focal point for applied economic research; and to promote and enhance academic research and teaching in economics.

Institute for Entrepreneurial Management
The Institute for Entrepreneurial Management, was created in 1976 to promote the entrepreneurial spirit among individuals; to assist prospective entrepreneurs in evaluating the economic viability of their proposed business ventures; to train owner/managers in the effective and profitable operation of their enterprises after they are successfully launched; and to provide career guidance for college students as well as others. These institute objectives are achieved primarily through a multidisciplinary research and continuing education program.

Institute for Insurance Education and Research
The Institute for Insurance Education and Research, housed in the college's continuing education division, is located in the field of insurance. The institute conducts short courses and seminars throughout the year at the University of Iowa and at all 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 the greatest possible percentage of their constituency. The staff memberslarger their instruction at 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 work life of men and women in organizations is disseminated through on- and off-campus conferences.

Interdepartmental Courses
For M.B.A. students only
See individual department listing for additional M.B.A. course offerings.

6070 Cooperative Education 1-6 A.A.
6081 White Communication Skills 6 A.A.
Students are not allowed to write business contracts. Permission from M.B.A. candidates.
6082 Out Communication Skills 6 A.A.
Instructor must have in stock presentation skills for business courses. Requires to M.B.A. candidates.

Accounting
Department head: Russell J. Peterson
executive professor Richard W. Speer assistant professor Douglas V. Van Joor, Richard A. Grubnic, and David P. Hult
Administrative assistants Pamela Sue Campbell, Joan Y. Shriver

Professional Program in Accounting
The Professional Program in Accounting at The University of Iowa is a three-year upper-division and graduate program which leads to a Master of Arts (M.A.) degree with a major field in accounting. (Students may elect to receive the B.B.A. degree after successful completion of the first two years of the Professional Program.) The M.A. program (three-year program) is designed to develop the technical proficiency and the conceptual, analytical, and communication skills required in the accounting profession. Students who wish only undergraduate-level preparation for the Certified Public Accounting (CPA) or Certified Management Accountant (CMA) examinations may meet their goal 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 and also provides advanced coursework which will prepare candidates for the CPA and CMA examinations, and which will also provide preparation 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 in 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 applications for program 1 must be submitted to the Assistant Dean of Undergraduate Programs in the College of Business.

Students in the Professional Program in Accounting must maintain a 3.0 grade-point average in all graduate-level accounting courses and must pass an oral comprehensive examination upon completion of the M.A. program.

All candidates for the M.A. degree are required to submit a score on the GMAT test as a final test for admission to the third year of the Professional Program in Accounting. Most students in program 1 take this admisions test in January of the second year of the three-year program. Satisfactory completion of this examination is a final admission to the third year of the Professional Program in Accounting.

Program 1
This program is for students completing their pre-professional program at The University of Iowa.

An undergraduate student at The University of Iowa may apply for admission to the Professional Program in Accounting after completing 60 semester hours of course work, including the common requirements for the B.B.A., and the prerequisites in Statistics, Analytic, and after earning grades of A or B in 6A:1 Introduction to Financial Accounting and 6A:2 Introduction to Managerial Accounting, or the equivalent. Upon acceptance of their application to the Professional Program in Accounting, such students are designated Accounting majors.

After successful completion of the first two years of the Professional Program in Accounting, a student can receive the B.B.A. in Accounting.

These are the typical first, second, and third year requirements of the Professional Program in Accounting:

First Year
6A:115 Introduction to Taxation 3 a.h.
6A:131 Financial Accounting I 3 a.h.
6E:174 Managerial Information Models 3 a.h.
6E:103 Microeconomics 3 a.h.

Second Year
6A:123 Financial Accounting II 3 a.h.
6A:145 Financial Accounting III 3 a.h.
6A:144 Auditing 3 a.h.
6A:330 Cost Accounting for Management Analysis and Control 3 a.h.
6L:149 Law and Business 3 a.h.
Business policy elective 3 a.h.
Electives 9 a.h.

Third Year
6A:220 Accounting Theory I 3 a.h.
6A:221 Advanced Theory II Graduate accounting elective 9-12 a.h.
Graduate electives 12-15 a.h.
6A:292 Accounting Issues Series 0 a.h.

These courses are available under unconditional admission to the third year of the program.

Program 2
This program is for students who have earned bachelor's degrees with a major field in accounting at other institutions.

Students who wish to enter the Professional Program in Accounting after having completed bachelor's degrees with concentrations in accounting from other institutions must apply for the M.A. program to the Associate Dean for Graduate Studies 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 3
This program is for students who have completed 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 as the undergrad program as possible. For students entering in the fall, they will have no previous accounting or business courses. The typical first-year courses include:

6A:214 Managerial Accounting—M.B.A. 3 a.h.
6A:116 Introduction to Taxation 3 a.h.
6A:123 Financial Accounting II 3 a.h.
6A:102 Financial Accounting II 3 a.h.
6E:103 Price, Employment, and Production Theory 3 a.h.
6E:117 Quantitative Methods M.B.A. 3 a.h.
6E:124 Managerial Finance M.B.A. 3 a.h.
6E:187 Quantitative Methods M.B.A. 3 a.h.
### BUSINESS ADMINISTRATION/Economics

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>6C/271</td>
<td>Statistical Methods</td>
<td>3.0</td>
<td>4.5</td>
</tr>
<tr>
<td>6L/149</td>
<td>Law and Business</td>
<td>3.0</td>
<td>4.5</td>
</tr>
</tbody>
</table>

These are the typical second-year courses:

- **6A/144 Auditing** 3.0 h.
- **6A/220/251 Accounting Theory** 3.0 h.
- **6A/270 Advanced Financial Accounting** 3.0 h.
- **6A/281 Administrative Science I** 3.0 h.
- **6C/255 Administrative Policy—M.B.A.** 3.0 h.
- **6C/272 Managerial Economic Theory—M.B.A.** 3.0 h.

### Doctor of Philosophy

See the "College of Business Administration" section of the Catalog.

### Courses

Undergraduate courses indicated, courses in accounting are expected to be offered in the fall, spring, and summer sessions.

#### For Undergraduates

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>6A/600</td>
<td>Cooperative Education Training Internship</td>
<td>4.0</td>
<td>7.0</td>
</tr>
</tbody>
</table>

**6A/1 Introduction to Financial Accounting**
- Survey and analysis of contemporary accounting information systems; emphasis on external reporting by a firm to its investors and creditors. Prerequisite: Freshman standing (at least 20 semester hours earned).

**6A/2 Introduction to Managerial Accounting**
- Surveys and analysis of contemporary accounting information systems, emphasis on decision-making and the use of data in management decision making procedures. Prerequisite: Freshman standing (at least 20 semester hours earned).

**6A/15 Introduction to Taxation**
- Introduction to federal income taxation; coverage includes income, deductions, and requirements of the federal income tax laws; and related concepts and principles. Recommended for students not majoring in accounting but wishing to obtain a better understanding of current accounting report practices. Prerequisite 6D/124 or equivalent.

**6A/20 Cost Accounting**
- Suitable for undergraduate study leading to an understanding of cost accounting. This course provides the student with an overview of the basic concepts of cost accounting and related topics, such as cost behavior, cost management, and cost control. Prerequisite: 6A/100 or permission of the instructor.

**6A/151 Financial Accounting I**
- Review of income statement and balance sheet accounts, followed by intensive coverage of asset, liability, and stockholders' equity accounts. Prerequisite: admission to the Professional Program in Accounting.

**6A/152 Financial Accounting II**
- Additionally, the student is expected to be familiar with the nature of the balance sheet, the income statement, and special problems, such as interim earnings per share, interim reporting, price level adjustments. Prerequisite: 6A/151 and senior standing (at least 60 semester hours earned).

**6A/16 Auditing**
- Develops an understanding of the audit function as it relates in current business and governmental organizations, and to external auditing, internal control, financial statements, and financial information systems. Prerequisite: 6A/103 and 6A/151, and second semester senior standing (at least 100 semester hours earned).

**6A/153 Special Topic in Auditing**
- Directed course for senior accounting majors, advanced topics in auditing covered extend to current legal, ethical, and professional issues. Prerequisite: 6A/151 and senior standing (at least 60 semester hours earned).

**6A/154 Financial Accounting III**
- Business combinations, consolidations and combinations, as well as Impact on Accounting Standards and Interpretation, specific case studies involved. Prerequisite: 6A/151 and second semester senior standing (at least 100 semester hours earned).

**6A/155 Special Topic in Auditing**
- Directed course for senior accounting majors, advanced topics in auditing covered extend to current legal, ethical, and professional issues. Prerequisite: 6A/151 and senior standing (at least 60 semester hours earned).

**6A/274 Managerial Accounting—B.B.A.**
- Internal financial information system, accounting concepts and practices, cost behavior and cost-volume-profit relationships, financial planning and control, decision-making, and capital budgeting. Prerequisite: 6A/100 or permission of the instructor.

**6A/321 Advanced Accounting**
- Survey of current practice and thought relating to external reporting for the firm in the investment, regulatory and non-regulatory environments of the firm. Prerequisite: 6A/151 and second semester senior standing (at least 100 semester hours earned).

**6A/325 Accounting Theory**
- Includes elements of financial and cost analysis, decision making, and financial reporting. Prerequisite: 6A/151 or permission of the instructor.

**6A/327 Accounting Information Systems**
- Evaluation and design of accounting information systems. Prerequisite: 6A/151 or permission of the instructor.

**6A/331 Auditing and Regulation of Accounting**
- Emphasis on auditing as a professional discipline, including ethical and professional standards. Prerequisites: 6A/151 and 6A/203.

**6A/332 Research in Taxation**
- The examination and application of tax principles and regulations on the tax laws of the United States, the states, and local governments. Prerequisite: 6A/100 or permission of the instructor.

**6A/333 Corporate Income Taxation**
- The examination and application of tax principles and regulations on the tax laws of the United States, the states, and local governments. Prerequisite: 6A/100 or permission of the instructor.

**6A/334 Partnership Taxation**
- The examination and application of tax principles and regulations on the tax laws of the United States, the states, and local governments. Prerequisite: 6A/100 or permission of the instructor.

**6A/335 Estate Taxation**
- The examination and application of tax principles and regulations on the tax laws of the United States, the states, and local governments. Prerequisite: 6A/100 or permission of the instructor.

**6A/336 Tax Research and Techniques**
- Report on the tax code, regulations, and court decisions affecting business income, corporate income, estate, gift and inheritance tax, and tax planning. Prerequisite: 6A/100 or permission of the instructor.

**6A/337 International Taxation**
- The examination and application of tax principles and regulations on the tax laws of the United States, the states, and local governments. Prerequisite: 6A/100 or permission of the instructor.

**6A/338 Corporate Taxation**
- The examination and application of tax principles and regulations on the tax laws of the United States, the states, and local governments. Prerequisite: 6A/100 or permission of the instructor.

**6A/339 Personal Income Taxation**
- The examination and application of tax principles and regulations on the tax laws of the United States, the states, and local governments. Prerequisite: 6A/100 or permission of the instructor.

**6A/340 International Taxation**
- The examination and application of tax principles and regulations on the tax laws of the United States, the states, and local governments. Prerequisite: 6A/100 or permission of the instructor.

**6A/341 Partnership Taxation**
- The examination and application of tax principles and regulations on the tax laws of the United States, the states, and local governments. Prerequisite: 6A/100 or permission of the instructor.

**6A/342 Estate Taxation**
- The examination and application of tax principles and regulations on the tax laws of the United States, the states, and local governments. Prerequisite: 6A/100 or permission of the instructor.

**6A/343 Tax Research and Techniques**
- Report on the tax code, regulations, and court decisions affecting business income, corporate income, estate, gift and inheritance tax, and tax planning. Prerequisite: 6A/100 or permission of the instructor.

**6A/344 International Taxation**
- The examination and application of tax principles and regulations on the tax laws of the United States, the states, and local governments. Prerequisite: 6A/100 or permission of the instructor.

**6A/345 Corporate Taxation**
- The examination and application of tax principles and regulations on the tax laws of the United States, the states, and local governments. Prerequisite: 6A/100 or permission of the instructor.

**6A/346 Personal Income Taxation**
- The examination and application of tax principles and regulations on the tax laws of the United States, the states, and local governments. Prerequisite: 6A/100 or permission of the instructor.

**6A/347 Tax Research and Techniques**
- Report on the tax code, regulations, and court decisions affecting business income, corporate income, estate, gift and inheritance tax, and tax planning. Prerequisite: 6A/100 or permission of the instructor.

**6A/348 International Taxation**
- The examination and application of tax principles and regulations on the tax laws of the United States, the states, and local governments. Prerequisite: 6A/100 or permission of the instructor.

**6A/349 Corporate Taxation**
- The examination and application of tax principles and regulations on the tax laws of the United States, the states, and local governments. Prerequisite: 6A/100 or permission of the instructor.

**6A/350 Personal Income Taxation**
- The examination and application of tax principles and regulations on the tax laws of the United States, the states, and local governments. Prerequisite: 6A/100 or permission of the instructor.

**6A/351 Tax Research and Techniques**
- Report on the tax code, regulations, and court decisions affecting business income, corporate income, estate, gift and inheritance tax, and tax planning. Prerequisite: 6A/100 or permission of the instructor.
undergraduate programs in economics provide an excellent educational background for a variety of positions in business and government. Graduates find employment in banking, financial institutions, industrial firms, and trade organizations, and in federal, state, and local government agencies dealing with economic policy, agulation, and analysis. Economics is also regarded as excellent preparation for law and for graduate study in such fields as business management, public administration, health and hospital administration, urban and regional planning, transportation, journalism, political science, and statistics.

The department offers three undergraduate programs 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 well-rounded liberal arts education. Requirements for the B.B.A. degree emphasize instruction in the business fields of accounting, finance, marketing, business law, and management. For descriptions of the B.A. and B.S. degree programs in economics, see the "College of Liberal Arts" section of the Catalog.

Bachelor of Business Administration

In addition to the common requirements of the College of Business Administration, the B.B.A. degree in economics requires at least 12 hours in 100-level economics courses, including:

- 6E:103 Microeconomics 3 s.h.
- 6E:105 Macroeconomics 3 s.h.

Master of Arts

The department offers a three-semester M.A. program in applied economics, with opportunities for study in environmental economics, urban and regional economics, international economics and finance, economic development, financial and monetary economics, economics of the public sector, health economics, economic planning and budgeting, business and managerial economics, or labor economics and labor relations. The first-year course sequence for the basic M.A. program is as follows:

- 6E:150 Statistical Methods in Economics 3 s.h.
- 6E:202 Price Theory 3 s.h.
- 6E:204 Macroeconomics I 3 s.h.

Economic History, History of economic thought, or elective* 3 s.h.

Second Semester

- 6E:154 Methods of Quantitative Economics 3 s.h.
- Electives 9 s.h.

* The M.A. program requires a course in economic history or history of economic thought.

In addition to the core courses (15 semester hours), the student has the option of taking 13 hours of electives and writing a thesis (4 hours) for a minimum total of 32 semester hours of graduate credit; or taking 18 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 for transfer into the Ph.D. program at that time, without loss of credit.

Joint M.A.-J.D. Program

The department collaborates with the College of Law in offering a joint program in which the department accepts up to nine semester hours of law credit toward the M.A. degree in economics, and the College of Law accepts graduate credit in economics toward the Juris Doctor (J.D.) degree.

Doctor of Philosophy

The Ph.D. program is designed to provide rigorous training in microeconomic theory, macroeconomic theory, mathematical economics, and econometrics. In addition, 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

- 6E:190 Mathematics for Economists I 3 s.h.
- 6E:150 Statistical Methods in Econometrics 3 s.h.
- 6E:225 Microeconomics I 3 s.h.
- 6E:204 Macroeconomics I 3 s.h.

Second Semester

- 6E:190 Mathematics for Economists II 3 s.h.
- 6E:225 Microeconomics II 3 s.h.
- 6E:204 Macroeconomics II 3 s.h.

Courses for Undergraduates

Note: B.E.1 and B.E.2 may be taken in either order or they may be taken simultaneously; they satisfy the general educational requirements in social sciences.

- B.E.1: Introduction to Economics 4 s.h.
- B.E.2: Principles of Economics 4 s.h.
- B.E.3: Intermediate Microeconomics 3 s.h.
- B.E.4: Introduction to Microeconomics I 3 s.h.
- B.E.5: Macroeconomics I 3 s.h.
- B.E.6: Macroeconomics II 3 s.h.

Teaching and Research

The Ph.D. program requires candidates to engage in teaching/research for at least 3 semesters (or summers, as applicable). The typical amount of service in each term is 25 hours per week.

Courses for Undergraduates

Note: B.E.1 and B.E.2 may be taken in either order or they may be taken simultaneously; they satisfy the general educational requirements in social sciences.

- B.E.1: Introductory Economics 4 s.h.
- B.E.2: Principles of Economics 4 s.h.
- B.E.3: Intermediate Microeconomics 3 s.h.
- B.E.4: Introduction to Microeconomics I 3 s.h.
- B.E.5: Macroeconomics I 3 s.h.
- B.E.6: Macroeconomics II 3 s.h.

Teaching and Research

The Ph.D. program requires candidates to engage in teaching/research for at least 3 semesters (or summers, as applicable). The typical amount of service in each term is 25 hours per week.
Graduate Program

Refer to "Interdepartmental Graduate Programs" at the front of this section of the Catalog.

Courses

Primarily for Upper-Division Undergraduates

696:00 Cooperative Education Internship 1 a-h

697:10 Introductory Financial Management 3 a-h

697:10 Direct Listing in Finance 3 a-h

Individually-graded readings in selected topics in business.

697:12 General Insurance 3 a-h


697:11 Investments 3 a-h

Valuation of corporate securities; financial statement analysis; economic and regulatory environment. Prerequisite: 697:11 or consent of instructor.

697:10 Financial Institutions and Insurance 3 a-h

The role of money and capital markets in the processes of creation and development: flow of funds: financial intermediaries: regulated and non-regulated: Prerequisite: 697:10 or consent of instructor.

697:10 Commercial Banking 3 a-h

Management of commercial banks and other financial institutions: credit related products and concepts of running a bank, its assets and liabilities. May vary in content. Prerequisite: 697:11 or consent of instructor.

697:10 Federal Taxation 3 a-h

Historical development of federal taxes: trading, trading practices and procedures: hanging and regulating aspects. Prerequisite: 697:10 or consent of instructor.

697:10 International Financial Management 3 a-h

Applications of financial decisions made by financial managers, e.g., capital structure, dividend policy, lease-buy, mergers, and takeover of other firms. Prerequisite: 697:20 or consent of instructor.

697:20 Case Problems in Financial Management 3 a-h

Case study approach: methods of analyzing and solving financial management problems: emphasis on learning through experience: Prerequisite: 697:11 or consent of instructor.

697:10 Security Markets 3 a-h

An in-depth study of selected topics in finance not covered by regular courses; credit hours and course content determined by instructor. Prerequisite: consent of instructor.

697:10 Property and Liability Insurance 3 a-h

Businesses and institutions needs for insurance, fire insurance, marine insurance, and other forms: consequences: fire insurance contracts and underwriting. Prerequisite: 697:10.

697:10 Life and Health Insurance 3 a-h

Litt, health and annuity contracts from the standpoint of the underwriters, brokers, and agents: accident, health, hospitals, and medical expenses; medical care costs; Medicare, investments, regulation, group insurance, estate planning. Prerequisite: 697:10.

697:20 Public Economic Security Programs 3 a-h

Government activities: understanding poverty and alleviating poverty: causes of poverty and inequality: social programs: funding, unemployment compensation: AFDC at: potential programs such as national health insurance: patterned overall income.

697:10 Employment Law 3 a-h

Nonexistent laws in business and selected management decisions for dealing with them: theories of law and management; employment contracts: workmen's compensation: collective bargaining: Prerequisite: 697:10.

697:10 Risk Management 3 a-h

Additional hours of courses specified by the student's advisor.

Executive Degree

Preparation for executive roles in business, industries, and other organizations.

699:00 Independent Study 3 a-h

Small group of students develop an area of interest in consultation with faculty advisors. Prerequisites: 697:10 or consent of instructor.

699:10 Actuarial Principles of Life Insurance 3 a-h

699:10 Real Estate and Urban Economics 3 a-h

Prereq: basic economics and business knowledge of real estate: analysis of local economies and real estate markets: mortgage financing: appraisal principles: investment analysis and asset development. Prerequisites: 697:11 and 697:20, or consent of instructor.

699:10 Entrepreneurship and Small Business 3 a-h

Characteristics of the successful entrepreneur and of making the decision to go into business for one's self, with development of a program for starting a business. Prerequisite: 699:10.

699:10 Agribusiness Import and Export 1 a-h

699:10 International Business 4 a-h

Studies in and for international business: international trade, development of new markets, the exchange of goods and services. Prerequisite: 697:10 or consent of instructor.

699:10 Agriculture 3 a-h

International business: students have special interests in international trade, development of new marketing strategies, the exchange of goods and services. Prerequisites: 697:11 and 697:20, or consent of instructor.

699:10 Real Estate Appraising 3 a-h

Prerequisite: 697:10.}

Finance


Undergraduate Program

The undergraduate finance program deals with the theory, organization, and operations of the financial system from both the social and managerial viewpoints. Students are expected to develop analytical abilities and to present their analyses in both written and oral form.

Students graduating with a major in finance may specialize in either finance or insurance. Finance specialists may look toward managerial positions in control, management, or service work in non-financial businesses, in the entire range of financial businesses, or in non-profit or government organizations. Insurance specialists may find employment in insurance management departments in public and private agencies, in large businesses, or in insurance companies. The education received is either area is consonant with progress toward responsible managerial positions.

Requirements for the Bachelor of Business Administration degree with a Finance major and specialization in either finance or insurance are as follows:

Finance

697:11 Statistical Analysis 3 a-h

697:11 Investments 3 a-h

697:13 Financial Markets and Institutions 3 a-h

697:17 Intermediate Financial Management 3 a-h

697:17 International Financial Management 3 a-h

697:10 Introductory Financial Management 3 a-h

At least 2 semester hours of accounting beyond the basic core, followed by any two of these:

697:11 Banking 3 a-h

697:11 Commercial Banking 3 a-h

697:10 Case Problems in Financial Management 3 a-h

Insurance

697:11 Statistical Analysis 3 a-h

697:11 Investments 3 a-h

697:10 Property and Liability Insurance 3 a-h

697:10 Life and Health Insurance 3 a-h

At least one of the following:

697:10 Public Economic Security Programs 3 a-h

697:10 Risk Management 3 a-h

Six additional hours of courses specified by the student's advisor.

Graduate Programs

Refer to "Interdepartmental Graduate Programs" at the front of this section of the Catalog.
Marketing

Chair: Peter C. Rezzi
Faculty: Peter C. Rezzi, associate professor Paul E. Barlow, David J. Cady, Mark S. Johnstone, Jordan J. Guven, Mark L. Klotz

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

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 simply exclusively with business activities involved in the flow of goods from production to consumption. Today the study of marketing includes principles that are widely applicable; they are as relevant in the marketing of the arts, athletics, and social causes as they are in the marketing of goods and services. A major in marketing includes study in the behavioral sciences, communications, statistical analysis, and computer methods.

Students graduating in majors in marketing may find first opportunities for employment in jobs such as market analyst, merchandiser-buyer, community action agent, purchasing agent, advertising trainee, or sales representative, in a variety of organizations, both profit and nonprofit.

The requirements for the Bachelor of Science in Administration degree with a major in marketing are as follows:

6 credits: 2 courses
6 credits: 2 courses
3 credits: 1 course
3 credits: 2 courses

In addition to the minimum common requirements for the B.B.A. degree, the student must choose at least three, but no more than five, of the following:

Graduate Program

See "Interdepartmental Graduate Program" in the front section of this Catalog.

Courses

Primarily for Upper-Division Undergraduates

6 credits: Co-operative Education Internship

3 credits: Marketing

3 credits: Introduction to Marketing

3 credits: Marketing research in a variety of marketing settings. Prerequisites: B.B.A. and BID 210 (two courses may be taken concurrently). Corequisite: BID 211.

For Undergraduates and Graduates

15 credits: Standard Readings in Marketing

15 credits: Marketing Behavior

3 credits: Ethical and sociocultural aspects of advertising and personal selling. Discussion of influences on buying behavior, including learning, perception, distribution, income, aspiration, personality, attitudes, self-rules, life-style, reference groups, culture, social class, and family. Students may substitute in marketing, Prerequisite: BID 100.

3 credits: Consumer Behavior

15 credits: Ethical and sociocultural aspects of advertising and personal selling. Discussion of influences on buying behavior, including learning, perception, distribution, income, aspiration, personality, attitudes, self-rules, life-style, reference groups, culture, social class, and family. Students may substitute in marketing, Prerequisite: BID 100.

3 credits: Marketing Theory and Planning

15 credits: Marketing Communications

3 credits: Marketing Communications

3 credits: Consumer Behavior

3 credits: Advertising Theory and Planning

3 credits: Marketing Solutions

3 credits: Senior Seminar in Marketing

3 credits: Marketing Management

3 credits: Senior Seminar in Marketing

3 credits: Senior Seminar in Marketing

3 credits: Senior Seminar in Marketing

3 credits: Senior Seminar in Marketing

3 credits: Senior Seminar in Marketing
Primarily for Graduates

801.01 Directed Readings in Marketing
   15.0h
   Instructor guided readings in selected topics in
   marketing. Prerequisite: consent of instructor.

801.02 M.A. Research Report
   15.0h
   Student writes a major paper. For northeast M.A. candidates only. Prerequisite: consent of instructor.

801.05 Contemporary Topics in Marketing
   15.0h
   Special topics of contemporary interest at the graduate level. Prerequisite: consent of instructor.

801.99 Marketing Management E—M.B.A.
   15.0h
   Internal and external environment of marketing; decision; behavioral science applied to consumer behavior, markets and micro economic impact; marketing goals, plans, and strategies. Prerequisites: 601.164 and 602.207.

801.99 Marketing Research Methods
   15.0h
   Methods of design and analysis of marketing research studies, including surveys and laboratory and marketability requirements. Consumer behavior, marketing strategy, database construction, and data analysis. Prerequisite: consent of instructor.

801.99 Super Market
   15.0h
   Study of behavior of consumers and industrial buyers; examination of research methods and findings from behavioral sciences. Prerequisite: consent of instructor.

802.99 Product Management
   15.0h
   Importance of product planning, development, and management as corporate strategy variables; application of product portfolio theory, search for new product ideas and their evaluation, structure and design of product development, pricing, distribution, promotion, and planning of product lines. Prerequisites: 601.164 and 601.207.

802.99 Marketing Communications
   15.0h
   Examination of marketing communications as dialogs between producers and consumers and how promotional mix elements: emphasis on advertising, sales promotion, and direct marketing. For M.B.A. students with no prior course work in marketing. Prerequisite: consent of instructor.

802.99 Sales Management in Marketing
   15.0h
   Study of management of sales force and promotion of consumer goods and services. Prerequisite: consent of instructor.

802.99 Marketing Management in Total Marketing
   15.0h
   Study of management of sales force and promotion of consumer goods and services. Prerequisite: consent of instructor.

802.99 Product Management
   15.0h
   Study of behavior of consumers and industrial buyers; examination of research methods and findings from behavioral sciences. Prerequisite: consent of instructor.

802.99 Advertising
   15.0h
   Study of management of sales force and promotion of consumer goods and services. Prerequisite: consent of instructor.

802.99 Marketing Communications
   15.0h
   Examination of marketing communications as dialogs between producers and consumers and how promotional mix elements: emphasis on advertising, sales promotion, and direct marketing. For M.B.A. students with no prior course work in marketing. Prerequisite: consent of instructor.

802.99 Sales Management in Marketing
   15.0h
   Study of management of sales force and promotion of consumer goods and services. Prerequisite: consent of instructor.

802.99 Marketing Management in Total Marketing
   15.0h
   Study of management of sales force and promotion of consumer goods and services. Prerequisite: consent of instructor.

802.99 Product Management
   15.0h
   Study of behavior of consumers and industrial buyers; examination of research methods and findings from behavioral sciences. Prerequisite: consent of instructor.

802.99 Advertising
   15.0h
   Study of management of sales force and promotion of consumer goods and services. Prerequisite: consent of instructor.

802.99 Marketing Communications
   15.0h
   Examination of marketing communications as dialogs between producers and consumers and how promotional mix elements: emphasis on advertising, sales promotion, and direct marketing. For M.B.A. students with no prior course work in marketing. Prerequisite: consent of instructor.

802.99 Sales Management in Marketing
   15.0h
   Study of management of sales force and promotion of consumer goods and services. Prerequisite: consent of instructor.

802.99 Marketing Management in Total Marketing
   15.0h
   Study of management of sales force and promotion of consumer goods and services. Prerequisite: consent of instructor.

802.99 Product Management
   15.0h
   Study of behavior of consumers and industrial buyers; examination of research methods and findings from behavioral sciences. Prerequisite: consent of instructor.

802.99 Advertising
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   Study of management of sales force and promotion of consumer goods and services. Prerequisite: consent of instructor.

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   Examination of marketing communications as dialogs between producers and consumers and how promotional mix elements: emphasis on advertising, sales promotion, and direct marketing. For M.B.A. students with no prior course work in marketing. Prerequisite: consent of instructor.

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   Study of management of sales force and promotion of consumer goods and services. Prerequisite: consent of instructor.

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   Study of management of sales force and promotion of consumer goods and services. Prerequisite: consent of instructor.

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   Study of management of sales force and promotion of consumer goods and services. Prerequisite: consent of instructor.

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   Examination of marketing communications as dialogs between producers and consumers and how promotional mix elements: emphasis on advertising, sales promotion, and direct marketing. For M.B.A. students with no prior course work in marketing. Prerequisite: consent of instructor.

802.99 Sales Management in Marketing
   15.0h
   Study of management of sales force and promotion of consumer goods and services. Prerequisite: consent of instructor.

802.99 Marketing Management in Total Marketing
   15.0h
   Study of management of sales force and promotion of consumer goods and services. Prerequisite: consent of instructor.
College of Dentistry

The College of Dentistry is both administratively and physically an integral part of the University. It draws upon and contributes to the University’s diverse resources, and its students enjoy all the advantages and privileges enjoyed by the general student body. The college benefits particularly from its cooperative relationship with the colleges of Medicine, Nursing, and Pharmacy in the University 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 at least three years of preprofessional study and approximately 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 pathology; oral pathology; anesthesia; and pain control; oral surgery; periodontology. In addition, they are selected courses in the biosciences options program which are correlated with the basic and clinical sciences.

Community Dentistry
Ethics; epidemiology; nutrition; preventive dentistry; community health; principles of human behavior; dental economics; dental jurisprudence; geriatrics.

Pediatric Dentistry
Facial growth and development; pedodontics and orthodontics.

To achieve a close correlation of the basic sciences with clinical disciplines, the student is introduced to clinical patient treatment situations during the first year. The second-year program includes further activities in the basic and clinical sciences.

Third-year dental students rotate through a series of "clerkships" which expose them to each of eight clinical disciplines.

Fourth-year dental students are involved in the delivery of comprehensive dental care in an environment which simulates conditions in private dental practice. Fourth-year students are also exposed to various extramural health programs that include state and University Hospitals 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, appointment-making control, the dynamics of presenting treatment plans to private patients, and the relationship of the dentist to the community.

Promotions and Graduation
Student promotions and graduation are determined by the 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, the dean may appeal the decision to the dean. All appeals shall be heard by an ad hoc committee appointed by the dean. The committee considers each matter in the context of academic achievement, promotion, absences, and general fitness to enter the dental profession. The recommendation of the appeals committee is submitted to the dean for final action.

State Board of Dentistry Licensure Examination

The states of Kansas, Colorado, Minnesota, Oklahoma, Iowa, Wisconsin, Nebraska, Minnesota, Wyoming, North Dakota, and South Dakota have joined in
the formation of the Central Regional Dental Testing Service to replace clinical examinations previously given by the states individually. These examinations are administered at several testing sites located at schools of dentistry within the region. Examination dates are determined by the Central Regional Dental Testing Service and are available from its administrative secretary. 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 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 facilities for the development of interdisciplinary communication in health center teaching, research, and student-care activities. The health center includes the colleges of medicine, nursing, and pharmacy; the Bowen Science Building; University Hospital; and a Health Sciences Library. The Health Sciences Library houses all of the University's special health science holdings, a total of 173,000 volumes, including the College of Dentistry's collection of more than 18,000 volumes on dentistry and allied academic subjects, as well as 263 dental journals the college currently receives. This library receives a total of 2,800 journals from the combined health profession.

The Dental Science Building consists of two connected four-story wings located on either side of a mall. The south wing is devoted to clinical teaching, with various departmental clinics facilities, support laboratories, clinical research space, offices, and a teaching learning center. The north wing houses a variety of teaching, administrative, and research facilities, including teaching laboratories, research laboratories, administration areas, an individual production center, and the programs in community dentistry.

Student Organizations
All dental students are eligible for membership in the American Student Dental Association through its local chapter, the Iowa Student 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 13 percent of the senior class are eligible for election to Omicron Kappa Upsilon, national scholastic honorary dental society. The national dental professional fraternity, Delta Sigma Delta and Psi Omega, have chapter houses at Iowa, and both have spouses' organizations.

There is also a Dental Student Wives Club.

Expenses
The College of Dentistry maintains a Supply Instrument Management System (S.I.M.S.) that provides the student with most of the instruments and supplies necessary throughout dental training. The instrument usage fee for the program leading to the D.D.S. degree is payable in installments over the first three years of the program. A fee for expendable laboratory supplies is charged each of the first four years. A $100 breakage fee is also charged; the refund is refundable upon graduation or termination of appointment.

Financial Assistance
Under the Health Professions Loan Program, it is possible for dental students to borrow a maximum of tuition plus $4,500 each year of their undergraduate professional studies. Eligibility is established by completion of the College Scholarship Service Financial Aid Form, which includes a parent's financial statement. Dental students may also apply for Guaranteed Student Loans through banks and other lending agencies; students may borrow a maximum of $25,000 during the professional program. Interest rates on Health Professions Loans and Guaranteed Student Loans are comparatively low and are repayable over an extended period of time after the recipient concludes the course of study.

A number of short-term loans are available from the American Dental Association, the Iowa Dental Association, the Kellogg Foundation, the Iowa Dental Achievement Fund, and other sources. To help students in emergency situations, there are available through the financial aid coordinator of the student welfare committee in the College of Dentistry, the "Financial Aid" section of the Catalog or inquire at the Office of Student Financial Aid for updated information regarding financial assistance available to dental students.

Admission
Applications are accepted beginning June 1 of the year prior to the year for which application is made. The closing date for applications is November 30. 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 freshman year in dentistry (see Combined Liberal Arts-Dentistry Course).

General Basis for Admission
Each applicant must submit to the American Association of Dental Schools Application Service a completed application form. All application forms not received by the University Office of Admission by the specified deadlines will be considered incomplete.

Preclinical Studies
The basic academic requirement for admission to the College of Dentistry is the completion of 84 semester hours of academic study at an accredited college. In exceptional circumstances, candidates with fewer than 84 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 preclinical program of study should include:

Rhetoric
Satisfactory accomplishment in English composition, rhetoric, and speech commensurate with the academic requirements for a bachelor's degree at the college attended.

Physics
One year (equivalent to eight semester hours), of which one-fourth must be laboratory work.

Chemisty
Two years (equivalent to 16 semester hours) of which one year (equivalent to eight semester hours) must include appropriate laboratory work, and both years must be covered in one year's course in either general biology or organic and physical (botany only). (Note that seniors are admitted on a one-year basis if they have satisfied the prerequisites and have had the equivalent of 16 semester hours of college credit in science and mathematics.)

Electives
Sufficient course work in the social sciences, philosophy, psychology, history, foreign languages, and mathematics to provide a well-rounded educational background. The dental admissions committee may waive or reduce some of the above requirements when the candidate for admission is considered outstanding in other respects.

Combined Liberal Arts-Dentistry Course
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 Bachelor’s 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 requirement for a major in some department or area of concentration. The academic composition of 21.2 full-time 30 hours in the College of Liberal Arts at The University of Iowa preceding enrollment in the College of Dentistry satisfies the College of Liberal Arts residence requirement.

Grade-Point Requirement
The applicant should have a cumulative grade-point average of at least 2.5 (A=4). 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 for admission to the College of Dentistry. Applicants will be notified when to appear for interviews.

Required Dental Admission Test
All applicants must complete the Dental Admission Test sponsored by the Council on Dental Education of the American Dental Education Association. The Dental Admissions Tests are given two times annually, and The University of Iowa is a testing center. Applicants must take the test no later than the spring preceding the year they apply for admission. Applicants may obtain test information from The University Office of Admissions or the American Dental Association, 215 East Chicago Avenue, Chicago, IL 60611.

Deposit by Accepted Applicants
An accepted applicant is required to submit a deposit within 30 days after notification of favorable action on the application. Applicant must make the deposit within two weeks after notification of acceptance. This deposit is nonrefundable and is credited toward the first year’s tuition fee. Applicants must pay the deposit within the time specified for their acceptance. The committee considers applicants’ academic averages, science averages, the scores on the required Dental Admission Test, and several other factors.

Since the available places in the freshman class of the College of Dentistry are limited, preference is given to applicants who are residents of Iowa who either have completed the preclinical academic requirements of the College or who have completed the preclinical academic requirements of the College.

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 and Maxillofacial Surgery, Orthodontics, Pedodontics, Periodontics, Preventive and Community Dentistry, and Preventive and Community Dentistry.

To be admitted to the graduate programs of study, all academic requirements of the College of Dentistry must be completed.

Nondepartmental Courses

112:120 Oral Pathology Seminar 0 s.h.
112:130 Introduction to General Dentistry 2 s.h.
112:140 Introduction to General Dentistry 2 s.h.
112:150 Oral Hygiene 2 s.h.
112:160 Basic Dental Radiology 2 s.h.
112:170 Oral Radiology 2 s.h.
112:180 Preclinical Dental Radiology 2 s.h.
112:190 Advanced Clinical Dentistry 2 s.h.
112:200 Advanced Clinical Dentistry 2 s.h.
112:210 Advanced Clinical Dentistry 2 s.h.
112:220 Advanced Clinical Dentistry 2 s.h.
112:230 Advanced Clinical Dentistry 2 s.h.
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112:450 Advanced Clinical Dentistry 2 s.h.
112:460 Advanced Clinical Dentistry 2 s.h.
112:470 Advanced Clinical Dentistry 2 s.h.
112:480 Advanced Clinical Dentistry 2 s.h.
112:490 Advanced Clinical Dentistry 2 s.h.
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112:700 Advanced Clinical Dentistry 2 s.h.
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112:730 Advanced Clinical Dentistry 2 s.h.
112:740 Advanced Clinical Dentistry 2 s.h.
112:750 Advanced Clinical Dentistry 2 s.h.
112:760 Advanced Clinical Dentistry 2 s.h.
112:770 Advanced Clinical Dentistry 2 s.h.
112:780 Advanced Clinical Dentistry 2 s.h.
112:790 Advanced Clinical Dentistry 2 s.h.
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112:810 Advanced Clinical Dentistry 2 s.h.
112:820 Advanced Clinical Dentistry 2 s.h.
112:830 Advanced Clinical Dentistry 2 s.h.
112:840 Advanced Clinical Dentistry 2 s.h.
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112:860 Advanced Clinical Dentistry 2 s.h.
112:870 Advanced Clinical Dentistry 2 s.h.
112:880 Advanced Clinical Dentistry 2 s.h.
112:890 Advanced Clinical Dentistry 2 s.h.
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112:970 Advanced Clinical Dentistry 2 s.h.
112:980 Advanced Clinical Dentistry 2 s.h.
112:990 Advanced Clinical Dentistry 2 s.h.

Clinical Management Concepts

Faculty: professor Thomas V. Gardner assumes direction of department; clinical instructor Daniel Scott, Richard Rechman associates; John L. Rechman assistant; John L. Rechman associate professor; and our colleagues provide educational experiences in patient care and graduate students.

112:180 Comprehensive Clinical Dentistry 2 s.h.
112:190 Comprehensive Clinical Dentistry 2 s.h.
112:200 Comprehensive Clinical Dentistry 2 s.h.
112:210 Comprehensive Clinical Dentistry 2 s.h.
112:220 Comprehensive Clinical Dentistry 2 s.h.
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112:440 Comprehensive Clinical Dentistry 2 s.h.
112:450 Comprehensive Clinical Dentistry 2 s.h.
Dental Hygiene

Department of: Paula Bresi
Faculty: professor, Jamie Jones
Associate Professor: Jane Huber, Paula Bresi, Elizabeth Nutter, Kay Madsen, Nancy Saly Lefere
Lecturers: Catherine Davis, Nance Hunter, Jame Stari Mihalo
Graduate Assistant: Joanne Bier, Barbara Hatt
Degrees offered: D.S., M.S.

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 specialized 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 national and state dental hygiene licensure examinations required for dental hygiene practice.

Included in the general education requirements are courses in the basic and social sciences. These courses provide the student with educational preparation in disciplines relevant to specialized work in medical and dental sciences and in dental hygiene. Students take the specialized courses during the junior and senior years. In the junior year, they enroll in 60:2 Human Microscopic Anatomy, 71:50 Intermediate Pharmacology, 80:61 Introduction to Periodontology, 80:61 Operative Dentistry Laboratory: Dental Hygienist, s 80:60 Introduction to Oral Pathology, 80:61 Oral Pathology for Dental Hygienists, 80:62 Dental Radiology for Dental Hygienists, 87:1 Anesthesia, 88:51 Dental Hygiene Laboratory.

In addition, juniors learn the basic theory and clinical skills required for dental hygiene practice in an 88:51 Dental Hygiene Core I and 88:62 Dental Hygiene Core II which involves content in dental anatomy with the theory and practice of dental hygiene.

During the senior year, students advance their clinical skills in 88:85 Clinical Dental Hygiene. In 88:85 Advanced Periodontics for Dental Hygiene Students, each student is assigned to work with a graduate student in periodontics performing procedures on adults who have active periodontal disease. This experience not only advances dental hygiene clinical skills, but provides both the hygiene and graduate dental students with a learning experience emphasizing the team approach.

Senior receives additional clinical experience in 88:86 Clinical Dental Radiology for Dental Hygienists. Weekly lectures and seminars reinforce clinical training in 88:66 Session: Dental Hygiene Concepts and Practice.

Senior students also are enrolled in 88:67 Practicum: Community Dental Health; 88:68 Seminar: Community Dental Health; 79:121 Designing and Developing Instructional Materials; and 220:101 Biostatistics.

Courses traditionally taught as isolated subject-oriented units, such as dental health education, public health, and audiovisual media, are incorporated into an integrated core. Learning emphasis is on the relationship between the underlying theory and practical application of community dental health. Weekly field experiences enable students to apply knowledge of human behavior, basic principles of communication skills, educational and research techniques and to design, implement, and evaluate public health care and educational programs.

Admission Requirements

High School Preparation

Although there are to specific high school course requirements, college preparatory courses are recommended. These courses should include four years of English, two years of the same foreign language, four years of mathematics, and one year each of biology and social sciences.

College Preparation

Eligibility for admission to the professional program in dental hygiene requires satisfactory completion of 62 semester hours of college course work. In fulfilling this requirement, the student must satisfy general education requirements of the College of Liberal Arts and complete the following dental hygiene prerequisites:

Five semester hours (eight for transfer students) of zoology or general biology—37:8 Principles of Animal Biology

Three semester hours of inorganic chemistry: 4:8 General Chemistry I

Five semester hours of organic chemistry, including biochemistry—4:9 General Chemistry II, 4:9 General Chemistry Laboratory

Four semester hours of microbiology—81:164 Microbiology

Three semester hours of nutrition—17:143 Nutrition

Three semester hours of-psychology— 60:1 Elementary Psychology

Three semester hours of sociology—34:1 Introduction to Sociology Principles

Four semester hours of anatomy—60:1 Elementary Human Anatomy

Four semester hours of physiology—72:150 or 72:160/165 Physiology

These prerequisites provide the educational basis for the dental hygiene courses of study. In addition, students admitted and 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 an appropriate background for transfer into the baccalaureate program at Iowa.

Students begin the professional program in dental hygiene in the fall only. Students enrolled in The University of Iowa College of Liberal Arts need admit only the dental hygiene application in the fall semester of their sophomore year. Transfer students must submit both College of Liberal Arts and dental hygiene applications. All applicants are interviewed by the dental hygiene admissions 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

Although the need for graduate educators in dental hygiene continues, the graduate school serves the need for preparing qualified educators to contribute toward the advancement of new knowledge in dental hygiene. Therefore, graduate program goals place major emphasis on the acquisition of advanced scientific knowledge in the biological and social sciences and basic knowledge of management and experience in conducting research.

The curriculum design provides one student with major concentration in advanced dental hygiene theory. In the biological field, this consists of the pathophysiology of dental plaque, including plaque microbiology and biochemistry, and the relationship of plaque to caries and periodontal disease. The required courses in this area include the host to dental plaque, emphasizing immunization and immunity, and the prevention of dental diseases by immunization and antimicrobial agents.

In the social science area, students consider the implications of applied
Graduate Admission Requirements

Applicants for admission are subject to the general rules of the Graduate College. Departmental requirements include an acceptable score on the Graduate Record Examination (GRE) and a 2.8 minimum undergraduate cumulative grade-point average (GPA). Undergraduate students of the program must complete at least 12 hours in the biological and social sciences.

Although students may begin the program during the fall, spring, or summer semester, enrollment at the beginning of the summer session is preferred. Applications, transcripts, and Graduate Record Examination (GRE) Aptitude Test scores should be submitted as early as possible prior to the semester admission is desired. Most students should expect to take two academic years to complete degree requirements.

Approximately 12 semester hours are required to complete the didactic major in dental hygiene and 16 semester hours in research methodology and in thesis preparation and defense. The following 12 hours are to include the following courses:

- Bachelor's in Dental Hygiene
- General Dentistry
- Oral and Maxillofacial Surgery
- Periodontology

Elective course work related to the biomedical and clinical sciences, microbiology, histology, biochemistry, oral pathology, and periodontology.

Students are encouraged to continue taking elective in addition, such as educational measurement, theories of learning, and administration.


Endodontics

Department head: Kenneth L. Zalzalnik Fire: Endodontic department chairman

Associate professor Kathleen L. Zalzalnik

Endodontics are taught during the last two years of the dental curriculum and includes both didactic and laboratory courses. In clinical endodontics, the student studies...
Requirements for the Master of Science degree include satisfactory completion of 48 semester hours of specified graduate-level courses, preparation of an acceptable thesis based on original research, and final defense of the thesis and examination of the candidate by an examining committee. The student should plan to finish his or her course work financial support for the research and thesis.

An applicant for this program must be a graduate of a recognized school of dentistry and must comply with the requirements for admission to the Graduate College of the University. An interview with the applicant may be requested.

Courses

D.D.S. Program

2481 Operative Dentistry Laboratory I 2 s.h.
Basic study of the composition of dental materials and methods to the restorative processes of operative dentistry.

2410 Dental Anatomy Lectures 1 s.h.
Lectures and sections comprising dental anatomy, detailed anatomy, and orientation of the lower and upper permanent dentition.

2411 Dental Anatomy Laboratory 1 s.h.
Detailed study of human tooth morphology and function utilizing wax replacement method and manual and plastic teeth.

2412 Operative Dentistry I 1 s.h.
Lectures and practical training comprising dental restoration, standard procedures and restorations, amelioration of tooth enamel, and evaluation of the state of health and oral hygiene.

2413 Operative Dentistry II 1 s.h.
Lectures and sections comprising principles and techniques of restoration, restoration of teeth, patient management, pain control, and other aspects of clinical and laboratory dentistry.

2414 Operative Dentistry III 1 s.h.
Clinical training in operative dentistry on patients in operative services. For second-year students.

2415 Operative Dentistry IV 1 s.h.
Lectures, sections, clinical demonstrations correlated with supervised patient treatment for each dental student in dental hygiene; students perform all tasks of operative treatment for primary patients and are responsible for all phases of restorative procedures and restorative treatment techniques. For third-year students.

Primarily for Graduates

Discipline

2421 Operative Dentistry Seminar I 1 s.h.
Lectures and discussion of past and present status of operative dentistry.

2422 Operative Dentistry Seminar II 1 s.h.
Readings and discussion of research on the techniques, materials, and laboratory procedures and their restoration.

2423 Operative Dentistry Seminar III 1 s.h.
Readings and discussion of research on problems associated with dental pulp and cavity.

2428 Operative Dentistry Seminar IV 1 s.h.
Readings and discussion of research on dental materials and their use in operative dentistry.

Research Program

2432 Operative Dentistry Research I 2 s.h.
Topics selected, techniques, selection, and literature review for research project; begin research project.

2433 Operative Dentistry Research II 2 s.h.
Complete research, gather and organize data, and complete laboratory procedures.

2434 Operative Dentistry Research III 2 s.h.
Begin writing thesis.

2435 Thesas Proposals in Operative Dentistry 1 s.h.

Clinical Studies

2501 Operative Dentistry Advanced Clinical I 1 s.h.
In-depth study of case and present restorative procedures, responsible assignments on a regular basis.

2502 Operative Dentistry Advanced Clinical II 1 s.h.
Treatment of patient cases in the operative clinic; examination of patients and cases problems; cooperation on assigned restorative procedures.

2503 Operative Dentistry Advanced Clinical III 1 s.h.
Treatment of patient cases in the operative clinic; examination of cases problems; cooperation on case guided restorative procedures.

2504 Operative Dentistry Advanced Clinical IV 1 s.h.
Treatment of patient cases in the operative clinic; examination of cases problems; cooperation on case guided restorative procedures.

2505 Operative Dentistry Advanced Clinical V 1 s.h.
Treatment of patient cases in the operative clinic; examination of cases problems; cooperation on case guided restorative procedures.

2506 Clinical Dentistry 1 s.h.

Oral Pathology and Diagnosis

Hunt, Gilbert E. Jr.
Family: professor, lecturer II, hgs, Gilbert E., Jr., MD, and Colton, Helen, MD, and Tate, Thomas emeritus, Alfred K. Fisher associate professor, Harold L. fellows, William J. Marshall, Murray W., and Philip B. Martin, Clayton L. Billew assistant professor, Francis H. M. Solody assistant professor, George C. Hardy, DDS, D.M.D.

Degree offered: M.D.

Predoctoral Program

The department's primary objective is to provide instruction to dental students and other health-profession students in the etiology and natural history of diseases occurring in and about the oral cavity. Instruction includes the clinical, laboratory, radiographic, and microscopic features of these diseases and their management. Instruction is provided in the physical evaluation of patients to identify systemic diseases and their influence on dental therapy, and in treatment of systemic diseases.

Master of Science Program

Advanced instruction is available for graduate-level students in health sciences and related fields in preparation for specialty practice or careers in teaching and research. Candidates for the Master of Science degree are expected to develop substantial ability for research into methods of occlusal disease, and should anticipate that considerable effort will be devoted to the completion of an assigned research project and the thesis based on it.

Minimum requirements for completion of this program are 45 semester hours of graduate credit and a thesis. The required courses are:

80-208 Problems 2 s.h.
112-212 Statistical Methods in the Biomedical Sciences 3 s.h.
89-201 General Pathology for Medical Students 5 s.h.
89-202 Systemic Pathology for Medical Students 7 s.h.
89-230 Research in Oral Pathology and Diagnosis 3 s.h.
89-240 Histopathology 3 s.h.
89-250 Pathology Processes 3 s.h.
89-256 Advanced Oral Pathology 3 s.h.
89-218 Dental Sciences Research Methodology 2 s.h.
89-189 Basic Chirologycicogistion Science 4 s.h.
89-180 Topics in Oral Pathology 2 s.h.
89-200 Oral Pathology and Diagnosis Literature Review 2 s.h.

The tools for research are determined for each student after consultation with the major advisor. Since most graduate students in advanced programs in oral pathology have completed their coursework, most students will participate in predoctoral teaching in the department as part of their education.

Certification Program

The program for certification in oral pathology combines academic studies with extensive laboratory practice of oral pathology under faculty supervision, and requires a minimum of 24 months of full-time work for completion. Qualification for the certificate includes completion of all required courses with a passing grade, demonstration of competence in the practice of oral pathology, and a satisfactory grade in a final comprehensive examination before an examination committee composed of members of the graduate faculty in the Department of Oral Pathology and Diagnosis.

Required courses are:

89-180 Oral Pathology 1 s.h.
89-200 Oral Pathology and Diagnosis Literature Review 2 s.h.
86:225 Manifestations of Oral and Parotid Disease 1 h.
86:238 Basic Oral and Maxillofacial Surgery Science 4 h.
62:202 Problem Solving
86:226 Physical, Laboratory, and Histopathological Features of Oral Disease 1 h.
86:227 Surgical Oral Pathology 1 h.
86:240 Head and Neck Pathology 5 h.
86:241 Hospital Oral Pathology 4 h.
86:250 Pathologic Processes 2 h.
86:256 Advanced Oral Pathology 1 h.
86:201 General Pathology for Medical Students 5 h.
86:202 Systemic Pathology for Medical Students 7 h.
92:215 Dental Sciences Research Methodology 2 h.
97:212 Physical Diagnosis 2 h.

Facilities
The laboratory of the department are equipped for training in histopathology, immunopathology, laboratory diagnosis, and experimental pathology. Laboratories are available for students for investigation of ultrastructure of both soft and calcified tissues.

Admission Requirements
Applicants must have completed an accredited program leading to the D.D.S. or D.M.D. degree or its foreign equivalent, with a minimum cumulative grade point average of 2.7 (4.0 scale), and must present satisfactory scores in the General Record Examination of the Graduate Record Examination (GRE) Aptitude Test. Acceptance by any applicant meeting the requirements for admission will rest with the departmental staff. Prospective applicants are encouraged to discuss program requirements with the head of the department prior to application.

Courses

85:08 Introduction to Oral Pathology 1 h.
Graduates in clinical medicine are expected to have had previous experience in the diagnosis and treatment of oral diseases in their clinical experience. Required for oral surgeons.
85:07 Oral Pathology for Dental Hygienists 3 h.
Study of oral diseases provides basic training in the differential diagnosis and treatment of oral diseases. Required for dental hygienists.
85:05 Oral Pathology for Dental Hygienists 5 h.
In-depth study of oral diseases and the clinical management of the patient with oral diseases. Required for dental hygienists.
85:03 Oral Pathology for Dental Hygienists 5 h.
Clinical examination, oral hygiene, oral diseases, and the management of oral diseases. Required for oral disease.
85:01 Oral Pathology for Dental Students 5 h.
Introduction to methods of clinical and histopathological examination and record keeping; correlation of oral diseases and clinical experiences.

Oral and Maxillofacial Surgery
Department head: Donald D. Colson
Chair: John C. Montgomery
Departmental faculty: John C. Montgomery, Donald D. Colson, and others.

Graduate Courses
83:06 Oral Pathology and Oral Disease Literature Survey
As required. A minimum of 4 credits shall be selected.
83:231 Manifestations of Oral and Parotid Disease
An advanced study of the causes of oral diseases and their clinical manifestations. Required for oral surgeons.
83:181 Clinical Oral Pathology
An advanced study of the causes of oral diseases and their clinical manifestations. Required for oral surgeons.
83:182 Oral Pathology in Oral Hygiene
Lectures and demonstrations in selected areas of oral pathology. Required for oral hygienists.
83:183 Oral Hygiene and Pathology of Drugs
An advanced study of the causes of oral diseases and their clinical manifestations. Required for oral hygienists.
83:184 Oral Pathology for Dental Hygienists
A course in oral pathology for dental hygienists. Required for oral hygienists.
83:185 Oral Pathology for Dental Students
An advanced course in oral pathology for dental students. Required for dental students.
83:186 Oral Pathology for Dentists
An advanced course in oral pathology for dentists. Required for dentists.
83:187 Oral Pathology for Dental Hygienists
An advanced course in oral pathology for dental hygienists. Required for dental hygienists.
83:188 Oral Pathology for Dental Students
An advanced course in oral pathology for dental students. Required for dental students.
83:189 Oral Pathology for Dentists
An advanced course in oral pathology for dentists. Required for dentists.
83:190 Oral Pathology for Dental Hygienists
An advanced course in oral pathology for dental hygienists. Required for dental hygienists.
83:191 Oral Pathology for Dental Students
An advanced course in oral pathology for dental students. Required for dental students.
83:192 Oral Pathology for Dentists
An advanced course in oral pathology for dentists. Required for dentists.
83:193 Oral Pathology for Dental Hygienists
An advanced course in oral pathology for dental hygienists. Required for dental hygienists.
83:194 Oral Pathology for Dental Students
An advanced course in oral pathology for dental students. Required for dental students.

Residency Program
The aim of the residency program in oral and maxillofacial surgery is to provide preparation for specialty practice. The program is designed to combine clinical and didactic training on an individual basis. Every effort is made to adapt the program to the interests, abilities, and development of the individual student; however, it is essential to meet certain fundamental requirements.

The recommendations of the Council on Dental Education of the American Dental Association, the Committee on Graduate Training of the American Society of Oral and Maxillofacial Surgeons, and the American Board of Oral and Maxillofacial Surgery have been
Oral and Maxillofacial Surgery/DENTISTRY

The applicant must be a graduate of an accredited college of dentistry and be licensed to practice dentistry in the United States. The applicant should be in the upper third of his or her graduating class. Documents required include application for graduate oral surgery; applicant's oral exam applicant's references; transcripts; and letters of recommendation from the dean of the dental college from which the applicant graduated, and from two professional references. Interviews are not required but are strongly recommended. Applicants may be appointed any time after the application has been completed and the applicant is invited to take official action. All appointments should be tendered on or before January 1 prior to the July 1 effective date. The graduate admission office will send an admission form to the applicant to be completed for the Graduate College by approximately March 1.

Facilities
The University Health Center has an outstanding oral and clinical science department which stimulates and supports scholarly research and superior clinical practice. The facilities of the university hospitals, the Veterans Administration Medical Center, and the colleges of Dentistry and Medicine provide an appropriate environment for residency training in oral surgery.

Hospital Organizations
The organizational structure at the University Hospitals includes a Hospital Dental Clinical Service with divisions of Surgery, Family Dentistry, Pediatric Dentistry, Orthodontics, Periodontics, Oral Pathology, Dental Radiology, Prosthodontics, Endodontics, and Dentistry. The oral surgical residency program and a one-year general practice residency are conducted under the auspices of the Division of Oral Surgery and Division of Family Dentistry.

Courses
Predoctoral
Preclinical Oral Surgery
Oral surgery principles and techniques in use of local anesthesia and modern techniques for dental surgery assistants.

Clinical Oral Surgery
Oral surgery principles and techniques in use of local anesthesia and modern techniques for dental surgery assistants.

Graduate Record Examination (GRE)
Aptitude Test is required.

Admission
Admission is limited to July 1 of each year for a full three-year program. The application must be submitted by September 1 for admission July 1 of the next year.

Graduate Record Examination (GRE)
Aptitude Test is required.

Requirements for the Master of Science degree may be completed during residency. The M.S. program comprises a three-year course of integrated didactic and clinical study, and includes a research project and the preparation of a thesis.
Orthodontics

Department Head: John S. Clark
Associate Professor: Robert H. Black
Degree offered: M.S.

Predoctoral Program

The purpose of the predoctoral program in orthodontics is to enable the general practitioner of dentistry to recognize, diagnose, and treat with competence simple malocclusions of the teeth.

Lecture courses guide the student in the learning of basic concepts of dental and facial growth, as well as treatment-oriented subject matter. In a laboratory course, diagnostic records are taken and evaluated and treatment appliances are fabricated. The department supervises a volunteer program of clinical treatment of selected patients.

Graduate Program

The purpose of the graduate program in orthodontics is to educate specialists capable of diagnosing and treating any malocclusion of the teeth encountered in private practice. The specialist should be familiar with and able to critically analyze biologic, biomechanical, diagnostic, and treatment concepts in orthodontics.

Satisfactory completion of a 33-month program including such advanced lecture courses, seminars, clinical and research experiences, and a research paper is required. A student who satisfactorily completes the program is eligible to take the orthodontic board qualifying examination and to use the abbreviation Diplomate of the American Board of Orthodontics as a postnominal honorific.

Admission

Admission requires the B.D.S. degree, or its equivalent, and satisfactory Grade Point Average of the prerequisite courses.

For Graduate Students

Preparation for the Board Examination in Orthodontics: Students will be given a comprehensive and intensive course in orthodontics, including instruction in orthodontic theory, clinical orthodontics, orthodontic research, and clinical and research opportunities in orthodontics. Students who have completed the Board Examination and have passed the examination may use the abbreviation Diplomate of the American Board of Orthodontics as a postnominal honorific.

Pedodontics

Department Head: Stephen H. Smies
Faculty: Robert H. Smith, Fred W. Carlezon, Jr., James S. Millard, Stephen H. Smies
Degree offered: M.S.

The Department of Pedodontics provides instruction for dental students in the prevention and treatment of dental diseases of children. Instruction comprises didactic, laboratory, and clinical experiences. It gives clinical consideration to reviewing current literature and managing dental problems of handicapped children, and emphasizes the treatment of dental anomalies and malocclusions, as well as the proper utilization of dental auxiliary personnel and record management.
Courses
90.141 Pediatric Degeneration and Clinical in 5 b. Course given in preclinical and developmental biology.
90.160 Clinical Pedodontics 2 b. Laboratory techniques for extracorporeal circulation.
90.181 Clinical Nutrition in Pedodontics 1 b. Discussion of patient management, case histories, and nutritional principles.

Primarily for Graduates
93218 Advanced Isotopic Pedodontics 3 c. Laboratory techniques of intraocular and extrabutonic substances.
93219 Endodontic and Root Canal Therapy 3 c. Laboratory interproximal techniques to eliminate the risk of ankylosis.
93257 Advanced Oral Pathology 3 c. Oral pathology and its relation to the management of oral patients.
93262 Dental Management of the Handicapped Child 3 c. Principles for managing various types of handicapped children in the dental office.
93263 Research in Pedodontics 3 c. Research and the completion of an original work under guidance ready to be presented in a professional form.
93233 Thesis Preparation 3 c. Preparation of original research project and thesis.
93411 Pedodontic Techniques for Dental Patients 3 c. Principles for managing various types of dental patients.
93412 Pediatric Dental Treatment under General Anesthesia 3 c. Pediatric dental treatment under general anesthesia.
93443 Pediatric Restorative Dentistry 3 c. Pediatric restorative dentistry.
93446 General Anesthesia 3 c. General anesthesia in pediatric dentistry.
93499 Advanced Endodontic Microscopy 3 c. Advanced endodontic microscopy.
93520 Endodontic Clinic 3 c. Endodontic clinic for advanced clinical study.
93521 Hospital Based Clinic 3 c. Hospital based clinic for advanced clinical study.
93530 Pediatric Health in Pedodontia 3 c. Observations and practice in current teaching procedures.
93590 Pilot and Dental Health 3 c. General survey of dental health.

Periodontics
Department Head: Phillip A. Lalorose Faculty: Phillip A. Lalorose, Lee G. Misch, Ronald A. Miller, Charles W. Robertson, Jr.

Specialty areas offered: C. Heston Franklin, Margaret A. O'Donnell

Ad Hoc Interdisciplinary Ph.D. Program
Univer Graduate College regulations, the Graduate College grants final approval of all individual programs. The Department of Periodontics will assist in the development of individual doctoral programs designed to train dentists for careers in teaching and research in periodontal disease. Such
Courses

Predoctoral

501A. Introduction to Periodontology 3 h.
Fundamental concepts of periodontology for dental students, presented in a lecture and seminar format augmented by slide-tape series.

501E Advanced Periodontology/General Hygiene 2 h.
Students in seminars designed to enhance graduate student's knowledge of differential prevention of diseases, mechanisms of destructive periodontal diseases, microbiology of periodontal infections.

514F Periodontal Methods 3 h.
Fundamental concepts in periodontology presented in lecture and seminar format augmented by slide-tape series.

516H Periodontics 6 h.
Comprehensive clinical management of the periodontal patient.

Graduate

5051 Advanced Periodontology On
Provides incoming graduate student with comprehensive review of periodontal therapy. Offered summer session.

5052 Clinical Seminar in Periodontology On
Comprehensive examination of periodontal patient, presented with written report and one class demonstration and presentation of complete dental therapy; includes dental science seminar included. Required each fall and spring (1 credit).

5053 Methods of Treatment in Periodontology 3 h.
Experience in office design in periodontology, including behavioral objectives and methods of evaluation.

5057 Proctor Lectures on Treatment in Periodontology 2 h.
Practical experience in treating, seminar direction, and scientific teaching in periodontics.

5059 Oral Hygiene in Periodontology 3 h.
Offered spring semester.

5061 Periodontology: Polyclinic Seminar 1 h.
Student's knowledge and transition to operating room as assigned in clinical appointment. Offered spring semester of each year.

5062 Periodontics Research 1 h.
Research reports and results. No credit will be given unless student is writing a thesis.

5063 Preventive Oral Hygiene 1 h.
The role of oral hygiene in the management of periodontal disease. Offered spring semester.

5064 Advanced Oral Microbiology 1 h.
Basic techniques in oral microbiology. A required oral hygiene course.

5065 Periodontal Research 1 h.
Research reports and results. No credit will be given unless student is writing a thesis.

5066 Oral Hygiene Seminar 1 h.
Methods of teaching and techniques of oral hygiene instruction in clinical appointment. Offered spring semester of each year.

5067 Methods of Advanced Oral Hygiene 1 h.
Research reports and results. No credit will be given unless student is writing a thesis.

5068 Endodontics 1 h.
Research reports and results. No credit will be given unless student is writing a thesis.

5070 Periodontics/Literature Review 1 h.
Offered fall semester of each year.

5071 Periodontics/Literature Review I 1 h.
Offered spring semester of each year.

5072 Periodontics/Literature Review II 1 h.
Offered spring semester of each year.

Preventive and Community Dentistry

Departmental Office: James C. Gaskin
Faculty: Associate: James C. Gaskin, Norman Cazes, Nathan L. Logan, W. Philip Plyler, Associate Professor: Howard H. Flint, Frank J. Kohnert, Dorothy Rove, Irene R. Williams,
Senior Assistant: Barbara Cunningham.


5225 Preventive and Community Dentistry 1 h.
Offered spring semester of each year.

5231 Dental Public Health 1 h.
Preparation of original research project and completion of thesis.

5240 Advanced Clinical Periodontics 1 h.
Comprehensive evaluation and treatment of the periodontal patient, with emphasis on the complex case. Required each semester.

Financial Aid

The applicant must be financially prepared to undertake uninterrupted studies. Assistantships are offered, dependent upon available resources.

Admission

Admission to graduate study in periodontology requires the D.D.S. degree or its equivalent, and inclusion of Graduate College admission requirements. (See "Graduate College" section of the Catalog). National Dental Board Examination scores, if available, are required. In admissions to the Ph.D. program, the department gives strong preference to applicants with the M.D. degree. Interviews are encouraged but not mandatory.

Master of Science

The Master of Science degree program is designed to prepare students in community dentistry and dental public health, with emphasis on research, teaching, or administration. The program objective is to help students achieve a high degree of professional advancement in their respective areas of specialization. Graduates will have met educational requirements necessary to establish them eligibility for the American Board of Dental Public Health.

The program requires a minimum of 42 semester hours of course work. The full-time program requires a minimum of 16 months of course work and

DENTISTRY/Preventive and Community Dentistry
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Notes:
- Review of current research in principles, practices, and concepts of complete denture construction.
- Review of current research in principles, practices, and concepts of removable partial denture construction.
The nation's first university-level professorial chair in education was established at The University of Iowa in 1912. The department became the school of Education in 1907, and the College of Education, structured in the basic pattern which governs it today, was founded in 1913. The growth of the college has corresponded to the growth of the University.

Faculty members have been leaders in a variety of educational fields. Particularly noteworthy are the early developments in educational testing and measurement which helped lay the foundation for the present-day educational testing and measurement industry, thus making Iowa City one of the best known centers for this educational specialty.

The college has seven divisions: Foundations, Post-Baccalaureate and Continuing Education; Educational Administration; Early Childhood and Elementary Education; Psychological and Quantitative Foundations; Secondary Education; Counselor 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 offers undergraduate programs in teacher education leading to state of Iowa teacher certification in early childhood and elementary teaching, secondary school teaching, teaching in special education for mentally retarded and physically handicapped children, and health occupations education. Students admitted to the Teacher Education Program (T.E.P.) are degree candidates in the College of Liberal Arts and must complete the requirements for the Bachelor of Arts, Bachelor of Science, or Bachelor of General Studies, as specified in the College of Liberal Arts section of the University Catalog. Policies, rules, and regulations of the college apply to students in the T.E.P. Students seeking the B.A. degree should especially note that a minimum of 40 semester hours of credit earned in the College of Education may be applied toward the degree.

**Admission**

Students who are interested in becoming teachers should indicate their proposed teaching majors on the application for admission to The University of Iowa. Students who decide at a later date to enter the Teacher Education Program must declare the appropriate teaching major as their major in the College of Liberal Arts Advisory Office, 118 Shaeffer Hall, and submit an Application for Admission to the Teacher Education Program to the Office of Admissions, 107 Calvin Hall by May 15 preceding the academic year in which the applicant plans to enroll in professional education courses. Applications received after that date will be approved only if faculty and resources permit.

Although freshmen are admitted to the T.E.P., students are not eligible to enroll in professional education courses before they have completed 28 semester hours. The academic record of all students admitted to the T.E.P. will be reviewed at the end of each semester and students who have not maintained a 2.2 grade-point average on all course work attempted and on all University of Iowa course work will be dropped from the T.E.P. Students who are dropped from the T.E.P. may reapply and may be readmitted when the required 2.2 grade-point average is achieved. If enrollment limits have not been reached.

Because of the limits of faculty and teaching resources, it may be necessary to restrict enrollments in early childhood, educational administration, and special education, and in social studies and English in secondary education. In the event that the number of T.E.P. applicants exceeds the capacity of a program, students will be admitted on the basis of criteria established by the faculty.

To be admitted to foundation courses in education, an undergraduate student must:

- Have been admitted to The University of Iowa as a degree candidate;
- Have completed the American College Tests;
- Have attained an entrance standing (28 semester hours) prior to the semester during which he or she seeks to enroll in the foundations of education sequence of courses;
- Have achieved a 2.2 grade-point average.
average on all outcome course work attempted and course work completed at The University of Iowa; and Have submitted an Application for Admission to the Teacher Education Program (see date above). Graduate students must: Have been admitted to the Graduate College; Have a cumulative grade-point average of not less than 3.0 (2.7 for M.A.T.) on undergraduate course work; and Have been admitted to a specific certification program (e.g., elementary education, special education, or secondary English).

Student Teaching The final phase of the Teacher Education Program is the professional semester, devoted to supervised student teaching and directed observation in a variety of settings. Periodic seminars provide for discussion and evaluation of student teachers' experiences. The student teaching requirements may not be met by transfer credit except under unusual circumstances and with approval in advance.

To register for student teaching, the student must have: Satisfactorily completed 6 semester hours during one academic session in residence at The University of Iowa; Satisfactorily completed 7P:75 Education and Measurement, 7W:91 Audiovisual Equipment for Instruction (Elementary), and 7E:100 Introduction: Elementary and Early Childhood Teaching or 7E:110: Introduction: Secondary School Teaching, and 7E:81 Pre- Education Practicum; or Satisfactorily completed the appropriate methods courses: Maintained a cumulative grade-point average of not less than 2.2 if an undergraduate student, 2.5 if a graduate student, or 2.7 if an M.A.T. candidate, on all college work attempted, all college work attempted at The University of Iowa, and all work attempted in his or her teaching major; and Filed application for an assignment by March 10 preceding the academic year during which student teaching is desired.

Waivers Students who have completed practicum-type experiences or courses which they feel should be considered in fulfillment of requirements should consult with their advisors concerning waiver procedures.

CUTE Program Students who feel they may better advance their educational interests through student teaching in an inner-city situation, and who are interested in working with urban youth, may apply for the Cooperative Urban Teacher Education (CUTE) program through the Director of Student Teaching. Iowa is one of several midwestern institutions which place selected students in the Illinois City inner-city system. The program is open to the on-campus student who meets the requirements for student teaching.

Overseas Student Teaching
In cooperation with the University of Wisconsin-River Falls, a split student teaching assignment is available (eight weeks in one of our regular centers and eight weeks in Wisconsin, England, Republic of Ireland, Scotland, or Wales). Students must make their own travel arrangements. Housing will be located for the students by the on-campus Coordinator. Students selecting this program must meet the regular requirements for student teaching.

State Requirements Certification to teach in Iowa requires an education component in human relations. This requirement can be met with 7E:110: Human Relations for the Classroom Teacher.

Certification to teach in many states requires a course in U.S. History or in American government. An initial certificate may be obtained in Iowa without meeting this requirement. However, a certified teacher who has previously met the requirement must continue to meet a minimum of 2 semester hours in U.S. history or American government before his or her certificate can be renewed. Educators therefore encouraged to include such a course in their correspondence programs. Any of the following courses will satisfy the requirement:

30:1 Introductory to American Politics 3 s.h.
34:10 The American Political System 3 s.h.
Up to 4 semester hours may also be used toward the general education requirement in social sciences of the College of Liberal Arts 3 s.h.
18:82 American History 1877-Present 3 s.h.
18:101 The Colonial Period in America 3 s.h.
18:189 American Revolution Period 1740-1789 3 s.h.
18:183 United States in the Early Republic 3 s.h.
18:184 Civil War and Reconstruction 3 s.h.
18:167 The New Era and the New Deal 3 s.h.
18:104 The Contemporary United States 1940-Present 3 s.h.

Minors All undergraduate minors in education for students in the College of Liberal Arts require a minimum of 18 semester hours of credit, of which at least 12 must be in courses numbered above 90. The student must have a grade-point average of 2.0 or above in courses composing the minor.

General Undergraduate Minor This minor is designed to encourage undergraduate education possible freshmen within the field of education. The student is free to choose a combination of courses, provided he or she selects at least one course from each of the following six areas:

Structure of Education 7F:101 U.S. Educational System and Society 3-5 s.h.
7E:100 Introduction: Elementary and Early Childhood Teaching 3 s.h.
7H:100 Introduction to Continuing Education 3 s.h.
7H:100 Problems and Policies in Higher Education 3 s.h.
7F:100 Introduction: Secondary School Teaching 3 s.h.
70:101 Introduction to Education 3 s.h.

History, Philosophy, and Sociology of Education 7F:102 History of American Education 3 s.h.
34:10 History of Western Education 3 s.h.
7F:100 Socioeconomics of Education 3 s.h.
7F:130 Educational Sociology 2-5 s.h.
7H:17 Foundations of Vocational Education 2 s.h.

Psychology of Education 7F:75 Educational Psychology and Measurement 3 s.h.
7P:106 Child Development 3 s.h.
7P:107 Psychological Bases of Instructional Design 3 s.h.
7P:108 Socialization of the School-Age Child 3 s.h.
7P:131 Educational Psychology 3 s.h.
7U:130 Exceptional Children 3 s.h.

Curriculum Foundations 7W:101 Introduction to Instructional Development 3 s.h.
7E:186 Curriculum Foundations 2-5 s.h.
7H:189 Curriculum Foundations 3 s.h.

Cross-cultural Factors 7U:133 The Culturally Different in Educational Settings 3 s.h.
7C-154 Education, Rank, and Ethnicity
7C-155 Psychological Aspects of Black Behavior and Personality 3 s.h.
7C-156 Multicultural Concepts and Educational Systems 3 s.h.

Teaching Methodology
7C-180 Methods: Elementary School Language Arts 3 s.h.
7C-170 Methods: Social Studies 3 s.h.
7W-129 Choosing Instructional Strategies 3 s.h.
7C-112 Teaching of Adults 3 s.h.

Science
This minor is designed to help individuals acquire a better understanding of the function of science in the modern world. Problems of pollution, energy shortages, depletion of natural resources, world-wide starvation, and many others are examined. Course requirements are as follows:

Any two of the following courses (for a total of 6 semester hours):
7C-109 Societal and Educational Applications of Earth Science Concepts and Topics 3 s.h.
7C-102 Societal and Educational Applications of Biological Concepts 3 s.h.
7C-103 Societal and Educational Applications of Physical Concepts 3 s.h.
7C-104 Societal and Educational Applications of Selected Concepts of Chemistry 3 s.h.
7C-108 Societal and Educational Applications of Chemical Concepts 3 s.h.

All of the following:
7C-111 Integrating the Teaching of Environmental Science 3 s.h.
7C-129 Teaching of Science 2-3 s.h.
7C-130 Science in Historical Perspective 2-3 s.h.
7C-110 Seminar: Selected Science and Education Topics 3 s.h.
7S-151 New Activities for K-12 Science 2-3 s.h.

Human Relations
This minor offers programs in human relations education to develop both the professional and personal growth of individuals. It offers the individual an opportunity to acquire the skills and techniques necessary to work with people within counseling, guidance, and related fields. Course requirements are as follows:

Each of the following:
7C-190 Training Group Concepts 3 s.h.
7C-198 Counseling for Related Professions 3 s.h.
7C-128 Process of Change and the Counselor 3 s.h.
7C-112 Human Sexuality 3 s.h.
7C-132 The Culturally Different in Educational Settings 3 s.h.
7C-150 Psychological Aspects of Women’s and Men’s Roles 1-3 s.h.
7C-156 Psychological Aspects of Black Behavior and Personality 3 s.h.
7C-182 Introduction to Marriage and Family Counseling and Psychotherapy 3 s.h.
7C-176 Microteaching 3 s.h.
7C-182 The Drug Culture 2-3 s.h.
7C-129 Individual Instruction in Counselor Education 3 s.h.
7T-170 Human Relations for the Classroom Teacher 3 s.h.

Educational Psychology
This minor is designed for the student and a faculty member of the student’s choice within the Division of Psychological and Quantitative Foundations. The minor can consist of a graduate course in measurement and test development, statistics and research in child development, learning and motivation, or a combination of these areas.

Graduate Programs
Graduate study in the College of Education is guided by the general regulations of the Graduate College, with certain additional requirements imposed by the faculty of the College of Education. Graduate students in education register in the Graduate College and receive their degree from that college. The College of Education offers these advanced degree programs:

Master of Arts
The College of Education offers a Master of Arts degree on both a thesis and non-thesis track in each of the divisions. The nonthesis M.A. program usually provides more specialized coursework than is found in the M.A. thesis program. The nonthesis program is not necessarily a terminal program, but students who expect to continue their studies on a doctoral program are urged to select the M.A. thesis program, which offers more experience in research procedures. Students who complete a nonthesis M.A. program and are admitted to a Ph.D. program may be asked to submit evidence of writing and research skills to their advisor or dissertation committee during the early part of their doctoral program.

Master of Science
Thesis and nonthesis programs are available for students majoring in a concentration in science. The degree requirements and courses 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 36 semester-hour (minimum) nonthesis program designed for academically superior liberal arts graduates who included few or no professional education courses in their undergraduate programs. This program leads to a master’s degree and certification as a secondary teacher in such fields as art, business, English, foreign languages, home economics, mathematics, science, and speech and drama. A grade-point average of at least 2.7 on undergraduate course work is required for admission. At least 16 semester hours of graduate course work in the student’s proposed teaching field must be completed. A sufficient number of semester hours of graduate work in education (not less than 20) must be taken to satisfy certification requirements.

Specialist in Education
This degree is granted upon the completion of a prescribed two-year, postbaccalaureate program designed for students preparing themselves professionally in such fields as teaching, administration and supervision, and special services. Of the minimum of 30 semester hours required for the degree, 28 are prescribed in the area of specialization; the remainder may be elected in cognate fields, supervised experience, research, and elective courses. The student must complete a written research proposal and requirements applicable to the Ed.S. are the same as for the master’s degree, except that 15 semester hours of research work are required in one 12-month period or in two summer sessions or course work completed ten years prior to the final examination must be evaluated to determine the amount of credit that may be accepted toward fulfillment of the program requirements.

Doctor of Philosophy
The Ph.D. is the highest academic degree and is conferred upon those students who have demonstrated superior scholarship and mastery of research skills in course work as well as in the preparation and defense of a dissertation.

Professional Improvement
Students may be admitted to a professional improvement program for purposes of a limited course work rather than a degree program. This program provides for minimum and is appropriate for persons seeking a secondary certificate, who are unidentified about career plans, or whose aspirations are too late to permit for regular admission into degree programs. Faculty review committees may admit students to this program rather than as degree
candidates due to incomplete information, unclear degree objectives and the like, in order to permit registration in the University.

Certificate Only

Students who have not been certified as teachers and who do not wish to pursue the M.A.T. or do not meet its admissions requirements may be admitted under the classification, "certificate only." With students in this program, the advisor plans the academic major and educational sequence aspects of the program to meet the requirements for certification. Since enrollment is limited in early childhood education, elementary education, special education, and social studies and English in the secondary program, admission of graduate students to this program is to be carefully reviewed as for degree programs. Persons who wish to meet certification requirements for positions other than as a teacher (e.g., counselor, administrator, or curriculum specialist) and who meet basic requirements and need only a few courses to complete their certification should apply for professional improvement status. Admission to a certification only program requires a minimum undergraduate grade-point average of 2.5.

Bulletin

Prospective graduate students should write to the College of Education for its bulletin, Advanced Studies in Education, which provides specific information about the various programs, admission procedures and requirements, and rules and regulations.

Support Units and Special Resources

The Center for Educational Experiments, Development, and Evaluation develops proposes, conducts studies, evaluates trends, and monographs, and provides pre- and post-test evaluation in areas that relate to instructional technology, materials and systems design and development, research, demonstration and dissemination of research, and curricular products. It works in collaboration with federal, state, and private agencies, and with cooperating school districts to design and conduct cooperative research, development, and evaluative projects.

The Computer Resources Laboratory offers full-time consulting support for computer applications and instructional development related to ongoing instruction of the College of Education.

The Curriculum Resources Laboratory provides materials primarily for students and faculty engaged in curriculum problems. It brings into a convenient central location approximately 20,000 elementary and secondary textbooks, 100 science books, courses of study, bibliographies, pamphlets, and non-print media such as filmstrips, game, records, etc. The library also houses a 17,000-volume youth collection.

The Audivisual Production Laboratory houses a variety of instructional equipment and materials. Its facilities provide opportunities to develop skills in design and production of instructional materials and in the operation of instructional equipment of all types. In addition, laboratory staff members provide service to students and faculty of the College of Education for production of color slides, filmstrips, super-8 films, thermostrip, transparencies and other materials related to instructional development.

The Voice Production Laboratory's primary components are a large studio and several small studios where students and faculty can produce videotapes and audiotapes. High quality video programs can be produced with staff assistance. Black-and-white equipment is available for supplemental classroom materials production and for micro-teaching and self-evaluation assignments.

The Educational Placement Office serves undergraduate teacher education students interested in teaching positions, as well as graduate students seeking other certified school positions. Graduate students interested in college teaching positions in education or other fields, as well as those interested in administration or positions in higher education, are also served by this office.

The Education Library is located in the Main Library. It provides books, periodicals, reference books, films, ERIC microfiche, tests, and a reserved book copy for students on faculty.

The Iowa Testing Program's staff develops standardized educational tests, such as the widely-used Iowa Tests of Basic Skills and Iowa Tests of Educational Development, for use in elementary and secondary schools. This department also conducts research studies in educational measurement and evaluation, publishes brochures, sponsors lectures and symposia, provides consulting services to school systems, and provides training experience for graduate students in measurement and statistics.

The North Central Association (NCA) of Colleges and Schools is the largest and most active of six regional accrediting associations in the United States. Iowa is one of 18 NCA-member states. The NCA's primary purpose is to foster improvement in education in the elementary, secondary, and collegiate levels by self-evaluation of educational programs, visitation by evaluation teams and adherence to policies and standards for continued membership.

The University of Iowa Recreation and Outdoor Education (ROE) supports the office of the chair of the Iowa NCA State Committee.

The James B. Strowd Educational Services Center makes available multidisciplinary services for students who have questions about the cognitive, affective, educational, and vocational aspects of their lives. In addition, consultation services are being developed for organizations concerned with educational programming, with personnel selection and training, and with improving the work environment. These services are provided by faculty and advanced graduate students in the College of Education. Counselors, psychologists, reading clinicians, special educators, administrators, specialists in measurement, instructional design, and organizational behavior, as well as other specialists, are available at the Strowd Center for conducting interviews and/or participating in assessment, intervention, and consultation.

The School Program for Emotionally Disturbed Children is located in the child psychiatry unit of the University's Psychiatric Hospital. Children attending this school are residential patients in the child psychiatry unit. The program is supported by the Psychiatric Hospital. Opportunities are available for student teachers and for field experience in school psychological services.

Statistical Laboratory contains a variety of calculating equipment. It provides experience in the use of equipment to the analysis of statistical data, and it provides facilities for the development of educational research.

University Counseling Services are facilities available to students in counseling psychology for research and practical purposes.

University Hospital School is a University-affiliated facility and, as such, strives to provide a viable balance of direct services to developmentally disabled youngsters, interdisciplinary training opportunities, and research projects in program development and effectiveness.

The University Hospital School contains two units, integrated service sections, a residential program for physically handicapped youngsters from throughout Iowa, and a day program for mentally retarded youngsters from surrounding school districts. Placement of children in the facility is worked out cooperatively with parents, appropriate area education agencies, and local school programs.

In addition to providing direct services to the above-mentioned handicapped groups—specialized training for workers and trainees in all areas concerned with
handicapped children, and clinical research pertaining to causes and prevention of handicapping conditions. The basic philosophy of the faculty is to return children to their local community programs within the shortest possible time. This philosophy is reflected in the maintenance of cooperative ties with local community programs either through outreach activities for testing, pre-placement and follow-up purposes, or through conferences held at the faculty.

**Teacher Certification Services**

Though the 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 University of Iowa teacher education programs have been approved by the council. Students planning to major in special education are advised to be certain they will be eligible for certification if they plan to teach in a state other than Iowa.

**Financial Aid**

Persons interested in employment opportunities in any of the support units and services in the college should contact the director of their facility and indicate their interests, academic and experience records, and their career or degree goals at The University of Iowa.

**Graduate Assistantships**

Individual academic programs provide opportunities for teaching, research, or service assistantships, as well as for fellowship and related employment opportunities. Inquiries should be addressed to the chair of the division or to the director of the special program in an area in which the student believes he or she can provide service or achieve an outstanding academic record. If the student has applied for admission, his or her student file is available for review by those responsible for selecting the assistantships for the student's program. Appointments are normally, but not always, for one-half of the program area of the assistantship.

**Special Graduate Assistantships in Education**

The Iowa 1976 programs and the Iowa Measurement Research Foundation provide sufficient funds to support a limited number of special graduate assistantships in education. Students admitted to or pursuing any of the advanced degree programs offered by the College of Education are eligible to apply, provided they are United States or Canadian citizens. The assistantships are for the academic year only, 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 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, Lindquist Center, College of Education. The application deadline is February 1.

**Loans and Outside Employment**

Information about commercial and federal loans as well as part-time employment in the University and the community may be obtained from the Office of Student Financial Aid.

**L. A. Van Dyke Student Loan Fund**

This loan fund has been established by former colleagues, classmates, and friends of Associate Dean Emeritus L. A. Van Dyke in recognition of his significant contribution to the education of the students and the nation, and is available to degree candidates in secondary education with superior performance records as scholars and as teachers or administrators. For further information and application blanks, contact the division chair, Division of Secondary Education, NR 297 Lindquist Center, The University of Iowa, Iowa City, Iowa 52242; or the University Office of Student Financial Aid.

**College of Education Graduate 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:

- Perry Eugene McClennen Award: To the outstanding candidate for a master's degree in educational administration;
- Paul C. Parry Award: To the outstanding candidate for the master's degree in 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. Jonas 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;
- John Leonard Deuce Memorial Award: To an outstanding graduate student specializing in adult and continuing education;
- James and Coralne Strowd Fellowship for Doctoral Study in Educational Psychology, Measurement, or Statistics: To an outstanding graduate student in the Division of Psychological and Quantitative Foundations who is entering the dissertation phase of study; and
- Pi Lambda Theta Graduate Award—M.A. and Ph.D. levels: To outstanding graduate students of high scholarship, provided in the professional areas of research, teaching or writing, and holding personal qualities.

**Faculty**

Ninety-eight percent of the members of the faculty with academic rank hold earned doctorates in their teaching fields, and 85 percent 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 maintain a private academic rank in the College of Liberal Arts. A major research responsibility of the research secondary school methods have developed into the college, as well as preparation in education, and hold academic rank both in their academic departments and in education.

**Research and Development**

The college has a long and distinguished history of commitment to educational development and research. In addition to independent research by individual faculty members, several studies are being pursued with the support of foundation and federal grants awarded to divisions and individual staff members. Most members of the faculty are active in professional societies, and several recently have held or now hold key editorships in such organizations at the national level.

Systematic research programs are sponsored through the Center for Educational Experimentation, Development, and Evaluation which is described above.

**Interdisciplinary Courses**

The college has a number of courses and seminars which offer electives for students. Course offerings are based on the student's major and minor. Students are encouraged to consult the catalog and course bulletin prior to registering for courses.
Counselor Education

Chair: E. Richard Duerin

The Division of Counselor Education is primarily involved in the training of practitioners and scholars at the graduate level, with degrees in student development in postsecondary education, rehabilitation counseling, counseling and human development, counseling psychology (APA provisionally approved program), and substance abuse counseling. In addition, the division offers training in interviewing and other interpersonal skills for students in other professional and graduate programs, as well as some basic courses in these areas for undergraduates.

Doctor of Philosophy

The Ph.D. program provides preparation for such positions as counselor educators, research associate dean or dean of students, or as director of admissions, student activities, financial aid, student unions, career planning and placement, residence halls, foreign student services, community college counselors, and continuing education and external degree programs.

The M.A. degree is the equivalent of a five-year program for those desiring a Ph.D. degree. The M.A. degree is also considered a two-year program.

Counseling Psychology

Doctor of Philosophy

The program, an APA provisionally approved program, provides preparation in general psychology and research methods in order to help students become counseling psychologists who are competent both in the provision of a wide range of human services and in conducting research on a wide variety of psychological problems. Students prepare for the master's level advanced training, which leads to the Master's degree in counseling psychology, and are required to conduct and report research and obtain experience in one or more of the areas of specialization.

Rehabilitation Counseling

Master of Arts

The M.A. program, approved by the Council on Rehabilitation Education, provides preparation for work in state rehabilitation agencies, sheltered workshops, rehabilitation centers, and other related fields.
private rehabilitation agencies, mental hospitals, prisons, and in other public and private agencies concerned with the rehabilitation of the handicapped.

Admission requirements are the same as the minimum requirements of the Graduate College. In addition, a personal interview is desirable. Applications are reviewed March 1, for fall admission.

Doctor of Philosophy

The Ph.D. program provides preparation for leadership in college and university rehabilitation counselor education and research programs in universities and state agencies.

Admission requirements for the Ph.D. program are the same as the minimum requirements of the Graduate College, plus an M.A. thesis or equivalent. Applicants who have recently graduated from an M.A. program in rehabilitation counseling, and who have not had at least one year of full-time work experience in rehabilitation counseling, will not be considered. Such work experience is viewed as highly desirable, and will enhance the application. Applications are reviewed March 1 for fall admission.

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 are the completion of a 3.0 grade-point average over the last 60 undergraduate semester hours or a 3.5 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 1000. This admission is sometimes granted.

Educational Specialist

The purpose of the Ed.S. program is to enable counselors and counselor supervisors to increase their competence beyond the master's level. Minimum admission requirements are a master's degree in counseling and experience as a counselor and a 3.0 minimum grade-point average in graduate study.

Doctor of Philosophy

The Ph.D. program provides preparation for teaching, leadership, and research positions in counseling.

Admission requirements are 3.25 minimum graduate grade-point average and satisfactory performance on the Graduate Record Examination (GRE)

Counselor Education EDUCATION 253

Substance Abuse Counseling

Master of Arts

The purpose of the M.A. program in substance abuse counseling is to prepare individuals to function in a wide variety of community counseling settings. The emphasis is on individual, group, and family counseling.

Admission requirements are the same as the minimum requirements of the Graduate College. In addition, a personal interview and work experience in the field are highly desirable.

Facilities

A wide variety of counselor education practice experiences are available in a large number of settings in neighboring community agencies, schools, and colleges, as well as in many agencies throughout the University.

Financial Aid

Depending on federal funding, graduate training fellowships may be available for students entering rehabilitation counseling. Many other graduate students in the Division of Counselor Education hold a wide variety of graduate assistantships. For example, many of the University's student service units award part-time assistantships to graduate students in the division. Applicants for assistantships should contact the coordinator of the particular counselor education graduate program they plan to enter.

Courses

For Undergraduates and Graduates

Counseling and Guidance

1201. Building a Nonviolent Educational Climate 3 S.H.

Directed toward in-service workers who are concerned about nonviolence and socialized power, special emphasis is placed on making schools an environment which promotes self, world, and social education, and exploration of the world of work.

1208. Introduction to Peer Counseling 3 S.H.

Counseling and selection of helping/teaching counseling techniques; listening, response, referral, interpretation, communication skills; development for persons interested or engaged in helping relationship with people in a professional setting.

1210. Process of Change and the Counselor 3 S.H.

Laboratory course focusing upon strategies other than ego-focused relationships to bring about growth in human systems. Prerequisite: consent of instructor.

1211. Human Sexuality 3 S.H.


4110. Human Relations for Service Professionals 3 S.H.

Includes awareness of the influence of race and sex on human systems.

1212. The Culturally Diverse Educational Setting 3 S.H.

Problem in serving culturally different students in service and social settings; relevant research on impact of disadvantaged background on learning potential of students.Same as 71:155.

1213. Education of the Disabled 2 S.H.

Same as 71:151.

1215. Sex Role Stereotyping and Socialization in Education 3 S.H.

Consideration of the part educators play in selection of sex-appropriate behavior of the reinforcement of sex-stereotyping and discussion of alternative socialization approaches and a means for change. Same as 12:155.

1216. Psychological Aspects of Women's Roles 3 S.H.

Introduction to the psychological aspects of woman's role within the family and society and socialization in a variety of settings; strategies for change.

1217. Psychological Aspects of Black Behavior and Personality 3 S.H.

Examines the literature which explains the behavior of black persons from the perspective of behavioral science. Major issues include psychological assessment of black people, personality and motivation, counseling theory, perspectives on racism, the black family, the role of black psychologists and the future of the education of black people. Same as 12:155.

1218. Values and Identity in School 3 S.H.

Theories and research in values and moral identity and the integration of classroom activities on values and morals.

1219. Introduction to Marriage and Family Counseling and Rehabilitation 3 S.H.

Introduction to principles of the dynamics of family therapy reintegration and issues related to functional and dysfunctional family relationships; first part of course examines significant models of family therapy and counseling techniques.

1219. Microcounseling 3 S.H.

Development of the counselor's confidence, awareness, and skill in changing communications and reflecting feelings; video-taping clinical practice.

1220. Workshop in Counseling Education 3 S.H.

Designed for the continuing education of counselors and related professionals.

1410. Drug Culture 3 S.H.

Consideration of attitudes, values, language, attitudes of counselors in dealing with drug problems; personality characteristics of drug use and abuse.

1412. Group Counseling 3 S.H.

Small group procedures used for personal and organizational development in educational settings; demonstrations supplement discussions of theoretical issues; participation includes case studies and role playing. Includes group counseling and growth group. Prerequisite: consent of instructor.

1222. Individual Instruction in Counselor Education 3 S.H.

Directed.

1223. Counseling for Related Professionals 3 S.H.

Introduction to counseling theory and techniques for persons who are preparing professions within relative fields. Prerequisite: professional experience in a counseling environment.

1224. School-Guidance Service Pre-service 3 S.H.

Introduction to the techniques of administering and interpreting standardized aptitude test devices; case study procedures.

1225. Introduction to Group Counseling 3 S.H.

Survey of research, theory, and techniques in group counseling. Prerequisite: professional experience in a counseling environment.

1226. Pre-Practicum in Counseling 3 S.H.

Structured field experience to be taken before the position in school guidance; designed to facilitate
Early Childhood and Elementary Education

Chair: William H. Nilsen
Faculty: professors Iasha Bagdik, Louise Balsamo, Beatrice A. Farmer, Jerry H. Hale, William Nilsen, Richard Sheppard, James Shirley, Lloyd Smith, Dorothy T. McKelvey, Darrell Phillips, and instructor Ana DeBlavouco Department Chair: B.S., M.A., M.S., Ph.D.

The division's programs are designed to prepare graduates for employment in specific positions in schools and institutions of higher learning. Its programs have approval by the Department of Public Instruction and meet National Council for Accreditation of Teacher Education approval standards.

Undergraduate Programs

Students pursuing a major in elementary education may elect to meet requirements for either the B.A. or the B.S. degrees. The B.A. degree requires four semesters of study or the equivalent in one foreign language. The B.S. degree requires two semesters of study or the equivalent in a second foreign language. Both programs require that the B.A. and B.S. degree requirements be identical.

Required for both programs are the following foundational courses, which should be completed by the end of the sophomore year:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDC 205</td>
<td>Theory of Arithmetic</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>EDC 745</td>
<td>Educational Psychology and Measurement</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>EDC 761</td>
<td>Introduction to Elementary and Early Childhood Teaching</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>EDC 780</td>
<td>Audio-Visual Equipment for Teaching</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>EDC 781</td>
<td>A Course in American History or American Politics</td>
<td>3-4 s.h.</td>
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Also required, usually completed during the junior or senior year is the following:

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>EDC 710</td>
<td>Human Relations for the Classroom Teacher</td>
<td>1-3 s.h.</td>
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</tbody>
</table>

Undergraduate Programs in Early Childhood Education

Early childhood teachers serve in a variety of organizations, including pre-kindergarten and kindergarten in the public school system, Head Start and other publicly funded pre-kindergarten classes or day care centers, and privately funded early childhood centers serving children from infancy to first grade entrance ages. Preparation for early childhood teaching includes the study of child development, parent-child relationships and the organization and implementation of care for children in addition to appropriate curriculum and methodology for young children. The program requires a minimum of four practice experiences with children of different ages within the early childhood years in public or private early childhood centers or classrooms. This program meets the requirements of the Iowa Endorsement 02 for pre-kindergarten and kindergarten teachers. Students interested in dual certification at the pre-kindergarten and kindergarten level and the elementary and secondary level should select 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 teacher certification endorsements 10 (K-6) and 13. Students interested in dual certification as teachers of pre-kindergarten and kindergarten and preschool handicapped children would refer to the Special Education section of the Catalog. Separate application for admission to this program must be made to the Division of Special Education. A student who successfully completes this combination is eligible for Iowa Endorsements 53 and 9.

In addition to the foundational courses listed above, the following must be completed before student teaching:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDC 707</td>
<td>Child Development</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>EDC 714</td>
<td>Nutrition for Children</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

7E:120 Methods and Materials for the Classroom Teacher | 3 s.h. |
7E:122 Literature for Children | 3 s.h. |
7E:167 Methods: Early Childhood Education and Art for the Classroom Teacher | 3 s.h. |
7E:167 Methods: Early Childhood Education Education | 3 s.h. |
7E:167 Methods Pre-Education Practicum | 1 s.h. |
7E:167 Methods Pre-Education Practicum (Conquial: 7E:167) | 1 s.h. |
7E:167 Methods Pre-Education Practicum | 1 s.h. |
7E:173 The Culturally Different in Educational Settings | 3 s.h. |
7E:175 multicultural Concepts and Educational Systems | 3 s.h. |
7E:186 Development and Administration of Child Care Centers | 3 s.h. |

Students must also take a minimum of three courses (9 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 guest teaching (15 semester hours) is required. The appropriate guest teaching assignment is determined by the student's academic advisor in consultation with the student. Students will submit student teaching applications to the College of Education by March 15 preceding the academic year during which they plan to do their student teaching assignment.

Undergraduate Programs in Elementary Education

Early childhood 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 in which two or more teachers assume shared responsibility for the total instructional endeavor.

Preparation for elementary teaching involves the acquisition of a broad professional education background, an in-depth study of at least one elementary curriculum subject, and a professional study of the learning process, of the selection and structure
of curricular materials suitable for school age children, and of the methodological procedures most appropriate for presenting these materials. Reinforcement of the program is rigorous. It involves wide reading, creative planning, and application of knowledge in the classroom.

The program is designed 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 for each program and these applications will be considered independently.

The foundations courses listed earlier in this section are required. Also, to be taken concurrently with 7E:100:

- Introduction to Elementary and Early Childhood Teaching, the following:
  - 7E:91 Pre-Education Practicum, Elementary Education

(To meet the foundations requirements, graduate students may elect equivalent graduate-level courses with the approval of their advisor.)

The student must complete the following elements, with the equivalents to be eligible for student teaching:

- 7E:180 Methods: Elementary School Language Arts 3 s.h.
- 7E:181 Methods: Elementary School Language Arts 3 s.h.
- 7E:182 Methods: Elementary School Science 3 s.h.
- 7E:183 Methods: Elementary School Mathematics 3 s.h.
- 7E:184 Methods: Elementary School Reading 3 s.h.

As area specialization is required in a teaching field. The areas of specialization offered are elementary art, the arts in early childhood and elementary education, bilingual education, early childhood, health education, elementary language arts, elementary mathematics, multicultural education, elementary music, elementary physical education, elementary science, elementary social science, special education, and elementary generalist.

The student should consult his or her advisor concerning courses which will serve to strengthen preparation for teaching in the special area and meet the specific requirements for that area. Copies of the requirements for each area of specialization are available in the Early Childhood and Elementary Education Division office. Courses in the area of specialization may be taken pass-no-pass if they are offered with the pass-no-pass option. Required is a minimum of 15 semester hours of credit in student teaching. Students should apply to the College of Education by March 15 preceding the academic year during which they plan to do their student teaching. Students should consult with their advisors concerning the appropriate registration pattern.

Graduate Programs

Master of Arts in Early Childhood Education

The program is designed to prepare persons to administer and/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 preference will be given to those persons with undergraduate degrees which focused on the education and/or development of young children, in colleges of education, home economics, social work, or child development.

A core of courses (or their equivalents) is required of all students:

- 7E:180 Development and Administration of Child Care Centers 3 s.h.
- 2E:384 Building Foundations for Reading, Pre-primary and Primary 2-3 s.h.
- 7E:287 Supervision and Curriculum Development in Early Childhood Education 2 s.h.
- 7E:288 Supervision and Curriculum Development in Early Childhood Education 2 s.h.

In addition, a course in each of the following areas is required: parent-child relationships, family development, and child development or psychology. The remainder of the required 32 semester hours (30 with thesis) are electives mutually chosen by the student and the academic advisor.

Master of Arts in Elementary Education

This degree program, which may be taken with thesis (30 semester hours minimum) or without (32 semester hours minimum), is designed to prepare master's degree candidates in elementary education to serve as team leaders, grade level or subject area supervisors, or curriculum consultants. Successful completion of this degree, together with four years of successful teaching experience, qualifies the student for certification as an elementary school supervisor, Iowa Endorsement 19.

Admission requirements are the same as those established by the Graduate College and, in addition, the applicant must have completed an undergraduate program of teacher preparation in either early childhood or elementary education. Each candidate must elect at least one course in each of these areas: social foundations, curriculum, educational psychology and measurement, and evaluation. 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 graduate students for positions as reading specialists in kindergarten and grades 1-12. Successful completion of this program, together with four years of successful teaching experience, qualifies the student for certification as a reading specialist, Iowa Endorsement 54. The program is offered with thesis (30 semester hours minimum) and without (32 semester hours minimum). The following are required of all candidates:

- 7E:171 Reading Clinic: Teaching Techniques 2-3 s.h.
- 7E:172 Reading Clinic: Teaching Practicum 2-3 s.h.
- 7E:284 Building Foundations for Reading, Pre-primary and Primary 2-3 s.h.
- 7E:285 Supervision of Intermediate Grades 3 s.h.
- 7E:286 Building Foundations for Reading: Pre-primary and Primary 2-3 s.h.
- 7E:287 Supervision and Curriculum Development in Early Childhood Education 3 s.h.
- 7E:288 Supervision and Curriculum Development in Early Childhood Education 3 s.h.
- 7E:289 Seminar: Secondary Reading 2-3 s.h.

In addition, candidates must complete one or more courses in each of the curriculum, supervision, and social foundations areas. The student selects the remaining elective hours with the advisor's approval.

Master of Science in Elementary Science

This degree program is designed to prepare master's degree candidates in elementary science to serve as team or departmental science specialists. The program may be taken with thesis (30 semester hours minimum) or without (32 semester hours minimum).

Admission requirements are the same as those established by the Graduate College and, in addition, the applicant must have completed an undergraduate program of teacher preparation in elementary education.
The following are required of all candidates:
7E:285 Science Education: Issues, History and Rationale 3 s.h.
7E:286 Science Education: The Nature of Science 3 s.h.
7E:287 Science Education: Teaching, Learning and Curriculum Models 3 s.h.
7E:288 Science Education: Research Methods and Conceptual Designs 3 s.h.
7E:286 Advanced Techniques of Teaching and studying science 3 s.h.
7E:287 Science courses to complete the minimum of 90 semester hours are selected by the candidate in consultation with the academic advisor.

Doctor of Philosophy in Elementary Education
The purpose of this program is to prepare students for college and university teaching and research positions in elementary education and for research, curriculum, supervisory, or administrative positions in public school systems and government educational agencies.

The program requires a minimum of 90 semester hours, including hours earned for the dissertation. Each student prepares an individual plan of study in consultation with an advisor. The final plan must be approved by the advisor and the division chair.

As a general guideline, each student is expected to have a good general background in all facets of elementary school education and a very strong area of specialization at least is one facet.

Commonly selected specialization areas are elementary school administration, children's literature, early childhood, curriculum, language arts, mathematics, reading, and science.

Each doctoral student must also complete a cognate or related field of content or research. The student may be a professional specialization, such as educational school administration and measurement, special education, or general school administration, or it may be a subject field, such as English.

In addition, all students must demonstrate competency with respect to appropriate research tools, most commonly statistical analysis and data processing.

Methodology
A number of teaching methodologies are available for graduate students pursuing advanced degrees in reading and elementary education. Specific assignments vary. Some involve supervising undergraduate majors enrolled in practicum, and some involve teaching sections of undergraduate

methodology courses and supervising student teachers. Most methodologies are classified as one-half time. This classification permits students to register for a maximum of 12 semester hours of credit per semester. Graduate students with assistantships must register for a minimum of 6 semester hours per semester.

All assistantships are awarded on a competitive basis. To be considered for an assistantship an applicant must have been admitted on regular status to the Graduate College and must have been accepted in an advanced program by the College of Education. Inquirers concerning assistantships should be directed to the division chair.

Courses
7E:211 Growth and Motor Development 3 s.h.
7E:212 Physical Education for elementary school teachers, excluding grade level. (Offered at semesters. For physical education majors only. Some are 287/1)
7E:213 Behavior and Methods Elementary School Physical Education 3 s.h.
Practicum considerations and curriculum planning for prospective teachers of elementary school physical education. For physical education majors only. Some are 287/1, 287/2, 287/3, or consent of instructor. Some are 287/2.
7E:214 Problem Practice, Elementary Education 3 s.h.
7E:215 Problem Practice Pre-Kindergarten 1 s.h.
Student spends one day per week working with children and teachers in a pre-kindergarten setting. Open only to early childhood education majors; assignments to pre-kindergarten setting. Some are 287/1.
7E:216 Early Childhood Education 3 s.h.

7E:217 Early Childhood Education 3 s.h.
Student spends two days per week with a kindergarten teacher in a K-2 classroom. Assignments to assignments to Kindergarten setting. Some are 287/1.
7E:218 Early Childhood Education 3 s.h.

7E:219 Early Childhood Education 3 s.h.
Student spends two days per week with a kindergarten teacher in a K-2 classroom. Assignments to assignments to Kindergarten setting. Some are 287/1.
7E:210 Introduction: Elementary and Early Childhood Special Education 3 s.h.
Overview of elementary and early childhood education, including history and philosophy and general organizational patterns, financial and legal concerns, politics and social issues. Some are 287/1.
7E:211 Introduction to Education 3 s.h.
Basic orientation to the field of education; consideration of administrative organization, instructional programs, and contemporary problems and issues in both elementary and secondary levels. Some are 287/1.
7E:213 Introduction with Children 3 s.h.
Approaches and techniques currently used in education and teaching. Proposed as an 401 or consent of instructor. Some are 17/2.
7E:214 Methods in Speech and Hearing 3 s.h.
Emphasis on elementary grades, usually taken in conjunction with 7E:215, which provides approximately 70 hours of supervised clinical experience to students. Students will not be able to register for both 7E:214 and 7E:215. Some are 411 or consent of instructor.
7E:215 Introductions to Elementary Social Studies 3 s.h.
Prerequisites: consent of instructor. Some are 7E:215.
7E:216 Introduction to Environmental Studies for K-12 Programs 3 s.h.
Prerequisites: consent of instructor. Some are 7E:216.
7E:217 Methods for Teaching English Language Learners 3 s.h.
Prerequisites: consent of instructor. Some are 7E:217.
7E:218 Methods for Teaching Mathematics 3 s.h.
Prerequisites: consent of instructor. Some are 7E:218.
7E:219 Methods for Teaching Science 3 s.h.
Prerequisites: consent of instructor. Some are 7E:219.
Permanent Professional Teacher Certificate:

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

7D:661 Elementary School Principal 3 s.h.
7E:390 D.S. and Organization 3 s.h.
7E:390 Curricular Plan 3 s.h.
7D:262 Field Service Project in Educational Administration 3 s.h.

Secondary Level

7D:190 Secondary School Principal 3 s.h.
7D:220 Curriculum and Instruction 3 s.h.
7D:230 Professional Field Experience 3 s.h.

Program Electives

7P:117 Philosophy of Education 3 s.h.
7P:150 Introduction to Educational Measurement 3 s.h.
7D:262 Elementary School Organization 3 s.h.
7E:292 Advanced Techniques in Teaching Science in the Elementary School 3 s.h.
7E:297 Supervision and Curriculum Development in the Elementary School 3 s.h.
7D:310 Social Studies 3 s.h.
7D:282 Supervision of Elementary School Language Arts 3 s.h.
7E:281 Supervision of Elementary School Mathematics 3 s.h.
7E:295 Supervision of Intermediate Grade Reading 3 s.h.
7E:295 Supervision and Curriculum Development in Pre-Kindergarten and Early Childhood 3 s.h.
7E:295 Supervision of Student Teachers and Auxiliary Personnel 3 s.h.

7P:123 The Adolescent and Young Adult 3 s.h.
7P:143 Introduction to Statistical Methods 3 s.h.
7L:162 Personnel Management 3 s.h.
7E:390 Curriculum Foundations 3 s.h.
7P:142 Special Applications of Statistical Techniques 3 s.h.
7P:162 Test Construction and Use of Evaluation Instruments 3 s.h.
7F:270 Issues and Trends in School Guidance 3 s.h.
7D:290 Improving Instruction in the Secondary School 3 s.h.
7D:291 Administration of Professional Personnel 3 s.h.
7D:296 Financial Management of Local School Systems 3 s.h.
7D:295 Theory in Administration 3 s.h.
7D:299 Legal Aspects of School Administration 3 s.h.

Central Staff Administration

7P:113 Introduction to Statistical Methods 3 s.h.
7D:200 Computer Applications in Education 3 s.h.
7D:202 Financial Management of Local School Systems 3 s.h.

7E:297 Supervision and Curriculum Development in the Elementary School 3 s.h.
7D:262 Elementary School Organization 3 s.h.
7E:292 Advanced Techniques in Teaching Science in the Elementary School 3 s.h.

Course Requirements

All Candidates

7D:200 Preparation of School Personnel 3 s.h.
7D:200 Computer Applications in Education 2-3 s.h.
7D:295 Legal Aspects of School Administration 2-3 s.h.
7D:393 Supervision of Instruction 3 s.h.
Electives

The student chooses electives completing the 60-semester-hour requirement for the Ed.S. degree. In the program for general or central staff administration, the student may choose electives for specialization in such fields as staff personnel, business affairs, instruction, theory, legal aspects, curriculum, and information services.

Research

All candidates for the Ed.S. degree must complete a formal research paper (4 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.

General Preparation and experience is carefully analyzed and a sequence of courses designed to best equip the student 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, legal aspects, theory, and school personnel. Students specializing in general and secondary administration must complete a nine-semester-hour cognate outside the College of Education. Proficiency in two tool research areas must be demonstrated.

Comprehensive Examinations

Each doctoral student must complete satisfactorily an extensive comprehensive examination in areas approved by the student's advisor and the division chair. The examination will be based on the general field of educational administration and the student's areas of specialization.

Students must complete doctoral programs in other than educational administration desiring to utilize some aspect of educational administration as an area of concentration for which they would request a comprehensive examination should consult with an advisor in the College of Educational Administration early in their sequence of studies.

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

Dissertation Prospectus

The student must write a formal dissertation prospectus and have it approved by the student and advisor determine the time for completing the prospectus. Final evaluation of the prospectus are made at the meeting of the committee.

Completion of the Dissertation and Final Examination

The student must accumulate a minimum of 10 semester hours of credit during the final defense of the dissertation. The student usually takes the examination within a month of his or her anticipated time of graduation. The student must be registered at the University during the session in which he or she graduates.

Admission

Applicants must satisfy minimum requirements of the Graduate College. Candidates are selected through a careful review process. Factors considered include grade-point average, Graduate Record Examination (GRE) Aptitude Test scores, and other evidence of academic ability and professional promise.

Courses

Educational Administration

Teaching at the College

18 sh. Elective credits, prerequisites, and restrictions vary. "V" grades of teacher candidate and students, using the College's evaluation criteria are required. (Designed primarily for prospective teachers. For undergraduate students, 18 sh. Elective credits, prerequisites, and restrictions vary. "V" grades of teacher candidate and students, using the College's evaluation criteria are required. (Designed primarily for prospective teachers. For undergraduate students,
Social Foundations of Education

Social Foundations of Education is an interdisciplinary program within the College of Education, which is designed to enable students to better understand the influence of social, historical, and philosophical forces upon the formal and educational enterprises. Major areas of specialization within the program are comparative/international education, history of philosophy, education of society, and sociology of education.

General requirements for admission are as stated by the Graduate College. A personal interview with one of the members of the social foundations faculty is desirable and may be required. An undergraduate and graduate emphasis in philosophy, the humanities, or the social sciences will two years of teaching experience are strongly recommended. Students 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 the three of the four offered areas of specialization. The remainder of their required 30 semester hours of course work will be in an area of concentration appropriate to their career and academic goals. For example, a student interested in philosophy of education would normally take these courses in the Department of Philosophy.

Doctor of Philosophy

The Ph.D. program requires a minimum of 90 semester hours. Students are required to take a minimum of 24 semester hours in social foundations which must include at least 12 semester hours in the major area of specialization and a minimum of 6 semester hours from each of two other areas. In addition, the student must take at least 12 semester hours in related courses in the College of Education, 9 of which must be in one area of concentration, such as educational administration, educational psychology, measurement and evaluation, post-secondary and continuing education, etc.

Approximately one third to one half (30 to 45 semester hours) of each student's program is devoted to course work in depth from at least one other program in the University, such as history, philosophy, politics, economics, sociology, etc. These areas are individually broadened by the student, in consultation with the advisor and suggestions from the appropriate department and/or departments.

Two research tools are required and are selected from the following alternatives:

Postsecondary and Continuing Education

Postsecondary and continuing education in the United States represents an extensive and complex set of phenomena. The academic programs in the division encompass that complexity. Degrees are offered at all levels. There is emphasis on both research and practice. Preparation for either teaching or administration is available. The teaching, research, and service activities of the faculty, and the work of the graduates of the 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.

Bachelor of Science in Health Occupations

The health occupations education major has been designed 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, the College of Education and Liberal Arts, students will complete courses in professional education and additional course work in the health occupations education specialty field and/or supporting areas.

Students taking 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 awarded upon the basis of course work and the liberal arts core. The health occupations education program is designed to award a bachelor's degree.
Course Work in Professional Education  
7P-131 Educational Psychology 3-4 s.h.
7P-150 Introduction to Educational Measurement 3 s.h.
Appropriate course work in social foundations 3 s.h.
Curriculum and Teaching Procedures  
7H-128 Application to Community College and Health Careers 3 s.h.
7H-112 Teaching of Adults 3 s.h.
7H-117 Foundations of Vocational Education 2 s.h.
Additional Requirements  
7H-191 Community College Teaching Internship I or II 3-4 s.h.
7H-190 Seminar in Health Occupations Education 1-4 s.h.
7X-170 Human Relations for the Classroom Teacher 3 s.h.
Additional specialty course work in health occupations education 3 s.h.
Students may avail themselves of special workshops or courses offered by specific health colleges when appropriate prerequisites have been met. In addition, students must meet certification requirements stipulated by American government or U.S. history course.
Course work may also be taken in specific basic sciences supporting health occupations education. In addition to course work in the health specialty and basic sciences, students may also choose electives from the College of Education or other supporting units.
Course work in the health occupations education specialty and supportive fields should be carefully planned in consultation with the adviser.
Graduate Programs  
Master of Arts Without Thesis  
The purpose of the M.A. program in higher education is to prepare individuals for entry- and mid-level administrative positions, curriculum and instruction, or continuing education positions in in- and four-year institutions, and is appropriate for positions such as administrator, business manager, development officer, assistant to the president, director, in-service director, or division of program unit in selected areas. Applicants for admission must satisfy the requirements of the Graduate College. Candidates are selected on the basis of grade-point average, Graduate Record Examination (GRE) Aptitude Test scores, and promise for professional growth. Transcripts, GRE scores, and three letters of recommendation are required for consideration for regular admission. An interview is recommended.
Specialist in Education  
The Ed.S. program provides advanced graduate education in higher education in the areas of administration, curriculum and instruction, community college administration, and continuing education for students not generally planning to continue for the doctorate. The specialist degree may also be awarded upon completion of a joint program in higher education and an academic field comprising a minimum of 60 semester hours of graduate work 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, Graduate Record Examination (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-305 Educational Specialization 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 within 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-210 Internship 2-4 s.h.
7H-370 College Teaching Internship 9 s.h.
7H-175 Post-High School Staff Development Workshop 1-2 s.h.
7H-312 Lecturers' Equipment for Instruction 1 s.h.
7P-151 Educational Psychology 3-5 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-305 Educational Specialization in Research in Higher Education for four semester hours; Comprehensive Examination:
An examination of the nature of postsecondary institutions and student characteristics, the professional responsibilities of a faculty member, and the candidate's ability to organize the subject matter into selected appropriate teaching strategies; An examination in the candidate's teaching field, written and administered by faculty in that field, and followed by oral examination.
Related Field  
Students majoring in another field and desiring preparation in higher education should consult with the higher education adviser early in their studies. Plans of study will be developed individually for each student.
Teaching Internship  
Program participants teach half-time for a full semester at completing community colleges under the supervision of an experienced faculty member in a community college, with field supervision from The University of Iowa. Interns participate as fully as possible in the academic life of the host community college, and usually gather data for their Ed.S. research project during the summer months. 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, and preference will be given to those willing to travel for that exposure.
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 baccalaureate.

The candidate chooses one area of concentration and must earn 24 semester hours of credit in that area. Ordinarily the candidate chooses a related field of 5-12 semester hours or a minor (approximately 30 semester hours) which may be taken to accompany appropriate courses to meet the M.A. level that constitutes the area of concentration. The dissertation research (15 to 18 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—comprise 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 specialization in two or more theoretical and applied levels, the student is expected to take course work outside the division, using the flexibility of the program to develop expertise in such areas as organizational analysis and the design of instruction and evaluation.

Comprehensive examinations for the doctorate cover the general area of higher education and the candidate's area of the concentration, minor and/or related field, and dissertation.

Applicants for admission to the doctoral program must meet the requirements of the Graduate College. Candidates will be selected on the basis of grade-point average, Graduate Record Examination (GRE) and Graduate Management Admission Test (GMAT) scores, and three letters of recommendation. Applications 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 at an area community college in Iowa, the student must hold a master's degree granted by an approved institution, with specialization in a field of study in the arts and sciences area of division of an area college.

The following courses fulfill the requirements (specific alternatives may be chosen in consultation with the Office of Community College Affairs):

74H 12 Teaching of Adults
3 s.h.

74H 211 Problems in College Teaching
3 s.h.

A master's degree in the student's teaching area is required for certification in arts and science areas.

Special Facilities

A research and a document collection relating to community colleges is available for students or research seeking employment information.

Social Foundations and Comparative Education Courses

71H 101 Education, Politics, and Culture of Northwestern Asia
3 s.h.

71H 201 History of American Education
3 s.h.

Educational thinking and practice at all levels from 1642 to the present and in the United States.

71H 300 European Schools
4 s.h.

Teaching of contemporary educational changes in the European nation states and the relationship between educational philosophies and social, economic changes associated with them.

71H 500 American Schools
4 s.h.

Problems and trends of education in selected areas and countries of Latin America, Asia, and southern Africa.

71H 500 History of Higher Education
3 s.h.

Historical patterns of education in China, Japan, and Islamic countries, with an analysis of contemporary educational issues in these countries.

71H 501 History of Education
3 s.h.

Principles and practices of educational development in Islamic countries.

71H 502 History of Higher Education in the United States
3 s.h.

Principles and practices of educational development in the United States.

71H 700 The Flight of Woman's Role in Education
3 s.h.

A study of the social, political, and economic changes that have occurred in the status of women in society.

71H 701 Philosophies of Education
3 s.h.

Introduction to the major philosophical positions of education.

71H 703 Educational Research: The Evaluation of the Schools
3 s.h.

Methods in the research and evaluation of educational programs.

71H 705 The Educational Researcher's Handbook of the Schools
3 s.h.

Study of the development of educational research in the United States.

71H 706 Educational Sociology
3 s.h.

A study of the social and economic factors that influence educational programs.

71H 707 Urban Growth in Developing Countries
3 s.h.

A study of the problems associated with urbanization in developing countries.

71H 708 Industrial Education in Social Foundations of Education
3 s.h.

A study of the social and economic factors that influence educational programs.

71H 709 Counseling in Education
3 s.h.

A study of the counseling process and its role in the educational system.

71H 710 Community Education
3 s.h.

A study of the role of community education in the educational system.

71H 730 Curriculum Planning and Organization
3 s.h.

A study of the development of educational standards and curriculum.

71H 731 Political Science
3 s.h.

A study of the political science of educational policies.

71H 732 Economics in Education
3 s.h.

A study of the economic factors that influence educational programs.

71H 733 American Education
3 s.h.

A study of the educational system of the United States.

71H 734 Comparative Education
3 s.h.

A study of the educational systems of other countries.

71H 735 International Education
3 s.h.

A study of the educational systems of other countries.

71H 736 American Education and the World
3 s.h.

A study of the role of American education in the world.

71H 737 Comparative Education
3 s.h.

A study of the educational systems of other countries.

71H 738 American Education and the World
3 s.h.

A study of the role of American education in the world.

71H 739 International Education
3 s.h.

A study of the educational systems of other countries.

71H 740 American Education and the World
3 s.h.

A study of the role of American education in the world.

71H 741 International Education
3 s.h.

A study of the educational systems of other countries.

71H 742 American Education and the World
3 s.h.

A study of the role of American education in the world.

71H 743 International Education
3 s.h.

A study of the educational systems of other countries.

71H 744 American Education and the World
3 s.h.

A study of the role of American education in the world.

71H 745 International Education
3 s.h.

A study of the educational systems of other countries.

71H 746 American Education and the World
3 s.h.

A study of the role of American education in the world.

71H 747 International Education
3 s.h.

A study of the educational systems of other countries.

71H 748 American Education and the World
3 s.h.

A study of the role of American education in the world.

71H 749 International Education
3 s.h.

A study of the educational systems of other countries.

71H 750 American Education and the World
3 s.h.

A study of the role of American education in the world.

71H 751 International Education
3 s.h.

A study of the educational systems of other countries.

71H 752 American Education and the World
3 s.h.

A study of the role of American education in the world.
second, there is some emphasis on both goals in all programs.

Undergraduate Course Work in Educational Psychology, Measurement and Statistical Analysis

The division offers an undergraduate major in the combined areas of educational psychology, measurement, and statistical analysis. The purpose of the major is to provide an enriched background in educational psychology, educational testing, and research methods in education. A division advisor selected by the student will aid in choosing courses totaling 18 or more semester hours, of which 12 semester hours must be in 100-level courses. This minor does not lead to certification as a public school teacher.

One of the general education requirements for graduation from the College of Liberal Arts is a successful completion of a course designed to develop skills in quantitative or formal reasoning (see the "College of Liberal Arts" section of the Catalog). 7P-25 Elementary Statistics and Inference may be used to satisfy this requirement. Students who wish to use the course for this purpose should enroll under its cross-listed number, 225.25.

Master of Arts in Educational Psychology

The program provides an overview of educational psychology as an area of scholarly inquiry. It includes course work in human development, principles of learning and teaching, educational measurement, and research methods. The program prepares the student for entry into a specific vocation. Rather, it contributes to a broad understanding of the psychological principles on which education builds.

Students may use this degree with or without thesis. The degree without thesis requires a minimum of 32 semester hours of coursework work. The degree with thesis requires a minimum of 28 semester hours of course work plus 2 to 4 semester hours of thesis credit. Both programs require TP-143 Introduction to Statistical Methods or the equivalent.

Students plan the remainder of the program in consultation with their advisor, choosing courses from the following four areas: testing and measurement, educational psychology, measurement and research, and social foundations of education. Students must take at least one course in each of these areas and a concentration (three courses) in at least two areas. The faculty encourages degree candidates to select all courses outside the division. Courses in elementary or secondary curriculum, supervision, special education, counseling, and psychology are commonly used to meet this requirement.

The program culminates in six hours of comprehensive examinations over the student's areas of concentration. The advisor develops the plan for these examinations in consultation with the student and the other members of the student's committee.

The admission requirements are the same as those established by the Graduate College. Teaching experience is desirable but not required. The faculty reviews applications as they are received.

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. Such positions occur in research centers, testing organizations, large school systems, and state educational agencies. The program is also appropriate for students who seek to broaden their knowledge of measurement and research methodology for personal development.

The degree may be taken without thesis (32 semester hours minimum) or with thesis (minimum of 38 semester hours of coursework plus 1 to 4 semester hours of thesis credit). Students must complete a total of courses totaling 18 to 20 semester hours. Included in this content is a graduate-level survey course in educational psychology, elementary and intermediate courses in classical statistical methods, an introduction to Bayesian statistical methods, a course in educational research methodology, and courses in the development and use of evaluation instruments.

The elective credits, totaling 10 to 12 semester hours, must include at least one course in elementary, secondary, or post-secondary education. The remaining elective may be chosen from the fields of psychology and educational psychology, statistical methods, educational measurement, computer programming and data processing, mathematics, mathematical statistics, and counseling.

The final comprehensive examinations typically include two to four hours examinations in educational measurement and in applied statistics (classical or Bayesian). With the approval of the M.A. committee, the student may take two-hour examinations in these fields plus a two-hour examination in an additional psychology or a subfield of educational psychology. Each course on the examination includes a minimum of three courses in the area, two-hour examinations assume a minimum of two courses in the area.

Grade-point average requirements for admission to the program are the same as those established by the Graduate College. Normally, if the candidate's score for either the quantitative or verbal section of the Graduate Record Examination (GRE) Aptitude Test is less than 500, the applicant will not be accepted. However, if there is objective evidence of superior ability, the faculty may approve 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, supervisors of reading teachers, or reading specialists. The reading these programs typically expect to enter during the program in the field of reading.

The nonthesis program requires a minimum of 32 semester hours including the following core courses:

7P-171 Introduction to Psychology of Reading 3 s.h.
7P-173 Survey of Diagnostic Approaches to Reading Instruction in Grade K-12 4 s.h.
7P-251 Introduction to Research in Special Education 3 s.h.
7P-251 Individual Intelligence Testing 3 s.h.

Students must also complete at least 4 semester hours of practicum courses chosen with the advisor's approval from the following:

7E-171 Reading Clinic: Teaching Techniques 2 s.h.
7E-172 Reading Clinic: Teaching Practicum 2-3 s.h.
7E-272 Advanced Reading Clinic Techniques 3 s.h.
7E-272 Advanced Reading Clinic Practicum 3 s.h.
7E-395 Reading Clinic: Supervision 3 s.h.
7P-370 Teaching in a Reading Laboratory 3 s.h.
7E-295 Reading Clinic: Teaching Practicum-Special Level 4 s.h.

All students must take a minimum of 14 semester hours in elective courses.
The thesis program requires a minimum of 30 semester hours including the following core courses or equivalents:

7P:143 Introduction to Statistical Methods
3 s.h.
7P:243 Intermediate Statistical Methods
4 s.h.
7P:270 Graduate Psycholinguistic Reading
4 s.h.
7P:273 Reading Clinic: Diagnostic Practicum
3 s.h.
102:120 Introduction to Speech
3 s.h.
7P:350 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 or more of the written examinations. The project will involve the investigation of a problem comparable to those encountered by a reading clinician or consultant in the field.

The grade-point-average requirement for admission to the program is the same as that established by the Graduate College. When the student's total score on the verbal and quantitative parts of the Graduate Record Examination (GRE) Aptitude Test is below 500, no offsetting evidence of superior ability is allowed. The student's file 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 36 semester-hour program designed to provide basic knowledge and skills required to work in settings including schools, business and industry, hospitals, government, and private business enterprises. It may be taken either with or without a thesis.

Regular admission requires a minimum grade-point average of 2.5 and/or GRE composite of less than 1000. A student admitted conditionally must attain a grade-point average of at least 3.0 on the first 12 semester hours of approved course work taken after admission.

The degree requires the following course work or approved equivalents:

7W:180 Introduction to Instructional Design and Technology
3 s.h.
7W:193 Belief and Use of Media for Instruction
3 s.h.
7W:125 Design and Production of Media for Instruction
3 s.h.
7P:107 Psychological Bases of Instructional Design
3 s.h.
7P:100 Introduction to Educational Measurement
3 s.h.

If the degree is done with thesis the student is also required to take 7P:143 Introduction to Statistical Methods or 7W:281 Research Methods in Instructional Design and Technology. In addition, all students must complete 9 semester hours of prescribed course work in one of the following areas:

- Computer applications
- Health sciences education
- Instructional development
- Media center administration
- Production
- School media (Endorsement 39)

Training and human resource development
Visual studies

If a student has not had previous experience in instructional design, he or she must also complete a practicum and all students are required to do a final project.

Completion of the program also requires a six-hour set of comprehensive examinations. These may be divided into either two- or three-hour parts distributed as follows:

- General instructional design
- Area of emphasis
- Other

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 that a minimum grade-point average of 3.0 on all previous graduate work is required for regular admission. Applicants seeking admission to the Ed.S. program must submit a letter to the division chair at the time of filing completed admission forms with the University Graduate Admissions Office. A letter should describe the applicant's interests in the field of study and the program at The University of Iowa, areas of topics of desired study, tentative future plans, and any additional information which may be helpful in the admissions process.

The following course work or approved equivalent is required for the degree:

M.A. core, without statistics, plus:

7P:143 Introduction to Statistical Methods
7W:281 Research Methods in Instructional Design and Technology
7W:289 Survey of Research in Instructional Design and Technology

Every student must also complete 18 semester hours of prescribed course work in the following areas:

- Computer applications
- Health sciences education
- Instructional development
- Media center administration
- Production
- School media (Endorsement 39)
- Training and human resource development
- Visual studies

In addition all students must complete 6 semester hours in one area outside the College of Education.

The Ed.S. also requires a final Ed.S. project. The exact nature 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

The doctoral program prepares graduates for a variety of careers that require an understanding of psychological principles to educational practices. Such careers include professorships at the university and college level, research and/or administrative positions in educational agencies, clinics, hospitals, teaching organizations, and the public schools. A concern in the area of reading disabilities and special education students for careers as reading consultants, directors of reading centers, and professors who train diagnostic and prescriptive reading specialists.

The program includes emphasis in three substantive areas—teaching and learning, motivation and cognitive processes, and human development. In addition, students take considerable course work in measurement, statistical analysis, and research methodology.

All students must meet the following minimum course requirements (or its equivalent) for the first 24 semester hours following admission to the program:

...
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 methods. Such positions generally occur in colleges and universities, state departments of education, local school systems, and private agencies, testing agencies, and research centers.

Every student must complete the following core courses or their equivalents:

TP: 151 Educational Psychology 3 a.h.
TP: 243 Intermediate Statistical Methods 4 a.h.
TP: 148 Bayesian Statistics I 4 a.h.
TP: 265 Construction and Use of Evaluation Instruments 4 a.h.
TP: 267 Educational Measurement and Evaluation 4 a.h.
TP: 244 Correlation and Regression 3 a.h.
TP: 245 Design of Experiments 4 a.h.
TP: 299 Program Evaluation 3 a.h.
TP: 280 Educational Research Methodology 3 a.h.

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 education-measurement, applied statistics methods, scaling of measures, and educational psychology. Students who concentrate in the area of statistics, with the intention of writing a thesis, should be expected to complete their education within the area of educational measurement and evaluation. In addition, students should take two 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 candidates will develop facility with computer programs and processing equipment.

Candidates who enter the program without completing an M.A. must complete a substitute project approved by the candidate and the divisional faculty. The project must be completed before the student completes the comprehensive examinations. A minimum of 30 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 near the end of the second semester of residence. The division faculty will consider course grades, evidence of critical and analytical skills, development during the year, and promises 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 of these 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 one in which the candidate has at least three semester hours of course work. In lieu of one written examination, the student's committee may assign a project involving analytical, summative, or research creativeness. The written examinations are graded by an oral examination in which the committee members report their oral and written evidence of the candidate's command of the three fields of study. The examinations are considered on all aspects of the comprehensive examination.

Applicants for admission to the program must hold an M.A. degree from an accredited institution. The grade-point average requirement is the same as that required by the Graduate Studies. If an applicant's average on the verbal and quantitative sections of the Graduate Record Examination (GRE) is below level 1000, and there is no other evidence of superior ability, the applicant will be discouraged from applying. The student who expects to concentrate in the area of statistics should have training in college mathematics through differential and integral calculus. The student who expects to concentrate in the area of measurement and evaluation must be able to master the fundamental theory of statistics. The student who expects to concentrate in the area of educational measurement and evaluation should have taken two courses in the mathematical theory of statistics. The student who expects to concentrate in the area of educational measurement and evaluation should have taken two courses in the mathematical theory of statistics. The student who expects to concentrate in the area of educational measurement and evaluation should have taken two courses in the mathematical theory of statistics.
Secondary Education

Chair, Noreen J. Zweig

Associate professor of English, Robert A. Carrees, John M. Jessee, Charles J. Lythgoe, J.C. Macaulay, Paul F. Seabury, Lauren A. Van Den


Executive Assistant to the Dean, Ronald W. Blume, Geoffrey M. Dow, Olinda Touabi, Michelle Reid, James Redmond.

Graduate Programs

Graduate Education

Teaching Certification

Program Requirements

Undergraduate students seeking secondary school certification are degree candidates in the College of Liberal Arts and must complete the requirements for the Bachelor of Arts, Bachelor of Science, or Bachelor of General Studies degrees described in the "College of Liberal Arts" section of the Catalog. Graduate students may be admitted to a program leading to teaching certification as "certification only" associate candidates in the Graduates College and are subject to all policies, rules, and regulations of that college.

Certification requires a major of at least 30 credits in the course of study in a subject area taught in the secondary school. Course requirements for each major are listed in the College of Education's publication, Teacher Education Programs. Candidates for secondary school teaching certification may also receive approval to teach in additional subject areas by completing an approved program of 20 or more semester hours of course work in those areas.

Secondary school teacher preparation programs are provided in the following areas:

- Art
- Athletic training
- Coaching
- Communication and Theatre Arts (Speech)
- English
- Foreign Languages - Spanish, French, German, Russian and Latin
- Health Education
- Home Economics
- Journalism
- Mathematics
- Music
- Physical Education (two programs: one in the Department of Physical Education-Field House and one in the Department of Physical Education and Dance-Haley Gymnasium)
- Psychology
- 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 against area is required for certification.

*Students planning to teach art, music, or physical education typically complete a program which prepares them for both elementary and secondary level certification.

Undergraduate candidates for certification to teach in secondary schools must complete the following requirements, in addition to the requirements in their major:

- 75 credits Pre-Practice Program: 25 hours
- 75 credits Introduction to Secondary School Teaching: 25 hours
- 75 credits Educational Psychology and Measurement: 25 hours
- 75 credits Human Relations for the Classroom Teacher: 25 hours
- 15 hours Methods of teaching courses in the major field
- 34 hours Student teaching

With their adviser's approval, graduate students may select equivalent graduate courses in lieu of 75 credits and 75 hours. Students must complete the remaining courses in the College of Education for teaching field prior to student teaching.

Students in secondary education may also complete student teaching at the Center for Urban Teacher Education (CUTE) through the Regents' Exchange Program. See the Regents' Exchange Program, via the Consortium for Overseas Student Teaching, for the customary contractual area established by the College of Education. As an exception to student teaching in the customary contractual area, where the student is considered only if the proposed student teaching site is (a) provides the student with a specific program opportunity not available at the contractual area or (b) utilizes academic cooperating teacher expertise. Additional information about the various alternatives for student teaching and application procedures may be obtained in the Office of Student Services, N130 Lindquist Center. Application for student teaching must be made in the Office of Student Services by March 15, prior to the academic year during which student teaching is desired.

Admission

Prior to taking any professional education courses (courses numbered 75, 79, or 7X) undergraduate students must be admitted to the Teacher Education Program (TEP). Students may enroll, however, in 75:100, Introduction to Secondary School Teaching prior to being admitted to the TEP. Application for Admission should be made in the College of Liberal Arts Advisory Office, 116 South 14th Street in order to be eligible for admission, students must have completed a minimum of 36 semester hours of course work with a cumulative grade point average of 2.3. Admission decisions will also be based on grade-point average in the major, and other criteria relevant to teaching success. Students should consult a College of Education advisor in their subject matter field, or the Division of Secondary Education Office, N203 Lindquist Center for additional information on admission criteria.

Graduate students who have been admitted to the Graduate College for "certification only," do not have to apply for admission to the Teacher Education Program. Their admission to "certification only" automatically implies admission to the TEP.

Upon admission to the TEP, students will be assigned an education advisor.

Graduate Programs

The Division of Secondary Education administers professional education departments in the College of Liberal Arts, advanced degrees programs in the following areas: art education, communication and theatre arts, counseling and supervision, educational development, English, French, German, language education, home economics education, mathematics education, music education, physical education, science education and social studies education.

In some fields, only master's level programs are offered, whereas in other fields, master's and specialist level programs are also offered. All degree offerings are listed below, grouped by program area.

Art Education

Master of Arts

The master's degree program is administered by the School of Art and Art History with the cooperation of the College of Education. Students make application for admission to the School of Art and Art History.

The purpose of the program is to prepare highly qualified teachers of art for elementary and secondary schools and community colleges. The strong academic emphasis of this program is to assist teachers who are themselves
creativity to become highly literate in the language and practice 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 in each art. Applications must be accompanied by a representative portfolio of the candidate's work consisting of eight slide reproductions of art work and two examples of written work. The written work may consist of papers previously written for a course or it may be original papers. These should be submitted to the office of Art Education, 12 North Hall.

In the case of course work deficiencies, the student may request an equivalent course. One year of successful teaching experience in an Elementary or Secondary school is required prior to admission to the completion of the doctoral program.

Degree Requirements

At least 40 semester hours of graduate work beyond the M.A. degree 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 art education courses, and 15 semester hours in research courses involving the individual's needs (to be specified after the student begins the program).

Doctor of Philosophy

The doctoral program is administered by the Graduate Committee in Art 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 independent creative work in art in history and in studio.

Admission

Students must meet the general requirements for doctoral students in the Graduate College and have an M.A. degree in art education from the University of Iowa or an equivalent degree from an accredited degree college or university. Application to the program may be accompanied by a representative portfolio of the candidate's work, consisting of 12 slide reproductions of art work and two examples of written work. The written work may consist of papers previously written for a course or it 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 may request an equivalent course. One year of successful teaching experience in an Elementary or Secondary school is required prior to admission to the completion of the doctoral program.

Degree Requirements

At least 60 semester hours of graduate work beyond the M.A. degree 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 art education courses, and 15 semester hours in research courses involving the individual's needs (to be specified after the student begins the program).

Master of Arts in Teaching

Designed for superior liberal arts graduates who have had few or no professional education courses, this program prepares students to enrich their backgrounds by completing graduate courses in art 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 Communication and Theatre Arts; a course in the basics of speech (voice and phonetics) or evidence of adequate previous training; a grade-point average of 2.7 or better in undergraduate grade-point average of 2.7.

Communication and Theatre Arts Education

Master of Arts

The purpose of the program is to prepare teachers and supervisors of speech and theatre 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 may find it necessary to take additional courses beyond the minimum requirement. Application should be made to the Department of Communication and Theatre Arts, 224 Jussap Hall.

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 education; 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 done in a seminar and presented to the committee prior to the comprehensive examination; a comprehensive examination consisting of 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

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Educa7on/Scecdary Educa7on

7F:131 Educa7onal Psychology—3 s.h.
7F:117 Ph3losophy of Educa7on or
7F:107 Histo$ of Western Educa7on—3 s.h.
75:100 Methods: Commu$ca7on—3 s.h.
75:101-102 Observa7on and Lab Practice in the Secondary Schools—12 s.h.
75:107 Seminar: Curricu$um and Stu$$ent Teaching—3 s.h.
7X:170 Human Rela7ons for the Classroom Teacher—3 s.h.
Stu$$ent teaching—generally scheduled only after comple7a7on of eight or more semes7er hours of graduate work in Commu$ca7on and Theatre Arts, plus one course in educational psychology and the methods course—and enrollment authorized credit in 75:107 during the stu$$ent teaching semester.
Comprehensive examinations in Commu$ca7on and Theatre Arts and Educa7on 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 meet the general requirements of the Graduate College.

Teaching experience is desirable.

Degree Requirements

Common Core—22-23 s.h.
75:107 Seminar: Education—3 s.h.
75:108 Curricu$um Foundations—2-3 s.h.
7F:141 Educa7onal Theories of Education—2 s.h.
7P:257 Educational Measurement and Evalua7on—3 s.h.
or
7F:256 Construction and Use of Evalua7on Instruments—3 s.h.
75:281 Junior High School and Middle School Curriculum—2-3 s.h.
75:291 Secondary School Curriculum—3 s.h.
7E:300 Design and Organi$a7on of Curricu$um for Early Childhood, Elementary, and Middle Schools—3 s.h.
Research (to be selected in consultation with the advisor).
Cognates (4-6 s.h.)—in a subject field such as English;
Electives—selected in consultation with the advisor to complete a total of 30-32 s.h.
Thesis—for students electing a thesis program.
75:303 Master’s Degree
Thesis
Two three-hour comprehensive examinations in curriculum and one in a related field in education or in a cognate field or three two-hour examinations.

Doctor of Philosophy

The purpose of the program is to prepare students for leadership positions in the field of curriculum for secondary schools, state departments, intermediate systems, and college teaching.

Admission

Students 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.
75:108 Curricu$um Foundations—2-3 s.h.
75:107 Secondary School Curriculum—3 s.h.
7E:300 Design and Organi$a7on of Curricu$um for Early Childhood, Elementary, and Middle Schools—3 s.h.
75:380 Problems of Curriculum Planning—3 s.h.
At least two advanced supervision courses in secondary or elementary school subject fields—6 s.h.
7P:257 Educational Measurement and Evalua7on—3 s.h.
or
7P:256 Construction and Use of Evalua7on Instruments—3 s.h.
75:380 Problems in Supervision—2 s.h.
7F:117 Educational Sociology—2 s.h.
7P:117 Philosophy of Education—2 s.h.
7F:130 Educational Psychology—2 s.h.
7P:170 Introduction to Psychology of Reading—3 s.h.
7P:242 Selected Applications of Statistical Techniques—3 s.h.
7D:203 Computer Applications in Education—2-3 s.h.
7F:267 Theory in Administration—3 s.h.
7D:269 Secondary School Principal—3 s.h.
7D:281 Junior High School and Middle School Curriculum—2-3 s.h.
7F:120 Introduction to Instructional Design and Technology—3 s.h.
7U:130 Exceptional Persons—3 s.h.
All doctoral candidates are required to complete at least 8 semester hours of cognate work, preferably in sociology, psychology, or political science.

Examination and research tools—dealing with a problem approved by the student’s major advisor in the area of curriculum and instruction. Two research tools must be selected with the approval of the students advisor.
75:400 Ph.D. Thesis—10-18 s.h.
Candidates take three three-hour comprehensive examinations in secondary school curriculum and secondary school administration, and one related field in education or in a cognate field.

Developmental Reading

Master of Arts

The program is designed to prepare graduate students for positions as reading specialists in kindergarten and grades 1 through 12. Successful completion of this program is accompanied by four years successful teaching experience qualifies the student for certification as a reading specialist.

See Early Childhood and Elementary Education for a complete description of this program.

English Education

Master of Arts in English with Specialization in English Education

The purpose of the program is to provide specialization in subject matter and professional 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. A score at least a major in English. Preferred undergraduate grade point average of 3.0 in English and GPR Applicant 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 minimum of 30 semester hours in courses offered by the Department of English of which 18 semester hours in professional education courses; and
Regular writing comprehensive examinations administered to all M.A. candidates in English.

Master of Arts

The purpose of the program is to prepare supervisors of English, department chairs, and curriculum specialists for secondary schools, and to prepare teachers of specialized areas. Application should be made to the Graduate College.

Admission

Students must meet the general requirements of the Graduate College, hold a secondary school teaching certificate, and have acquired a minimum of 30 semester hours in English. Preferred applicants will have a grade-point average of 3.0 or above and
a verbal score above the 50th percentile on the GRE Aptitude Test. Students must maintain a 3.0 grade-point average while they are in the program.

Degree Requirements
A student will specialize in English education and one or two other areas. The other area(s) may be: a literary field, junior high school teaching, curriculum, reading, composition, speech and drama, language development, visual and auditory literacy, literature for children and adolescents. An advisor and the student will plan the program of study. The student will demonstrate competency in chosen areas by participating in a seminar in each area. Nine semester hours must be taken in courses numbered 200 or above. The student will take a comprehensiveness examination in English education and in his/her chosen area(s).

Master of Arts in Teaching
The M.A.T. degree program is designed for students with an undergraduate degree in English, but 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 more than 6 hours of coursework leading to the professional education courses prior to admission.

Degree Requirements
A minimum total of 45 semester hours; At least 18 semester hours of graduate courses offered by the Department of English. The advisor will supplement the undergraduate major; and approve all graduate education courses:
7/131 Educational Psychology 3 s.h.
7/107 History of Western Education or
7/117 Philosophies of Education 3 s.h.
7/81 Pre-education Practicum 1-2 s.h.
7/172 Internship Practicum for the Classroom Teacher 3 s.h.
7/194 Methods; High School Reading 3 s.h.
7/115 Methods; English 3 s.h.
7/191-192 Observation and Laboratory Practice in the Secondary School 12 s.h.
A two-semester comprehensive examination; courses in teaching methods, materials, and curriculum for high school English and the second part covering one-half of the Department of English's M.A. reading list.

Doctor of Philosophy
The purpose of the program is to prepare teacher education in English, specialists in literature for young people, specialists in reading in 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 50th percentile on verbal (50 centile) and four years teaching experience. A student admitted to the program is expected to provide evidence of successful completion of a substantial research paper for a course included in the first 15 residence hours. Students must maintain a 3.0 grade-point average while they are in the program. Their candidacy is reevaluated annually.

Degree Requirements
Area of Specialization: Teaching of English 9-18 s.h., including four of the following courses:
7/292 Supervision of Elementary School Language Arts 3 s.h.
7/303 Seminar: Research and Current Issues 3 s.h.
7/215 Seminar: Teaching English in Middle School and Junior High School 3 s.h.
7/250 M.A. Seminar: English Education 3 s.h.
7/415 Ph.D. Seminar: English Education 2-4 s.h. (required for two or more examinations)
Cognates and electives (56-82 s.h.) may include reading, school curriculum, literature for young people, literature of a particular period or genre, educational psychology, special education, educational media, macroeconomics, composition, linguistics, literary criticism, educational measurement, speech and dramatic arts. Student and advisor will select two areas of specialization in addition to the teaching of English. Areas of specialization will typically require a minimum of 4 semester hours to work in an area.
Facility in a research tool acquired by the student and advisor which will help the student achieve professional objectives.
Students will take comprehensive examinations in three areas: the teaching of English, a cognate area, and an elective area. The final requirements for eligibility to write comprehensive examination areas will be: the general requirement is three courses in an area.
Dissertation (typically 12 s.h.).

Foreign Language Education
Master of Arts in Teaching
The Master of Arts in Teaching program is for foreign languages is offered in French and German, exclusively. The M.A.T. program 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 French or German and a 3.0 undergraduate grade-point average is required.

Degree Requirements
At least 18 semester hours of graduate courses in French or German and the following 24 semester hours of professional education courses:
7/131 Educational Psychology 3 s.h.
7/107 History of Western Education or
7/117 Philosophies of Education 2 s.h.
7/118 Methods of Foreign Language Instruction 3 s.h.
7/181-182 Observation and Laboratory Practice in the Secondary School 12 s.h.
7/187 Seminar in Curriculum and Student Teaching 3 s.h.
7/170 Seminars in the Classroom Teacher 3 s.h.
A four-part comprehensive examination covering the candidate's knowledge of foreign languages in French or German, and ability to teach 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 in 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 not intending doctoral study with advanced specialization in mathematics and education as a better foundation for teaching at the secondary level.
Admission
Candidates must meet the admission requirements of the Graduate College and except in unusual cases, hold a professional certificate to teach secondary school mathematics.

Degree Requirements
A minimum of 10 semester hours of coursework in mathematics approved by the student's advisor.
A minimum of three courses in mathematics education selected from the following:
75:331 Teaching Computer Programming in Secondary School Mathematics 3 s.h.
75:236 Current Issues, Approaches, and Materials in Secondary School Mathematics Teaching 1-3 s.h.
75:236 The Teaching of Geometry 3 s.h.
75:237 Teaching Mathematics in the Middle School and Junior High School 2-3 s.h.
75:238 Teaching the Low Achievers in Mathematics 2-3 s.h.
75:339 Teaching of Algebra 3 s.h.
75:350 Seminar: Mathematics Education 2 s.h.
Note: Additional courses may be available later.
Two courses missed from a cognate area in education. Suggested areas are educational psychology, educational statistics, and any other elementary mathematics education, history or philosophy of education, instructional design and technology, counselor education, secondary school curriculum, secondary school administration, and special education.
Sufficient electives in mathematics and education selected with the approval of the advisor to complete 32 semester hours of credit.
Three two-hour comprehensive examinations taken 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 career teachers with advanced specialization in mathematics and mathematics education. This program is especially recommended for students who are working for the Ph.D. in Mathematics Education. This program is administered by the Department of Mathematics. Application should be made to the Department of Mathematics.
Admission requirements are the same as for the M.A. in Education.

Degree Requirements
Minimum of 24 semester hours in the Division of Mathematical Sciences including a two-semester sequence in analysis and a two-semester sequence in algebra.
Two courses in mathematics education.
Comprehensive examination of six hours over the required courses in analysis, algebra, and education. The examination will assess the degree's knowledge of mathematics and his or her knowledge of the relevance of specific concepts relating to the teaching of secondary school mathematics.

Doctor of Philosophy
The program for the Ph.D. in mathematics education is administered by the College of Education. The 72 semester hours include work taken toward the master's degree. (All credit must be V2 at least 10 years previously.) Minimum course requirements vary for exceptional students. Typically, a program will involve 80 to 90 semester hours.

The purpose of the program is to prepare supervisors, teacher education personnel, community college personnel, and researchers in mathematics education.
Admission
Applicants must have an undergraduate major in mathematics or the equivalent, a master's degree in mathematics, mathematics education or education; a 3.0 grade-point average or above; a current teaching certificate; and a minimum of two years of teaching experience.

Degree Requirements
The mathematics education program has the following degree requirements:
A minimum of 36 semester hours of graduate work in the Division of Mathematical Sciences (mathematics, statistics, and computer science), including math 111, 112, 121, 191, 192, and 211-212. Courses jointly listed in education will satisfy this requirement. Students who have completed all their mathematics requirement at another institution must complete a minimum of 6 additional semester hours of course work in mathematics at The University of Iowa which are to be chosen with the approval of the advisor.
Competency in two areas of mathematics including statistics and computer science, and algebra or analysis (both may be chosen). This competency will be determined by satisfactory performance on master's degree examinations or their equivalent.
A minimum of 24 semester hours of course work in the College of Education. Courses meeting the 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 in 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 in education.
Three three-hour written comprehensive examinations, one in mathematics education and two examinations selected from other tests 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. An oral examination will be conducted in defense of the dissertation. Normally, a student will be expected to earn a minimum of 18 additional semester hours of dissertation credit.

Music Education
Both the Master of Arts and Doctor of Philosophy degree 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 degree program is designed to provide students with deeper insights into music, the theory and practice of music education, and the role of music in the liberal 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 ensemble, is required for admission to regular status.

Degree Requirements
General requirement: 25:321 Introduction to Graduate Study in Music 2 s.h.
Music theory:
25:145 Counterpoint Forms 3 s.h.
25:147 Tonal Forms 3 s.h.
25:148-149 Selective 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 3 a.h.
- 25:302 Advanced History and Literature of Music 3 a.h.
- 25:303-311 Electives

Specific hour and course requirements in the advisory and literature areas are determined by scores on the advisory examinations.

Music Education:
- 25:240 Supervision and Administration of Music Programs 3 a.h.
- 25:244 Special Topics in Music 1 a.h.

Elections to be selected from music education are consultation with the adviser.

- Two semester hours of ensemble credit.
- Two to four semester hours of applied music.

The amount of elective credit applicable toward the M.A. degree is dependent upon the scores earned 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 in which the examinations may be written need only cover music education, music history, and music history and literature.

Doctor of Philosophy

The purpose of the program is to prepare students for teaching, research, or independent functions in the following type of positions:

- College positions—teachers of music enrichment classes and activities; band, chorus, 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 3.0 grade-point average (excluding grades in ensembles), have a score above the fiftieth 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 success, academic potential, and writing ability is made by the music education faculty before qualifications for admission are finally 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 credit. The course requirements and semester hours listed below are to be considered minimum requirements for the typical student in preparation for the satisfactory passing of the comprehensive and final examinations.

Music:
- Electives 2-29 a.h.
  - Music Education 10 a.h.
  - 25:321 Introduction to Graduate Study in Music 5 a.h.
  - 25:325 Physics of Sound and Music 3 a.h.
  - 25:145 Computer-Based Forms 3 a.h.
  - 25:147 First Section Forms 3 a.h.
  - Elective 156:146-143 3 a.h.

Music History and Literature:
- 25:301 Advanced History and Literature of the Music 3 a.h.
- 25:302 Advanced History and Literature of the Music 3 a.h.
  - Elective 25:303-314 3 a.h.
  - Applied and Ensembles 4 a.h.
  - Electives 0-2 a.h.

Music Education (22-24 a.h.):
- 25:340 Supervision and Administration of Music Programs 3 a.h.
- 25:442 Psychology of Music 2 a.h.
- 25:440 Social and Psychological Factors in Music Education 3 a.h.
- 25:141 Seminar: Contemporary Issues in Music Education 3 a.h.
- 25:242 Seminar: Special Topics in Music Education 3 a.h.

Education (8 a.h.):
- 27:143 Introduction to Statistical Methods 3 a.h.
- 27:240 Selected Applications of Statistical Techniques 2 a.h.

Electives

Students are selected in consultation with the student's advisor on the basis of advisory examination scores with the student's professional research and goals. Students take courses from applied music, ensembles, theory, history and literature, music education, education, statistics, and psychology to total 15 to 25 semester hours.

Dissertation

Students earn a minimum of 12 semester hours for work on a dissertation.

Comprehensive Examinations

The comprehensive examination is an inclusive evaluation of the student's mastery of selected fields of study. Candidates must demonstrate mastery and scholarship in the areas of theory and practice of music education, research design and technique, and special interest in music education history and music theory and analysis.

The examination 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.

Field House Program in Physical Education

Master of Arts

See "Physical Education—Field House" in the "College of Liberal Arts" section of the Catalog.

Doctor of Philosophy

The Ph.D. in Physical Education—Field House program is also described in the "College of Liberal Arts" section of the Catalog.

Science Education

The following advanced degrees are offered in Science Education:

Master of Arts in Teaching

Master of Science (with or without thesis)

Educational Specialist

Doctor of Philosophy

All programs are described in the "College of Liberal Arts" section of the Catalog under "Science Education."

Social Studies Education

Master of Arts

The purpose of the program is to provide an opportunity for interdisciplinary work in history, social science, or related areas for classroom teachers, high school department chairs, and supervisors, as well as others interested in acquiring greater competency in the social science and greater proficiency in teaching social science.

Admission

Applicants must have a minimum of 20 semester hours of undergraduate credit in the areas of history and/or the social sciences from an accredited institution, a cumulative grade-point average of 3.0;
Thesis, if this option is selected—
A research or investigative problem in history, the social sciences, or related areas in
which 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
four fields of 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 supervisors,
curriculum directors, teacher education personnel, and college instructors in the
social sciences and pedagogy.

Admission

Applicants must have a bachelor’s degree in history or the social sciences;
 majors in the arts, fine arts, or social sciences, or education. They must
satisfy the GPA and test score requirements for admission to a doctoral program in
the Graduate College, and have a grade-point average of 3.0 or above. A minimum
GRE Aptitude Test score of 1200 (Composite of verbal and quantitative) is preferred.
Seminar papers or field research are required as evidence of ability. The thesis
writing part of the M.A. is optional. An interview is required prior to regular admission.

Degree Requirements

A minimum of 90 semester hours of course work and dissertation credit beyond
the bachelor’s degree and not including the thesis requirements.

The 90 semester hours are to be distributed among history, social sciences,
related areas, and education. Work in the disciplines chosen will constitute 80 and
75 percent of the total. 90 semester hours: 25 of the courses must be in between 25 and 40 percent of the total;

Seminars and courses numbered 200 or above are required in each of the
courses and seminars required for concentration. A minimum of 2 to 3 semester hours
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;

Tests requirements are tailored to the

Individual’s program and may consist of two foreign languages or one
language plus one other requirement. The test requirements include statistical
know-how and research techniques in one or more of the fields chosen or a
language requirement.

Comprehensive Examinations:

Normally three-semester examinations, one in each of the
fields, will be required. Depending on the

Distribution of work taken, the nine
hours of written examinations may be

reassessed; The P.L.D. exam comprising

Consists of a minimum of one faculty
member from the academic disciplines and

one from social studies education.

The remaining members to make the

minimum five for each level as required by

T he Graduate College will be selected

with regard to education will constitute

the student’s Ph.D. program and
distribution of course work. An oral
examination in defense of the

dissertation will be conducted by

the committee as a whole.

A dissertation proposal or prospectus

must be submitted at the time of the

oral examination following the

written comprehensive examination;

Alternatively to the traditional written

comprehensive examination will be

considered by the candidate’s

committee.

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 an

investigative problem in social studies

education, in which case the
dissertation director will be a faculty

member of the

College of Education.

Continuing requirements for maintaining

candidate; grade-point average of 3.0

plus successful reevaluation.

Assistantships

A limited number of half-time assistantships is available for students pursuing Ph.D. degrees in secondary education. Holder of an assistantship may register for no more
than 12 hours per semester, and except with special permission, must register for at least 6 hours per semester. Assistant assignments vary; some involve teaching undergraduates courses

or supervision of practicum experiences

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 directly apply to the department in question or consult the

College of Education advisor directing the

program in their field.

Courses

70:01 Pre-education Practice

Involves observing and assisting students in the classroom setting in schools.

Prerequisites: consent of instructor; completion of GE Aptitude Test score of 1200.

70:10 Introduction to Secondary School Teaching

Course of study includes American secondary education, including needs and characteristics of
elements and foci, the nature of the role in society, and questions of educational philosophy:
"Preliminaries," 75:93.

70:11 Introduction to Education

Basic information in 70:01 plus considerations of administrative organization, governmental procedures, and contemporary pressures within the elementary and secondary districts.

Same as 76:110.

70:12 Developing Personal Abilities

Planning, practicing, and evaluating teaching strategies in the secondary school, transfers
knowledge of classroom work to the secondary classroom, and social skills development.

Same as 76:114.

70:13 Advanced Methods Art

Course includes the methods of art instruction at elementary and secondary levels, art development, art and modern society, evaluation, evaluation, and instructional materials and observational techniques.

70:14 Introduction to Environmental Studies for K-12

Programs

An introduction to environmental activities and introducing environmental studies to the K-12 curriculum as a component of the existing curriculums. Same as 70:12.

70:15 Developing Personal Abilities K-12

General activities in the area of environmental studies; emphasis on classroom implementation of activities.

70:16 Implementation of Environmental Studies for K-12

Programs

Combination of 70:15

70:17 School Social Work Journal

Improving student activities in secondary schools with focus on methods of teaching, problems
involved in linking student publications and student membership in the profession of student publication.

70:18 Multicultural Studies

Introduction to the traditional approaches and methods, and materials for teaching high school students
during literacy awareness, teaching about students and relationships, students' needs and qualification as equal in education.

70:19 Multicultural Foreign Language

Course includes the modern language approach of teaching foreign language where the

Encourages educational leaders to offer foreign language curricula to the secondary schools. Includes study of methods and materials for teaching foreign languages, pedagogical techniques, and design and teaching.

70:20 Survey in Education

History, pedagogical, and contempoary trends in areas of education. Same as 90:02/130.

70:25 Language Laboratory Equipment

Procedures

Use and application of language laboratory equipment and materials. Same as 90:02/134.

70:26 Survey in Economics

Philosophy, methods, and materials of home economics. Required for home economics
financial need, demonstrated scholastic ability, judgment, and promise of success in a professional teaching career in special education.

**Secondary Mental Retardation**

**First Year**
- 7U30 Introduction to Assessment in Special Education 3 s.h.
- 7U 130 Exceptional Persons 3 s.h.
- 7U 135 Mental Retardation 3 s.h.
- 7U 120 Introduction: Secondary School Teaching 2 s.h.
- 7B 01 Pre-education Practicum 2 s.h.
  *(optional)*
- 7P 75 Educational Psychology and Measurement 3 s.h.
- 7W 51 Audileducational Equipment for Instruction 1 s.h.
- 54:1 Introduction to Sociology: Principles 4 s.h.
- 34:2 Introduction to Sociology: Problems 4 s.h.

**Second Year**
- 7U 132 Teasing Mildly Mentally Retarded: Secondary 3 s.h.
- 7U 133 Practicum with Mildly Handicapped 2 s.h.
- 7U 136 Teaching Moderately Mentally Retarded 2 s.h.
- 7U 134 Practicum with Moderately Handicapped 2 s.h.
- 7U 133 The Culturally Different in Education Settings 3 s.h.
- 7X 103 Facilitating Career Development in 4 s.h.
- 7P 170 Introduction to Psychology of Reading 3 s.h.
- 7W 103 Selection and Use of Media for Instruction 3 s.h.
- 34:141 Juvenile Delinquency or 3 s.h.
- 54:212 Criminology 3 s.h.

**Third Year**
- 7U 192 Supervised Teaching with Mentally Retarded 15 s.h.

Students completing this program are recommended for State of Iowa Endorsement 20 (Secondary Teaching) and Approval 61 (Mental Disabilities 7-12).

**Preschool Handicapped**

**First Year**
- 7U 130 Exceptional Persons 3 s.h.
- 7U 135 Mental Retardation 3 s.h.
- 7U 139 Orientation to Rehabilitation of Physical Handicapped Child 3 s.h.
- 7S 120 Introduction to Speech and Hearing Processes and Disorders 3 s.h.

**Second Year**
- 7U 120 Methods of Teaching Preschool Handicapped 3 s.h.
- 7U 136 Teaching Moderately Mentally Retarded 2 s.h.

**Third Year**
- 7U 193 Supervised Teaching with Preschool Handicapped 2 s.h.

Students completing this program will be recommended for State of Iowa Endorsement in Preschool Handicapped, pending program approval by Iowa Department of Public Instruction.

**Severely/Profoundly Handicapped**

**First Year**
- 7U 124 Teaching Severely/Profoundly Handicapped 3 s.h.
- 7U 136 Practicum with Severely/Profoundly Handicapped 2 s.h.

**Second Year**
- 7U 194 Supervised Teaching with Severely/Profoundly Handicapped 7 s.h.

Students completing this program will be recommended for State of Iowa Endorsement in Severely/Profoundly Handicapped, pending program approval by Iowa Department of Public Instruction.

**Undergraduate Admission**

Sixty-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 volunteer or paid experience with handicapped persons are: counseling in a summer camp program for the handicapped, work with the handicapped sponsored by community or religious organizations, extensive club-sitting experiences with handicapped children, and teacher aid experiences in classes for the handicapped.

Documentation forms are available from the Division of Special Education Office. Documentation forms and the application to the Teacher Education Program must be submitted by May 15.

**Graduate Programs**

The purpose of the graduate programs in special education is to train new personnel and to retain 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. Applicants from students without valid teaching certificates will be reviewed by the division admissions committee. Graduate programs are offered for certification only, and at the M.A., Ed.S., and Ph.D. degrees levels. Initial certifications or additions to present certificates are available at the graduate level in elementary and secondary learning or emotional disabilities, school psychology, work-study coordination, administration of special education and teacher education.

**Master of Arts**

Most students admitted to the M.A. program are in special education seeking to add an endorsement to teach either the emotionally disturbed or the learning disabled.

The M.A. program prepares students to function as teachers in regular, integrated, and self-contained classrooms; art; a program requires a minimum total of 36 semester hours. A list of required courses is available from the division office.

To be admitted to the M.A. program, students pursuing certification in special education must already be eligible for certification in either elementary or secondary education. Candidates with prior successful teaching experience are given preference. Some students who do not wish to seek certification may be selectively admitted to the M.A. program in special education. Numbers admitted depend on the resources available.

**Educational Specialist in Special Education**

The specialist degree is designed 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 24 semester hours.

In addition to the general graduate admission requirements listed above, requirements for admission to this program include a master's degree in special education or equivalent, preparation and certification in special education, and full-time teaching experience before admission and two years experience.

**Educational Specialist in Special Education Administration**

The primary objective of the program is to provide sufficient training and experience to enable graduates to obtain entry-level positions in administration. The core focus 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 director of special education (State of Iowa Endorsement 48) and also qualifies the person for (State of Iowa Endorsement 61) certification in general school administration. Graduates are
Financial Aid

A limited number of teaching and research assistantships are available to full-time students in M.A., E.S., and Ph.D. programs. The Jesse Zeber Memorial Tuition Stipend is available to an undergraduate student in the training program for teachers of the physically handicapped.

General Admission Requirements

Graduate admission requirements of the Division of Special Education conform to those used generally by the College of Education, with the following additions:

Completion of the Graduate Record Examination (GRE) Aptitude Test before being admitted to the program (combined scores of 1000 or above are preferred); and

Documentation of having worked successfully with children and youth.

Courses

720.01 Teaching Widely Handicapped

5:30

Students develop assessment skills in screening, program design, program planning, and student progress evaluation; introduction to behavioral modifications; introduction to IEP development. Prerequisite: admission to graduate special education program.

720.02 Teaching Maternal-Infant Relationship

2:30

Methods of assessing and teaching infants in native language arts, reading, social studies, math, science, and physical education. Prerequisites: T215 or T216, and T219.

720.03 Teaching Maternal-Infant Relationship

2:30

Methods of assessing and teaching infants in maternal-infant relationships, classroom management, transition from secondary school to work, program design, and research. Prerequisites: T220, T221, and T222.

720.04 Practicum with Mildly Handicapped

4:30

Supervised practicum with mildly handicapped for approximately 76 hours. Prerequisites: or corequisites: T214, or T215.

720.05 Practicum with Moderately Handicapped

4:30

Supervised practicum with moderately handicapped for approximately 76 hours. Prerequisites: or corequisites: T214, or T215.

720.06 Practicum with Severely/Profoundly Handicapped

4:30

Supervised practicum with severely/profoundly handicapped for approximately 76 hours. Prerequisites: or corequisites: T214, or T215.

720.07 Practicum with Blindly Handicapped into Regular Classrooms

5:30

Designed to give educators involved with mildly handicapped students broader knowledge of special education. The ability to identify and work with mild disabilities. Prerequisites: consent of instructor.

720.11 Lab

Introduction to various methods of assessment, measurement, and research in education and social sciences. Development of certain skills. Prerequisites: consent of instructor.

720.11 Lab

Introduction to various methods of assessment, measurement, and research in education and social sciences. Development of certain skills. Prerequisites: consent of instructor.

720.12 Lab

Introduction to various methods of assessment, measurement, and research in education and social sciences. Development of certain skills. Prerequisites: consent of instructor.

720.13 Lab

Introduction to various methods of assessment, measurement, and research in education and social sciences. Development of certain skills. Prerequisites: consent of instructor.

720.14 Lab

Introduction to various methods of assessment, measurement, and research in education and social sciences. Development of certain skills. Prerequisites: consent of instructor.

720.15 Lab

Introduction to various methods of assessment, measurement, and research in education and social sciences. Development of certain skills. Prerequisites: consent of instructor.

720.16 Lab

Introduction to various methods of assessment, measurement, and research in education and social sciences. Development of certain skills. Prerequisites: consent of instructor.

720.17 Lab

Introduction to various methods of assessment, measurement, and research in education and social sciences. Development of certain skills. Prerequisites: consent of instructor.

720.18 Lab

Introduction to various methods of assessment, measurement, and research in education and social sciences. Development of certain skills. Prerequisites: consent of instructor.
72/101 Introduction to School Psychology 3 a.

72/102 Supervised Teaching with Physically Handicapped 3 a.

72/103 Supervised Teaching with Mentally Retarded 3 a.

72/104 Supervised Teaching with Physically Handicapped 3 a.

72/106 Supervised Teaching with Severely/Profoundly Handicapped 3 a.

72/109 Internship in Special Education 3 a.

72/201 Principles in School Psychology and Educational Psychology 3 a.


72/203 Practicum in School Psychology 3 a.

72/204 Practicum in Special Education 3 a.

72/205 Practicum in Community Psychology 3 a.

72/206 Supervision of Learning Disabilities 3 a.

72/207 Behavior/Personality Assessment of the School-Age Child 3 a.

72/208 Individual Intelligence Testing 3 a.

72/209 Integration of Assessment Information 3 a.

72/210 Internship in Psychology 3 a.

72/211 Internship in Special Education 3 a.

72/212 Internship in Community Psychology 3 a.

72/213 Internship in School Psychology 3 a.

72/214 Internship in Special Education 3 a.

72/215 Internship in Community Psychology 3 a.

72/216 Internship in School Psychology 3 a.

72/217 Internship in Special Education 3 a.

72/218 Internship in Community Psychology 3 a.

72/219 Internship in School Psychology 3 a.

72/220 Internship in Special Education 3 a.

72/221 Internship in Community Psychology 3 a.

72/222 Internship in School Psychology 3 a.

72/223 Internship in Special Education 3 a.

72/224 Internship in Community Psychology 3 a.

72/225 Internship in School Psychology 3 a.

72/226 Internship in Special Education 3 a.

72/227 Internship in Community Psychology 3 a.

72/228 Internship in School Psychology 3 a.

72/229 Internship in Special Education 3 a.

72/230 Internship in Community Psychology 3 a.

72/231 Internship in School Psychology 3 a.

72/232 Internship in Special Education 3 a.

72/233 Internship in Community Psychology 3 a.

72/234 Internship in School Psychology 3 a.

72/235 Internship in Special Education 3 a.

72/236 Internship in Community Psychology 3 a.

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72/247 Internship in Special Education 3 a.

72/248 Internship in Community Psychology 3 a.

72/249 Internship in School Psychology 3 a.

72/250 Internship in Special Education 3 a.

72/251 Internship in Community Psychology 3 a.

72/252 Internship in School Psychology 3 a.

72/253 Internship in Special Education 3 a.

72/254 Internship in Community Psychology 3 a.

72/255 Internship in School Psychology 3 a.

72/256 Internship in Special Education 3 a.

72/257 Internship in Community Psychology 3 a.

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72/261 Internship in School Psychology 3 a.

72/262 Internship in Special Education 3 a.

72/263 Internship in Community Psychology 3 a.


72/265 Internship in Special Education 3 a.

72/266 Internship in Community Psychology 3 a.

72/267 Internship in School Psychology 3 a.

72/268 Internship in Special Education 3 a.

72/269 Internship in Community Psychology 3 a.

72/270 Internship in School Psychology 3 a.

72/271 Internship in Special Education 3 a.

72/272 Internship in Community Psychology 3 a.

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72/280 Internship in Special Education 3 a.

72/281 Internship in Community Psychology 3 a.

72/282 Internship in School Psychology 3 a.

72/283 Internship in Special Education 3 a.

72/284 Internship in Community Psychology 3 a.


72/286 Internship in Special Education 3 a.

72/287 Internship in Community Psychology 3 a.

72/288 Internship in School Psychology 3 a.

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72/290 Internship in Community Psychology 3 a.

72/291 Internship in School Psychology 3 a.

72/292 Internship in Special Education 3 a.

72/293 Internship in Community Psychology 3 a.

72/294 Internship in School Psychology 3 a.

72/295 Internship in Special Education 3 a.

72/296 Internship in Community Psychology 3 a.

72/297 Internship in School Psychology 3 a.

72/298 Internship in Special Education 3 a.

72/299 Internship in Community Psychology 3 a.

72/300 Internship in School Psychology 3 a.
Engineering is the profession in which a knowledge of the mathematical and natural sciences is applied to develop ways to utilize economically the materials and forces of nature for the benefit of mankind. The major aim of engineering is the creation of a new process, product, material, or system that is useful to our society. This activity demands a high degree of creativity, coupled with a solid 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, 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.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.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 four and one-half years. In addition, a minor in the College of Business Administration or a minor in any degree-granting department or approved program in the College of Liberal Arts may be combined with any of the undergraduate programs offered by the College of Engineering.

The undergraduate programs in chemical, civil, electrical, industrial, and mechanical engineering are accredited by the Accreditation Board for Engineering and Technology (ABET) of the American Association of Engineering Societies (AAES)—formerly the Engineers' Council for Professional Development (ECPD).

Undergraduate Programs

Degree Requirements

The Bachelor of Science in Engineering (B.S.E.E.) degree requires a minimum of 128 semester hours of credit including satisfactory achievement of the specific requirements of the major program as described in the following sections. The candidate for the B.S.E.E. degree must be enrolled in the College of Engineering for at least the last 30 semester hours, or all of the last 60 semester hours, or a total of 90 semester hours and must have a minimum grade-point average of 2.00 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, with a grade of C, or better, in each course.

Admission Requirements

To qualify for admission to the College of Engineering as a freshman, an 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; Successfully completed at least one and one-half units of algebra, one unit of plane geometry, and one unit of trigonometry; and

Ranked in the upper one-half of his or her high school graduating class.
High school physics and chemistry are recommended for all applicants. Transfer applicants must submit a formal application and an official transcript from their college or university. Each applicant should have: completed at least one semester of calculus or its equivalent; and maintained a cumulative grade-point average of at least 2.25, based on a 4-point marking system. A maximum of 64 semester hours credit (or the equivalent) from a community or junior college will be accepted toward a baccalaureate degree.

Completion 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 curriculum programs in engineering are designed to ensure 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 complex and difficult technological problems. The overall objective of the curriculum programs is to provide an integrated education, a meaningful introduction to the understanding of how to apply pertinent knowledge, a fundamental understanding of the development and solution of practical problems in each of the designated areas of engineering specialization. The specific objectives of the curriculum is to prepare students for the practice of engineering.

"The curriculum is structured into four parallel streams extending through the entire four years of undergraduate study. The streams are mathematics, basic and engineering sciences, humanities and social sciences, and engineering analysis and design. The mathematics, basic and engineering sciences stream provides a foundation in 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 real problems. This ability is developed in the analysis and design streams. The course sequence in this stream begins with 206:1 Introduction to Engineering in the first semester of the freshman year and terminates with senior-level design courses during the senior year.

Approximately one-half of the courses in the freshman and sophomore years are required in all of the programs. The 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 one program major, transfer between majors when eligible, or not declare a major during this period, with only minor adjustments in scheduling. This gives students time to become familiar with the various major areas before choosing a specific engineering program.

In addition to the core program and the humanities and social sciences sequence, which is also common to each program, each degree program specifies a required group of courses which provide a common depth and breadth of topics to every student in each of the curricular programs. These courses provide the common background which the faculty expect of every graduate in each of the respective programs. The remaining courses are technical electives chosen by the student in consultation with his or her academic advisor. These courses allow the student to develop additional depth in areas of special interest and are ordinarily taken in the senior level.

The curriculum for the freshman year is:

First Semester
- 4.15 Principles of Chemistry I 3.0 a.
- 10.1 Rheology 4.0 a.
- 10.2 Rheology 4.0 a.
- 22M:35 Engineering Calculus I 4.0 a.
- 22M:45 Introduction to Engineering 2.0 a.
- Total 15.0 a.

Second Semester
- 4.15 Principles of Chemistry II 2.0 a.
- 10.2 Rheology 4.0 a.
- Humanities or social science 4.0 a.
- 22M:36 Engineering Calculus II 4.0 a.
- 550:7 Statics 3.0 a.
- Total 15.0 a.

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 10:1-2 may apply only four semester hours toward their engineering program.

The courses listed above are required of all students in engineering; 4/14 Principles of Chemistry II is recommended during the second semester for students who are biomedical or chemical engineering majors. Biomedical engineering majors should register for 550:16 Materials Science I in place of the humanities or social science elective listed for the second semester.

Humanities and Social Sciences Requirements

The goal of the humanities and social sciences stem is to provide more effective preparation for professional responsibilities by integrating the humanities and social sciences into the undergraduate engineering curriculum. Supportive of this goal, the student is to select, with the advisor's approval, a minimum of 16 semester hours of humanities and social sciences electives, which is to include at least one semester hour of course work in the humanities and at least one semester hour in the social sciences. Because the social science courses are cross-curricular, students may pursue a major in all industrial engineering as specified and are not open for the same selection process. Students participating in this program should consult the industrial and management engineering program requirements presented later.

The humanities electives may be selected from those approved to satisfy the humanities, historical perspectives, and the foreign civilization and culture requirements of the College of Liberal Arts general education requirements and/or appropriate courses from any of the following departments and schools: American studies; art and art history; classics; Asian languages and literatures; communication and theatre arts; English; history; literature, science, and the arts; music; Middle Eastern studies; linguistics; or other departments approved by the College of Engineering faculty. Students may select courses from departments not approved by the approval of the advisor of the assistant to the dean. Students shall select electives that total three semester hours of advanced (100-level) course work in the humanities area to secure sufficient depth of knowledge in each selected subject of study. This advanced course work must be in a course completed elementary course. Language courses taken at the elementary level do not satisfy the requirements unless the course is at or beyond the second-year level. Studio courses in art and music will not fulfill the requirement. The social science electives may be selected from those approved to satisfy the social sciences requirement of the College of Liberal Arts general education requirements and/or appropriate course from the following departments: anthropology, economics, geography, political science, psychology, sociology, and mass communication. Students in social work, or other departments approved by the College of Engineering faculty. Students may select courses from departments not approved by the approval of the advisor 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) courses. This course will typically 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 program 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 adviser 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 student in the combined program can normally meet the baccalaureate degree requirements in 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 specific requirements for the degree required in the residence requirement in the College of Liberal Arts. The specific engineering courses taken by the student will vary, according to the engineering specialty selected. Since the courses in science, mathematics, and the socio-humanities are required in both colleges, by both colleges, the student is, in many cases, satisfied with the requirements for two colleges in the taking of a particular course.

**Two Bachelor's Degrees in the College of Engineering**

Recent College of Engineering graduates and current students may earn two baccalaureate degrees in engineering. The requirements for the second degree are to complete a minimum of 30 additional credit hours of residence course work beyond the requirements of 128 semester hours for the first degree program with a grade point average of 2.00. The additional credit hours must include a course 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-humanities elective requirements. The technical electives selected for the second degree program must be such a variety and level that the student will meet at least a 2.00 grade point average 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 should be submitted to the chair of the second program. The plan will include a list of the courses to be taken in the second program along with a list of the courses completed and those courses 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 program chair (the current petition form may be used for this purpose) and submitted to the Office of the Dean for inclusion in the student's permanent file.

**Minor**

Students graduating from the College of Engineering may earn a minor in the College of Business Administration or a minor in a minor in any degree-granting department in a nominal program in the College of Liberal Arts. Students interested in a chemistry, physics or mathematics minor may not use courses required in the engineering curriculum to satisfy the minor requirements in these three areas. A notation of the minor will be entered on the student's permanent record.

Students must inform the Registrar's Office of their intent to complete the minor requirements at the time of applying for a degree. A list of the minor designation is included on the candidate's transcript.

**Minor in the College of Business Administration**

Requirements for the minor are:
- Two economics courses, two accounting courses, a marketing course, a management course, a finance course, and a legal environment course. In addition to these required courses, a student normally would also complete a statistics course, a computer course, and a probability and statistics course.
- Engineering majors must satisfy the mathematics, statistics, and computer science requirements with courses 22M:35, 580:4, and 580:39. 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 12 semester hours in a minor department, at least 12 of which are in advanced courses acceptable to that academic unit (students should confer with the minor department to identify acceptable courses). The student must achieve a 2.00 grade-point average in the courses applicable to the minor. Courses to be counted toward the minor may not be taken on a pass-fail basis. Students interested in physics, chemistry or a mathematics minor may not use courses required in the engineering curriculum to satisfy the minor requirements in these three areas.

**Cooperative Education Program**

Cooperative education involves the integration of academic work with practical experience in an organized program. Participating students spend 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 by matching student interest and ability to the work situation. The insight gained by involvement in the practical application of subject matter studied in the classroom usually results in improved motivation during the study periods and in continued improvement in academic record. Another important aspect of the experience gained, although it is difficult to evaluate, is the increased awareness of the many 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. The program is an option available to qualified students on a competitive basis.

**University Undergraduate Academic Advising Center**

The Undergraduate Academic Advising Center serves those who have not selected a program of study. Included in this group are students who may be
considering engineering, among other fields of study, but who are not yet ready to declare a specialized major. For help in choosing a program, students are assigned an adviser from the center rather than from a specific department. These students meet frequently and regularly with their assigned adviser for help with various academic matters. These may range from building a schedule of courses for the next semester to receiving counseling on choosing a career. For the convenience of students, the offices of the advisers are located in the residence halls. For more information, contact the Director, Undergraduate Academic Advising Center, Suite Hall, The University of Iowa.

Academic Standards
Semester Load Limit
A normal academic load is about 16 semester hours of coursework for a semester, 8 for a summer session. A student may register for more than 18 semester hours in one semester, or 9 in a summer session, without the permission of the assistant to the dean.

Classification of Students
Students in the College of Engineering are classified by the number of semester hours of credit earned and applicable to a bachelor's degree in engineering, according to the following table:

| Freshman—fewer than 28 semester hours | Sophomore—28 to 55 semester hours | Junior—56 to 85 semester hours | Senior—90 or more semester hours |

Grading System
The college uses a four-point grading system, in which grade points are awarded on the basis of the percentage indicated from A+ to D, with A+ being the highest and D being the passing grade. For a full description see the "General Information" section of the Catalog.

Academic Probation and Good Standing
A student enrolled in the College of Engineering who fails to attain the following minimum semester and cumulative grade-point averages based on all work taken at The University of Iowa shall be placed or continued on academic probation:

| Freshman—1.70 | Sophomore—1.80 | Junior—1.85 | Senior—1.90 |

A student whose semester and cumulative grade-point averages equal or fall below the requirements or whose classification is considered to be in good standing will be warned.

A student who is 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.

Cancellation of Registration
A student in good academic standing who cancels his or her registration during the final four weeks of a regular semester, or during the final three or two weeks of a twelve- or eight-week summer session, respectively, will not be permitted to enroll for the semester immediately following without specific approval from the assistant to the dean.

A student on academic probation who cancels his or her registration at any time without good cases will be considered as having been dismissed for poor scholarship.

Satisfactory-Fail Courses
The noncredit professional seminar courses, which are required in each of the professional programs, as well as the noncredit seminar classes with course number ENGR 191 are offered only on a satisfactory-fail basis. No other engineering courses are offered on this basis. A (Failure) grade earned for such a class will not satisfy any portion of the professional seminar requirement.

Incomplete and No Report Grades
A maximum of two courses taken in the college of Liberal Arts or Business Administration on a pass-no pass basis may be applied toward satisfaction of the humanities and social science requirement. Students wishing to take such courses in liberal arts or business administration on a pass-no pass basis must meet the conditions and follow the procedures specified by those colleges. The pass-no pass option may not be used for courses taken to satisfy the rhetoric requirement.

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 the course for which the repeated course is a prerequisite. "The option may be applied to no more than three courses and it may be applied only once to a given course. Transfer students may apply the option on a pro-rated basis. For example, a student transferring with between 42 and 65 semester hours of credit prior to the beginning of the Fall semester may apply this option for no more than two courses, and with between 0 and 42 semester hours of transfer credit may use this option for only one course. Students wishing to exercise this option should apply to their assistant to the dean.

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completing the course during the succeeding summer session.

Recognition for Academic Achievement

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

To be eligible for this form of recognition, the student must take his or her final 60 semester hours of study in residence in the college, and must have completed at least 45 semester hours of study in the college before his or her final registration. Students in the combined engineering-literary arts program are eligible for this recognition regardless of the college in which they complete their residency requirements.

Dean's List

Engineering students achieving grade-point averages of 3.5 or above during a given semester on 12 or more hours of graded work with no 'I' or 'F's still standing on the current or past semester's record, are recognized by inclusion on the dean's list for that semester.

Student Organizations and Activities

The College of Engineering student body is organized as the Associated Students of Engineering. This organization provides a forum for planning and carrying out activities involving the entire engineering student body. It sponsors faculty picnics held each fall and spring, the homecoming coronation, MECCA Week, and sponsoring of a nationally prominent speaker during National Engineers' Week. The organization also acts on college-wide matters of student interest.

Engineering students publish their own student newspaper, the "Engineering Engineer." All positions are staffed by students, with faculty serving only in an advisory capacity.

Student branches of the American Institute of Chemical Engineers, the American Institute of Civil Engineers, the American Society of Electrical 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 Pi, honorary electrical engineering society; Alpha Pi Mu, honorary industrial engineering society, and Pi Tau Sigma, honorary mechanical engineering society, recognize the work of outstanding students in their respective fields. Student organizations provide support and assistance in the development of more suitable enrollments of women and minorities in the college and are the Black Students in Engineering and the student chapter of the Society of Women Engineers. A local chapter of Theta Tau, a national professional engineering fraternity, is active in engineering 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 engineering program is to take the examination on engineering fundamentals given at the University rear to the end of the college year. (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 field following a minimum of four years of approved professional experience. At this point the graduate engineer is registered "Professional Engineer."

Graduate Programs

The general rules and regulations for the graduate programs are established by the Graduate College. However, the specific admissions and degree requirements for each graduate engineering program are included in the sections devoted to the individual programs. Also included in these sections is a description of the financial aid available in each program and also a description of the principal areas of study and research.

College Facilities

Engineering Library

The Engineering Library is a center of college activity. Its collection includes 58,900 books and 300 periodicals, is equipped with microfilm and microfiche readers, and provides study spaces for 150 library users.

Computer Aided Engineering Instructional Laboratory

This college facility is used for teaching computer-aided engineering. The laboratory consists of interactive computer graphics terminals connected to a superminicomputer, graphics printer, terminals, digital tablets, a line printer and a protection system. It also contains several stand-alone microcomputers which are connected to a University-wide microfeder to transfer data from one system to the other. Information is given in computer aided graphics and design at both the undergraduate and graduate level. Software is available for graphics applications, optimal design, finite element analysis, structural analysis and design, and dynamic analysis of mechanical and structural systems.

Computer Based Education (CBE) Laboratory

The Computer Based Education Laboratory provides computer-aided and batch computing capabilities with the UNIVAC 1108, 2300, Prime 750, and HP-2000 computer systems via video display and hardcopy terminals. The laboratory also contains the facilities of computer laboratories, and microcomputers are available within and outside the CBE Laboratory. In addition, a number of stand-alone microcomputers are available within the college for specialized use by students and faculty.

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 center, the Department of Computer Science and terminals and remote printers for access to the University computer systems in the CBE Laboratory. In addition, a number of stand-alone microcomputers are available within the college. Computer Services also provides specialized use by students and faculty.

Employment Placement Services

The placement services of the institute are available to all current students and to alumni. The services include on-campus interviews for permanent and co-op employment, written and audio-visual company literature for more than 300 business, directories, open positions
Organization of the College

Extraordinary demands have been imposed on the engineering profession in general and on engineering education in particular by the broadening spectrum of activities in which the engineer practices and by the increasing complexities of technology. The college has responded to these demands by departing from the traditional pattern of organizational structure of engineering colleges. It has organized its faculty and facilities into different types of collegiate sub-units—academic programs, divisions, an institute, and two centers.

Academic Programs

The academic program units are the degree-granting units, while the divisions are the administrative units that allocate the resources of the college. Each faculty member is a member of at least one academic program, but only one division.

The academic program units are biomedical engineering, chemical and materials engineering, civil engineering, computer engineering, electrical engineering, environmental engineering, industrial management, and mechanical engineering. The faculty in each program unit is responsible for the curricula at all degree levels offered by the program. In addition, the faculty teach courses, advise and counsel students, and provide general support services for the students in each of the programs. The chief administrative officer of a program is the program chair.

Divisions

The divisions are identified as energy engineering, information engineering, materials engineering, and systems engineering. These units are the basic operating units and consist of faculty and facilities organized according to broad functional areas of modern engineering endeavor. Each division is responsible for the development and operation of all laboratories at all levels of activity and for all purposes; for the content, teaching, and scheduling of all academic courses; and for the conduct of all research programs. The chief administrative officer of a division is the division chair.

Center for Computer Aided Design

The Center for Computer Aided Design was founded for 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 aided design. A research facility consisting of a PRIME 750 super minicomputer, a dynamic graphics system, and other related computer support equipment supports the faculty, staff, and students associated with the center.

Faculty, staff, and students participating in the center are developing and distributing computer software to government and industrial agencies for use in a broad spectrum of mechanical and structural design activities.

Course Numbering System

The nines of each course offered by the College of Engineering are preceded by a 2-digit prefix and a 3-digit suffix separated by a colon. The first digit of the prefix is 5, which identifies the courses as being offered by the College of Engineering. The second digit of the prefix identifies the division of the college that offers the course, as follows:

1—Engineering core
2—Biomedical engineering
3—Civil engineering
4—Chemical and materials engineering
5—Electrical and computer engineering
6—Industrial and management engineering
7—Division specialty programs
8—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 courses for undergraduates and graduates, and number 200 and above designate courses primarily for graduates. The table below provides further means of conveying information on the level and type of courses:

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Designation</th>
</tr>
</thead>
<tbody>
<tr>
<td>001-099</td>
<td>Freshman core courses</td>
</tr>
<tr>
<td>010-019</td>
<td>Sophomore core courses</td>
</tr>
<tr>
<td>020-029</td>
<td>Junior core courses</td>
</tr>
<tr>
<td>030-099</td>
<td>Required courses for graduates</td>
</tr>
<tr>
<td>085-097</td>
<td>Undergraduate professional program seminars</td>
</tr>
<tr>
<td>088-1019</td>
<td>Contemporary topics courses for undergraduates</td>
</tr>
<tr>
<td>088-1019</td>
<td>Individual Investigation courses</td>
</tr>
</tbody>
</table>
Biomedical Engineering

Program chair: Renzo Ros

Faculty: professors Clytie M. Berry, Ching-Leh Chan, Mark Greaves, D. Messinger, Donald B. McVieid, Renzo Ros, and Richard L. Faber.

The past two decades have seen a tremendous growth of activity in biology and medicine. As engineers, we have become increasingly involved with projects in the life and health sciences, there has been increased need for them to become more familiar with the fields of biology and medicine. Recognition of this need has led to the emergence of a new interdisciplinary engineering activity, designed to bridge the gap between the life sciences and engineering — the biomedical engineering profession. The undergraduate biomedical engineering program is a curricular option offered within the Bachelor of Science program in engineering.

Students who complete this program may pursue career opportunities in industry (the design and development of biomedical instrumentation, diagnostic aids, life support systems, prosthetic and orthotic devices, man-machine systems, etc.). In government (Veterans Administration, Environmental Protection Agency, Food and Drug Administration, etc.), or they may elect to continue their formal education in the engineering, medical, or legal professions.

Many engineering college faculty members have joint appointments in the College of Medicine. Both biomedical engineering undergraduates and graduate engineering students participate actively with college faculty members and their colleagues in the life and health sciences on projects of mutual interest.

Courses which have been designated primarily for the biomedical engineering program are identified by the digit 1 in the third position of the course catalog number. Descriptions are provided in this Catalogue. The catalog number is the identification devoted to the Division of Information and Materials Engineering.

The curriculum described below is built on the foundation provided by the College of Engineering core curriculum, and has been developed to prepare students for the challenges and opportunities associated with careers in the biomedical engineering profession. The program has been carefully designed to enable the student to satisfy the requirements for the Doctor of Medicine and the College of Medicine, Dentistry, etc.

Curriculum

Sophomore Year

First Semester
293/37 Engineering Calculus II 4 s.h.
373/3 Principles of Animal Biology 5 s.h.
540/1 Introduction to Electrical Science 3 s.h.
410 Dynamics 3 s.h.
Total 15 s.h.

Second Semester
293/38 Differential Equations for Engineers 4 s.h.
520/18 Thermodynamics I 4 s.h.
540/12 Linear Systems Analysis 4 s.h.
561/81 Physiology for Biomedical Engineers 3 s.h.
293/31 Intermediate Engineering Physics I 3 s.h.
Total 17 s.h.

Junior Year

First Semester
550/39 Probability and Statistics for Engineers I 3 s.h.
550/21 Principles of Design I 3 s.h.
540/18 Principles of Electronic Instrumentation 4 s.h.
293/32 Intermediate Engineering Physics II 3 s.h.
520/23 Mechanics of Fluids and Thermodynamics 4 s.h.
561/91 Professional Seminar 0 s.h.
Total 17 s.h.

Second Semester
560/19 Mechanics of Deformable Bodies 3 s.h.
4/1211 Organic Chemistry I 3 s.h.
560/22 Principles of Design II 3 s.h.
*Technical electives 3 s.h.
Humanities or social science electives 4 s.h.
561/91 Professional Seminar 0 s.h.
Total 16 s.h.

Senior Year

First Semester
561/83 Biomedical Engineering Design I 3 s.h.
*Technical electives 3 s.h.
Humanities and social science electives 6 s.h.
561/91 Professional Seminar 0 s.h.
Total 15 s.h.

Second Semester
561/84 Biomedical Engineering Design II 3 s.h.
*Technical electives 3 s.h.
Humanities and social science electives 6 s.h.
561/91 Professional Seminar 0 s.h.
Total 15 s.h.

Electives: the student must take at least three of the seven courses listed below, plus six additional semester hours in appropriate advice-approved engineering, biological, and/or health sciences related courses.

521/144 Biomedical Processes 3 s.h.
550/185 Biomedical Systems Analysis 3 s.h.
541/188 Biomedical Research 3 s.h.
550/183 Biomechanics 3 s.h.
561/179 Biomedical Data Analysis 3 s.h.
561/180 Biomedical Image Processing 3 s.h.
561/188 Apprenticeship in Clinical Engineering 3 s.h.

The technical and social science electives must be selected to satisfy the requirements of the College of Engineering.
Chemical and Materials Engineering

Prosser Hall: 385-202
Degen Hall: 385-203

James G. Olson
Professor Emeritus
N. Kenneth Jamison
Professor Emeritus

Chemical and materials engineering is the art and science of engineering applied to industrial processes in which raw materials are changed 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, coal, and solvents as well as consumer-oriented industries such as plastics, food, fertilizers, pharmaceuticals, cosmetics, paint, and synthetic fibers. They are engaged in research, process and product development, process and plant design, product 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 third position of the course number prefix. Course descriptions are provided in this catalog primarily within the section devoted to the Division of Materials Engineering.

Undergraduate Program

The Bachelor of Science in engineering degree provides the undergraduate student for work in design, development, or sales. The curriculum includes extensive training in chemistry on the same basis as chemistry majors. A sequence of mathematics courses together with the common engineering core courses provides a strong foundation. Undergraduate students have the opportunity to work with faculty members and graduate students on current research topics.

Curriculum

Sophomore Year

First Semester

234.37 Chemistry Calculus III
250.10 Materials Science I
540.11 Introduction to Electrical Science
650.10 3 a.h.
3 a.h.
3 a.h.
3 a.h.

Graduate Program

Chemical and Materials Engineering Program offers curricula leading to the Master of Science degree or the Doctor of Philosophy degree. Through coursework 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 industry. The goals and development. About one-third of the program is devoted to a research project, and a thesis is required for each of the graduate training. All candidates in advanced degree programs are required to assist facility members in teaching or research as part of the graduate training.

Research is currently being conducted in air pollution, environmental, diffusion, flow through porous media, membrane separation, fine particles, reaction kinetics, and transport phenomena. Many research projects are funded by external agencies such as National Science Foundation, NASA, and private industries. Some funded projects are described briefly below.

Air Pollution

The study of transport phenomena of atmospheric pollutants including the analysis and numerical modeling of a variety of reactive fields and combined mass and energy transport is in progress. This research may help assess regional pollution control and energy utilization strategies.

Fine Particles

A group of seniors and graduate students is engaged in research on materials in finely divided form such as dusts, powders, and aerosols. The emphasis of the group is to describe mathematical models and shape and then to relate these to the optical properties of the particles and their behavior. Potential applications include atmospheric pollution phenomena, chemical reactions, coughing and choking, crystallization, grain dust explosions, storage and flow of granular solids, and analysis of machine wear.

Flow Through Porous Media

Knowledge flow and surface diffusion through various microchannel media are being studied. Practical applications are in gas separations, catalysis, and solar refrigeration. Currently a solar energy application is being investigated.

Reaction Kinetics and Catalysis

Hybrid multiphase catalysts are being investigated which combine the advantages of homogeneous and heterogeneous catalysts. Other topics of current interest include fluid-solid...
Mendbrane Separations
- Seawat-novel membrane processes have recently been developed in chemical and materials engineering laboratories. This group is now actively investigating various aspects of these new techniques, such as optimization and design, as well as working on the development of an oxygen generator, and pervaporation processes. A number of industrial gases as well as natural gas can be purified by these processes. These membrane processes can also be applied to spacially confined mixtures such as alcohol and water.

Mechanical Behavior of Cast Steel
- Quantitative, optical, and scanning electron micrograph and metallographic analysis are being used to relate the characteristic features of the fracture surface and the microstructure to experimentally measured bulk mechanical properties such as the fracture toughness, fatigue crack growth rate, etc.

Master of Science
- A thesis or a minimum of 30 semester hours of graduate credit are required, including at least 24 semester hours comprised of courses in residence at the University of Iowa. Work completed in Sevastopol Tuesday classes as residence credit may not exceed eight semester hours. However, six semester hours may be completed in residence at another recognized graduate college or by correspondence study at the University of Iowa. The minimum course work requirement is 24 semester hours (about eight courses), and the remainder of the 30 semester hours is required to research. To be eligible for the M.S. degree, the student is expected to maintain a minimum grade-point average of 3.0 for all graduate courses. Each 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 arranged by members of the examining committee. The examinations may be waived. The rules for the comprehensive examination may be found in the catalog of the Graduate College. There is no foreign language requirement. A final examination, which is a defense of the thesis, constitutes 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 2.5 based on a maximum of 4.0 is required; for the Ph.D. program, the minimum grade-point average is 3.0 based on completed graduate work. Conditional admission may be granted if the above requirements are not fulfilled and if the applicant has demonstrated the aptitude 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. In addition to the Graduate Record Examination, the application, the results of this test should be submitted with the application.

Graduate courses in chemical and materials engineering are designed for the student with a background in chemical engineering or the materials in chemical engineering. However, exceptional students from other areas also may apply for admission to the M.S. or even the Ph.D. program in chemical and materials engineering. Such a student needs to take certain undergraduate courses as background to allow him or her to perform in the graduate courses with minimum difficulty. Since these undergraduate courses are in the nature of make-up courses, must not carry credit toward a graduate degree.

Financial Aid
- A number of fellowships, assistantships, and scholarships are available to graduate students who qualify. These are awarded on a competitive basis.

Civil and Environmental Engineering
- Program chair: Hinton Kone
- Has plans: David M. Are, Debra W. Bracke, Robert H. Bague, Edward J. Hoeg, Hinton Kone, John F. Kennedy, Howard W. McKinley, David B. McDonald, Wayne L. Packard, Yu-Chih Ma
- Assistant professors: Chris W. Berry, Farid A. Lutfi, professor emeritus Joseph A. Knox
- Assistant professor emeritus John G. Schroeder, James L. Storer, Jon G. Tylkowski
- Additional faculty: William A. Brong, Neil B. Feltz, Peter J. Kote, A. D. Cleland
- Adjunct assistant professor Yassef Naito
- Degree offered: B.S.C.E., M.S., Ph.D.

Other Engineering Programs
- Civil engineering is one of 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, seaports, and even spaceports, large-scale structures and office buildings to provide enclosed working and living 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 almost more demanding and familiar tasks of civil and environmental engineers is a steady demand for civil engineers through both public and private sectors, and the variety of tasks that the individual civil and environmental engineer is required to perform. It is his or her career feasibility and the country's ability to thrive that demands.

In planning and design, the civil and environmental engineers work with architects, landscape architects, planners, economists, financiers, contractors, buyers, and other specialists as members of the design team. The civil and environmental engineers in engineering offices, or in the field in representing the projects they have designed. These field assignments, many of which are essential to remote and fascinating parts of the world, are particularly appealing to many civil and environmental engineers.

Courses designed primarily for the civil and environmental engineering program are identified by the digit 3 in the third position of the course number prefix. Course descriptions are provided in this catalog within the sections devoted to the divisions of Energy, Materials, and Systems Engineering. Undergraduate
and graduate handbooks describing program policies and requirements in detail are available upon request.

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. Exposure in the senior year permit greater breadth or additional concentration in such areas as specialization as structural and foundation engineering, environmental engineering, hydraulic engineering, and transportation engineering.

Curriculum

Sophomore Year

First Semester
22M:37 Engineering Calculus III 4 s.h.
590:10 Dynamics 3 s.h.
540:11 Introduction to Electrical Science 3 s.h.
590:15 Materials Science I 3 s.h.
520:16 Thermodynamics I 4 s.h.
Total 17 s.h.

Second Semester
22M:38 Differential Equations for Engineers 4 s.h.
640:12 Linear Systems Analysis 3 s.h.
560:19 Mechanics of Deformable Bodies 3 s.h.
620:20 Mechanics of Fluids and Transient Processes 4 s.h.
29:81 Intermediate Engineering Physics I 3 s.h.
Total 16 s.h.

Junior Year

First Semester
29:82 Intermediate Engineering Physics II 3 s.h.
590:21 Principles of Design I 3 s.h.
560:29 Probability and Statistics for Engineering and Physical Sciences 3 s.h.
563:31 Structural Analysis I 4 s.h.
553:56 Soil Mechanics 3 s.h.
563:91 Professional Seminar 0 s.h.
Total 16 s.h.

Second Semester
540:16 Principles of Electronic Instrumentation 4 s.h.
580:22 Principles of Design II 5 s.h.
553:35 Design of Steel Structures 2 s.h.
523:80 Principles of Hydraulics 4 s.h.
583:85 Elements of Surveying 1 s.h.
563:91 Professional Seminar 0 s.h.
Humaities and social science elective 3 s.h.
Total 16 s.h.

Senior Year

First Semester
563:38 Reinforced Concrete Structures 3 s.h.
582:73 Transportation Engineering 3 s.h.
523:84 Hydraulic Design 3 s.h.
563:31 Professional Seminar 0 s.h.
563:101 Principles of Environmental Engineering 3 s.h.
Humaities and social science elective 3 s.h.
Total 16 s.h.

Second Semester
583:74 Transportation Systems Design 3 s.h.
563:91 Professional Seminar 0 s.h.
Technical electives 6 s.h.
Humaities and social science electives 6 s.h.
Total 16 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 Programs

The graduate program in civil and environmental engineering offers curricula preparing students for professional careers and further study in environmental engineering, environmental science, hydrologic and geotechnical engineering, and water resources.

Hydraulics and Water Resources

The hydraulics and water resources curricula are associated with the Iowa Institute of Hydraulic Research, whose laboratory is world-renowned. The minor staff members of the institute and professors in the program devote about half-time to teaching. The institute offers unique opportunities for students to participate actively in the research, analysis, and design aspects of real world problems. Considerable attention is given to the use of digital computers in mechanical modeling and in the acquisition and processing of data.

The water resources curriculum also has ties to the Institute of Economic Research, the Institute of Urban and Regional Research, and the College of Business, Law, and Liberal Arts. Courses in hydraulics and water resources are described in this catalog within the section devoted to the Division of Energy Engineering.

Environmental Engineering and Science

The environmental engineering curriculum has two basic streams, one engineering and the other applied sciences. This curriculum maintains a heavy emphasis on interdisciplinary research and academic activities with other programs and colleges on campus, including the Institute of Hydraulics Research, the Institute of Agricultural Medicine and Environmental Health, the Institute of Urban and Regional Planning, and the colleges of Business, Law and Liberal Arts. Course work and research permit a general program of study or specialization in one of three areas: water quality management, air quality management, and wastewater and stormwater management. Environmental engineering and science courses are described in the "Division of Energy Engineering" section of the Catalog.

Structures, Mechanics, and Materials

The structures, mechanics, and materials curricula may be directed towards design, analysis, research, or a combination of these. Special strengths exist in the areas of time-dependent behavior of reinforced and prestressed concrete structures, optimal design of structural systems, computer aided design, soil behavior, and constitutive equations for metals and geotechnical materials. Course work and research in structural analysis, structural design, soil mechanics and foundations, appraisals, and design of materials are available. Courses in these areas are described in the "Division of Materials Engineering" section of the Catalog.

Transportation

The transportation curriculum includes work in planning, design, construction, and operation of transportation systems and facilities. A cooperative relationship exists with the graduate program in urban transportation offered by the Center for Urban Transportation (see "Urban Transportation"). Transportation courses are described in the "Division of Systems Engineering" section of the Catalog.

Facilities

Laboratory and other facilities available in the civil and environmental engineering program are described in the "Division of Energy Engineering" and "Division of Materials Engineering" sections of the Catalog.

Master of Science

The Master of Science programs in civil and environmental engineering are designed to permit further concentration in the area or 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 proposed 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 of credit, with not more than 6 semester hours of credit awarded for the thesis. An additional six...
semester hours are required in theanthropos-dimensional engineering courses.

Each student, with the approval of his or her adviser, develops a plan of study which satisfies special requirements of the curriculum chosen by the student. All candidates for the degree are expected to have a minimum grade-point average near 3.0 and are required to pass written and oral examinations.

Doctor of Philosophy
The doctoral degree is granted primarily on the basis of achievement, rather than on a prescribed course of study. Requirements as to semester hours of course work vary somewhat among the various areas of specialty. The candidate will normally need at least three years of full-time work beyond the baccalaureate degree, one year of which is devoted to the preparation of a dissertation which contributes to knowledge in the field. In some specialty areas, a qualifying examination is required during the second semester for students who have not earned an M.S. in one of The University of Iowa graduate programs in engineering.

All doctoral students are required to pass a written and oral comprehensive examination prior to formal admission to candidacy for the degree. This examination is normally taken when substantiality all of the student's course work has been completed.

The program culminates in a final oral examination, which can be successful only if the student has shown himself or herself to be an excellent student.

Doctoral candidates are expected to maintain a minimum 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").

Admission
Each curriculum in the program is quite flexible, and students may be admitted from all disciplines of engineering as well as from the mathematical and basic sciences.

An applicant for the master's degree program is expected to have a cumulative undergraduate grade-point average of at least 2.5; safely, 3.0 is preferred. For admission to candidacy for the doctorate, the minimal grade-point average is 3.2 based upon previous course work. All applicants whose grade-point average are slightly lower will be considered regarding admission possibility.

All applicants must meet the general admission requirements of the Graduate College (see "Graduate College").

Financial Aid
A significant number of research assistantships are available on a variety of research projects, as are a limited number of teaching assistantships and fellowships. Selection of recipients is based on scholastic achievement and research interest.

Electrical and Computer Engineering

Program: Four: Sudhakar M. Reddy
Professor, Department of Electrical Engineering
Department of Electrical Engineering
Department of Computer Science
Department of Information Systems

Assistant professor Shalini S. Nathan
Assistant professor Ramesh G. Subramanian
Assistant professor Paul A. Stodulski
Assistant professor Steven H. Low
Assistant professor Arun Jayaram
Assistant professor Andrew S. M. Cheung
Assistant professor David N. Hsu
Assistant professor Harshal K. Desai
Associate professor Richard W. Deing
Professor, Electrical Engineering
Professor, Computer Science
Professor, Information Systems

Fields of Study

Electrical engineering is concerned with the generation, measurement, transmission, processing, and control of electrical energy and information in the form of electrical signals. The important role of the digital computer in these activities is emphasized by the program in electrical and computer engineering.

Graduates of the program are employed in semiconductor, aerospace, telecommunication, radio, television, computer, and defense industries. With the B.S. degree, the electrical engineer is prepared to do engineering work in design, development, manufacturing, sales, market analysis, consulting, risk service, and management. The emphasis outlook for the foreseeable future is quite favorable.

Courses which have been designed primarily for the electrical and computer engineering program are identified by the digit 5 in the third position of the course number prefix. Course descriptions are provided in this catalog within the section devoted to the Division of Information Engineering.

Undergraduate Program

The undergraduate program leads to a Bachelor of Science in Engineering degree, with a strong emphasis on computer engineering. The curriculum deals with electronics, instrumentation, control and communication systems, and computers.

To prepare the student for the electrical engineering profession, the curriculum provides a strong background in circuits, computers, control systems, electromagnetics, communication theory, electronics, and design. In addition to the basic engineering core of mathematics, engineering design, engineering science, and humanities, technical electives and advanced programs are offered in biological systems, computer systems, electronic circuits, signal processing, digital and control systems, applied physics, power, and solid state devices.

Curriculum

Sophomore Year

First Semester
582:10 Dynamics 3 a.h.
580:18 Thermodynamics I 4 a.h.
580:15 Materials Science I 3 a.h.
542:11 Introduction to Electrical Science 3 a.h.
Total 17 a.h.

Second Semester
26:81 Intermediate Engineering Physics I 3 a.h.
252:38 Differential Equations for Engineers 4 a.h.
542:12 Linear Systems Analyses 4 a.h.
540:18 Principles of Electronic Instrumentation 4 a.h.
540:21 Introduction to Computers in Electrical Engineering 3 a.h.
Total 17 a.h.

Junior Year

First Semester
29:82 Intermediate Engineering Physics II 3 a.h.
580:30 Probability and Statistics for Engineering and Physical Sciences 3 a.h.
542:20 Introduction to Digital Design 3 a.h.
540:40 Electronic Circuits 3 a.h.
540:80 Control Systems 3 a.h.
*540:19 Professional Seminar I 0 a.h.
Total 15 a.h.

Second Semester
24:90 Modern Physics 3 a.h.
540:33 Introduction to Software Design 3 a.h.
540:50 Communication Systems 3 a.h.
540:72 Electromagnetic Theory 3 a.h.
540:84 Principles of Electrical Engineering Design I 3 a.h.
*540:19 Professional Seminar II 0 a.h.
Humanities or social science elective 3 a.h.
Total 18 a.h.

Senior Year

First Semester
540:18 Intermediate Engineering Materials and Devices 3 a.h.
540:85 Principles of Electrical Engineering Design II 2 a.h.
*540:19 Professional Seminar III 0 a.h.
*Technical electives 3 a.h.
Humanities or social science electives 6 s.h.
Technical electives 4 s.h.
Total 10 s.h.
Second Semester
545/65 Principles of Electrical Engineering Design III 3 s.h.
545/81 Professional Seminar 0 s.h.
Technical electives 4 s.h.
Humanities or social science electives 4-6 s.h.
Total 15 s.h.
*Professional Seminar must be taken once in the junior year and once in the senior year.
**Science core electives: 545:136 Microelectronics 3 s.h.
545:137 Microcomputer-Based Systems 3 s.h.
545:140 Elementary Thick and Thin Films 3 s.h.
545:148 Digital Image Processing 3 s.h.
545:164 Computer-Based Control Systems 3 s.h.
545:144 Digital and Linear Integrated Electronics 3 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 electrical and computer engineering program offers courses leading to the Master of Science and Doctor of Philosophy degrees. Thesis and nontechnical M.S. programs are available, and either may precede Ph.D. studies.

Excellence in scholarship and research is stimulated through close contact with the faculty throughout the period of graduate study and through programs tailored to fit individual needs. Each graduate student is regarded as an important member of the program, whose contributions are highly valued.

Each student selects an advisor, and, with the advisor, plans an individual program, with freedom of choice bounded only by a few broad guidelines imposed by the Graduate College and by the program. Foreign languages and research tools, for example, are not required by the Graduate College or by the program, but are introduced into the program by the student and advisor to the extent that they are appropriate in light of the student's goals.

The basic program, which is fundamental to electrical and computer engineering, has wide application, and has resulted in interdisciplinary research in areas such as biomedical engineering, computer systems, and applied mathematics. Graduate students are encouraged to take courses in several interdisciplinary areas. Opportunities are available for the graduate student to choose his or her own interests and participate in a creative effort. Well-established, and funded research laboratories exist in the following areas:

Waves and Materials
Plasma physics, electro-optics, and acoustics investigations utilize specialized laboratories in both the Engineering Building and in the physics research building. Typical projects involve nonlinear wave interaction, plasma instabilities, laser optics, acoustic wave behavior, and ultrasonics.

Engineering in Biology and Medicine
Ultrasound imaging, image processing and speech processing are currently active areas. Research facilities in the Computer Engineering Laboratory, and in the Cardiovascular Image Processing, Ultrasound Imaging, and Microprocessor Laboratories are used in these projects.

Controls and Systems
Mathematical theory of optimal control, time delay systems, adaptive control, applications of modern control theory to robotics and real-time digital computer implementation of various control schemes are under investigation. Mini- and micro-computers are utilized in the controls laboratory to investigate real-time digital control, nonlinear system theory, and digital estimation. Other techniques include applications of automatic control processes to problems in control and communication systems. Current investigations emphasize estimation, identification, and control for stochastic dynamical systems having parameters modeled as jump processes.

Computer Systems
Fault-tolerant subsystem design and reliable system configurations, fault diagnosis, data security, data communications, networks, distributed systems, and self-checking systems are typical project areas.

In cooperation with industry, the program also offers off-campus courses in electrical and computer engineering.

Master of Science
Thesis and nonthesis programs are available. The degree requires at least 30 semester hours of credit in an approved program acceptable to the advisor and the graduate committee. This includes at least 12 semester hours of course work in electrical and computer engineering, including courses required for electrical engineering undergraduate.

With thesis, up to eight semester hours of the 30 semester hours may be research credit.

Without thesis, at least three semester hours of 547:198 Individual Investigations are required in addition to the 12 semester hours in electrical and computer engineering. This independent study is to be a special project completed under the supervision of the electrical engineering program advisor.

The candidate for the master's degree is qualified to design and computer engineering and 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 thesis candidates, or of the materials in 547:198 Individual Investigations, for nontechnical candidates. At the discretion of the advisor, 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 filling 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 approved by the graduate committee, with at least 48 semester hours of credit earned in formal courses, including 30 semester hours in courses numbered 545;
Successful completion of the Ph.D. qualifying examination;
Successful completion of the Ph.D. comprehensive examination;
Successful completion of a research program;
Successful completion of a final oral defense of the thesis and a cumulative grade-point average of 3.50 or higher.

Graduate Admission
The normal requirement for admission to the graduate program is at least a 2.7 grade-point average in courses in electrical and computer engineering, mathematics, and physical sciences for U.S. students, 3.0 for Ph.D. students. As M.S. students are on a grade-point average less than 2.7 but better than 2.5 in courses in electrical and computer engineering, mathematics, and physics may be admitted on probation. Students with baccalaureate degrees in related areas (e.g., physics, mathematics, and computer science) may be admitted. In such cases, additional course work without graduate credit may be required.

Each application is reviewed on an individual basis. Extenuating circumstances may permit deviations from the normal standards.
Financial Aid
A number of fellowships, traineeships, assistantships, scholarships, and industrial grants are available to graduate students who qualify. These are awarded on a competitive basis.

Engineering
Progress chair: George M. Lena
Faculty professors: Sun-Tak Yau, Arthur Koranyi, George Lena, Howard M. McCleary, associate professors: James Johnston, K.B. Chandran

Degree offered: S.S.E., without designation of a major.

The increasing emphasis on interdisciplinary and multidisciplinary career objectives in engineering emphasizes the desirability of having a degree program which combines a strong background in engineering fundamentals with the flexibility of choosing a major elective sequence to achieve specific educational goals of individual students. The primary objective of the engineering program is to provide such an option for students whose goals cannot be achieved within the framework of the designated degree programs.

The objective of the engineering program is to provide the opportunity for each student to develop an individually-tailored course of study. However, a proper balance between breadth and depth must be maintained in order to result in a well-balanced education. To accomplish this, the curriculum contains core courses of sufficient breadth and depth to guarantee an excellent background in engineering fundamentals. The remainder of the program consists of a guided elective sequence.

The major portion of the elective program is scheduled for the final three semesters of a student's program, built from courses acquired in the engineering core courses. In consultation with an adviser, the student's elective sequence is planned to achieve a coordinated program which satisfies the specific objectives of the student. The sequence is selected not later than the fifth semester of study and must be approved by a program review committee. The student is responsible for monitoring the progress of all students in his program and offering suggestions and advice as required.

Curriculum
Sophomore Year
First Semester
228:27 Engineering Calculus II 4 s.h.
520:16 Thermodynamics I 4 s.h.
540:11 Introduction to Electrical Science 3 s.h.
560:15 Materials Science I 3 s.h.
560:10 Dynamics 3 s.h.
Total 17 s.h.

Second Semester
228:38 Differential Equations for Engineers 4 s.h.
540:12 Linear Systems Analysis 3 s.h.
560:19 Mechanics of Deformable Bodies 3 s.h.
560:18 Principles of Electronic Instrumentation 4 s.h.
28:11 Intermediate Engineering Physics I 3 s.h.
Total 17 s.h.

Junior Year
First Semester
560:39 Probability and Statistics for Engineering and Physical Sciences 3 s.h.
228:33 Intermediate Engineering Physics II 3 s.h.
520:20 Mechanisms of Fluids and Transfer Processes 4 s.h.
560:21 Principles of Design I 3 s.h.
*Humanities or social science elective 3 s.h.
Total 16 s.h.

Second Semester
228:33 Modern Physics 3 s.h.
560:29 Principles of Design II 3 s.h.
520:27 Engineering Management Science 3 s.h.
Technical elective *Humanities or social science elective 3 s.h.
Total 16 s.h.

Senior Year
First Semester
Design course 3 s.h.
Technical electives *Humanities or social science elective 3 s.h.
Total 16 s.h.

Second Semester
Design course 3 s.h.
Technical electives *Humanities or social science elective 3 s.h.
Total 16 s.h.

*The humanities and social science electives must be selected to satisfy the required and social science requirements of the College of Engineering.
Undergraduate Program

The undergraduate curriculum in industrial engineering requires a strong foundation of courses in engineering science, mathematics, design, social sciences, and humanities. Advanced courses include specialty courses in management science, production, operations research, quality control, human factors engineering, and information systems.

Curriculum

Sophomore Year

First Semester
580:10 Dynamics 3 s.h.
540:11 Introduction to Electrical Science 3 s.h.
580:15 Materials Science I 3 s.h.
580:27 Engineering Management Science 3 s.h.
223:37 Engineering Calculus III 4 s.h.
Total 16 s.h.

Second Semester
540:12 Linear Systems Analysis 3 s.h.
520:16 Thermodynamics I 4 s.h.
223:58 Differential Equations for Engineers 4 s.h.
580:76 Materials Science II 3 s.h.
Economics electives 3 s.h.
Total 17 s.h.

Junior Year

First Semester
First: 3.11 Elementary Psychology 4 s.h.
25:21 Intermediate Engineering/Physics II 3 s.h.
580:21 Principles of Design I 3 s.h.
580:39 Probability and Statistics for Engineering and Physical Science 3 s.h.
580:71 Materials Processing I 3 s.h.
580:91 Professional Seminar 0 s.h.
Total 16 s.h.

Second Semester
580:22 Principles of Design II 3 s.h.
25:92 Intermediate Engineering/Physics II 3 s.h.
580:19 Informational Seminar 3 s.h.
580:121 Design of Work Methods 3 s.h.
580:140 Operations Research I 3 s.h.
580:185 Human Engineering 3 s.h.
540:18 Principles of Electromechanical Instrumentation 4 s.h.
Total 16 s.h.

Senior Year

First Semester
580:91 Professional Seminar 0 s.h.
580:182 Information Systems Design 3 s.h.
13:115 Psychology in Management 3 s.h.
**Technical electives 9 s.h.
Total 15 s.h.

Second Semester
580:91 Professional Seminar 1 s.h.
580:124 Operational Systems Design 3 s.h.
580:135 Quality Control, Reliability, and Engineering Statistics 3 s.h.
**Humanities elective (100-level) 3 s.h.
Science elective 3 s.h.
**Technical elective 3 s.h.
Total 16 s.h.

The electives may be selected from:
6E:100 Price, Employment, and Production Theory 3 s.h.
6E:103 Microeconomics 3 s.h.
6E:111 Labor Economics 3 s.h.
6E:173 Managerial Economics 3 s.h.
The science elective may be selected from:
580:16 Mechanics of Deformable Bodies 3 s.h.
580:20 Mechanics of Fluids and Transfer Processes 4 s.h.
29:93 Modern Physics 3 s.h.
A biological science course 3 s.h.

**Strongly recommended +total science electives.

**The humanities and social science electives must be selected to satisfy the humanistic and social sciences requirements of the College of Engineering.

**Technical electives. At least 9 of 12 hours are to be selected from the following list. The last course (3 semester hours) is to be chosen with the approval of the academic advisor.
580:141 Operations Research I 3 s.h.
580:142 Production-Inventory Analysis 3 s.h.
580:143 Quantitative Investment Analysis 3 s.h.
580:144 Engineering Economic Decisions 3 s.h.
580:145 Digital Systems Simulation I 3 s.h.
580:157 Advanced Managerial Psychology 3 s.h.
580:198 Advanced Human Engineering 3 s.h.
6E:100 Individual investigations are permitted to the extent of the maximum degree. The nature of the final examination will be specified by the examining committee. It may be comprised of both written and oral parts. The examination will further test the student's course preparation and/or an appropriate individual investigation.

Doctor of Philosophy

Typically, Ph.D. programs in industrial and management engineering contain at least 72 hours of study involving at least 30 hours of dissertation research. Completely paper-based Ph.D. study is discouraged. There is no foreign language requirement or special requirements on research tools.
Financial Aid
A number of quarter-time and half-time graduate student teaching and research assistantships are available. Awards are based on the student’s academic record and upon an assessment of the student’s potential contribution to the research and teaching goals of the program. Advanced graduate students may also qualify for higher stipend instructor positions. Students should apply to the chair of the industrial and management engineering program for further information.

Mechanical Engineering
Program Code: 04-08-01

Curriculum
Sophomore Year
1st Semester
29347 Engineering Calculus III 4 a.h.
58010 Dynamics 3 s.h.
58011 Introduction to Electrical Science 3 s.h.
58015 Materials Science I 3 s.h.
58016 Thermodynamics I 4 s.h.
Total 17 s.h.

Second Semester
29346 Differential Equations for Engineers 4 s.h.
54012 Linear Systems Analysis 3 s.h.
54018 Principles of Electronic Instrumentation 4 s.h.
58019 Mechanics of Deformable Bodies 3 s.h.
29341 Intermediate Engineering Physics I 3 s.h.

Total 17 s.h.

Junior Year
First Semester
58039 Probability and Statistics for Engineers 3 s.h.
29345 Fluid Mechanics 3 s.h.
29342 Intermediate Engineering Physics II 3 s.h.
58021 Principles of Design I 3 s.h.
58032 Mechanics of Fluids and Transfer Processes 4 s.h.
52891 Professional Seminar Humanities or social science elective 3 s.h.
Total 16 s.h.

Second Semester
29343 Modern Physics 3 s.h.
58022 Principles of Design II 3 s.h.
58042 Experimental Engineering I 4 s.h.
58045 Thermodynamics II 3 s.h.
52891 Professional Seminar Humanities or social science elective 3 s.h.
Total 15 s.h.

Senior Year
First Semester
52845 Heat Transfer 3 s.h.
58082 Mechanical Systems Design I 4 s.h.
52891 Professional Seminar Technical electives 8 s.h.
Graduate Program

The mechanical engineering graduate program at both the M.S. and Ph.D. levels is designed to educate students to utilize contemporary methods at an advanced level during a professional career in engineering design, development, and research. Each student’s course of study is based on his or her background, career objectives, and sound academic practice.

Student programs emphasizing fluid mechanics, heat transfer and energy conversion, biomechanics, or mechanical systems may be developed from courses offered by the mechanical engineering program faculty. M.S. students desiring a more general program may combine these emphases, whereas those desiring some specialization may accommodate these preferences through the combination of program courses and appropriate electives from other programs and departments of the College of Engineering and the University. Ph.D. student programs may center in any one of these areas, through the choice of appropriate courses and research topics.

A graduate handbook describing the program policies and requirements in greater detail is available upon request.

Master of Science

Students who have earned a baccalaureate degree in an engineering curriculum or a curriculum in the mathematical or physical sciences may be admitted to the graduate program. Minors in engineering programs are eligible to be considered for admission to the Master of Science degree program in mechanical engineering.

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, but the latter must be taken before the fifth year of 200-level courses. To earn the M.S. degree, the student is required to obtain a minimum grade-point average of 3.0 on a minimum of 30 semester hours of graduate work 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. However, students with assistantship duties or other constraints may require between one and two calendar years to complete the degree.

Doctor of Philosophy

Students who have earned a baccalaureate or post-baccalaureate degree in an engineering curriculum or a curriculum in the mathematical or 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 Graduate Record Examination (GRE) Graduate Test, student research interests, previous graduate study grade-point average, and other factors may also be considered in making the decision to admit a student. Students with a Ph.D. objective, who enter with a baccalaureate degree, are first admitted to the M.S. program.

Typically, Ph.D. programs in mechanical engineering require approximately 60 semester hours of credit, including research for the dissertation, beyond the baccalaureate degree. 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.

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 coursework for the Ph.D. degree. For students graduating with the M.S. degree from the mechanical engineering program at The University of Iowa, the M.S. final examination can be regarded as the Ph.D. qualifying examination, the decision on whether the student's performance is adequate for admission as a Ph.D. student shall be made by the student's committee and the program chair. At the time the student is admitted, a Ph.D. committee is selected by the student and his or her advisor, and approved by the program chair and the graduate dean. The committee shall include at least five faculty members, of whom two must be from outside the program with at least one from outside the College of Engineering.

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. The student must also complete the course work specified in the plan of study and upon the committee's recommendation, the student will be admitted to the comprehensive examination given by the student's committee. The comprehensive examination shall be conducted within 24 months from the date of starting course work for the Ph.D. degree. During this written and oral examination, the student will be examined over all elementary, intermediate, and advanced courses relevant to his or her degree program. The committee will evaluate the general academic standard attained by the student and his or her ability in engineering research. The comprehensive examination will also include the presentation of a dissertation proposal by the student, so the committee can evaluate the student's academic preparation for the proposed research. Having satisfactorily completed the examination, the student normally has only to complete and defend the dissertation.

Requirements for the Ph.D. degree can generally be completed in two to three years beyond the master’s degree.

Financial Aid

Financial support is available to M.S. as well as Ph.D. students, primarily through research and teaching assistantships from the Division of Energy Engineering, the Division of Materials Engineering, the Iowa Institute of Hydraulic Research, the Center for Materials Research, the Center for Computer Aided Design, and the College of Engineering. These awards are made on a semester, academic year, or one-year basis. Awards and reappointments are competitive and students who fulfill their academic and teaching expectations and responsibilities adequately and continue to make satisfactory progress toward their degree objective will receive preference in the awarding of new assistantships. Advanced doctoral students may also qualify for higher stipend assistant professor positions. All applications for financial support should be sent directly to the mechanical engineering program chair.
The responsibilities of the Division include the development and teaching of courses at all levels, and the maintenance of a world-class research program and the conduct of basic and applied research in the disciplines of fluid, thermal, and environmental engineering. The Division's goal is to maintain excellence in teaching and scholarly activities, while remaining responsive to the changing engineering needs of society and its demands upon the engineering profession.

The applications of the fundamental principles of biological, chemical, fluid, and thermal sciences to the design of engineering components and projects; to the production, distribution, and utilization of water, energy, and materials; to the prevention of the ever-increasing, interaction between engineering and health sciences are conveyed to the undergraduate student through a series of courses. As an introduction to these basic principles, the fundamental course is offered in chemical, civil, and mechanical engineering. Expanded undergraduate courses highlight the continuing interaction between engineering and other fields of learning concerning problems of energy and environment.

The graduate level offers courses in environmental sciences, engineering sciences, fluid mechanics, hydraulic engineering, and water resources for students pursuing advanced degrees in the civil and environmental engineering and mechanical engineering programs.

The Division offers courses and research opportunities in the following major disciplinary areas:

**Fluid Mechanics**
- Dispersion and diffusion of passive and reactive species in rivers and lakes; experimental and theoretical studies of turbulent boundary layers; wakas, jets, and plumes; atmospheric dispersion; acid rain; unsaturated and saturated flow; and numerical solutions of problems in ship hydrodynamics; and salt in the long-range flow phenomena in streams; studies of flow in systems; and wind loads on structures; detection and removal of anisotropic properties; and heat- and mass-aniso-anisotropy; real-time acquisition and processing of data.

**Thermal Sciences**
- Biological heat transfer; dynamics of aerocollaboration; radiative heat transfer through real gases; radiative properties of rough surfaces; remote infrared measurement; energy transfer; performance and heat transfer studies of solar-energy collectors and thermal storage systems; heat transfer in energy systems; numerical methods in heat transfer; conversion of biomass to fuels; power-plant cooling systems; aerodynamics of power production.

**Hydraulic Engineering**
- Design, modeling, and on-site testing of bridge and culvert structures; river management; thermal discharges into natural water bodies; cooling tower performance; sediment transport; formation of ice covers and ice jams; strength of ice; and flow on ice structures.

**Water Quality**
- Mathematical modeling of water quality in streams and optimal analysis of resources to control water pollution; removal of trace elements in water treatment; kinetics of nitrification in streams; studies of metalization in wastewater treatment; disposal of sewage from municipal and industrial wastewater treatment; anaerobic treatment of sewage; gas scrubber wastes; biological treatment of high strength thermal sewage conditioning wastes; toxicity of toxic and hazardous wastes; and oil spills.

**Water Resources**
- Hydrology and water resources management; reservoirs, stochastic hydrology, systems analysis, watershed modeling; and water utilization by water heat management.

**Special Laboratories and Facilities**

**Undergraduate Instruction**
- The Division offers undergraduate courses on fluid and thermal sciences in the Engineering Building and contains one of the world's largest water tables; various air, water, and oil flow devices; and facilities for numerous small-scale experiments which demonstrate the principles of mass, momentum, and energy transfer. These specialized experiments are also performed in the other laboratories of the Division and with the facilities of the Iowa Institute of Hydraulic Research. Conventional techniques in the environmental sciences are performed at the laboratories in the University Water Plant and the P.F. Morgan Sanitary Engineering Laboratory.

**Fluids and Hydraulics Laboratories**
- Since most members of the senior research staff of the Institute of Hydraulic Research hold professorial appointments in the Division of Energy Engineering, the teaching and research functions of the division are closely connected with the research and consulting activities of the Institute, particularly in the areas of fluid mechanics, hydraulic engineering, flow instrumentation, water resources, and the aspects of thermal sciences related to diffusion and disposal of waste heat in water.

**The Institute houses some of the most recent research facilities in the world,** including a 330-foot towing tank, several hydraulic flumes and wind tunnels, a dispersion flume, a waste tank, special low-temperature flow facilities for investigation of ice phenomena, and an environmental hydraulic flume for modeling of atmospheric flows. A new refrigerated water tank is under construction. The Institute is also equipped with data acquisition and control systems based on HP-1000 computers for real-time recording, storage, and analysis. The Institute's total data gathered as various projects in the laboratory.

**Environmental Engineering Laboratories**
- Experimental research is conducted in the solar energy, thermal radiation, and heat transfer laboratories for heating and cooling building. These are served by a central computer laboratory equipped with terminals and a computer-based data acquisition system for the computer laboratory. The University computing center. Specialized equipment consists of a solar-collector test stand with experimental solar simulation. The equipment consists of a solar-assisted distillation system; electric and acoustic aerocollaboration apparatus; a HP computer-utility with spectrophotometric diagnostic equipment, a spectral biodiagnostic bacteriological for radiant property measurements, and two-channel visible and laser anemometers.

**Environmental Engineering Laboratories**
- Research in environmental engineering is conducted in the Division's Philip F. Morgan Sanitary Engineering Research Laboratory at the Iowa City Municipal Water Treatment Plant, and in the water plant laboratory at the University Water Treatment Plant.
Division of Energy Engineering/ENGINEERING

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523.154 Environmental Microbiology
3.4.3

Principles and applications with emphasis on waste water treatment and air pollution monitoring.

523.155 Epidemiology
3.4.3

Descriptive, analytical, and biologic-epidemiology techniques and their application to specific urban, industrial, and other environmental problems.

523.156 Environmental Operations and Problems
3.4.3

Theory of planning, planning, analysis and operations and processes in urban and wastewater treatment. Prerequisites: ECE 201E, 203E, and 205E.

523.157 Environmental Engineering Design
3.4.3

Practical aspects of the design of water and wastewater systems. Prerequisites: 523.156 and 523.158.

523.166 Acquisition of Solid Waste
3.4.3

Sources, characteristics, and controls of solid waste. Performance, efficiency, and economics of solid waste control systems. Prerequisites: 523.166 and 523.167.

523.167 Environmental Technologies
3.4.3

Characteristics, sources, and effects of air pollutants; techniques for assessment and control of air pollutants, including statistical modeling, sampling, and the design of air quality control systems. Prerequisites: 523.166 and 523.168.

523.200 Advanced Environmental Systems Design
3.4.3

Physical, chemical, and biological transport of natural gas and surface waters, and the effects of polluted discharges on water quality. Prerequisites: ECE 320E and 523.169.

523.210 Environmental Systems Modelling
3.4.3

Mathematical modeling of environmental processes, including Aquatic, biophysical, and marine processes. The design and development of computer models for simulation of existing systems. Prerequisites: 523.170 and 523.171.

523.220 Advanced Environmental Chemistry
3.4.3

Chemical and biochemical reactions and instrumental methods in the analysis of water and marine systems. Prerequisites: 523.166 and 523.167.

523.230 Advanced Environmental and Instrumental Techniques in Environmental Science
3.4.3

Study of emerging and current environmental issues related to environmental science and technology, with emphasis on advanced laboratory techniques and methods. Prerequisites: 523.166 and 523.167.

523.245 Environmental Toxicology
3.4.3

Toxicology principles related to the effects of metals, persistent organic pollutants, and other environmental contaminants in living organisms. Prerequisites: 523.166 and 523.167.

523.250 Industrial Water Quality Control
3.4.3

Quantity, quality, and treatment of various industrial and municipal water supplies. Water legislation and water resources management. Prerequisites: 523.166 and 523.167.

Fluid Mechanics

523.350 Intermediate Mechanics of Fluids
3.4.3

Continuum mechanics of the equations of fluid flow: conservation of mass, momentum and energy, boundary problems, similarity and dimensional analysis, boundary layer theory, free convection, wave propagation, and other topics. Prerequisites: 523.168.

523.355 Intermediate Mechanics of Fluids I
3.4.3

Intermediate mechanics of fluid mechanics: boundary layer concepts; laminar boundary layers, wakes, and jets; unsteady and three-dimensional flow; separated wakes, and jets; and compressible turbulent boundary layer and turbulent flow. Continuation of 523.350, which is prerequisite.

523.356 Intermediate Mechanics of Fluids II
3.4.3

Unsteady and turbulent boundary layer concepts; laminar boundary layers, wakes, and jets; unsteady and three-dimensional flow; separated wakes, and jets; and compressible turbulent boundary layer and turbulent flow. Continuation of 523.350, which is prerequisite.

523.357 Experimental Methods in Fluid Mechanics
3.4.3

Design and execution of several experiments, emphasizing the flow regime required to perform, the experiment and interpret the results, experimental kinematics on solid bodies, and experimental methods. Prerequisites: 523.353.

523.360 Complex Fluid Flow Theory
3.4.3

Theoretical advances in compressible fluid flow theories. Kinematics of compressible flow; interaction of compressible and incompressible flows; flow with vortexes and corner zones; and with and without rotating walls, and with and without vortices in the flow system. Prerequisites: 523.361 and 523.362.

523.361 Experimental Fluid Dynamics
3.4.3

Basic phenomena in compressible fluids; kinematics of compressible and incompressible flows; interaction of compressible and incompressible flows; and interaction of compressible and incompressible flows. Prerequisites: 523.361 and 523.362.

523.362 Boundary Layer Theory
3.4.3

In-depth boundary layer theory, including influence of compressibility, heat and mass transfer, turbulence, stability, and thermal nonequilibrium. Prerequisites: 523.361 and 523.362.

523.363 Hydrodynamics II
3.4.3

Intermediate and shallow water systems; flow in rivers, lakes, and oceans; wave motion, breakers, and currents; wave energy; coastal dynamics; and river and estuarine dynamics. Prerequisites: 523.360 and 523.361.

523.364 Materials and Architectural Techniques in Environmental Science
3.4.3

Survey of materials and architectural techniques in environmental science, with emphasis on recent developments in environmental science and the impact of environmental science on architectural design. Prerequisites: 523.363, 523.364, and 523.365.

523.365 Building Physics
3.4.3

Building physics and architectural techniques in environmental science, with emphasis on recent developments in environmental science and the impact of environmental science on architectural design. Prerequisites: 523.363, 523.364, and 523.365.

523.366 Environmental Fluid Mechanics
3.4.3


523.367 Environmental Fluid Mechanics
3.4.3


523.368 Hydrology
3.4.3

Hydrology principles and applications, including water resources, water quality, and water management. Prerequisites: 523.350 and 523.353.

523.369 Hydrology
3.4.3

Hydrology principles and applications, including water resources, water quality, and water management. Prerequisites: 523.350 and 523.353.

523.370 Hydraulic Problems in Fluid Mechanics
3.4.3

Study of turbulence and wave phenomena, including flow with and without rotation, flow with vortexes and corner zones, wake flows, and boundary layer flows. Prerequisites: 523.360 and 523.361.

523.371 Geophysical and Ecological Fluid Dynamics
3.4.3

Geophysical and ecological fluid dynamics, including the effects of wind and waves on coastal environments, ocean circulation, atmospheric circulation, and other topics. Prerequisites: 523.360 and 523.361.

523.372 Oceanography
3.4.3

Introduction to the study of oceanography, including the physical, chemical, and biological aspects of the oceans and their interaction with the atmosphere. Prerequisites: 523.360 and 523.361.

523.373 Oceanography
3.4.3

Introduction to the study of oceanography, including the physical, chemical, and biological aspects of the oceans and their interaction with the atmosphere. Prerequisites: 523.360 and 523.361.

523.374 Oceanography
3.4.3

Introduction to the study of oceanography, including the physical, chemical, and biological aspects of the oceans and their interaction with the atmosphere. Prerequisites: 523.360 and 523.361.

523.375 Oceanography
3.4.3

Introduction to the study of oceanography, including the physical, chemical, and biological aspects of the oceans and their interaction with the atmosphere. Prerequisites: 523.360 and 523.361.

523.376 Oceanography
3.4.3

Introduction to the study of oceanography, including the physical, chemical, and biological aspects of the oceans and their interaction with the atmosphere. Prerequisites: 523.360 and 523.361.

523.377 Oceanography
3.4.3

Introduction to the study of oceanography, including the physical, chemical, and biological aspects of the oceans and their interaction with the atmosphere. Prerequisites: 523.360 and 523.361.

523.378 Oceanography
3.4.3

Introduction to the study of oceanography, including the physical, chemical, and biological aspects of the oceans and their interaction with the atmosphere. Prerequisites: 523.360 and 523.361.

523.379 Oceanography
3.4.3

Introduction to the study of oceanography, including the physical, chemical, and biological aspects of the oceans and their interaction with the atmosphere. Prerequisites: 523.360 and 523.361.

523.380 Oceanography
3.4.3

Introduction to the study of oceanography, including the physical, chemical, and biological aspects of the oceans and their interaction with the atmosphere. Prerequisites: 523.360 and 523.361.
Division of Information Engineering

Chair: Shujiro M. Reddy
Professor, Department of Electrical Engineering and Computer Science

This division operates at the intersection of computer science, electrical engineering, and information systems. It focuses on the development of new technologies for managing, processing, and analyzing large volumes of data. The division conducts research in areas such as data mining, machine learning, and artificial intelligence, with applications ranging from healthcare and finance to transportation and social media.

Computer Systems
Fault-tolerant subsystem design and reliable-system configurations are typical project areas. Other topics include security, data compression, networks, and self-certifying systems.

Facilities
The Computer Engineering Laboratory supports undergraduate and graduate teaching and research in the areas of real-time computer applications. This laboratory is built around PDP-11 microcomputers with magnetic tape, disk storage, multiple terminals, a line printer, and a graphics terminal. Other peripherals include A/D converters, D/A converters, real-time clocks, and digital input/output interfaces. This laboratory also supports research and teaching in image processing and includes a video camera for digitizing images, a frame image processing system with a high-resolution color monitor, and a digitizing graphics tablet. This laboratory is connected to the campus computer communications network.

The Microprocessor Laboratory supports teaching and research activities in microprocessors and their applications. The laboratory has a broad range of commercially available microprocessor systems. These include both single-board development systems and installation board processors. The laboratory supports general electromechanical applications, control, and signal processing.

The Electro-optic Laboratory is utilized for demonstrations and graduate research in coherent optics. Typical projects concern the applications of lasers to communications, metrology, signal processing, and optical interconnections. Ultrasonic waves. The laboratory is equipped with research-grade Nd:YAG lasers, a variety of optical benches, and associated electrical instruments.

The Plasma Physics Laboratory operates in conjunction with the Department of Electrical Engineering and the Department of Applied Physics. Experiments are performed in several large vacuum chambers with microwave and conduction heating devices. Investigations are carried out on plasmas, instabilities, double layers, linear and nonlinear wave phenomena, and wave-wave interactions.

The Hybrid Microelectronics Laboratory has facilities for fabricating thick and thin-film hybrid circuits. The laboratory is used for teaching and research in the areas of thin films, materials, circuit miniaturization, computer devices, and transistors.

The Ultrasonic Imaging Laboratory uses the design and study of engineering solutions in the non-invasive ultrasonic imaging of soft tissues. Ongoing projects include ultrasonic properties of soft tissues,

Seminars, Advanced Topics, and Research

2501: Professional Seminar
2502: Advanced Topics in Electrical Engineering
2503: Advanced Topics in Electronics Engineering
2504: Advanced Topics in Digital Systems Engineering
2505: Advanced Topics in Computer Science

Research is encouraged in the appropriate programs as well as interdisciplinary areas of current interest. Well established and funded research laboratories exist in the following special areas:

Waves and Materials
- Plasma physics, electro-optics, and acoustics
- Investigations of specialized laboratories in both the Engineering Building and Van Allen Hall. Typical projects involve laser wave interaction, plasma instabilities, laser optics, acoustic wave behavior, and ultrasonics.

Engineering in Biology and Medicine
- Ultrasonic imaging, image processing, and speech processing are currently active areas. Research facilities in the Computer Engineering Laboratory, Cardiac-gusasonic Image Processing and Ultrasound Imaging Laboratories, and Image Processing Laboratory are used in these projects.

Control and Systems
- Mathematical theory of optimal control, time delay systems, adaptive control, optimization of modern control theory to robotics, and real-time digital computer implementation of control algorithms. Several control schemes are under investigation. In the control laboratory, investigation of real-time digital control, nonlinear system theory, and digital estimation utilizing finite and micro-computers. Other topics include applications of stochastic processes to problems in control and communication systems. Current investigations emphasize estimation, identification, and control for stochastic dynamical systems having parameters modeled as jump processes.
Division of Materials Engineering

Chair: Ken Misra
Associate Chairs: Sarah L. Arons, John E. Bedworth, Dan E. Branch, Gregory R. Carmichael, Edward J. Henley, Asha Soni, Joanne B. Howard, S. Lulea, George M. Lucea, Yong Liu, Howard W. McClellan, Janet C. Oehler, Rainer Rupp, Rajesh S. Srinivasan, John E. Time, and Victor Wydich

The primary goal of the division is the analytical and experimental study of material behavior, the establishment of pertinent physical laws, and the application of such laws to engineering situations.

The division is responsible for developing and operating courses of instruction, associated laboratories, and graduate study in materials engineering within the biomedical, chemical and materials, civil and environmental, industrial, and mechanical engineering programs. The curricular areas associated with the programs are materials science and engineering, structural analysis and design, chemical and transport processes, and rheology and mechanical systems.

The division supports research activity by faculty, students, and industry through the division and assists in the recruitment of qualified students and researchers. Research in the division encompasses experimentation in and mathematical representation of the rheological behavior of materials at the phenomenological and microscale; level, basic study of transport processes with particular emphasis on mechanisms of diffusion and surface phenomena, modern optimization theories as they relate to the analysis and design of complex structural and mechanical systems; failure of materials through experimentation and basic understanding of failure mechanisms; application of the principles of continuum and theoretical mechanics to the analysis of biophysical systems and the design of prosthetic devices; study of the properties of granular media, including the effect of particle shape on physical properties of materials; and study of the laws of behavior of concrete and composite materials and the design of large structures.
Biomechanical Engineering Laboratories
The Bioengineering Laboratory is equipped for research in biomechanics and modeling associated with biomedical systems. Equipment includes a photo-electric photofluorometer, photoelastic strain records, heart rate monitors, and recording equipment.

The Hydraulics Laboratory is equipped for research in cardiovascular fluid dynamics. Equipment includes a Laser Doppler Anemometer System for high-speed and low turbulence, and a variety of other biomedical instruments for the study of cardiovascular fluid flow.

Chemical Engineering Laboratory
Located in the Chemistry-Engineering Building, this laboratory includes pilot-plant equipment for the study of industrial evaporation, distillation, drying, fluid flow, and heat transfer. In addition, there are a number of pneumatic and mechanical systems for the study of steam and water treatment. The laboratory also contains a variety of other equipment, including a variety of high-temperature furnaces and a variety of other biomedical instruments for the study of fluid flow.

Electron Microscope Laboratory
This laboratory is equipped for research in electron microscopy and the necessary specimen preparation equipment. It is equipped for the study of biological, chemical, and physical systems and can be used for research in the field of electron microscopy.

Materials Processing Laboratories
This facility consists of metal casting and welding, metal cutting, and heat treatment and metallurgical laboratories. The facility includes a well-equipped laboratory for the study of materials and a variety of other biomedical instruments for the study of metal cutting.

Materials Testing Laboratories
These laboratories include specialized equipment for the study of materials and a variety of other biomedical instruments for the study of materials. The laboratory also contains a variety of other biomedical instruments for the study of metal cutting.

Structural Testing Laboratory
This laboratory is equipped for the study of the properties of materials in engineering construction, including the study of metal and structural properties of materials. The laboratory also contains a variety of other biomedical instruments for the study of metal cutting.

Courses
Engineering Core
1. Principles of Engineering
2. Introduction to Engineering
3. Survey of current developments in engineering

Materials Science
4. Engineering Graphics
5. Materials Science

Materials Processing
6. Fundamentals of Physical Metallurgy
7. Fundamentals of Mechanical Metallurgy

Biomechanics
8. Biomechanics
9. Biomechanics

Chemical Engineering
10. Chemical Engineering
11. Chemical Engineering

Electron Microscopy
12. Electron Microscopy
13. Electron Microscopy

Materials Processing
14. Materials Processing
15. Materials Processing

Materials Testing
16. Materials Testing
17. Materials Testing

Structural Testing
18. Structural Testing
19. Structural Testing

Division of Systems Engineering/ENGINEERING

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demand. Offered every semester. Prerequisite: COS 250 and 350. 3 h.

350:141 Qualitative Investment Analysis 3-4 h.

350:143 Business and Society 3-4 h.

350:150 Quantitative Investment Analysis 3-4 h.

350:153 Investments and Security Analysis 3-4 h.

350:158 Corporate Finance 3-4 h.

350:161 Business Decision Making 3-4 h.

350:171 Business Ethics 3-4 h.

350:173 Business Law 3-4 h.

350:180 Business Communications 3-4 h.

350:191 Ethical Decision Making 3-4 h.

350:221 Statistical Analysis and Principles of Engineering 3-4 h.

350:222 Linear Algebra and Matrix Theory 3-4 h.

350:223 Discrete Mathematics and Logical Reasoning 3-4 h.

350:224 Mathematical Programming 3-4 h.

350:225 Operations Research I 3-4 h.

350:226 Operations Research II 3-4 h.

350:227 System Analysis 3-4 h.

350:230 Supply Chain Management 3-4 h.

350:231 Business Information Systems 3-4 h.

350:232 Information Systems Management 3-4 h.

350:233 Information Systems Design 3-4 h.

350:234 Information Systems Implementation 3-4 h.

350:235 Information Systems Evaluation 3-4 h.

350:236 Information Systems Security 3-4 h.

350:237 Information Systems Management 3-4 h.

350:238 Information Systems Economics 3-4 h.

350:239 Information Systems Ethics 3-4 h.

350:240 Information Systems Policy 3-4 h.

350:241 Information Systems Law 3-4 h.

350:242 Information Systems Regulation 3-4 h.

350:243 Information Systems Standards 3-4 h.

350:244 Information Systems Architecture 3-4 h.

350:245 Information Systems Technology 3-4 h.

350:246 Information Systems Management 3-4 h.

350:247 Information Systems Project Management 3-4 h.

350:248 Information Systems Implementation 3-4 h.

350:249 Information Systems Evaluation 3-4 h.

350:250 Information Systems Security 3-4 h.

350:251 Information Systems Economics 3-4 h.

350:252 Information Systems Ethics 3-4 h.

350:253 Information Systems Policy 3-4 h.

350:254 Information Systems Law 3-4 h.

350:255 Information Systems Regulation 3-4 h.

350:256 Information Systems Standards 3-4 h.

350:257 Information Systems Architecture 3-4 h.

350:258 Information Systems Technology 3-4 h.

350:259 Information Systems Management 3-4 h.

350:260 Information Systems Project Management 3-4 h.

350:261 Information Systems Implementation 3-4 h.

350:262 Information Systems Evaluation 3-4 h.

350:263 Information Systems Security 3-4 h.

350:264 Information Systems Economics 3-4 h.

350:265 Information Systems Ethics 3-4 h.

350:266 Information Systems Policy 3-4 h.

350:267 Information Systems Law 3-4 h.

350:268 Information Systems Regulation 3-4 h.

350:269 Information Systems Standards 3-4 h.

350:270 Information Systems Architecture 3-4 h.

350:271 Information Systems Technology 3-4 h.

350:272 Information Systems Management 3-4 h.

350:273 Information Systems Project Management 3-4 h.

350:274 Information Systems Implementation 3-4 h.

350:275 Information Systems Evaluation 3-4 h.

350:276 Information Systems Security 3-4 h.

350:277 Information Systems Economics 3-4 h.

350:278 Information Systems Ethics 3-4 h.

350:279 Information Systems Policy 3-4 h.

350:280 Information Systems Law 3-4 h.

350:281 Information Systems Regulation 3-4 h.

350:282 Information Systems Standards 3-4 h.

350:283 Information Systems Architecture 3-4 h.

350:284 Information Systems Technology 3-4 h.

350:285 Information Systems Management 3-4 h.

350:286 Information Systems Project Management 3-4 h.

350:287 Information Systems Implementation 3-4 h.

350:288 Information Systems Evaluation 3-4 h.

350:289 Information Systems Security 3-4 h.

350:290 Information Systems Economics 3-4 h.

350:291 Information Systems Ethics 3-4 h.

350:292 Information Systems Policy 3-4 h.

350:293 Information Systems Law 3-4 h.

350:294 Information Systems Regulation 3-4 h.

350:295 Information Systems Standards 3-4 h.

350:296 Information Systems Architecture 3-4 h.

350:297 Information Systems Technology 3-4 h.

350:298 Information Systems Management 3-4 h.

350:299 Information Systems Project Management 3-4 h.

350:300 Information Systems Implementation 3-4 h.

350:301 Information Systems Evaluation 3-4 h.

350:302 Information Systems Security 3-4 h.

350:303 Information Systems Economics 3-4 h.

350:304 Information Systems Ethics 3-4 h.

350:305 Information Systems Policy 3-4 h.

350:306 Information Systems Law 3-4 h.

350:307 Information Systems Regulation 3-4 h.

350:308 Information Systems Standards 3-4 h.

350:309 Information Systems Architecture 3-4 h.

350:310 Information Systems Technology 3-4 h.

350:311 Information Systems Management 3-4 h.
Graduate College

The University of Iowa has been a leading center of advanced study for three-quarters of a century. Presently, nearly one-fourth of its enrollment is in the Graduate College. This unusually high ratio reflects the breadth of the University's graduate programs and resources, the strength of a graduate faculty with a long tradition of personal and professional concern for students, and the opportunities afforded graduate students for involvement, recognition, and support.

The Graduate College is responsible for the review and approval of proposals for new graduate programs and for the periodic survey and evaluation of existing programs. Through the administration of scholarship, fellowship, and research funds, the Graduate College encourages research and strengthening of departments. It offers extensive assistance to individual faculty members in 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 Fine Arts (M.F.A.), Educational Specialist (Ed.S.), Master of Social Work (M.S.W.), Doctor of Philosophy (Ph.D.), and Doctor of Musical Arts (D.M.A.) degrees.

The college currently confers degrees in the following major fields:

- Accounting—M.A.
- Also-American Studies—M.A.
- American Studies—M.A., Ph.D.
- Anatomy—M.S., Ph.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.*, 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.
- Comparative Law—M.D.L., Ph.D.
- 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.
- Greek—M.A.*
- History—M.A.*, Ph.D.
- Home Economics—M.A.*, M.S.
- Industrial and Management Engineering—M.S., Ph.D.
- Journalism—M.A.*
- Latin—M.A.*
- Library Science—M.A.
- Linguistics—M.A.*, Ph.D.
- Mass Communications—Ph.D.
- Mathematics—M.S.*, Ph.D.
- Mechanical Engineering—M.S.*, Ph.D.
- Mechanics and Hydraulics—M.S.*
Graduate College is 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 convey graduate degree programs for students with academic, professional, research, or service career interests in aging. An entry is made on a student's transcript satisfying completion of an approved minor drawn from courses 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 science is a broadly-based, interdisciplinary program leading to the Ph.D. degree. The student combines study of advanced mathematics, one science (behavioral, biological, engineering, physical, or medical), and the methods of applied mathematics. See "Applied Mathematical Science" in the "College of Liberal Arts" section of the Catalog for a list of faculty and a further description of the program.

Committee on International and Comparative Studies

The Committee on International and Comparative Studies was established in 1981, to coordinate and support international studies at The University of Iowa. The committee, through its CICS, embraces five interdisciplinary programs: Asian Civilizations, Latin American Studies, Women in Development, and the Center for Development Studies. Faculty participants in these programs are drawn from members of the College of Liberal Arts and students across the University. Three of the five programs in CICS are primarily instructional in nature: Asian Civilizations, Latin American Studies, and Global Studies (for further details, see the appropriate sections of this Catalog under "College of Liberal Arts"). The Center for Development Studies and the Women in Development program concern themselves with faculty research, CICS support of the five programs consists of sponsoring more than thirty public lectures on international topics during the academic year, organizing faculty research colloquia, maintaining a small library of periodicals on international affairs, advising students, and funding. The Center also publishes the International Studies Newsletter six times a year.

Evolutionary Ecology and Behavior

Program directors: Hugh Dingle, Stephen Handlin

Program in evolutionary ecology and behavior, emphasizing adaptation, the genetic basis of adaptation, and natural selection. Particular strengths of the program are behavioral and quantitative genetics, quantitative methods in ecology and behavioral ecology, plant-animal interactions, and tropical biology. There are real and strong emphasis on interplay between controlled experimentation and field observation. Laboratory research may include controlled breeding experiments in which heritability, gene-environment interactions, and genetic covariance of neurophysiological, behavioral, life history, or other traits are investigated. Field research utilizes the adaptive significance of traits.

Program and Facilities

The departments of Botany and Zoology offer an interdisciplinary study leading to the M.S. and Ph.D. degrees with specialization in ecology and behavior. Field research utilizes the adaptive significance of traits. Opportunities for field research are provided by the Campus Natural Area and the Wapello Lake Facility in northeast Iowa.

Fieldwork by faculty and students also takes place worldwide. Recent field studies have been conducted in East Asia, Thailand, Eritrea, Aot, 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, the Panama National Park, and Costa Rica are among the sites used by staff and students.

The University of Iowa is a member of the Quail Center for Tropical Studies and regularly sends students to the Tropical Ecology Center in Costa Rica. In addition, the JH is a member of the Quail Center for Tropical Studies and regularly sends students to the Tropical Ecology Center in Costa Rica.
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 easels, walk-in environment chambers, computer terminals, a 2DC-MB, and a PDP-12 computer. There is ample space for housing a variety of organisms including molluscs, mites, prairie dogs, milkwaves, orchids, insects, leaf-cutter ants, marine and freshwater invertebrates, tadpoles, and prudential and randard fish. The botany greenhouse contains not only experimental plants, but also a large collection of desert, jungle, aquatic, economic, and forest trees. In the botany herbarium are more than 200,000 specimens, including the Conrad herbarium of bromeloids and the Martin collection of fungi and slime molds. The Museum of Natural History, an institutional member of the American Association of Systematic Collections, houses more than 900,000 natural science specimens, with birds and mammals particularly well represented among the vertebrates. The atmosphere at Los is friendly and cooperative and the approach multidisciplinary.

Students may design their graduate programs to take advantage of collaboration, consultation, coursework, and co-op opportunities with members of the disciplines represented by the Ph.D. programs in anthropology, botany, computer science, ethnobotany, entomology, neurosciences, physiology, psychology, and zoology. Students are encouraged to participate in departmental affairs and may hold positions of responsibility on faculty committees.

Financial Support
All Ph.D. programs offer financial support. Teaching assistantships, research assistantships, fellowship stipends, and predoctoral training fellowships are available. In addition, each year two outstanding incoming graduate students are selected to be on the TRF award, a teaching/research fellowship. The Bodine Fund assists student travel for study. Predoctoral students may apply for the Postdoctoral Associate-in-Instruction Program of the NSF fellowships for students in behavior. Postdoctoral students may compete for seed grants from the University. Computer funds are available for graduate students, postdoctoral, and faculty. For further information and application materials, contact the Department of Zoology or the Department of Botany.

Genetics
The Ph.D. program in genetics is an interdisciplinary program involving members of the departments of Biochemistry, Botany, Microbiology, and Zoology, as well as a number of faculty members in clinical departments. See "Genetics" in the "College of Liberal Arts" section of the Catalog for a list of Participating faculty, degree requirements, and courses offered.

Joint Law and Graduate Degree Programs
Joint programs with the College of Law and a number of departments in the Graduate College have been developed under which students can simultaneously pursue degrees in both colleges. For further details see "College of Law" section of the Catalog.

Joint Programs within the Graduate College
Various joint programs have been developed whereby students simultaneously work toward two graduate degrees. Consult the appropriate sections of this Catalog for further information. Established joint programs include:

- Business Administration/Library Science
- Hospital and Health Administration/Urban and Regional Planning
- Social Work/Urban and Regional Planning
- Preventive Medicine and Environmental Health/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.

Neural and Behavioral Sciences
Program chair: John A. Harvey
Members: Paul A. Halasz (student), Irina A. Gerasimenko (student), Karen K. Yee (Department), Ronda X. Harley (Department), Michael J. Barbin (Department), Keith D. Miller (Department), David R. Meier (Department), Robert R. Kline (Department), Robert F. Gellis (Department), and Sarah P. Gellis (Department). See "Neural and Behavioral Sciences" in the "College of Liberal Arts" section of the Catalog for a list of participating faculty, degree requirements, and courses offered.

Financial Support
All Ph.D. programs offer financial support. Teaching assistantships, research assistantships, fellowship stipends, and predoctoral training fellowships are available. In addition, each year two outstanding incoming graduate students are selected to be on the TRF award, a teaching/research fellowship. The Bodine Fund assists student travel for study. Predoctoral students may apply for the Postdoctoral Associate-in-Instruction Program of the NSF fellowships for students in behavior. Postdoctoral students may compete for seed grants from the University. Computer funds are available for graduate students, postdoctoral, and faculty. For further information and application materials, contact the Department of Zoology or the Department of Botany.

Admission
The program admits predoctoral students after they have been accepted for Ph.D. study in a department of the University. Students are admitted to the program following review of their academic records by the Neural and Behavioral Sciences Committee. The review includes consideration of Graduate Record Examination (GRE) Aptitude Test scores, a full academic transcript, letters of recommendation, and a written statement detailing the applicant's specific interests in neural and behavioral sciences.

The Neural and Behavioral Sciences Program admits postdoctoral students after they have arranged for a faculty sponsor and contingent on successful competitive review based on their GRE Aptitude Test scores, a full academic transcript, letters of recommendation, and a written statement of their
Urban Transportation
This is an interdisciplinary, on degree 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 Urban Transportation program. For further details, see "Urban Transportation" 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 Interdepartmental relationship with the Graduate College. For further information, see "Research Activities."

Financial Assistance
Approximately half of the University's graduate students receive some form of University-administered financial assistance. Eligibility requirements and application procedures are set forth in "Section VII, Graduate Admissions" in "Rules and Regulations of the Graduate College." There are the primary sources of assistance:

Teaching and Research Assistantships
Available in most departments; stipends typically range between $6,000 and $7,000. These assistantships are available for tuition and fees and are reduced to resident rates.

University Teaching-Research Fellowships
For first-year graduate students entering doctoral programs; typical stipends are $7,700 a year or 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 all summers, recipients have full time to pursue studies, research, or writing.

Scholarships
Up to full tuition and fees.

Graduate Fellowships
$8,000 for the academic year.

Other Sources
University and National Direct student loans are available through the University's Office of Student Financial Aid.

Many departments offer additional support through teaching, part-time employment in research or part-time teaching appointments. The Office of the Vice President for Educational Development and Research maintains a library of information on public and private agencies which provide funds for research and graduate study. A considerable amount of material has been collected concerning awards for overseas study.

Graduate Student Senate
The Graduate Student Senate is the University graduate student body's representative organization. Representatives are elected annually from each department of the University, having a graduate degree program. The Senate's primary purpose is to serve the interests of the graduate student body in matters affecting their welfare. The Senate advises the dean of the Graduate College on matters pertaining to the Graduate College.

Rules and Regulations of the Graduate College
The Academic Program
Section I. Admission to the Graduate College
A. Application Procedure
All students seeking to register for the first time in the Graduate College of The University of Iowa must secure a formal admission statement from the director of admissions, on an application form obtainable at the University. The director of admissions will advise the students on the procedure to be followed, upon receipt of the formal admission statement.

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Scholarships
Up to full tuition and fees.

Graduate Fellowships
$8,000 for the academic year.

B. Graduate Record Examination
All applicants prior to consideration for admission should take the Aptitude Test of the Graduate Record Examination
E. Candidacy

Admission to the Graduate College is not the equivalent of acceptance as a candidate for an advanced degree, which must be earned through work successfully completed at The University of Iowa. (See "Section X. Master's Degrees," "Section XI. Two-Year Degrees," and "Section XI. Doctor's Degrees").

F. Declaration of Major and Degree

Every applicant for admission must indicate on the application form the department or program of major interest and the degree, certificate, or professional objective he or she intends to pursue. The only exceptions to this regulation are the limited number of applicants registered as "special students." (See definition of "special status" in next paragraph.) Changes in the major or degree status may be made in the course of a student's graduate study with the approval of the department to which the transfer is proposed. To effect such an action the student must file a change of major or degree status in the Office of Admissions.

G. Status upon Admission

All students upon admission fall into one of the following categories:

1. Regular—Students who have completed all minimum requirements for admission and who have been accepted by a department, or international degree program, for work leading to a graduate degree or certificate or professional (or personal) improvement.

2. Conditional—Students who are interested in working toward a graduate degree or certificate but who are required by a department to demonstrate their ability to do satisfactory graduate work before being admitted to regular status. The student must be recommended by a department, which will assume responsibility for advising him or her. (See minimum grade-point requirements, "Section IA"). The student's satisfactory academic and professional status must be maintained by maintaining a minimum grade-point average of at least 2.5 (C.0) for doctoral students and a minimum grade-point average of at least 2.0 (C.0) for master's students. The student's regular status will be determined by the major department, or, if no such department, by the Graduate College.

3. Special—Students with a valid bachelor's degree may be admitted on at least a 2.3 grade-point average who wish to register for no more than two courses and who are not planning to become candidates for a graduate degree or certificate. These students, relatively few in number, must obtain special permission to register from the director of admissions. Special graduate students are not eligible for a graduate degree or for a certificate in a certificate program.

4. Summer Session—Students with a valid bachelor's degree and a grade-point average of at least 2.3 grade-point average may register for only one summer session without being accepted by a department or program. (See "Section II" below.) The deadline for application for admission to the summer session is set by the director of the summer session and the director of admissions. Summer session admission to any subsequent session, including another summer session, the student must file an application and be admitted to regular or conditional status.

5. Minimum Requirements for Admission

Graduates of any college or university accredited by regional accrediting associations may be admitted to the Graduate College if their academic records meet the required standards. For nondoctoral students, a minimum grade-point average of 2.3 is required for admission to conditional status. A minimum of 2.5 is required for admission to regular status. The grade-point average is computed only on graduate work if the student has completed at least 12 graduate hours. If the student has not completed 12 graduate hours, the grade-point average is computed on the undergraduate and graduate work completed. In cases in which a student applying for admission has a grade-point average below the minimum required, but has a Graduate Record Examination score above a level designated by the Graduate College, the student's paper will be forwarded for examination and decision. Students notified of admission by a departmental program with 12 or more semester hours of graduate work must obtain a minimum grade-point average of 3.0 for the graduate work. Students notified of admission by a departmental program with less than 12 semester hours of graduate work, a minimum of 2.7 is required for the entire record of college work.

Departments, or committees in charge of interdisciplinary degree programs, may, and often do, set higher minimum admissions requirements for those set forth above for the Graduate College as a whole, but these higher requirements do not apply to departmental or program requirements may be obtained directly from the executive of the department concerned.

For Stora Board of Regents' formal action in the requirements, see "Appendix" in the Catalog.

I. Admission of Faculty Members to Graduate College

Persons who hold faculty rank of associate professor (including clinical assistant professor) or above at The University of Iowa and who wish to be admitted as special students. (See "Section G" above.) A person holding faculty rank as
specified above may petition the Graduate College dean for permission to enter a graduate program leading to an advanced degree, certification or professional preparation except in the department of his or her appointment or a closely related department. 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 are admitted to and enroll in the Graduate College, but who then fail to register for a period of 12 months or more, must apply for readmission. Their acceptance is dependent upon departmental approval for the session in which readmission is desired. Consideration of the application for readmission will be governed by the departmental and Graduate College admissions standards in effect at the time of reapplication.

Section II. Registration

A. Standard Schedule

Students registered in the Graduate College may register for no more than 15 semester hours of credit in graduate courses in a schedule of mixed graduate and undergraduate courses, two hours of undergraduate credit may be substituted for one hour of graduate credit for workload of 18 semester hours. This equivalence applies to full-time students. Full-time load, Graduate credit is not given for courses numbered under 100. The maximum for the eight-week summer session is eight semester hours, or nine semester hours if two or more semester hours of undergraduate work are included.

The maximum semester-hour registration for 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-hour registration in a single semester constitutes full-time registration. (Errors are required to carry at least nine semester hours during a semester as a condition of their appointments.) One-quarter-time and one-third-time appointments are permitted to register for the maximum 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 Classes and be carrying zero semester hours credit.

C. Changes in Announced Credit

Graduate students may not register for more credit in any course than that printed in the Schedule of Courses, but may register for less credit, or no credit, by permission of the instructor. The number of courses a graduate student may take for limited or no credit is subject to the consent of the adviser and the approval of the dean of the Graduate College.

D. Reduced Schedules for Teaching and Research Assistants and Other Appointment

1. One-half-time appointees may register for not more than 12 semester hours during a semester or six semester hours during the eight-week summer session.

2. Five-eighths-time appointees may register for not 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

A form of retroactive registration is permitted.

F. Registration for Part of a Session

A graduate student may register at any time during the session for the eight-week summer session for not more than one semester hour of credit for each of the remaining weeks of classes (not counting the eight-week examination period) in the term. The total registration may not exceed the 15 semester hours permitted for a semester and the eight semester hours permitted for the eight-week summer session. Registration after the last day of the third week of a semester or the third day of the second week of a summer session is permitted only in courses involving special projects, readings, individual study, thesis, or research, with the signed approval of the instructor concerned and the Graduate College dean.

G. Extramural Registration

After admission to a departmental program in the Graduate College, registration for work done off campus is accepted for residence credit under the following circumstances:

1. Traveling Scholar Program of the Committee on Interdisciplinary Cooperation (See "Section III.").

2. Research at approved locations under the direction of members of the graduate faculty of the University of Iowa.

3. Field work as part of a regularly scheduled course or research program.

4. Courses taught off campus by members of the graduate faculty (see "Section X.D." and "Section XII.C." for minimum semester hours required on campus for the master's and doctor's degrees).

5. Residence graduate credit from another Iowa Regents' university (see "Section X.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 won transferred from another institution; and

2. Correspondence courses.

H. Extramural Fees and Privileges

Extramural courses 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-C") and pays established fees. (See "Section III.K." for special fees applicable to postcomprehensive registration, which should not be confused with the annual registration for residence credit.)

I. Correspondence Courses

Correspondence study credit does not count as residence credit until 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 enrolled 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 later be counted toward an advanced degree with the consent 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 500 and above in each department. Courses open to and carrying credit for both graduate and undergraduate students are numbered from 100 to 199. Courses below 100 are not counting 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

Uses the recommendation of the instructor and the advisor, the dean of the College, an external auditor, or the student's permission to graduate students to audit courses for zero credit. Auditing is permitted only for a student who is currently registered.

L. Dropping of Courses

All graduate students who drop courses after the deadline date established by the dean of the Graduate College for each session and published by the registrar shall receive the grade of F unless the entire registration is canceled. This regulation may be waived only by the Graduate College dean on the recommendation of the Student Counseling Service. If a student cancels her or his registration, or the registration is canceled by the Registrar, after the deadline date, the student must drop permission from the dean of the Graduate College before being permitted to register.

Section III. Traveling Scholar Program

A. Purpose

The program, under the auspices of the Committee on Institutional Cooperation representing 11 universities in the Midwest, enables a doctoral student to take advantage of special resources existing at another university, to seek additional opportunities, unique laboratories, and library collections.

B. Procedure

1. A CIC Traveling Scholar first must be recommended by his or her own graduate advisor, who will approach an appropriate faculty member at the other university to request a visiting arrangement.

2. After agreement by the student's advisor, the faculty member at the host institution, graduate dean at both institutions will be fully informed by the advisor and have the power to approve or disapprove the visiting arrangement.

3. A CIC Traveling Scholar will be registered at the home university, and fees will be paid by the home university or the host institution. The student registers for 000/CIC Scholar at The University of Iowa.

4. Credit for the work taken will be recorded at the home university.

5. Those wishing additional information should inquire at the office of the Graduate College.

C. Conditions

CIC Traveling Scholars will normally be limited to two semesters or three quarters on another campus. Each university retains its full right to except or reject any student who wishes to study under its auspices.

Section IV. Academic Standing, Probation, and Dismissal

A. Nondotal Students

A student, except one 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 will be below 2.5. If, after completing eight semester hours of graduate work at this University, his or her grade-point average remains below 2.5, he or she shall be denied permission to register; 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, after completing eight semester hours of graduate work at this University, the student's cumulative grade-point average remains below the required level, the student shall be dropped from the graduate program and permission to register unless he or she applies and is accepted for a nondotal degree or certificate program. If, after the second eight semester hours, the cumulative grade-point average is at least 3.0, the student is returned to good standing.

C. Restriction on Students on Probation

A student on probation shall not be permitted to take comprehensive or final examinations leading to a degree or, except in the case of certificate programs, may not receive any graduate degree or certificate.

D. Departmental Regulations and Dissemination of Information

In addition to the above University-wide requirements, departments may establish further requirements which in turn determine the individual student's standing with regard to probation and dismissal. To this end, each department or program shall compile a written list of standards and procedures for work in that area. These documents shall be on file in each departmental office and the office of the Graduate College dean.

Copies are to be available for students in the departmental office, and departments shall make reasonable efforts to inform students. Subsequent changes in standards or procedures shall be communicated by the department to each student and the Graduate College dean. Whenever departments change standards for a given program, the new regulations will not apply retroactively to the dispositions of those already in the program. In addition to notifying students that they are subject to the revised regulations of the Graduate College as set forth in the Graduate College regulations, all students must be notified of any change in the regulations of the Graduate College.
Section V. Credits

A. Transfer of Graduate Credit
Graduate work at other institutions will be entered on the student's permanent record by the registrar and a report of this action will be sent to the student, his or her major department, and the dean of the Graduate College. 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 department program in the Graduate College, residence graduate credit from another Iowa Regents' university may be counted as residence credit at this institution, provided such credit is acceptable to the student's major department on the basis of the department's determination of its applicability toward the degree. (See "Section I. A. 4." for minimum 8-week hours required on campus for the major and doctor's degree.)

C. Reduction in Credit
For courses or seminars in independent study 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 the needs of individual situations, the value of each credit in satisfying requirements for a degree will be determined by the major department with the approval of the dean.

E. Cancellation of Registration and Proportional Credit for Students Entering Military Service
1. Students who leave within the first six weeks of the semester receive no credit.
2. Students who leave within the period of seven to nine weeks receive one-half credit.
3. Students who leave within the period of 10 to 12 weeks receive two-thirds credit.
4. Grade reports for the one-half and two-thirds credit periods: (a) instructors report grades only as satisfactory or unsatisfactory; (b) credit is to be assigned on the basis of total registration minus thesis and seminar; (c) courses are to be counted toward specific degree requirements only after the student returns and then only with the registrar’s approval.
5. Students who complete the twelfth week receive full credit.
6. Grade reports for the full credit period: (a) grades are to be reported only at the end of the semester; (b) credit is to be reported in specific courses.
7. In each instance the instructor reports the student's credit, grade, and date of cancellation. No credit is granted unless the student's work is satisfactory at the time of leaving.
8. The amount of credit in thesis and research registration is to be reported to the registrar by individual instructors on the above basis except that less or zero credit may be assigned.

Section VI. Marking System

A. Marks Carrying Advanced Degree Credit
These are A, B, C, and S- satisfactory.

B. Marks Carrying No Credit for Advanced Degrees
These are D—poor, F—failed, I—incomplete, W—withdrawn credit.

C. Audit
It is assigned when a student registered for audit 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 cannot be completed because of illness, accident, or other circumstances beyond the student's control. In registrations for thesis, research, or independent study, the S/U grades may be applied. (See next paragraph, "E.") Students who receive the grade of F must remove that mark within the first session of registration after the closing date of the session for which it is given, or else the grade becomes F, except that students with F's from the spring semester are exempt from registering the course during the succeeding summer session.

Specific deadlines for the submission of student work to the faculty and for the faculty’s report on I grades to the registrar will be set by the Graduate College for each session and printed in the academic calendar. Courses may not be repeated to remove incompletes; removal of an I is accomplished only through completion of the specific work for which the mark is given.

Grades of S and U may be used for registrations in thesis, research, readings, independent study, and special projects. S—satisfactory means that the student receives credit for the work; U—unsatisfactory means that he or she receives no credit. Neither S nor U is used in computing grade-point averages. At a later date, the instructor may change the S to a letter grade. In addition, the Graduate Council may ask the Graduate College dean for permission to use grades of S and U as described above for courses which, because of their special or experimental nature, are judged to be more appropriate for such grading. In general, these requests may be granted for no more than one session and must be 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. Graduate Students and U
S and U may be used for courses taken by a graduate student outside the major department or for incomplete degree or special project. The instructor must obtain the approval of the department and/or college before enrolling the student. The student's major department must approve the course and send a copy of the registration to the college in which the course is being taken. The student's major department may authorize the use of S and U for this purpose. The U may be replaced by an F once the student has completed the course.

G. Computed Grade-Point Average
This is based only upon graduate work graded A, B, C, D, S, 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; and (d) satisfactory rate of progress in completing the program for the degree.

2. Preference will be given to candidates for the doctoral degree.

3. Recommendations for graduate scholarships may be made to the Graduate College by the appropriate department executive, director, or dean. A graduate scholarship may be awarded whether or not a student holds an assistantship. The amount of scholarship for the academic year may vary, but in no case exceed the comprehensive fees assessed. Scholarships will be credited to the student’s University account.

B. Graduate College Fellowships

Fellowships are awarded by the Graduate College upon recommendation by departments to students with outstanding academic records. Fellowships must be registered as full-time students. The primary purpose of the awards is to permit an advanced student to complete his or her dissertation or creative project and take the degree. Other terms of the award will be established by the Graduate College in consultation with the Graduate Council.

C. Faculty Research Assistantships

Faculty research assistantships are awarded to qualified graduate students and serve two purposes: to provide research assistance to regular members of the academic staff, and to provide apprenticeship experience for graduate students who are in training for research. Each six-month period of service per week is required of a half-time assistant. Other part-time service is subject to approval, and limited academic service is permitted (see "Section IV.C."). Appointment ordination are made for the nine-month academic year, but appointments may be made for other periods of time by special arrangement. Stipends vary with the qualifications of the appointees and the amount of service rendered. Faculty research assistantships appointed by the Graduate College pay their own fees. Graduate appointments beginning in August are usually made by the Graduate Council after recommendation of the various departmental executive officers for each year, although applications may be considered at any time. Stipend determinations should be made on the form provided by the Graduate College, and should be accompanied by recommendations and/or a letter summarizing the student’s qualifications.

D. Graduate Assistantships

These assistantships have two purposes: assistance in the instructional program of the University and the preparation of future college teachers. In order to achieve both aims, 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 must be registered as regular students in good standing in order to hold such appointments. Appointments will be terminated when registration, and/or student status is terminated. In no instance may a student be promised or tendered an appointment until after approval for admission to the Graduate College by the director of admissions.

F. Dismissal of Assistants

A uniform policy defining procedures to be followed in the dismissal of assistants has been approved by the Board of Regents. Copies of this policy are available in the office of the Graduate College dean.

G. 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 following: grading or an assistantship. The amount received payment as a professor or a faculty research assistant.

I. Loans

Graduate students requiring financial assistance may apply for loans at the Office of Student Financial Aid. See "Scholarships and Loans" section of the catalog.

J. Other Forms of Support

Many departments offer financial assistance in the form of teaching, part-time employment on research programs, or part-time teaching. Inquiries should be directed to the major department.

Section VIII. Advanced Programs Offered in the Graduate College

The subject areas in which the Graduate College offers degree programs are listed under "Advanced Degree Programs" in the forepart of the "Graduate College" section of the Catalog.

Section IX. General Requirements for Advanced Degrees

A. Application for Degree

The student must file an application for an anticipated degree with the registrar not later than 10 weeks after the start of the semester or one week after the start of the summer session in which the degree will be conferred. The student must have the application signed by his or her adviser. Failure to file the application by the deadline will result in postponement of graduation to a subsequent session.

B. Enrollment in Final Session

The student must be enrolled during the session in which the degree is to be conferred, except as noted in the following paragraph. Students who must register for the session in which the degree is to be conferred but are away from the University campus during that session may meet this requirement by registering for independent study, research, or thesis according to the practice in the various departments. Students who have completed all work except the final examination may register for the postcomprehensive examination described in "Section XII.K." If such registration is appropriate, Master’s candidates who have completed all work except the final examination may register for 000:001:000. Final Registration at a fee equivalent to the postcomprehensive examination if such registration is appropriate. Registration in the postcomprehensive course will not satisfy this requirement.

Students completing all requirements (including the final examination and thesis deposit) for a graduate degree within the Spring semester of the academic year may receive their degrees in the following semester without additional registration.

Section X. Master’s Degrees

A. Kinds of Degrees

Master’s programs require a minimum of 30 semester hours lead to the Master of Arts degree, Master of Science degree, Master of Business Administration degrees, 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 submit a plan of study approved by the adviser and the departmental executive officer. The plan of study must be established by the Graduate College dean. The plan shall meet the requirements for the degree approved
by the graduate faculty. (See also "Section IV.D. Departmental Regulations and Dissemination of Information.")

C. Major and Related Fields

The plan of study should provide for reasonable concentration in the major field of interest and, subject to the approval of the major department, may include related subjects from other departments.

D. Residence Requirement

Of the minimum of 30 semester hours required for the degree, at least 24 semester hours must be completed under the auspices of The University of Iowa. After admission to a graduate program in the Graduate College, various forms of extramural registration may qualify toward fulfillment of the 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 interaction between the students and the graduate faculty and have released approval from the Graduate Council and the dean of the 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 session in which the degree is to be conferred count toward fulfillment of degree requirements. This rule may be waived by the dean in cases affected by military service.

F. Limit on Law, Medical, or Dental

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 is work equivalent to that required for a bachelor's degree at the time of enrollment. The work accepted from the professional college must be directly related to the student's major field of study in the Graduate College and be approved as a part of the plan of study by the student's advisor and the major department. Work complete with a grade of C or better and registered for a graduate degree in law, medicine, or dentistry will be counted as part of the residence requirement for most graduate degrees in the Graduate College only when the student is enrolled 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 the degree at the level of which they are offered separately, including two theses where a thesis is required for each, and two examinations, with a minimum combined total of 60 semester hours of graduate credit.

H. Master's Degree with Thesis

Not more than eight semester hours of credit for thesis preparation shall be counted in satisfying the 30-hour minimum requirement. The thesis may be a scholarly study or an artistic production.

One copy of the thesis, in typewritten manuscript or print, must be presented to the Graduate College for a check of formal characteristics not later than four weeks before the graduation date on which the degree is to be conferred. (See Graduate College policy herein, "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 10 days before graduation.

The thesis committee shall consist of at least three members of the graduate faculty and may or may not be identical to the final examination committee. (See "K. Examining Committee.")

I. Master's Degree without Thesis

A master's degree without thesis, consisting of at least 30 semester hours of graduate study, may be awarded upon the completion of a curriculum prescribed by a department and approved by the Graduate Council.

J. Final Examination

The requirements for all master's degrees include a final examination which, at the discretion of the major department, may be written or oral or both. Such an examination will not duplicate course examinations. It will be evaluated by the examining committee as satisfactory or unsatisfactory, with two unsatisfactory votes making the examination unsatisfactory. The report of the final examination is due in the Graduate College not later than 48 hours after the date of the examination.

If the department so recommends, a candidate who fails the examination may present himself or herself for reexamination not sooner than the next regularly scheduled examination period in the same major or section, the examination may be repeated only once.

Upon recommendation of a department, the comprehensive examination for a doctoral degree may be substituted for the master's examination.

K. Examining Committee

The examining committee for the master's degree consists of at least three members of the graduate faculty, appointed by the Graduate College dean 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 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 proposed for investigation or, in the case of deficiency, must register for prerequisite courses.

C. Residence Requirement

The doctorate is granted primarily on the basis of achievement rather than on the accumulation of semester hours of credit; however, the candidate is expected to have completed at least three years of residence in a graduate college. At least part of this residence must be spent in full-time involvement in one's discipline, at this University, beyond the first 24 semester hours of graduate work; this requirement can be met either by: (1) enrollment as a full-time student (nine semester hours minimum) in each of two semesters or (2) enrollment for a minimum of six semester hours in each of three semesters during which the student holds at least a one-third assistantship certified by the department as contributing to the student's doctoral program. (For purposes of reviewing an assessment of fees, student registration shall reflect accurately the amount and kind of work undertaken in the Graduate College. All doctoral programs, including acceptable transfer credit, will contain a minimum of 72 semester hours of graduate work.)

D. Plan of Study

The development of a plan of study at the doctoral level is the responsibility of the student working together with his or her adviser. A formal plan of study must be approved by 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 by the student. It will include the following:

E. Ad Hoc Interdisciplinary Programs

A student may prepare a proposal for an interdisciplinary course of study, including the plan for the comprehensive examination, under the sponsorship of at least three faculty members in the department most directly concerned, which shall be designated as the sponsoring department. Final approval of such individual programs is granted by the Graduate College dean, who may add members to the student's supervising committee from other closely related departmental faculties. The degree will be awarded in the interdisciplinary field stipulated in the approved program and, peripheratically, 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 Law, Medical, or Dental Courses

Work taken by a student in the colleges of Dentistry, Law, or Medicine while enrolled for a professional degree may be credited to a graduate program leading to a doctoral degree if it is taken after the student has earned a bachelor's degree and the student is registered for a professional degree in law, medicine, or dentistry, and is not counted as part of the student's academic year which must be spent in residence as a doctoral student on the campus of the University.

H. Joint Program for Master's and Doctoral Degrees

The student must expect to continue their training through the doctoral degree in his or her plan of progress for the master's and doctor's degrees. The master's examination may be combined with a comprehensive examination for the doctorate for these candidates. The examining committee will file separate reports of its actions on the final examinations for the master's degree and for the comprehensive examination. Upon recommendation of the department and approval of the Graduate College dean, students who are well qualified by previous training may submit a plan of study that leads directly to the doctoral degree without earning the master's degree as an intervening part.

I. Requirement in Foreign Languages

There is no general Graduate College requirement in foreign languages. Those departments which do require competence in one or more foreign languages establish standards as to the extent and level of competence, as well
as methods of testing. Specific requirements will be found in the departmental statements of standards and procedures (see "Section IV. D."). Departmental executive officers are responsible for reporting completion of requirements to the registrar for entering on the student's record. Specifications of departmental requirements in foreign languages are filed in the Graduate College office and may be secured upon the initiative of the department.

J. Comprehensive Examination

The candidate must pass a comprehensive examination, consisting of written or oral tests, both at the discretion of the major department. Admission to the comprehensive examination is granted upon the recommendation of the major department, the filing of the plan of study, and the approval of the dean of the Graduate College. A student must be registered in the Graduate College at the time of the comprehensive examination, which must be passed not later than the session prior to the session of graduation. This examination, administered only on campus, is intended to be an inclusive evaluation of the candidate's mastery of the major and related fields of study, including the tools of research in which competence has been certified.

The comprehensive examination is not a deferred qualifying examination. It is to be completed by the end of the semester in which the candidate completes the program of study. The comprehensive examination is given at the discretion of the department. The candidate must be registered in the Graduate College at the time of the examination, which must be completed by the session prior to the session of graduation. The comprehensive examination will be even with the requirements of the committee and reported as satisfactory, satisfactory with reservations, or unsatisfactory to the Graduate College office within 14 days after completion of the examination. Two "unsatisfactory" votes will make the candidate report unsatisfactory. In the event of a report with two or more votes of "unsatisfactory with reservations," the exact stipulations of the committee should be recorded with the report form. If the stipulations involve a particular area of study, the statement should be specific in defining the area, is required to complete the program by other procedures, and is specifying the time and manner of such examination. The candidate will not be admitted to the final oral examination until such stipulations have been satisfied. The executive committee of the department will promptly send a written report to the Graduate College giving the date of removal of "unsatisfactory." In case of a report of unsatisfactory on a comprehensive examination, the committee may grant the candidate permission to present himself or herself for reexamination not sooner than four months after the first examination. The examination may be repeated only once, at the option of the department.

K. Postcomprehensive Registration

The student is required to register each semester after passing the comprehensive examination until the degree is awarded. If a student fails to register, the student may not be readmitted to candidacy until the student has submitted an application which has been approved by the student's department, 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 6000-1999 Comprehensive Registration and paying a special minimum fee for any semester in which the department (i.e., department chair or director of graduate studies or the student's advisor) determines that the student is neither making significant use of University facilities (except library privileges) nor partaking of consultation with the faculty. It is understood that no registration for a summer session is required when the student makes no use of University resources, unless the student is taking a degree at the end of that session or unless enrollment is required by the department.

L. Dissertation for the Doctoral Degree

A copy of the dissertation must be presented at the office of the Graduate College not later than six weeks before the graduation date on which the degree is to be conferred and two copies deposited with the department at least 10 days before graduation.

Regulations regarding preparation of the dissertation copy shall be promulgated by the dean of the Graduate College. Dissertations will be microfilmed and thus made available on a permanent basis. As abstract of the dissertation, not to exceed 350 words of text, is to be deposited with the dissertation. The abstract must be approved and signed by the dissertation advisor. The abstract is published in the Journal of Dissertation Abstracts International. One copy of the dissertation is bound and indexed at the University Library. If the dissertation is in some nonprint form (e.g., painting, statue, performance in music) the dissertation advisor will indicate what is 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 nonrefundable dissertation fee is charged each candidate to cover the cost of processing the dissertation and abstract.

N. Final Examination

The work for the degree commences in a final oral examination administered on campus. This examination should include: (1) an oral inquiry into the purposes, methods, and results of the investigation; and (2) an intensive questioning on areas of knowledge constituting the immediate context of the investigation. The final examination may not be held until the session after the student passes the comprehensive examination nor for the academic year in which the dissertation is completed. The dissertation for the doctoral degree is open to the public. Members of the faculty of the Graduate College are especially invited to attend and, subject to the approval of the chair, to participate in the examination. The report of the final examination is due in the Graduate College office not later than 48 hours after the examination. The final examination will be held in the department in which the candidate is unsatisfactory. Two unsatisfactory votes will make the candidate report unsatisfactory. In case of a report of unsatisfactory in the final examination, the candidate may not present himself or herself for reexamination until the next session. The examination may be repeated only once, at the option of the department.
O. Examining Committees
The comprehensive and final examinations are conducted by committees of no fewer than five members of the graduate faculty appointed by the Graduate College dean upon recommendation of the major department, except that departments may request the dean's permission to replace one of the five members of the graduate faculty by a recognized scholar of professional rank from another academic institution. A member of the graduate faculty from outside the major department is required in those cases where a related field outside the major department is included in the comprehensive examinations. For the final examination one member of the committee must be a member of the graduate faculty from outside the major department.

Upon recommendation of the major department, the Graduate College dean may appoint additional qualified persons (not necessarily members of the graduate faculty) to serve as voting members of the examining committee. A voting member may be added at the discretion of the Graduate College dean.

Section III. 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
0937199 Ph.D. Postcomprehensive Registration 0 c.h.
0937199 Master's Final Registration 0 c.h.
0937199 CSE Scholar 0 c.h.
College of Law

Program Objectives

The overarching objective of formal legal education is to establish a solid foundation for future 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, as well. The University of Iowa program places an equal emphasis on the development of fundamental lawyers' skills and an appreciation of the roles of law and lawyers in society. A unifying feature of the program is the conviction that these objectives can be achieved best by an educational program that cultivates active student participation in the learning process and creates regular opportunities for individuals and small groups to confront challenging teachers who genuinely are interested in each student's professional development.

While many law schools rely heavily on graduate assistants or adjunct instructors to teach lawyers' skills, The University of Iowa is virtually unique in the extent 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 90 semester hours of work, take and complete all required courses, achieve a cumulative grade-point average of 60, and satisfy the college's five-credit 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 12 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 classes to entering students: late May (at the beginning of the summer session) or late August (at the beginning of the fall semester). Most students elect to enter law school in the fall and expect to graduate in May of their third year of study. These students also may attend summer school at any point during their careers.

An entering class of up to 49 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 in the "accelerated" program, they can graduate nine months earlier than would otherwise be possible by attending summer school in each subsequent summer. Thus, the accelerated student who begins law school in the summer of 1983 may graduate in August 1985. Students who begin school in the accelerated program, however, need not continue to accelerate their graduation.

Both the accelerated and regular programs consist of 90 semester hours of required and elective courses. All entering students are expected to take all courses designated as first-year courses and may not register for different courses or fewer hours without permission of the dean. No student may take more than 14 semester hours or 13 hours in summer school without permission of the dean.

Summer Session

The University of Iowa law school consists of two periods of five and one-half weeks during which six to eight upperclassmen and three to four first-year courses normally are offered. Nonaccelerated students may attend either or both periods. Accelerated students attend the entire 11-week session.

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 legal research and writing instruction into a substantive course taught by regular, full-time faculty. The program's purposes include giving careful attention to development of each student's skills in legal analysis, argumentation, research, and writing.
Clinic represent inmates at Iowa correctional institutions in both habeas corpus and civil cases. Both Legal Aid and Prisoner Assistance interns participate fully in interviewing, fact investigation, negotiation, and courtroom proceedings.

Students in the Complex Civil Litigation Clinic work on substantial matters relating to social welfare rights. Students in the Clarkship Program act as law clerks to trial court judges. As law clerks, they observe court and draft orders, opinions, and jury instructions.

Finally, students in the Legislative Internship Program are assigned to work for legal assistants in state legislatures and to work in other aspects of the legislative process.

In addition to those programs carrying academic credit, the College of Law participates each summer in the County Attorney Internship Program, through which students work as paid employees for county attorneys throughout the state.

A student may earn up to a total of 15 semester hours of credit in the clinic program, although students taking courses in other schools or colleges of the University may receive no more than 20 hours of credit for such courses plus clinic.

Joint Law and Graduate Degree Program

The College of Law has developed a program with a number of departments of the Graduate College of the University of Iowa under which students can simultaneously pursue degrees in both colleges. Under this program, a student takes a course which is relevant to both degrees, the course can, within limitations, be counted toward the credit requirements of both and reduce the time required to obtain the two degrees separately. Hopefully, too, the inter-degree student will contribute to one discipline the ins 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, Consumer Economics, Education, Economics, Educational Administration, English, Finance, Journalism, History, Hospital and Health Administration, Library Science, Philosophy, Political Science, Sociology, Social Work, and Urban and Regional Planning. Further information about joint degree programs is available from the dean of the College of Law.

A two-year program leading to a commission in the United States Air Force, while in the United States Air Force, with the U.S. Department of Aerospace Military Studies.

Student Life

There are currently eleven student organizations at the college; three co-curricular programs, each managed by students; offering specific skills training; and well student-produced scholarly journals.

The college operates a placement office to assist students in securing suitable summer and/or permanent employment.

Financial Aid

A comprehensive financial aid program at the college attempts to assist all students who need funds in order to permit them to attend school full-time. However, since financial aid funds are inadequate to cover the full cost of a legal education for every needy student, applicants and their families are expected to make a maximum effort to provide a reasonable portion of the students' expenses. Applicants are urged to contact the financial aid office at the college for further information about types of aid available.

Admission Requirements

Applicants for admission must present a baccalaureate degree from an approved college or university prior to commencing work in the College of Law. Admission to the College of Law may be called upon to permit a student to apply to any legal field of endeavor so broad and diverse, that the college prescribes no uniform undergraduate program for those planning to enter law school. In the existence of faculty advisers, each student should develop an undergraduate program which explores and develops that student's particular intellectual interests. There are three basic objectives, however, recommended by a committee of the Association of American Law Schools which every student taking law school should keep in mind in planning an undergraduate course of study: education for comprehension and expression in words; education for a greater understanding of human institutions and values; and education for greater power in thinking. That committee strongly emphasized that undergraduate programs for 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
uged not to sacrifice the broader perspective for detailed specialization.

Application Procedures
Applications may be obtained by writing to: Director of Admissions, College of Law, The University of Iowa, Iowa City, Iowa 52242. A student must fill in or apply for admission by March 1 preceding the summer or fall semester in which she or he wishes to enter. Applications should be sent to the Director of Admissions, Calvin Hall, The University of Iowa. An evaluation fee of $10 must accompany each application unless the applicant's baccalaureate degree was/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 its waiver.

The applicant is responsible for submitting an official transcript from each college or university he or she has attended to the Law School Data Assembly Service (LSDAS), Box 2000, Newtown, PA 18940. The College of Law must receive the applicant's LSDAS report prior to the March 1 deadline for submission of applications.

An LSDAS registration packet contains Law School Application Matching Forms. To preserve the right to privacy, ETS has agreed not to release LSDAS reports to any school that does not furnish ETS with a Law School Application Matching Form. The University of Iowa cannot process an application without a Law School Application Matching Form. Therefore, please make sure you complete the form with the application. Otherwise, the processing of the application will be delayed until the form is received.

Law School Admission Test
Each applicant for admission must take the Law School Admission Test (LSAT) administered by the Educational Testing Service and Law School Admission Service, Box 2000, Newtown, PA 18940, and have his or her test results forwarded to the College of Law, along with the LSDAS report. The test is given several times each year and may be taken in numerous locations throughout the United States and abroad. Applicants are urged to take the test during the fall preceding the fall or summer semester for which they are making application.

The last test that will be considered by the admissions committee for the summer or fall first-year class is the test given in the year 2028, however, if the test is taken in February, it may put the applicant at a competitive disadvantage since it takes at least four weeks for the college to receive the results. Applicants who wish to take the test in February must have their applications on file with The University of Iowa prior to the March 1 deadline. Foreign student applicants whose native language is other than English must take the Test of English as a Foreign Language (TOEFL), which is administered by the Educational Testing Service, Princeton, New Jersey 08540.

Deposit
Applicants accepted prior to April 1 are required to make an advance nonrefundable deposit of $600 by April 1. Applicants accepted subsequent to April 1 must make the deposit within two weeks after being notified of favorable action on their applications. In either event, the deposit need not be made if a financial aid application is under active consideration. However, the deposit is due within two weeks after action is taken on the financial aid application. For those who enroll, the deposit is credited toward the student's tuition. University bill. An applicant who fails to make the deposit within the time specified forfeits his or her place in the entering class.

Evaluation Process
For a more detailed description of the admissions evaluation process, please consult the college's bulletin which is available from the Admissions Office of the College of Law.

Admission to the Iowa Bar
A recent rule adopted by the Iowa Supreme Court requires all law students who intend to apply for admission to the Iowa Bar to register that intention with the court no more than 90 days after beginning law school. Details are available from the dean's office in the College of Law upon registration as a student is the college or from the clerk of the Iowa Supreme Court.

Courses
For descriptions of these courses, consult the college's bulletin, which is available from the Admissions Office of the College of Law.

91101 Legal Research 3 sh.
91102 Legal Writing 3 sh.
91104 Civil Procedure 3 sh.
91108 Constitutional Law 3 sh.
91109 Contracts and Sales 3 sh.
91130 Criminal Justice I 3 sh.
91135 Criminal Justice II 3 sh.
91136 Civil Representation 3 sh.
91137 Property I 3 sh.
91138 Torts and Remedies 3 sh.
Same as 295 210 3 sh.
91138 Insurance Principles 3 sh.
91201 Jurisprudence 3 sh.
91203 Law and Health and Medical Care 3 sh.
91205 Women's Rights in the Workplace 3 sh.
91206 Disability Law 3 sh.
91207 Advanced Civil Procedure 3 sh.
91208 Advanced Civil Procedure 3 sh.
91208 Advanced Criminal Procedure 3 sh.
91209 Advanced Torts 3 sh.
91210 Aviation Law 3 sh.
91215 Ethical Considerations in Business 3 sh.
91217 Aviation Law and Practice 3 sh.
91225 Constitutional Litigation 3 sh.
91231 Commercial Transactions 3 sh.
91241 Corporation Law 3 sh.
91242 Commercial Law 3 sh.
91243 Conflict of Laws 3 sh.
91252 Constitutional Law II 3 sh.
91253 Criminal Law II 3 sh.
91254 Contracts Project 3 sh.
91261 Corporations I 3 sh.
91262 Corporations II 3 sh.
91263 Corporate Taxation I 3 sh.
91264 Corporations B 3 sh.
91265 Economic Analysis for Lawyers 3 sh.
91266 Employment Discrimination 3 sh.
91267 Education Law 3 sh.
91268 Environmental Law 3 sh.
91272 Estate Planning Problems 3 sh.
91273 Federal Taxation 3 sh.
91275 Family Law 3 sh.
91276 Family Estate Planning 3 sh.
91277 Federal Income Taxation 3 sh.
91279 Federal Property and Trusts 3 sh.
91280 Federal Taxation 3 sh.
91281 Fundamentals of Injury and Disease for Physicians 3 sh.
91282 Health Law 3 sh.
91283 Health Law and Policy 3 sh.
91284 Health Law 3 sh.
91285 Health Law and Policy 3 sh.
91286 Health Law and Policy 3 sh.
91287 Health Law 3 sh.
91290 International Organizations 3 sh.
91293 International Economic Relations 3 sh.
91294 Juvenile Justice 3 sh.
91295 Juvenile Justice 3 sh.
91296 Juvenile Justice 3 sh.
91297 Juvenile Justice 3 sh.
91298 Juvenile Justice 3 sh.
91299 Juvenile Justice 3 sh.
91300 Juvenile Justice 3 sh.
91301 Juvenile Justice 3 sh.
91305 Juvenile Justice 3 sh.
91306 Juvenile Justice 3 sh.
91307 Juvenile Justice 3 sh.
91308 Juvenile Justice 3 sh.
91309 Juvenile Justice 3 sh.
91310 Juvenile Justice 3 sh.
The College of Medicine, as an integral part of the University, contributes to the educational programs of several thousand students, and only those in the health college of Dentistry, Medicine, Nursing, and Pharmacy but also in the life sciences areas of the College of Liberal Arts and the health-related programs of other colleges. Additionally, it serves health professionals from throughout the Midwest who take part in a year-round program of continuing medical education, in which several thousand practicing physicians update their knowledge and skills through "refresher" short-courses, clinics, and conferences each year. It also expands and maintains educational opportunities in outreach health centers of the state, and it provides a statewide educational health care resource.

Beyond its academic responsibilities as the only college in Iowa offering work toward the M.D. degree, the College of Medicine is concerned with broad public issues of distribution and organization of health care services. Its faculty members advise and serve on state and regional health planning councils, health boards, and various health agencies; some faculty also 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 physicians assistants, medical technologists, physical therapists, and nuclear medicine technologists.

The medical and associated medical science students have several opportunities to gain first-hand experience in physicians' offices and community hospitals. For medical graduates, the College offers family practice residency programs at 15 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 under 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 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 administered by the College of Medicine are accredited by their respective accrediting bodies.

Faculty

Nearly all College of Medicine faculty members are full-time. Their work in practice and research is 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 the Master of Science degree are offered in otorhinolaryngology, 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 emphases 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 their departmental units or to the separation of graduate and postgraduate training. Notable among these are the interdisciplinary programs in endocrinology, neurobiology, and immunology, in which courses are offered but in which the student can choose to pursue a major study in any one of these fields. 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 mental health, human physiology, biochemistry, and pathology are also conducted. It is an important resource of the college, fully financed by federal and private agencies, 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 diseases and encompasses the following faculty and training programs: the Regulation of the Peripheral Circulation, the Specialized Center of Research in Arteriosclerosis, the Lipid Research Clinic, these training programs and a coordinated program of other investigative research supported by a number of individual project grants. Gifts from private donors have endowed the research center at two levels of cardiovascular research laboratories on top of the Medical Research Center.

Toxicology Center
The Iowa Center for Toxicology and Biochemical Pharmacology is an integral part of the Department of Pharmacology. In broad terms, the research is directed to the identification of drugs and poisons that depress metabolic rate, the biological evolution to drugs, and studies of long action at the molecular and cellular level.

Diabetes Center
The Diabetes Center coordinates research and training programs related to diabetes and associated endocrinologic diseases. It was established in 1979 with support from the National Institute of Diabetes and Digestive and Kidney Diseases.

Center for Research on Psychological Disorders of Children
This center draws from the expertise in the departments of Psychiatry, Pediatrics, Neurology, Speech Pathology, Psychology, and Sociology. It is centered in the Division of Child Psychiatry.

Cancer Center
A Cancer Center was established in 1980 to coordinate the activities of the faculty and staff of the University in research, education, and demonstration programs related to all aspects of cancer.

Educational and Patient Care Facilities
First and second year classes are taught in the Bowen Sciences and Medical Laboratories buildings. A Health Sciences Library is at the core of the medical campus.

Students acquire clinical experience in the 1,053-bed University Hospitals and Clinics complex, in the adjacent 533-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 41-member clinical staff for University Hospitals and Clinics, whose 16 clinical services are directed by the heads of the corresponding academic departments in those colleges. These faculty members also provide instruction for the 534 resident physicians and dentists who comprise the house staff of University Hospitals and Clinics, which provides facilities for teaching all medical specialties for residents in all such specialties, and for fellowships in a number of subspecialties.

University Hospitals and Clinics serves as a tertiary care center for the state of Iowa and portions of adjoining states, with most patients being referred for care and treatment not readily available in their home communities. For details about University Hospitals and Clinics, Veterans Administration Medical Center, and related academic and health service units, see "The University of Iowa Health Center" section of this Catalog.

Research Facilities
A number of facilities are administered through the dean's office in support of the research and teaching endeavors of the faculty of the College of Medicine. The animal care facility arranges for the purchase, maintenance, and record-keeping of a wide variety of animals. The bioengineering facility provides specialized electronic design, construction, and repair services.

The Office of Consultation and Research in Medical Education is composed of educators and media specialists who serve the faculty, staff, and administration. The unit provides educational consultation, initiates and cooperates in educational research endeavors, and conducts teacher education activities.

The medical instrument design and fabrication scientific equipment, providing precise 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 Genigraphic, 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 biohazardous human or animal pathogens.

Studies on protein structures are conducted in a facility containing ultracentrifugation, amino acid analysis, and protein sequencer equipment.

A facility for mass spectrometry provides service for structural studies of important biological molecules and their analysis in a research interface with a gas chromatograph.

Doctor of Medicine
The University of Iowa College of Medicine accepts 175 freshmen students into its four-year course of study leading to the degree, Doctor of Medicine (M.D.). The curriculum in medicine at The University of Iowa is based on a strong tradition of excellence. 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 the core of sciences basic to the study of medicine.

First Semester
99.183 Biochemistry for Medical Students is centered around a series of clinical situations. The language of this discipline is presented in the context of problems the physician will meet. In the small group discussions that follow the clinical seminars, the student starts to use various investigative approaches.

80.103 Gross Human Anatomy for Medical Students includes embryology,
clinically relevant areas of anatomical radiology, and surface anatomy with clinical correlations. A complete dissection of the human body is undertaken to evaluate relationship to the living systems of the body.

60.106 General Histology. Students provide a course of study for the general histology concerning cellular and tissue structure and function needed for the work to be accomplished in physiology and pathology.

118.102 Human Dimensions in Medicine is designed to introduce medical students to the importance of communication in the practice of medicine. The course provides students with small-group experience through which they learn about and improve their ability to communicate sensitively with patients and colleagues.

63.110 Biostatistics completes the work of the semester. It utilizes a self-paced study of statistical principles and their applications to the biological and medical sciences.

Second Semester

72.212 Medical Physiology offers the student an understanding of the responses of an organism to external stimuli and provides a basis for understanding the integrated function of organ systems. Much of the material of this course is presented from a clinical point of view. In small discussion groups, students have opportunities replaced laboratory exercises, the students practice the clinical applications of the physiological mechanisms at work in the clinical material. Some demonstrations are used to gain advantage.

61.103 Medical Microbiology includes immunology. Students take a course of instruction in the classification and mode of action of infectious agents, as well as certain aspects of blood response to these agents. Laboratory work continues to be an important role in this course.

60.201 General Pathology for Medical Students is correlated with microbiology in this semester to increase the efficiency of the learning process. Much of pathology at this level is self-explanatory, and the student is led "teasing out" of each segment as it is completed. Clinical problem solving and discussion periods have replaced laboratories in this course. A section in pathology outlines clinical manifestations of general diseases.

Third Semester

69.202 Systemic Pathology for Medical Students, in which the principles given in the general pathology are extended upon in an organ approach. Students are expected to present dissections and discussion groups and practice in case analysis.

60.144 Microvascular Neuroanatomy presents the structure of the nervous system. Much of the material is available for self-study and small-group study in the laboratory.

65.108 Community Health presents fundamentals to help prepare the student in some of the sociological, economic, and public health aspects of medical practice.

71.105 Pharmacology for Health Sciences. Medical bridge the clinical and basic sciences and provides the students with principles that must be understood to describe properly the actions of drugs in the patient. Several elective courses are available to students during the third semester. These courses carry two semester hours of credit. Topics include areas not specifically covered in the regular curriculum and areas related to medical practice and the role of the physician. Typical examples are Perspectives in Aging, Humainistic Medicine, Human Nutrition, and Spanish for Health Professionals.

Introduction to Clinical Medicine

A major interdisciplinary course, 50.111 Introduction to Clinical Medicine, is taught 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 student as a person and giving guidance in interviewing, counseling, and history-taking. Following these is an intensive view of clinical medicine on an organ system basis, guided lecture by clinicians and basic scientists. The final group of morning is spent in areas of medicine which do not naturally fall into organ systemic, and on re-emphasis of some key indices. Throughout the 18 weeks of this course, students spend afternoons acquiring and practicing the skills of the clinician in history-taking and physical examination. Habits of care, concern, and compassion needed by all physicians are emphasized in this semester. Toward the end of the semester, each student is evaluated individually several times to refine 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 prepares each student with opportunities to work with physicians of almost all disciplines as they care for their patients. Students spend nine weeks in internal medicine; six weeks each in surgery, pediatrics, psychiatry, and obstetrics and gynecology; and two weeks each in anesthesiology, dermatology, neurology, otolaryngology, orthopedics, urology, and family practice. Students spend most of this time in Iowa City.

The clinical clerkship year is the most critical period of time in medical education, for this is when the student takes on the posture of a physician to learn 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 clerkship, the fourth year provides a period of selective study, giving the student many options. The broad, comprehensive orientation to the different medical disciplines and the level of clinical sophistication achieved during the clerkship year qualify the student to participate in a variety of medical experiences, ranging from advanced courses in specialty areas to community-based clerkships in primary care.

Financial Aid

The College of Medicine provides financial assistance for the breadth of demonstrated financial need. Most aid 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, Carroll Brown Medical Student Loan, and Stohl Loan are College of Medicine sponsored. Federal Student Loans may be available to Iowa residents through the Iowa Medical Foundation. A limited number of grants are awarded each year to students who demonstrate exceptional need.

In certain situations small, short-term emergency loans may be obtained through the college.

Information and advice 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. Program

The College of Medicine participates in the American Medical College Application Service (AMCAS), a nonprofit case-filed application processing service for applicants to U.S. medical schools. Preliminary application information is available. Please contact the office of the College of Medicine to obtain information on the application process. Beginning 15 June of the year preceding the beginning of the class for which admission is sought.
Candidates must be able to analyze, synthesize, solve problems, and reason critically and make sound judgments; Candidates must have sufficient understanding of the nature of virology and understanding of the basic principles of virology required to perform a diagnostic virology examination; Candidates must be able to perform research, analysis, and evaluation; Candidates must be able to work effectively with patients and other professionals; Candidates are expected to be able to communicate the results of their work and their conclusions to their colleagues, patients, and the public; Candidates are expected to be able to learn and formulate laboratory tests and diagnostic procedures; Candidates are expected to be able to display good judgment in the assessment and treatment of patients; Candidates are expected to be able to work with patients and family members in a manner that is consistent with the standards of care and the standards of the College of Medicine; Candidates are expected to be able to accept criticism and respond to appropriate modification of behavior; and Candidates are expected to possess the perseverance, accuracy, and attention to detail required to complete the medical school curriculum and the independent practice of medicine. Applicants who are interested in the medical school curriculum 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 courses in mathematics, and have completed the minimum of 94 semester hours of credit, for the equivalent, including: Physics: a complete introductory course; Mathematics: college algebra and trigonometry, or advanced college mathematics for applicants who completed college algebra and trigonometry in high school; Chemistry: as a minimum, a complete introductory course in organic chemistry, or a comparable course in modern general chemistry principles. Biological sciences: a complete introductory course in the principles of animal biology, and plant and animal biology (not botany alone), and 3 additional biology core courses. All the foregoing must be taken with appropriate laboratories. Applicants for admission to the College of Medicine must possess the capability to complete the entire medical curriculum and achieve the degree, Doctor of Medicine. The medical curriculum requires demonstrated proficiency in a variety of cognitive, problem-solving, manipulative, communicative, and interpersonal skills. Therefore, the following abilities and experiences are required of all students admitted to the College of Medicine: Candidates must be able to observe demonstrations and experiments in the basic sciences;
and three are from these clinical departments. There is a medical student member from either the junior or senior class. The Dean of the College of Medicine makes faculty appointments to the committee after consulting with the Executive Committee, and appoints the student member after consulting with the Medical Student Council and the chair of the committee.

**Regulations and Procedures**

In general, promotion from one grading period to the next is contingent upon the satisfactory completion of the courses of each grading period. Continued enrollment of a student who has not satisfactorily completed courses in a preceding grading period may be recommended by the promotions committee, provided that an appropriate tutorial program is designed for the student. Each student must demonstrate proficiency in each required course.

Evaluation of student progress in basic science semesters is based on such examinations or other tests as are determined by each department or course. Evaluation of student progress in clinical semesters is based on clinical skills and competency, and on such examinations or other tests as are established by each department or course.

Scholastic performance for the first three years is determined by letter grades A, B, C, D, F, and I. In the executive seminar sequence, grades A, B, and C will be used. The letter F indicates satisfactory achievement at the passing level. The letter I signifies "incompletes," indicates achievement at an exceptionally high 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 promotions committee meets at least three times a semester to consider the completion of each academic semester by students requested by the associate dean for medical student affairs.

The committee reviews with the course directors the records of all students who have received a grade of F or I during the previous grading period. The committee reviews the record of any student presented by the course director, the associate dean, or the associate dean for medical students affairs as doing unsatisfactory work. The committee considers other business or procedures as deemed necessary to perform its duties as set forth in this charge. The promotions committee recommends actions to be taken in the case of any student whose work is in any way considered unsatisfactory. These recommendations are considered by the medical council and executive committee, meeting in joint session to represent the faculty. Possible recommendations include immediate dismissal of the student from the college requiring the student to report all or any part of the curriculum; allowing the student to continue at the college on a probationary basis. Students having unsatisfactory grades of failure or incomplete will normally be placed on academic probation.

Students who are in a probationary status may be considered for dismissal should they experience further academic failures.

The promotions committee presents all recommendations for the awarding of the degree, Doctor of Medicine, to the joint meeting of the medical council and executive committee, which acts on the recommendations for the faculty.

The College of Medicine believes that its faculty and students should be subject to the standards and requirements of the American Medical Association, (Manual of Student Handbook).

**Relationship to Course Directors Committees**

The course directors committees will provide guidance and counseling for students and will be a resource for and provide advice to the promotions committee.

**Appeals**

Students desiring to appeal promotions decisions must submit such appeals in writing to the dean of the College of Medicine within two weeks after the date of written notification of the decision. All appeals are heard and decisions rendered by the medical council and executive committee meeting in joint session. Students may request an opportunity to appear personally before the joint session. The committee may refuse the appeal at its discretion.

**Leave of Absence**

The College of Medicine believes that certain students may profit by taking a leave of absence from the college for specified periods of time. A leave of absence should be requested from the dean's office. It will be granted at the discretion of the dean.

Any student who is absent without leave for a major section of a clinical clerkship may receive, at the discretion of the department, a grade of F.

**Withdrawal from the College**

A student withdraws from the college voluntarily upon written application to the dean's office.

**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 reinstatement.

The faculty is authorized to refuse continued or further registration to any student if, in addition, the student has not lived up to the expected general fitness requirements for entering the medical profession, the standards for which must be in keeping with principles of medical ethics of the American Medical Association. 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. Lacking a satisfactory outcome, the student should then turn to the department or college with which there is a problem. If satisfaction is still not obtained, the student should contact the associate dean for student affairs of the College of Medicine. This informal discussion would not necessarily lead to involvement of the promotions committee or the official capacity. Should these procedures not resolve the situation, the student may then file a formal complaint through the office of the dean of the College of Medicine.

The informal procedure allows the greatest flexibility for all concerned in resolving the conflict and can avoid the entanglements of a student's permanent record that are a part of the formal procedure. This informal procedure is intended for any situation a student may encounter, including grading disputes, alleged academic dishonesty, alleged dishonesty during clinical rotation (e.g., falsifying patient data), and perceived discrimination or harassment.

When a student is receiving a complaint with a faculty member or department, others should attempt to avoid jumping to conclusions based on rumors and bits of information. To the interest of that student's confidentiality, full details of the complaint should not be released to the medical student body. Students are encouraged to make full use of the counseling services available.
teaching in these laboratory sections under faculty supervision. Students ordinarily require four to five full-time study to complete the doctorate in the Ph.D. program.

During the first year, the student chooses a research area and becomes affiliated with a faculty member whose research is in that area. The research project's current state is in endocrinology and reproduction, neurobiology, and the cardiovascular system. By the end of the second year, the student defines a research problem with his or her major advisor, formulates a research proposal, and undertakes a comprehensive examination. This examination assesses the student's ability to analyze, organize, and apply the information, concepts, and skills acquired in the first two years of the program. The third and fourth years are devoted heavily to research. During this period, the student may elect advanced graduate course work and gain additional teaching experience.

The final examination for the Ph.D. degree consists of a public oral defense of the dissertation. The dissertation is based on original research conducted with the guidance of the student's faculty advisor and four other faculty members.

Financial Aid

Financial aid is awarded on a competitive basis to students admitted to the Ph.D. program. Applications for aid should be completed by February 1.

Graduate Admission

An applicant for admission to the M.S. or Ph.D. programs in anatomy should be familiar with the following: an undergraduate degree in general biology, and upper level courses in general physics, and mathematics. For admission requirements, see the "Graduate Programs" section of the Catalog on pages 349-350. In addition to taking the Graduate Record Examination (GRE) Aptitude Test, applicants to graduate programs in anatomy are strongly encouraged to take the Medical College Admission Test (MCAT).

This is particularly useful to the applicant because some applicants whose undergraduate record may not reflect the individual's full capabilities.

Facilities

The department occupies over 35,000 square feet in the Brown Science Building on the health sciences campus of the university. These science house modern facilities and well-equipped research laboratories. The most modern instrumentation is available, including three high-resolution electron microscopes, a nitrogen analysis unit, spectrophotometer, cryostate, and an automated gamma counting system. Research is problem-oriented, rather than discipline-oriented, and is principally in the theme areas mentioned in the previous section.

Courses

621: Electron Microscopy

Lecture and laboratory techniques in electron microscopy. Open to nonchemistry majors only. Prerequisite: 531 or equivalent.

624: Human Neuroanatomy

Human brain and spinal cord, sensory, and motor systems. Prerequisite: 531 or equivalent.

625: Human Neuroanatomy

Human brain and spinal cord, sensory, and motor systems. Prerequisite: 531 or equivalent.

626: Human Neuroanatomy

Human brain and spinal cord, sensory, and motor systems. Prerequisite: 531 or equivalent.

627: Human Neuroanatomy

Human brain and spinal cord, sensory, and motor systems. Prerequisite: 531 or equivalent.

628: Human Neuroanatomy

Human brain and spinal cord, sensory, and motor systems. Prerequisite: 531 or equivalent.

629: Human Neuroanatomy

Human brain and spinal cord, sensory, and motor systems. Prerequisite: 531 or equivalent.

630: Human Neuroanatomy

Human brain and spinal cord, sensory, and motor systems. Prerequisite: 531 or equivalent.

631: Human Neuroanatomy

Human brain and spinal cord, sensory, and motor systems. Prerequisite: 531 or equivalent.

632: Human Neuroanatomy

Human brain and spinal cord, sensory, and motor systems. Prerequisite: 531 or equivalent.

633: Human Neuroanatomy

Human brain and spinal cord, sensory, and motor systems. Prerequisite: 531 or equivalent.

634: Human Neuroanatomy

Human brain and spinal cord, sensory, and motor systems. Prerequisite: 531 or equivalent.

635: Human Neuroanatomy

Human brain and spinal cord, sensory, and motor systems. Prerequisite: 531 or equivalent.

636: Human Neuroanatomy

Human brain and spinal cord, sensory, and motor systems. Prerequisite: 531 or equivalent.

637: Human Neuroanatomy

Human brain and spinal cord, sensory, and motor systems. Prerequisite: 531 or equivalent.

638: Human Neuroanatomy

Human brain and spinal cord, sensory, and motor systems. Prerequisite: 531 or equivalent.

639: Human Neuroanatomy

Human brain and spinal cord, sensory, and motor systems. Prerequisite: 531 or equivalent.

640: Human Neuroanatomy

Human brain and spinal cord, sensory, and motor systems. Prerequisite: 531 or equivalent.
Anesthesia


The department introduces the second-year medical student to anesthesia as a specialty. Students develop interviewing skills in the third-year resident student concept, and are introduced to anesthesiology, anesthetic technique, preoperative evaluation, preoperative management, and the care of the postoperative patient. They also observe the fourth-year student more intensive study in any or all phases of the department. Diverse clinical experiences, seminars and teaching conferences, and ongoing research activities develop in the postgraduate resident, or resident, the knowledge and skills required of a specialist in anesthesia.

Courses

1105/1106 Clinical Anesthesia 2 a.h. Required for junior medical students. Clinical anesthetic care in the operating room and recovery room. Includes seminars, clinical case conferences, small group discussion sessions.

1108: Global Anesthetic Behavior: An exploration and practical experience in various forms of anesthesia for surgical procedures: team techniques of general, spinal, epidural, and paracutaneous anesthetics. Emphasis is placed on improving maintenance skills: management of conscious patients and postoperative patients. Anesthesiologist, anesthetist, and medical complications of maintenance, including equipment and treatment. Course includes clinical case conferences, seminars, and interactive sessions with patients on anesthesiology.

1111: Intensive Care

Division of Associated Medical Sciences

Division Head: Rex Montgomery

The Division of Associated Medical Sciences provides for coordination of professional programs that presently include the training of medical technologists, nuclear medicine technologists, physical therapists, and physician assistants. Flexible undergraduate programs are established to prepare students for entry into these professional areas. The student is easily enrolled initially in the College of Liberal Arts and is assigned a faculty adviser from the division.

Although each program in the division has its own admission requirements, the first two years of undergraduate study are similar. Each program requires a foundation in biology, chemistry, and mathematics; physics, computer science, and psychology are also required by some programs and are highly recommended by others. The student should carefully plan his or her study program so that conflicts in specificity required courses do or occur. It is imperative that the student consult with the appropriate program adviser to assure the proper sequence of courses.

This is a typical curriculum for undergraduate students with options being exercised after consultation with program advisers. Programs are abbreviated as follows: MT—Medical Technology; NMT—Nuclear Medicine Technology; PA—Physician Assistant; PT—Physical Therapy.

Freshman Year

First Semester

10:02:01 Physical Education 4 a.h.
10:02:10 Physical Education 4 a.h.
4:13:01 Principles of Chemistry I 3 a.h.
2:15:01 Mathematics for the Biological Sciences 4 a.h.
Total 15 a.h.

Second Semester

10:02:02:01 Physical Education 4 a.h.
10:02:10:01 Physical Education 4 a.h.
4:14:01 Principles of Chemistry II 3 a.h.
3:13:01 Principles of Animal Biology (MT) 5 a.h.
4:16:01 Principles of Chemistry (MT) Lab-I 2 a.h.
Total 16-18 a.h.

Sophomore Year

First Semester

Humanities 3 a.h.
Social science 3 a.h.
Progr. Organic Chemistry I (MT, PA, PT) 3 a.h.
2:11:01 College Physics (NMT) 4 a.h.
3:13:01 Principles of Animal Biology (MT, PA, PT) 5 a.h.
1:02:01 General Microbiology (MT) 4 a.h.
2:11:01 Introduction to Medical Technology (MT) 1 a.h.
Physical education 1 a.h.
Total 15-18 a.h.

Second Semester

Humanities 3 a.h.
Progr. Organic Chemistry II (PA, PT) 3 a.h.
2:12:01 College Physics (NMT) 4 a.h.
3:13:01 Fundamental Genetics (PA, PT) 3 a.h.
3:13:01 Organic Chemistry I (PA, PT) 3 a.h.
3:13:01 General Psychology (PT) 4 a.h.
4:10:01 Introduction to Medical Technology (MT) 1 a.h.
4:10:01 Elementa Qualitative Analysis (MT) 4 a.h.
85:101 Introduction to Biostatistics (MT) Lab-I 3 a.h.
Total 14-18 a.h.

The student who has satisfactorily completed all the prerequisites has satisfied the minimum academic requirements for admission to the Medical Technology, Nuclear Medicine Technology, and Physician Assistan Program. Others complete the additional requirements below.

Junior Year

First Semester

Foreign language 4 a.h.
29:11:01 College Physics 4 a.h.
29:41:01 Human Genetics (PA) 3 a.h.
29:11:01 Comparative Vertebrate Anatomy 4 a.h.
37:11:01 Cell, Tissue, and Organ Biology 5 a.h.
5:13:01 Introduction to Clinical Psychology (MT) 4 a.h.
Total 15-18 a.h.

Second Semester

Foreign language 4 a.h.
29:11:01 College Physics 4 a.h.
29:11:01 Cell, Tissue, and Organ Biology 5 a.h.
Total 15-18 a.h.
### Division of Associated Medical Sciences/COLLEGE OF MEDICINE

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>37:128</td>
<td>Fundamental</td>
<td>3 a.h.</td>
<td></td>
</tr>
<tr>
<td>65:181</td>
<td>Introduction to Biostatistics</td>
<td>3 a.h.</td>
<td></td>
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<tr>
<td>Total</td>
<td></td>
<td>14-15 a.h.</td>
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</tr>
</tbody>
</table>

#### Senior Year
- General education, elective, or advanced courses in the departments of Biochemistry Microbiology, Chemistry, Zoology, 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:** Mario Schwabacher  
**Medical director:** James A. Shimell  
**Faculty:** associate professor James A. Germain, associate Danielle Riedesel, James O'Connor, Marcus Bernabellini, Alisa Smith-Voss, Paul Voss  
**Adjunct associate:** John Abid

Medical technologists perform laboratory tests upon which physicians rely for accurate diagnosis and proper treatment of disease. They are in demand in hospital, private, and governmental laboratories; clinics; physicians' offices; and industrial, pharmacists, biologists, and medical research laboratories. Medical technologists are highly skilled health team members who utilize a battery of sophisticated procedures and instruments in their work and who possess specialized knowledge and skills acquired through completion of a formal program of academic and clinical study.

The Medical Technology Program is accredited cooperatively by the College of Medicine, College of Liberal Arts, The University of Iowa Hospital and Clinics, and Iowa City Veterans Administration Medical Center. Satisfactionary completion of this program qualifies the student for all medical technology certification examinations. The program is approved by the Council on Medical Education of the American Medical Association and by the National Accrediting Agency for Clinical Laboratory Sciences.

The student has completed the required courses indicated above in the freshman and sophomore years; the remaining curriculum may be:

#### Junior Year

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
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<tr>
<td>72:140</td>
<td>Human Pathology</td>
<td>4 a.h.</td>
<td></td>
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<tr>
<td>62:101</td>
<td>Dynamics of health</td>
<td>4 a.h.</td>
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<table>
<thead>
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<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
<th>Type</th>
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<tbody>
<tr>
<td>Electives</td>
<td></td>
<td>4 a.h.</td>
<td></td>
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<tr>
<td>Total</td>
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<td>15 a.h.</td>
<td></td>
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</table>

#### Second Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>37:118</td>
<td>Parasitology</td>
<td>4 a.h.</td>
<td></td>
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<tr>
<td>65:161</td>
<td>Biotechnology</td>
<td>3 a.h.</td>
<td></td>
</tr>
<tr>
<td>Electives</td>
<td></td>
<td>5 a.h.</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>16 a.h.</td>
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#### Senior Year
- The clinical program comprises 12 months of didactic and practical training. The first six months are devoted to lectures, laboratory experience, demonstrations, and seminars covering theory and technique in the clinical laboratory sciences. During the last six months, 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:

- 69:120 Medical Technology Practice
- 69:121 Immunology for Medical Technologists
- 69:122 Clinical Chemistry for Medical Technologists
- 69:123 Immunohematology for Medical Technologists
- 69:124 Clinical Hematology for Medical Technologists
- 69:125 Microbiology for Medical Technologists
- 69:126 Clinical Chemistry for Medical Technologists
- 69:127 Clinical Immunohematology for Medical Technologists
- 69:128 Clinical Microbiology for Medical Technologists
- 69:129 Clinical Hematology for Medical Technologists

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 November 1. 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 courses work during the fall semester and 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.

Sixteen semester hours of chemistry, including qualitative analysis, quantitative analysis, organic chemistry, and biochemistry;

Six semester hours of mathematics, including a course in statistics; and

Sixteen semester hours of biology, including general zoology, microbiology, physiology, and parasitology.

Admission is on a competitive basis. Minimum cumulative grade-point averages of 2.5 overall and 2.5 in science courses are generally required. An applicant who enters the program as an nongraduate student must meet the general admission requirements of the University's College of Liberal Arts, and should consult with the director of the Medical Technology Program as early as possible to plan practical studies to meet all requirements.

#### Expenses

Medical Technology students in the professional year curriculum are responsible for their text books, University tuition, and student fees. Laboratory costs and equipment such as Microscopes are provided by the program.

#### Nuclear Medicine Technology

**Medical director:** Peter T. Kitcher  
**Acting program director:** Kenneth A. Holmes  
**Technical director:** John A. Biskup  
**Faculty:** professors Frank H. Muench, James G. Duke, and Kenneth A. Holmes  
**Adjunct:** associate professor Peter T. Kitcher, Regina H. Sliva  
**Adjunct:** assistant professor Charles J. Bachle, David E. Beckoff

Nuclear medicine technology is a medical specialty which uses radiopharmaceuticals, radiographic, therapeutic, and research purposes. It is a rigorous, dynamic field that has grown rapidly over the past two decades and is still expanding and growing in complexity. This continued expansion of the specialty has fostered a strong demand for highly skilled and motivated nuclear medicine technologists.

Nuclear medicine technologists are employed in hospitals and clinics. At the heart of nuclear medicine technology is the use of sophisticated detectors and computers to trace the movement and localization of radioactive tracers in the human body.

Other basic job responsibilities may include: 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. It is a skill that these nuclear medicine technologists work hand-in-hand with nuclear medicine physicians, health
physicists, radiopharmacists, and radiochemists as an integral part of a highly trained specialty team.

The Nuclear Medicine Technology Program at the University of Iowa is fully accredited by the Commission on Allied Health Education and Accreditation, and the Council on Medical Education of the American Medical Association.

Enrollment is limited by the requirements established by the Joint Commission on Accreditation of Hospitals.

The Bachelor of Science degree in nuclear medicine technology is available to full-time, degree-seeking students who have completed three years of practical work in the field.

Prior to the start of the program, students must complete 12 semester hours of science courses, including calculus (or a high school equivalent), linear algebra, and computer science. A minimum of 45 semester hours is required to graduate.

Required courses:
- Human Anatomy and Physiology
- Introduction to Nuclear Medicine
- Physics for Nuclear Medicine
- Medical Imaging
- Nuclear Medicine Principles
- Nuclear Medicine Techniques
- Nuclear Medicine Applications
- Nuclear Medicine in Clinical Practice
- Nuclear Medicine in Research

Electives:
- Dynamics of Health
- Principles of Human Pathology

Senior Year:
The curriculum of this year is organized in accordance with the requirements of an Accredited Educational Program in Nuclear Medicine Technology. Courses are taught in the following areas:
- Radiopharmacology
- Radiophysics
- Radiology
- Nuclear Medicine
- Nuclear Medicine Applications
- Nuclear Medicine in Clinical Practice
- Nuclear Medicine in Research

Admission:
Students must have completed the following courses with a grade of C or better:
- Calculus
- Linear Algebra
- Computer Science

Applicants must also submit an application to the University of Iowa's Office of Graduate Admissions.

Financial Aid:
Students who meet the eligibility requirements for financial aid may apply for undergraduate financial aid. Scholarships, grants, loans, and part-time job placement are administered by the University's Office of Student Financial Aid and are awarded on the basis of demonstrated need. Part-time work within the Department of Radiology is also available on a limited basis.

Physical Therapy
Program director: Gary L. Brem, Ph.D.

Faculty: senior physical therapist, Sandra Price, B.S.; assistant professor, Mary B. McLaughlin, B.S.

Assistant professor, W. Michael Weidner, B.S., M.P.T.

Graduate assistant, William J. Cook, B.A.

Degree offered: B.S., M.A.

Program director: Frank J. Carlin, M.S., C.P.T.

Assistant professor, Donald Smith, B.S., M.P.T.

Degree offered: B.S., M.P.T.

Program director: James M. McLaughlin, M.S., C.P.T.

Assistant professor, Charles J. Brown, B.S., M.P.T.

Degree offered: B.S., M.P.T.

Program director: John A. Doherty, M.S., C.P.T.

Assistant professor, Michael J. O'Sullivan, B.S., M.P.T.

Degree offered: B.S., M.P.T.

Program director: John A. Doherty, M.S., C.P.T.

Assistant professor, Michael J. O'Sullivan, B.S., M.P.T.

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Assistant professor, Michael J. O'Sullivan, B.S., M.P.T.

Degree offered: B.S., M.P.T.

Program director: John A. Doherty, M.S., C.P.T.

Assistant professor, Michael J. O'Sullivan, B.S., M.P.T.

Degree offered: B.S., M.P.T.
Professional Program

The professional program in physical therapy at The University of Iowa is fully accredited by the American Physical Therapy Association and the Council on Medical Education of the American Medical Association. Satisfaction of the professional program qualifies candidates for the Professional Examination Service (PES) 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.
- 101:110 Kinesiology 3 s.h.
- 101:181 Therapeutic Physical Agents I 3 s.h.
- 111:141 Introduction to Physical Therapy 1 s.h.
- 69:203 Introduction to Human Pathology 2 s.h.

Second Semester
- 60:106 Human Anatomy and Neuroanatomy 4 s.h.
- 72:180 Intermediate Physiology 4 s.h.
- 101:85 Therapeutic Exercise I 2 s.h.
- 101:118 Clinical Observation 0 s.h.
- 101:120 Introduction to Clinical Medicine I 1 s.h.
- 101:122 Emotional Aspects of Disability 1 s.h.
- 101:90 Physical Agents II 2 s.h.
- 121:154 Applied Biostatistics 2 s.h.

Third Semester
- 101:102 Fundamentals of Orthopaedics 3 s.h.
- 101:111 Therapeutic Exercise II 4 s.h.
- 101:121 Principles of Neurology and Clinical Sciences 1 s.h.
- 101:95 Clinical Education in Rehabilitation 2 s.h.
- 101:123 Scientific Inquiry 2 s.h.
- 121:121 Physical Therapy Administration 1 s.h.
- 101:120 Fundamentals of Cardiopulmonary Therapeutics 2 s.h.
- 101:123 Evidence-based Therasics and Orthotics 1 s.h.

Fourth Semester
- 101:120 Clinical Internship err.

Admission to Professional Program

A new class is admitted to the professional certification program each fall. Students may enter the program following their junior year of college or after earning a baccalaureate degree.

A student entering the program after the third year of undergraduate study must be able to satisfy all requirements for the baccalaureate degree by successfully completing the first year of the professional certification program. Undergraduate students who complete their professional work at other colleges or universities must meet the general admission and graduation 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 one semester of college study, including a complete introductory course in zoology or biology (12 semester hours; zoology preferred), a complete introductory course in chemistry (8 semester hours), a complete introductory course in physics (8 semester hours), a complete introductory course in psychology (8 semester hour), one college-level mathematics course (3 semester hours), and statistics (3-5 semester hours). The student must have completed all science courses in the MBL departments offering the courses, and all must include at least one four-hour laboratory instruction.

The applicant should have a minimum overall grade-point average of 2.7, and a 2.0 minimum in all courses in zoology or biology, chemistry, physics, and psychology.

Graduate applicants must take the Graduate Record Examination (GRE) Aptitude Test prior to admission. Undergraduates must take the GRE during the first year of professional training. Results of the examination must be mailed to The University of Iowa.

Personal interview may be required.

The physical therapy assistant, dietitian, and physician disciplines will accept the candidates who appear to be best qualified for the study and practice of the profession.

Applications are accepted beginning September 1 for the following year. Prospective students are urged to apply early as possible. The closing date is February 1.

Expenses

In addition to general University expenses, students in the Physical Therapy Program are ineligible for purchase of university, extra-curricular insurance, and course lab fees.

Master of Arts

The Master of Arts in physical therapy emphasizes research and teaching in three areas of physical therapy: electromyography (neuromuscular), neuro-anatomy (neurology), and cardiology. Physical education and physical therapy are included in the physical therapy area. Clinical experiences and seminars are offered. The program focuses on theoretical and practical bases for assessment and treatment of abnormal human movement. The master's degree requires a minimum of 30 semester hours of graduate work. Completion of basic master's program in physical therapy is a prerequisite. Clinical experience is recommended.

Physical therapy laboratories are available for human and animal studies. These laboratories are well equipped with electromechanical systems for assessment of locomotor functions such as muscle strength, gait, posture, reflexes, muscle activity (EMG), endurance, and aerobic capacity. Equipment includes laboratory computers. Use of extra departmental laboratories may also be arranged.

Collaborative studies are encouraged with other departments, such as neurology, internal medicine, pediatrics, orthopaedics, pathology, anatomy, engineering, pharmacology, and with personal in the physical therapy clinics. A student successfully completing the M.A. program in physical therapy will:

- Be able to engage in scholarship and research directed toward the discovery of new knowledge and the development of theoretical principles that will advance the understanding of physical therapy clinical practice;
- Be able to teach at the basic professional level of physical therapy training and show promise of ability to teach at an advanced level of instruction;
- Have a knowledge of the physical therapy clinical practice and the literature relevant to a specific topic;
- Be well in the application of basic concepts in the areas of mechanobiology, neuromuscular, and cardiovascular physical therapy.

Required courses:

- 101:301 Thesis Physical Therapy
- 101:202 Medical Interscience
- 101:203 Biomechanics and Biosense
- 101:301 Motor Control of Human Motion I
- 101:203 Pulmonary Therapeutics
- 101:275 Evaluation of Selected Neurological Disorders
- 101:2020 Teaching Practicum I
- 101:2020 Teaching Practicum II
- 101:2020 Clinical Educational Practicum
- 101:2065 Research in Physical Therapy
- 101:3065 Analysis of Scientific Literature

Recommended courses:

- 101:263 Independent Study
- 27:101 Advanced Anography and Katheater
- 101:2030 Introduction to Human Pathology
Physician Assistant Program

Program Director: Debra Silver
Medical Director: Douglas W. Lusk
Faculty: associate professor Douglas W. Lusk
George Green clinical coordinator Gary Johnson
Degree offered: M.S.

The physician assistant is qualified by general education, training, experience, and personal character to provide patient services under the responsible supervision of a licensed physician.

The physician assistant serves in a variety of ways and provides a wide range of medical and surgical services. In a typical office setting, he or she is frequently the first contact for a patient. To take the initial history, do an appropriate physical examination, and order necessary laboratory or X-ray studies. For many common problems he or she may formulate and initiate a treatment plan.

The patient may or may not see the physician depending on the severity of the problem. The physician is consulted frequently by the physician assistant for each patient's chart in a timely manner.

As an extension of the physician, the physician assistant assists in many hospital services, 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. The program qualifies students for the Bachelor of Science degree and for the opportunity to take the National Certifying Examination for Primary Care. 

Physicians Assistants. Successful completion of the national certifying examination is a prerequisite for registration in Iowa.

The Physician Assistant Program at the University of Iowa prepares students for 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 practitioners, the development of new models of health care system. These medical family practice clinicians integrate the student and provide a comprehensive patient assistant in the medical delivery team with physicians, health technicians, public health nurses, clinical nursing staff, and social service personnel.

Professional Program

The Physician Assistant Program is an integral part of the College of Medicine. The first year of the program is taken at the University of Iowa Iowa City. A major portion of the second-year clinical work occurs throughout the state in primary care settings.

The second year is divided into three broad phases. The initial, didactic phase consists of seven months of course work in the basic science areas. A seminar course specifically directed to the history, development, and role of the physician assistant profession is also offered during this session.

The second phase is 60:121 Introduction to Clinical Medicine for Physician Assistant Students. This full semester course involves the application of basic science knowledge to understanding clinical-pathologic correlations of the common and (or) conspicuous disorders encountered in the health disciplines of clinical medicine. This student also is instructed in the science and art of obtaining a medical history and performing a thorough physical examination. This course is taken with sophomore medical students.

The third, clinical phase consists of supervised rotations of two, four, or six weeks duration in required and selected specialties. These clinical rotations are designed to provide the student with instruction and experience in the care of patients in the manner which facilitates effective integration of the knowledge, skills, and attitudes derived from the basic science and pre-clinical phases of the program. Isolation clinic training is provided by The University of Iowa Hospitals and Clinics, the Veterans Administration Medical Centers in Des Moines and Iowa City, and other physician assistant and health care personnel at Muscatine, Davenport, Sioux City, Waterloo, and Des Moines. Students gain additional clinical experience through placement in selected preceptors involved in clinical work in private practice or in community hospitals.

The didactic and clinical phases of the program prepare primary care clinicians to deliver the care of physician assistants of this type of service team. The program is integrated into the teaching of the College of Medicine, thus permitting interdisciplinary activities in clinical, research medical and health care professional activities.

Professional Curriculum

First Year

Phase I

71:125 Pharmacology for Health Sciences: Physician Assistant Students 4 h.
50:105 Law and Medicine for Physician Assistant Students 4 h.
60:111 Gross Human Anatomy for Physician Assistant Students 4 h.
61:110 Microbiology for Physician Assistant Students 4 h.
89:203 Introduction to Human Pathology 4 h.
69:130 Clinical Pathology for Physician Assistant Students 4 h.
72:164 Human Physiology for Physician Assistant Students 4 h.
99:164 Biochemistry for Physician Assistant Students 4 h.
17:220 Family Practice for Physician Assistant Students 2 h.
17:221 Family Practice (Elective) 2 h.
Phase II

40:121 Introduction to Clinical Medicine for Physician Assistant Students 20 h.

Second Year

Phase III

Clinical rotations: 70:505 Pediatrics for Physicians Assistant Students 4 h.
76:555 General Surgery for Physician Assistant Students 4 h.
76:555 General Medicine for Physician Assistant Students 4 h.
10:555 Family Practice I for Physician Assistant Students 4 h.
10:556 Family Practice II for Physician Assistant Students 4 h.
10:100 Obstetrics and Gynecology for Physician Assistant Students 4 h.
72:102 Toxicology for Physician Assistant Students 4 h.
10:100 Elective for Physician Assistant Students 4 h.

Elective clinical rotations, selected from

70:103 Pediatrics Elective for Physician Assistant Students 4 h.
78:105 Emergency Room for Physician Assistant Students 4 h.
78:102 Orthopedics for Physician Assistant Students 4 h.
10:600 Family Practice Elective for Physician Assistant Students 4 h.
78:100 Internal Medicine Elective for Physician Assistant Students 4 h.
A new class begins the last week in May. Applications are accepted beginning one year in advance, and close January 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 $2000. Microscopes are not required.

**Courses**

151: Physician Assistant Clinical Second Year 3 cr.
117: Clinical to Physician Assistant Students 0-4 cr.
Lectures, readings, and group sessions meeting with the history and development of physician assistant professions. Open only to students in the Physician Assistant Program.
113: 2000 Advanced Emergency Medicine for Physician Assistants 2 cr.
Four weeks of intensive training in emergency medicine. A wide variety of cases are presented in a simulated emergency-rescue setting; each student is required to maintain an individual patient management and accurate emergency experience. Open only to attending physician assistant students and graduates physician assistants.

**Biochemistry**

Department head: Edward C. Hecht

**Undergraduate Programs**

See "Biochemistry" in the Liberal Arts section of the Catalog.

**Graduate Programs**

The Department of Biochemistry offers programs of study leading to the M.S. and Ph.D. degrees. The department also offers opportunities for qualified and interested students to pursue M.S.-M.D. or Ph.D.-M.D. (medical entomology training) combined programs.

The focus of the graduate program is on the individual student, whose educational needs are met in formal coursework and by tutorial conferences in the research areas from which they may choose a thesis topic.

First-year pre-medical students usually take general and advanced biochemistry courses (352-130 Physical Biochemistry), a seminar on effective oral presentation (99-262 Seminar), and elective courses. Students spend about half of their time working in three different biochemistry 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 projects, begin their thesis projects, and take elective courses that supplement their interests and preparation. Students are required to complete a minimum of 10 semester hours of 2,500 level courses in biochemistry (chosen from the 40 offered) and 10 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 concomittantly to thesis work. The program culminates in the completion of the thesis work, and its successful defense before the thesis committee.

In addition to meeting three and the general requirements of the Graduate College, students are expected to assist in the teaching of biochemistry for two or three semesters, as part of their training.

Throughout the program, students are associated with small seminar groups and the biochemistry faculty members who serve as research advisors.

**Research Interests**

The department's current research interests include aspects of physical biochemistry, effects of confuguration on composition and chemical and biochemical reactivity of the enzymes, hormone control mechanisms, structure and stability of chromosomal, gene control in higher organisms, biochemistry of glycoproteins, control of glycopeptide synthesis, mechanism and control of protein synthesis, biochemistry of proteins, characterization of liver and hepatoma enzymes, neurochemistry and metabolism, thermogenic mechanisms, enzyme mechanisms, and biosynthesis of amino acids and biochemical changes during development.
Facilities
Biology shares modern research quarters of the Basic Sciences Building with the departments of Anatomical, Microbiology, Pharmacology, and Physiology. Research and teaching laboratories in each department are interrelated, and faculty members with common interests are grouped around cores of important research facilities and libraries for further helping to bring the various groups into a more intimate relationship with one another.

The individual staff research laboratories are large and are equipped with abundant real estate, including plentiful facilities for animal and culture rooms, including instrument rooms, meeting rooms, cold rooms, dark rooms, culture kitchens, and stockrooms. A facility for research on questions of technical skill such as glassblowing, machine shops, X-ray facilities, and computers and electronic devices, and by services supplied by photographers, illustrators, a secretarial staff, stockroom supervisors, a purchasing agent, and technicians. The department is well supplied with virtually all of the equipment used in modern biochemical research, including analytical and preparative ultracentrifuges, fluorescence spectrophotometers, infrared absorption and optical gelation, spectrophotometers, infrared recording spectrophotometers, X-ray diffractometers, computer terminals, and a number of Cary spectrophotometers.

In addition to the departmental teaching and research facilities, the Health Sciences Library and the various other departmental branches of the University Libraries system.

Financial Assistance
Financial assistance is available to all students admitted to the doctoral program in biochemistry.

Admission
The graduate program in biochemistry is sufficiently broad to accommodate students with bachelor's degrees in any of the following fields: biochemistry, biology, chemistry, physics, and mathematics. A student with demonstrable ability may be admitted to the program on a case-by-case basis.

Beyond the general Graduate College admission requirements (see the Graduate College section of the Catalog) minimum requirements of the
degree to include an undergraduate grade-point average of 3.0 (A=4.0, 3.0 in science and math) in the advanced undergraduate courses, and an acceptable score on the verbal, quantitative, and analytical sections of the Graduate Record Examination (GRE) Aptitude Test.

Courses
09/100 Senior Undergraduate 3.0
    Introduction to the fundamentals of biological systems and processes. This course is mandatory for all prospective graduate students in the department.

09/110 Biochemistry 3.0
    Principles of chemical and molecular dynamics of biological systems. This course is mandatory for all prospective graduate students in the department.

09/120 The Quantum of Biological Materials 3.0
    Classical and quantum mechanics of the structure and function of biological systems. This course is mandatory for all prospective graduate students in the department.

09/130 Biochemistry 3.0
    Molecular dynamics of biological systems: how energy is stored, released, and utilized within the cell. This course is mandatory for all prospective graduate students in the department.

09/140 Physical Biochemistry 4.0
    Theory and interpretation of physical chemical measurements which relate to biochemical systems. This course is mandatory for all prospective graduate students in the department.

09/150 Experimental Biochemistry 4.0
    Quantitative and qualitative techniques for the elucidation of biochemical systems. This course is mandatory for all prospective graduate students in the department.

09/160 Biochemistry of Degradation 3.0
    The degradation of cellular structures and processes. This course is mandatory for all prospective graduate students in the department.

09/170 Research Independent 3.0
    A program designed to accommodate students with more advanced training in biochemistry, who have been accepted in the health sciences college. This course is mandatory for all prospective graduate students in the department.

09/180 Research Independent 3.0
    A program designed to accommodate students with more advanced training in biochemistry, who have been accepted in the health sciences college. This course is mandatory for all prospective graduate students in the department.

09/190 Introduction to Graduate Studies 2.0
    A program designed to accommodate students with more advanced training in biochemistry, who have been accepted in the health sciences college. This course is mandatory for all prospective graduate students in the department.

09/200 Research Independent 3.0
    A program designed to accommodate students with more advanced training in biochemistry, who have been accepted in the health sciences college. This course is mandatory for all prospective graduate students in the department.

09/210 Introduction to Graduate Studies 2.0
    A program designed to accommodate students with more advanced training in biochemistry, who have been accepted in the health sciences college. This course is mandatory for all prospective graduate students in the department.

09/220 Research Independent 3.0
    A program designed to accommodate students with more advanced training in biochemistry, who have been accepted in the health sciences college. This course is mandatory for all prospective graduate students in the department.

09/230 Research Independent 3.0
    A program designed to accommodate students with more advanced training in biochemistry, who have been accepted in the health sciences college. This course is mandatory for all prospective graduate students in the department.

09/240 Research Independent 3.0
    A program designed to accommodate students with more advanced training in biochemistry, who have been accepted in the health sciences college. This course is mandatory for all prospective graduate students in the department.

09/250 Research Independent 3.0
    A program designed to accommodate students with more advanced training in biochemistry, who have been accepted in the health sciences college. This course is mandatory for all prospective graduate students in the department.

09/260 Research Independent 3.0
    A program designed to accommodate students with more advanced training in biochemistry, who have been accepted in the health sciences college. This course is mandatory for all prospective graduate students in the department.

09/270 Research Independent 3.0
    A program designed to accommodate students with more advanced training in biochemistry, who have been accepted in the health sciences college. This course is mandatory for all prospective graduate students in the department.

09/280 Research Independent 3.0
    A program designed to accommodate students with more advanced training in biochemistry, who have been accepted in the health sciences college. This course is mandatory for all prospective graduate students in the department.

09/290 Research Independent 3.0
    A program designed to accommodate students with more advanced training in biochemistry, who have been accepted in the health sciences college. This course is mandatory for all prospective graduate students in the department.

09/300 Research Independent 3.0
    A program designed to accommodate students with more advanced training in biochemistry, who have been accepted in the health sciences college. This course is mandatory for all prospective graduate students in the department.
Dermatology

Department head: John B. Brunov
Faculty: professor Richard W. Coman, Daniel T. Owings, John B. Brunov, professor Dennis L. Barnard, professor Thomas L. Re, associate professor Robert W. Kerber, professor Roger C. Coffin, Robert F. Oakes, Randall Merritt, Joseph Fuchs, Jason E. Yatowsky
Clinical director: Donald O. Johnson, Jr., Susan Pelt

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 must spend two weeks in the clinic and attend about 10 one-hour lectures. A good cross-section of patients is available, due to the proximity of many senior citizens. Additional patients are seen at the nearby Veterans Administration Medical Center.

Various electives are available for fourth-year medical students, including courses in dermatologic research, and special studies.

Courses

801:1 Clinical Dermatology 3 s.h.
Basic dermatology; third medical school year; less than independent study materials, clinical experience.

801:2 Dermatology Electives 1-3 s.h.
Fourth-year medical students spend four weeks in advanced clinical rotation in dermatologic surgery, and special assignments.

804:1 Research in Dermatology 1 s.h.
Elective emphasis in medical research; clinical or independent study.

Dietetic Internship

Director: Rose Ann Sapio
Educational coordinator: Beverly McGinn

University of Iowa Hospitals and Clinics offers a dietetic internship program which qualifies graduates to take the American Dietetic Association registration examination. The program is fully accredited by the ADA. Courses composing the program are administered by The University of Iowa College of Medicine. The full-time program is required:

50:201-202 Dietetic Seminar 1 s.h.
50:203-204 Clinical Dietetics 4 s.h.
50:205-206 Projects in Dietetics 2 s.h.
50:208-210 Hospital Diet and Administration 4 s.h.

The following are recommended electives:

56:207-208 Dietetic Research 1 s.h.
56:216-218 Comprehensive Nutrition 2 s.h.
50:218 Analysis of Food Service Systems
65:211 Nutrition of the Child 2 s.h.

Students generally complete the program with 15-17 semester hours of graduate credit. University Hospitals awards a certificate to graduates of the program. Credit earned in the program may be applied toward an advanced degree, and approximately half of the graduates of the program do go on to complete advanced degree programs, most typically the master’s degree in home economics, preventative medicine, health education, or business administration.

American Dietetic Association and University of Iowa Graduate College requirements for admission to the program include the bachelor’s degree with a strong background in food and nutrition, food service management, and business sciences.

Students must enter the program in the fall semester. The deadline for application is March 1. University Hospitals pays an internship stipend which partially covers educational and living expenses. For descriptions of program courses, see the "Dietetic Internship" section in this section of the Catalog.

Family Practice

Department head: Robert E. Naylor
Faculty: professors Janet J. Chagnon, Robert E. Naylor, Lee M. Smith, Robert R. Minster, associate professor William M. Blumberg, William J. Diserio, Craig L. Sible, Louise P. Pukor, Diane G. Williams
Assistant professors Elizabeth A. Baca, Phyllis G. Coughlan, Charles E. Dierker, Richard W. Nesham, Paul E. Williams

The Family Practice Program was affiliated in response to the need for more primary care physicians in Iowa and throughout the nation.

Appropriate course work in the department is included throughout the four-year M.D. program. The department’s senior-year rotations give students opportunities for exposure to various forms of community work in affiliated hospitals or to contact with the Department’s Outpatient, and University Hospital’s office, and in preceptorships with selected family physicians throughout the state. There is also ample opportunity for study during the senior year, and an international health care elective offered exposure to primary health care systems of other countries.

Residency

The department directs a three-year residency program, graduates of which are eligible for certification by the American Board of Family Practice. This residency trains physicians to provide continuing and comprehensive care to the total family unit, utilizing a concept integrating the patient, allied health professionals, and the physician into an efficient and effective health care team.

The program is intersessionally flexible to allow each resident freedom to tailor his or her training to individual interests and

801:2 Dermatology Electives

804:1 Research in Dermatology

50:201-202 Dietetic Seminar

50:203-204 Clinical Dietetics

50:205-206 Projects in Dietetics

50:208-210 Hospital Diet and Administration

56:207-208 Dietetic Research

56:216-218 Comprehensive Nutrition

50:218 Analysis of Food Service Systems

65:211 Nutrition of the Child

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Family Practice/College of Medicine

Family Practice.

Teaching Fellowship

A two-year teaching fellowship in family practice begins each July 1. Its primary goal is to train physicians for academic roles in family practice departments or residency programs. Skills taught include research methodologies, administrative and teaching techniques, and modern educational methods.

Special Facilities

The department office is located in Chico, California, and is the center of the University of California department of family offices and the University Hospital's Family Practice Office. The department also maintains a family practice office at the University Hospital and a teaching office at the University Hospital. All offices are open from 8:00 a.m. to 5:00 p.m. Monday through Friday.

Courses

115.042 Human Development in Medicine

Weekly meeting of small groups of students for self-analysis, interpersonal skill building, and group dynamics. The group is open to all medical students. 1.0 a.s.

115.201 Principles of Family Medicine

The course is designed to provide an overview of the specialty of family medicine. It includes lectures, case studies, and small group discussions. 3.0 a.s.

115.203 Human Sexuality

A course designed for medical students in medicine from the tertiary care setting. Intended to show family practice as a career alternative. 1.0 a.s.

115.204 Family Practice, Outpatient, and Residency

A course designed to provide an overview of the specialty of family medicine. It includes lectures, case studies, and small group discussions. 3.0 a.s.

115.205 Family Practice, Inpatient, and Residency

A course designed to provide an overview of the specialty of family medicine. It includes lectures, case studies, and small group discussions. 3.0 a.s.

115.206 Family Practice, Hospital, and Residency

A course designed to provide an overview of the specialty of family medicine. It includes lectures, case studies, and small group discussions. 3.0 a.s.

115.207 Family Practice, Primary Care, and Residency

A course designed to provide an overview of the specialty of family medicine. It includes lectures, case studies, and small group discussions. 3.0 a.s.

115.208 Family Practice, Community, and Residency

A course designed to provide an overview of the specialty of family medicine. It includes lectures, case studies, and small group discussions. 3.0 a.s.

115.209 Family Practice, Public Health, and Residency

A course designed to provide an overview of the specialty of family medicine. It includes lectures, case studies, and small group discussions. 3.0 a.s.

115.210 Family Practice, Policy, and Residency

A course designed to provide an overview of the specialty of family medicine. It includes lectures, case studies, and small group discussions. 3.0 a.s.

115.211 Family Practice, Ethics, and Residency

A course designed to provide an overview of the specialty of family medicine. It includes lectures, case studies, and small group discussions. 3.0 a.s.

115.212 Family Practice, Law, and Residency

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115.213 Family Practice, Finance, and Residency

A course designed to provide an overview of the specialty of family medicine. It includes lectures, case studies, and small group discussions. 3.0 a.s.

115.214 Family Practice, Technology, and Residency

A course designed to provide an overview of the specialty of family medicine. It includes lectures, case studies, and small group discussions. 3.0 a.s.

115.215 Family Practice, Research, and Residency

A course designed to provide an overview of the specialty of family medicine. It includes lectures, case studies, and small group discussions. 3.0 a.s.

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115.228 Family Practice, Technology, and Residency

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115.229 Family Practice, Research, and Residency

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115.230 Family Practice, Education, and Residency

A course designed to provide an overview of the specialty of family medicine. It includes lectures, case studies, and small group discussions. 3.0 a.s.
Genetics

The Ph.D. program in genetics is an interdepartmental program involving members of the Departments of Biological Sciences (Genetics), Biochemistry, Botany, Microbiology, and Zoology, as well as a number of faculty members in clinical departments. See "Genetics" under "College of Liberal Arts" for a list of participating faculty members, degree requirements, and courses offered.

Hospital and Health Administration

Program director: Samuel Levy
Faculty: professors Samuel Levy, James L. Price, professors Emeritus Gerhard Harrer, associate professor Linda H. Davis

Students are expected to complete the program in four years.

The Master of Arts Program is designed for individuals who seek executive positions in health organizations. The Master of Arts Program is oriented primarily to individuals who are interested in careers in teaching and research in the health fields, although individuals seeking senior managerial appointments in health organizations are also encouraged to apply.

The graduate program in Hospital and Health Administration accepts responsibility for the management and development of the University's Center for Health Services Research 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 providing students with the knowledge, attitudes, and skills required to function in responsible managerial positions in hospitals, long-term care institutions, ambulatory care facilities, planning agencies, and related health organizations.

In the first year, courses are designed to familiarize students with the social, political, economic, and legal environment of hospitals and health care institutions. Concepts, tools, and techniques for effective and efficient managerial decision making, planning, and control are introduced. The entire program is based on an interdisciplinary approach which includes exposure to the theoretical and applied aspects of health systems management.

In the second year, the curriculum is oriented to the special interests and career objectives of individual students. Upon recommendation of the faculty, an administrative residency may be arranged. Students will be provided with opportunities to concentrate in areas such as hospital administration, health planning, or long-term care administration.

Although a thesis is optional for the master's degree, students who wish to pursue doctoral studies are encouraged to engage in research leading to preparation of a thesis.

The normal program of study leading to the master's degree requires the completion of 64 semester hours of graduate work. All master's students must complete eight required core courses which represent a core of disciplines and fields of knowledge. These courses are as follows:

80:101 Introduction to Health Care Organization 3 s.h.
80:102 Health Administration 3 s.h.
80:104 Economics of Health Care 3 s.h.
80:106 Legal Aspects of Health and Medical Care 3 s.h.
80:122 Financial Management of Hospital and Health Institutions 3 s.h.
80:227 Quantitative Methods in Health Administration 3 s.h.
80:336 Quantitative Applications in Health Care 3 s.h.

In addition to electives offered by the program, students are encouraged to take advantage of relevant courses offered by the Department of Preventive Medicine and Environmental Health in the College of Public Health, Nursing, Pharmacy, Education, and Liberal Arts.

Five Year Program

An early admissions plan supported by the W. K. Kellogg Foundation enables a student to complete both the M.A. and undergraduate requirements in five years. Traditionally, students entering the field of hospital or health administration have exhibited an early interest in the health sciences or management. Diversity of background will contribute to the development of a pool of well-trained administrators who can offer differing perspectives on problem resolution. This plan seeks to attract exceptional students from diverse backgrounds.

The student's undergraduate college must be willing to award the bachelor's degree after the student's successful completion of a specified number of graduate semester hours. Upon receiving the bachelor's degree, the student becomes eligible for admission to the Graduate College, a prerequisite for receiving a graduate degree.

Students who wish to be considered for the early admissions plan should apply directly to the program during the third year of their undergraduate degree. The application will make it possible for the applicant to be advised regarding prerequisites. Letters of inquiry and applications should note that early admission is desired.

Joint Programs

Students may wish to pursue an integrated program leading to a graduate degree in hospital and health administration and a graduate degree in another discipline such as business administration or urban and regional planning. Joint programs of study are encouraged. Applicants interested in a joint program should indicate when submitting their application for admission.

Doctor of Philosophy

The primary purpose of the doctoral program is to prepare scholars who are competent in the research and teaching in policy development in the health fields.

At the doctoral level, the curriculum is organized into four basic fields of study.
Medical Scientist Training Program

Program Director: Robert E. Felton (Physiology)

The Iowa Medical Scientist Training Program is designed to prepare highly qualified men and women for a lifetime career of creative activity in the preclinical and clinical sciences. To accomplish this, the program provides a means for efficient integration of graduate education and doctoral research with the full complement of clinical studies necessary for the medical degree. With few exceptions, the requirements for the combined M.D. and Ph.D. degree can be completed in six to seven years of continuous study.

In the first two years of the program, trainees are enrolled in the College of Medicine for the basic science and introductory clinical portions of that curriculum. In the first three semesters, the basic science core provides trainees with a broad exposure to both the language and organizing concepts of the preclinical sciences, which form the foundation essential for all subsequent medical training. In the first semester trainees take courses in biochemistry, microanatomy, gross anatomy, and biostatistics. In the second semester they take physiology, microbiology, general pathology, and embryology. The first semester of year two is devoted to the study of pharmacology, systemic pathology, community health sciences, neuropathology, and behavioral sciences.

In the second semester of the second year, trainees are enrolled full time in an introduction to Clinical Medicine sequence which integrates the preclinical sciences, background knowledge, and skills necessary for building and maintaining competency of the clinician. 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 six-week clinical clerkships in two of the following disciplines: medicine, pediatrics, psychiatry, surgery, and obstetrics and gynecology.

In years three, four, and five, 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 appropriate to their development as independent investigators. This academic training is directly supervised by the faculty of the student’s graduate department.

As soon as trainees complete the graduate component of their training, they immediately return to the College of Medicine to begin a full clinical year. This year serves two important purposes. First, it allows the trainee to take on his or her considerable and growing fund of information and to begin acquiring the medical skills specific to the discipline in which he or she acquired in the second year of the program. Completion of the final 36 weeks of clinical clerkships, including medical and surgical subspecialties, requires the achievement of the M.D. and Ph.D. degrees.

Financial Support

Trainees admitted to the first year of the program receive an award, including stipend and fees, adequate to provide a Medical Scientist Training Program resident with the professional opportunities in the University of Iowa and the National Institutes of Health. The current annual award is $4,500 per year. Support from this grant will be continued for at least six years, or provided trainees achievement and progress remains satisfactory. In cases of trainees admitted to advanced standing in the program are arranged on an individual basis.

Eligibility

All applicants must be acceptable 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 credentials, including strength in physical and mathematical sciences, the applicant should demonstrate aptitude for and commitment to scientific research. Competent training experience, usually through productive research experiences as undergraduate or graduate research. Applications are normally accepted from students requesting admission to the first year of the program. Consideration will also be given to applications for 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 as soon as possible after June 15. At the same time, applicants should request a separate Medical Scientist Training Program application form from the Program Office, 8-690 Boeing Science Building, University of Iowa, Iowa City, Iowa 52242. The application to the Medical Scientist Training Program is reviewed by a Program Selection Committee after the AMCAS selection is 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 consideration will be given to applications regardless of the state of residence.

All candidates in receipt of the Medical Scientist Training Program should take both the Medical College Admissions Test and the Graduate Record Examination (GRE) Aptitude Test, preferably in the spring and no later than the fall of the calendar year in which the application is submitted.

Medical Technology

See "Division of Associated Medical Sciences" in this section of the Catalog.

Microbiology

Chair: Irving P. Coward
Faculty: associate professor Robert F. Ahern (Medical), John B. Butler, John D. Jast, J. Irving P. Coward, Michael G. Fales, Thomas L. Fiedler (Virology), Rudolf A. Greiner, Samuel W. Gross, Samuel W. Gross, Jr., Louis G. Hoffman, William W. Hunt, and Donald L. Lazaroff (Medical), Joseph J. Maloney, Grace M. Schermerhorn, and Patricia W. Stahl.}

Degree offered: B.S., M.S., Ph.D.
Doctor of Philosophy

A candidate for the Ph.D. must satisfy departmental course requirements determined by his or her advisory committee (minimum requirement: one course in each of the following 10 areas available in the department, or 16 semester hours of course work in two different areas); pass a comprehensive examination; and write a thesis and defend it satisfactorily in an oral examination.

Facilities

The department shares the Bowden Science Building with the departments of Anatomy, Biochemistry, Pharmacology, and Physiology and Biophysics. Adequate space and excellent equipment are available for research and teaching.

Admission

Prospective graduate students should be familiar with the general admission requirements of the Graduate College. Departmental requirements include a review and formal vote by the faculty before a student is admitted. Before beginning graduate work, the student must have completed courses in biology, chemistry (organic, inorganic, quantitative analysis), mathematics (up to calculus), and physics. Students admitted without the above course work must take it during the first year of graduate school. The student should have an average grade of 3.7 or better to be admitted to the graduate program in microbiology.

Courses

61150 General Microbiology 3 s.h.

Prerequisites and methods essential to study of microorganisms, their isolation and identification. Some laboratory work. Registration in College of Medicine, or consent of course director.

61150 Microbiology for Preclinical Students 3 s.h.

Introductory course in medical microbiology, with emphasis on the more commonly encountered pathogens and principles of laboratory techniques useful in their identification. Laboratory work. Registration as preclinical student. Prerequisite: registration as preclinical student.

61167 Survey of Immunology 3 s.h.

Interdisciplinary survey of fundamentals of cellular and molecular biology, genetics, immunology, endocrinology, biochemistry, and clinical problems. Appraisal of test as a whole. Involves faculty from the departments of Microbiology, Internal Medicine, Obstetrics and Gynecology, Pediatrics, Pathology, Radiology, and Pharmacology. Credit not given for both 61167 and 61171. Consent of instructor required for undergraduate students. Same as 71765.

61174 General Microbiology 3 s.h.

Prerequisites: Pathogenic microorganisms, medical microbiology, genetics, virology, immunology, and pathogenic bacteriology. Laboratory work. Methods useful in teaching and identifying microorganisms. Corequisite: 61167 or 61171.

61185 Pathogenic Bacteriology 4 s.h.

Distribution of pathogenic bacteria, with emphasis on the mechanisms of pathogenesis and laboratory methods used for isolation and identification of bacteria. Laboratory includes advanced methods used in study of pathogenic bacteria. Prerequisites: 61167 and consent of instructor.

61190 Medical Microbiology 3 s.h.

Prerequisites: Cell structure and function, growth, energy metabolism, mucous membranes, and infection. Bacterial and fungal infections. Laboratory includes studies in molecular microbiology, biochemistry, and pathogenesis. Credit not given for both 61190 and 61167. Consent of instructor.

61191 Problem in Microbiology 0 s.h.

Student works on research problem under supervision or a faculty member. For undergraduate students with sufficient background. Prerequisites: 61167 or equivalent, and consent of instructor.

61192 Special Microbiology 3 s.h.

Introductory course covering methodology, terminology, pathogenic bacteriology, virology, and mycology. Open to dental students.

61193 Lectures and discussions by faculty, students, and guest speakers on current topics in microbiology and immunology.

61194 Microbiology 4 s.h.

Open only to nurses and dental hygienists.

61195 Clinical Laboratory Microbiology 3 s.h.

Prerequisites and practical training in vitro bacteriology, serology, and virology. Open only to students enrolled in the medical or dental schools. Prerequisites: 61190 and consent of instructor.

61199 Clinical Microbiology 3 s.h.

Prerequisites: 61190 and consent of instructor. Laboratory-oriented course designed to provide practical experience with qualitative and quantitative methods for studying bacterial-antibody reactions and the detection of pathogenic microorganisms. For preclinical students only. Laboratory work. Credit not given for both 61199 and 61171. Consent of instructor required.

61200 Bacteriology 2 s.h.

Leucocytes and their functions in immunity. Prerequisites: 61167 or 61171. Consent of instructor.

61201 Basic Medical Microbiological Techniques 3 s.h.

Basic technique used in study of fungal pathogens for general diagnostic and research purposes. Prerequisites: 61167 and consent of instructor.

61213 Intracellular Infection 2 s.h.

Experimental course in microbiology. Same as 21713.

61315 Medical Immunology 3 s.h.

Genetics of bacteria and bacteriophages. Optional requirement of the graduate immunology seminar. Consent of instructor.

61711 Neisseria Microbiology 3 s.h.

Introduction to experimental research. Open to preclinical students only. May be repeated for a total of 3 s.h. grade points. Consent of instructor.

61712 Neisseria Microbiology 3 s.h.

Prerequisites: 61171.

61713 Laboratory Methods in Cellular Immunology 3 s.h.

Introductory laboratory course in cellular immunology designed to acquaint graduate students and medical student volunteers with the techniques utilized in the laboratory. Techniques include isolation and characterization of lymphocytes, measurement of antibody responses, and other cellular responses. Prerequisites: 61167 or 61147, and consent of instructor.

61716 Experimental Cellular Immunology 3 s.h.

Prerequisites: 61167 or consent of instructor. Same as 21716, 21717.
Neurology

Department head: Mauricio W. Van Allen
Assistant professor: William E. Bell (Pediatrics), Antone Dussault, Richard Fischman, Dr. Annabel (Psychiatry), David H. Samuels (Neurology), Piero Buschini (Neurosurgery), assistant professor Arthur L. Sirois (Psychiatry), Aila Ba, assistant professor Paul H. Weiner, Jr., C. Peter Beal, Joni G. Harnett, Ramon L. Terán, Thomas W. Blankenhol, assistant professor Elizabeth Shihman, Berta Vela, assistant research assistant Joyce Miller

Neurology is the branch of medical science concerned with the diagnosis and management of disorders of the brain, spinal cord, peripheral nervous system, and muscle. Teaching and postgraduate training, carefully integrated with patient care, must have long been a significant function of the department.

The department offers clinical and clinical research training to third- and fourth-year medical students, in addition to the Doctor of Medicine degree. An active three-year approved residency program qualifying physician trainees for board certification in neurology is a major aspect of departmental activity; experience in clinical electrophysiology, pediatric neurology, psychiatry, and neuropathology is part of this training. The department also offers research opportunity in behavioral neurology to candidates for the Doctor of Philosophy degree in psychology.

Investigative interests of the staff center on speech disorders, dizziness, hearing, behavioral abnormalities based on disease of the nervous system, electrophysiological completeness of diseases, proteins and gliotic growth factors of the central nervous system, biochemistry of the anticonvulsant drugs, treatment of myasthenia gravis, peripheral neuropathy, and cerebrovascular disease.

Courses

461/1 Clinical Neurology

Warf Lecture and bedside examinations in special groups and management of vestibular patients. Third year.

461/2 Clinical in Neuropsychology

Same as 471/2.

461/3 Principles of Neurology and Clinical Sciences

Behavioral, neurophysiological, and image presentations of neurological disorders. Anatomy of nervous system reviewed and methods of diagnostic testing of nerve injuries demonstrated. Same as 401/112.

461/5 Research Neurology

Same as 461/1.

462/1 Introduction to Behavioral Neurology

Same as 462/1.

462/2 Introductory Neuropsychological Assessment

Behavioral and psychological procedures; administration of neuropsychological tests under supervision of staff members and preparation of written reports. Electives will be offered in the third year of the curriculum. Students will attend all classes and complete assignments with a high level of proficiency in administration and interpretation of neuropsychological tests, as well as complete research skills

462/3 Neuropsychological Assessment

Continuation of 462/2.

462/3 Introduction to Research in Clinical Neurology

Intensive period of experience dealing with diagnosis and management of patients with neuropsychological, other neuropsychiatric symptoms, or psychiatric etiology, but not comorbidly, students perform initial assessment of patient and, through consultation with staff, diagnostic manage. Interns become competent in performing the initial evaluation of patients to whom they assign for each major course period outside of ward. Continuation as of year.

462/3/4 Research Projects in Clinical Neurology

Same as 462/3.

462/3/4 Clinical Neuropsychological and Language Disorders

Supplements a type of transneuronal depression and also other disorders. Development of attentional, memory, language, and related abilities. Developmental depression disorders. Neurotic disorders. Research of appropriate quality maintained in the area of clinical neuropsychology. Students become involved in research projects on this subject. One quarter. Course is three months. Offered as year.

462/3/4 Neuropsychology and Language Disorders

Supplements a type of transneuronal depression and also other disorders. Development of attentional, memory, language, and related abilities. Developmental depression disorders. Neurotic disorders. Research of appropriate quality maintained in the area of clinical neuropsychology. Students become involved in research projects on this subject. One quarter. Course is three months. Offered as year.

Residency Program

The department offers a four-year residency program. After passing a written and oral examination, graduates are eligible to be certified by the American Board of Obstetrics and Gynecology.

During the fourth year, the resident rotates through the various divisions of the department and cares for both inpatient and outpatient cases. Additional training is obtained in obstetrics and gynecology, pediatrics, and surgery. In the last two years, the resident spends time at Iowa Meditowed and Broadmeadow hospitals in Des Moines, and at St. Luke’s Hospital in Iowa City. The resident is trained in normal and abnormal obstetrics, gynecological surgery, office gynecology.
Ophthalmology

Department head: Frederick G. Billen

associate professors: Douglas F. J. Riedel, Thomas A. Wenzler

assistant professors: James C. Folk, Ronald V. Deitz, Andrew J. Parker, David T. Yee

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 correction of refractive errors. Several subspecialties are represented in the department: ocular pathology and physiology, pediatric ophthalmology, retinal diseases, glaucoma, neuro-ophthalmology, oncology, cornea and external diseases, vascular diseases, plastic surgery, contact lens and refraction service, and medical opthalmic photography.

The teaching program is directed toward the training of medical students and resident physicians. It emphasizes a scientific approach to problem solving in diagnosis and treatment.

The residency program lasts three and one-half years, and 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, electrophysiology, microcirculation, papillography, and vascular diseases. Clinical facilities are available not only at the University Hospitals, but also at the Veterans Administration hospitals in Iowa City and in Des Moines. The department also manages an eye clinic at the Broadwater County Hospital.

The department maintains 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, well-equipped library, and the opportunity it offers to prepare for a career of teaching and research in ophthalmology.

Courses

61710 Elective in Extremal Eye Disease

Four-week course in common diseases of the eyelid, conjunctiva, and cornea.

61712 Elective in Neuro-Ophthalmology

Four-week course in neuro-orthoptic disorders, cranial nerve palsies, and cranial meningiomas. Review of current literature, clinical and neurophysiologic aspects of cranial nerve palsies and meningiomas. Examination of clinical cases.

61713 Elective in Pediatric Ophthalmology

Two-week course in ophthalmic diseases of the newborn, congenital cataracts, strabismus, and amblyopia. Review of current literature, clinicopathologic correlations, and original research.

61714 Elective in Clinical Ophthalmology

Two-week course for students who have not been exposed to ophthalmology during medical school. Review of current literature, clinicopathologic correlations, and original research.

61715 Special Study in Ophthalmology

Six-week course in basic and clinical sciences related to ophthalmology: ocular anatomy, histology, embryology, laboratory work, and research; clinical training in keeping with requirements of American Board of Ophthalmology. Enrollment denied to students who have been accepted by the department.

61720 Research in Ophthalmology and Thesis

12-week residency expected to develop laboratory or research project, with emphasis on clinical research, and with research requirements and proportionate teaching and research assignments.

61780 Special Study in Ophthalmology

61786 Special Study in Ophthalmology

Orthopaedic Surgery

Department head: Reginald R. Coegee

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 sciences related to the musculoskeletal system, and a five- or six-year program for those interested in full-time academic orthopaedic careers.

The Clinical Program

Trainees enter this program through the National Internship Matching Plan directly out of medical school. The program consists of a one-year categorical diversified orthopaedic internship and four years in orthopaedic residency.

During the internship year, the trainee gains experience not only in clinical
Orthopaedics, but in medicine, pediatrics, neurology, surgical specialties, intensive care, anesthesiology, and other services. During the following years, residents gain experience in trauma, children's orthopaedics, adult orthopaedics, neurovascular 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 covers biomechanics, kinesiology, and selected clinical subjects. Residents also attend the Northeastern University courses on lower extremity electromyography and prosthesis.

Program for Full-Time Academic Orthopaedics
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 is interested, provided it is related to the musculoskeletal system, and may be done in one of the orthopaedic laboratories or in a basic science department.

Department Laboratories
The orthopaedic laboratories deal with problems in these major subject areas:
- Biochemistry—The biochemistry of mucopolysaccharides and collagen, both normal and those altered in epiphyseal dysplasias and scoliosis.
- Biomechanics—in conjunction with the College of Engineering, biomechanical problems of the upper extremity, biomechanics of the hip and the gait, and total joint replacements.
- Cell biology and pathology—Ultramicroscopic studies on normal bones, cartilage, tendons, and muscles, and on tissues altered by experiment and disease.
- Tissue transport, radioactive isotopes, and metabolic bone disease—Bone, bone, and cartilage transplantation, skeletal physiology, qualitative and quantitative aspects of histologic and compositional 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 Vatera's Administration Medical Center.

Facilities include 100 beds, an outpatient clinic, a specialty laboratory, a specialty radiology unit, a brace shop, and physical therapy facilities.

Physicians in the outpatient clinic see approximately 100 patients a day.

Surgical clinics deal with such problems as scoliosis, club feet, congenital dislocated hips, neurovascular disease, metabolic diseases, neck, back, amputees, hips, knees, hands, neoplasms, and trauma. Approximately 1,500 major operations are performed each year under auspices of the department.

The department provides consulting service to the Hospital School for Handicapped Children, State Services for Crippled Children, and two state schools for the mentally retarded.

Courses
- 701 Clinical Orthopaedics
- 702 Orthopaedic Surgery for Physician Assistant
- 703 Advanced Clinical Orthopaedics
- 704 Advanced Clinical Orthopaedics
- 7050 Musculoskeletal Trauma
- 7050 Sports Care of the Hand
- 7050 Special Studies in Musculoskeletal Trauma
- 7050 Special Studies in Musculoskeletal Sports
- 7060 Special Studies in Musculoskeletal Sports
- 7060 Special Studies in Musculoskeletal Sports

Otolaryngology—Head and Neck Surgery
Department head: Brian T. McCollum, M.D.

The department provides one of the oldest and largest otolaryngology and maxillofacial surgery training programs in the world. Currently it has a full-time faculty of 18, including several members from plastic surgery, audiology, speech pathology, and dentistry (orthodontics and maxillofacial prosthodontics).

The department's main objective is to provide a high-level instructional program in otolaryngology and maxillofacial surgery for medical students and residents. To maintain a teaching program, the department's faculty and staff carries a large patient load in the head and neck oncology, head and neck plastic reconstructive surgery, maxillofacial trauma and reconstruction, congenital defects (such as cleft lip and palate), neurootology, pediatrics, and general hearing problems, voice problems, parotid endoscopy, surgery for deafness, and all the areas usually considered otolaryngologic.

There are seven divisions in the department which make this program comprehensive: otolaryngology, neurology, plastic and reconstructive surgery of the head and neck, oncology surgery of the head and neck, microlaryngology, craniofacial defects, speech pathology, and audiology, and research.

Another major objective of the department is to offer research programs designed to provide new knowledge in the field and provide models for student and resident research training. Most senior faculty members participate in research and all residents are offered, as part of their resident training program, to design, conduct, and report on a research project during their program of study. In addition, there are several large-scale research programs within the department in vestibular neurophysiology, cleft palate and other craniofacial defects, neuropathology, facial nerve conductions, microvascular surgery, neuroplasticity, and the effects of aging on hearing, anatomy of the temporal bone, craniofacial asymmetry, bone resection 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 recommendations of the American Board of Otolaryngology.

The program consists of a four-year course of both clinical and basic 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 complete at least one hundred hours of credit, one-third of which must come from the basic science group, and must present and defend a thesis. Students

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Otolaryngology—Head and Neck Surgery/COLLEGE OF MEDICINE
Postdoctoral Training

The Department of Pathology offers a program in hematology for physicians who have completed at least two years of residency training in pathology. The postdoctoral fellowship consists of one year of diagnostic work and one year of laboratory research in basic hematology.

The department also provides postdoctoral training in neurology, neuropathology, biochemistry, and hematology, 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 has laboratories equipped for cellular and molecular immunology, experimental pathology, histopathology, histochemistry, electron microscopy, tissue culture, special chemistry, virology, and blood coagulation, as well as the standard facilities for anatomic and clinical pathology. The Pathology Learning Center has areas for seminars, independent study, multimedia learning activities, and small group discussions.

Courses

691 Introduction to Medical Technology 1.5 a.
Survey of the role of medical technologies in various laboratory settings and their relationship to the health care system. Students will take a series of three or four health programs. Offered once each year; check Schedule of Classes.

692 Principles of Human Pathology 3 a.
Course emphasizing terms, mechanisms, and principles of disease, and the ability to communicate these terms and mechanisms to clinical colleagues and patients in all health programs. Offered once each year; check Schedule of Classes.

693 Introduction to Hospital Pathology 3 a.
Survey of general house staff duties and a research-oriented study of the basic principles of hospital pathogenesis and diagnosis. Offered once each year; check Schedule of Classes.

694 Clinical Pathology Practice 1 a.
Theory and practice in clinical laboratory science. Offered once each year; check Schedule of Classes.

695 Medical Technology 1.5 a.
Survey of current aspects of laboratory medicine based on a study of recent primary literature and technical advances in the fields of pathobiology, clinical chemistry, clinical microbiology, and therapeutic coagulation. Offered once each year; check Schedule of Classes.

696 Clinical Chemistry for Medical Technologists 1.5 a.
Survey of the role of clinical chemistry within hospital laboratories and its relationship to health care in general. Offered once each year; check Schedule of Classes.

697 Clinical Microbiology for Medical Technologists 1.5 a.
Survey of the role of clinical microbiology within hospital laboratories and its relationship to health care in general. Offered once each year; check Schedule of Classes.

698 Clinical Immunology for Medical Technologists 1.5 a.
Survey of the role of clinical immunology within hospital laboratories and its relationship to health care in general. Offered once each year; check Schedule of Classes.

699 Clinical Hematology for Medical Technologists 1.5 a.
Survey of the role of clinical hematology within hospital laboratories and its relationship to health care in general. Offered once each year; check Schedule of Classes.

698 Clinical Microbiology for Medical Technologists 1.5 a.
Survey of the role of clinical microbiology within hospital laboratories and its relationship to health care in general. Offered once each year; check Schedule of Classes.

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699 Clinical Pathology Practice 1 a.
Theory and practice in clinical laboratory science. Offered once each year; check Schedule of Classes.
add depth to the educational program in community pediatrics and primary care.

The Department of Pediatrics is responsible for all aspects of the pediatric section of the PCF 111 introduction to Clinical Medicine. Didactic lectures and simulated physical examination of the newborn and toddler provide students with their initial pediatric medical contact. This experience includes taking a history, performing a physical, assessment of growth and development, nutrition and symptomatology of the newborn, toddler, and adolescent.

For the junior and senior medical student the inpatient experience offers an opportunity for training in the complex problems of disease and critical illness. There are daily rounds involving general pediatrics and all subspecialties. Challenging and interesting cases are presented in the staff for discussion of diagnosis and treatment. Outpatient experience stresses principles and practices required for the maintenance of health in children—immunizations, physical care, nutrition, mental hygiene, and utilization of public health facilities and referral agencies.

Graduate Program

The Department offers an approved three-year residency program which is designed to prepare each trainee for a professional career in the broad field of pediatrics and which meets the requirements for American Board of Pediatrics. Fellowships are available in all of the major subspecialty areas and other areas as well as the major subdivisions of pediatrics. The programs are research and clinically oriented, stressing the development of knowledge and skill in the chosen discipline. Graduates are well prepared for satisfactory completion of the program, residents meet the requirements for ABP eligibility in the subspecialty.

Facilities

The Department of Pediatrics is located in the University of Iowa hospitals, with inpatient and outpatient areas immediately adjacent to faculty offices, and the pediatrics floor.

The inpatient service comprises more than 186 beds, and more than 24,000 patients per year are treated. Services are available in general, specialty, and continuing care clinics. Laboratories performing both clinical and research studies are maintained within the department.

The Hospital School for Handicapped Children is available for the child with developmental disabilities, cerebral palsy, and mental retardation.
Pharmacology

Department head: J.P. Long
Associate professors: Dary Cottee, 
Assistant professor: Mark Guelker.
Degree offered: M.S. Ph.D.

The department provides professional training in pharmacology for health science students, offers a major of Science program in clinical pharmacology and clinical toxicology for students with the M.D. degree, and offers a doctoral program in didactic and research experience.

For qualified graduate students, a 4-year research and training program in biochemical pharmacology and toxicology, drug metabolism, central nervous system and autonomic pharmacology, and the pharmacology of the cardiovascular and renal systems. The Toxicology Center is located primarily within the Department of Pharmacology. The department is involved with other departments in such educational and research activities as the Clinical and Behavioral Sciences Program, the Diabetes Center, and the Cardiovascular Center. The department pioneered the offering of pharmacology to undergraduate students with little or no science background. The lecture and discussion sessions in 7:100 Drugs: Their Nature, Action, and Use emphasize the meaningful use of drugs and give students a background for rational decision 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 upper quartile.

Master of Science

In cooperation with clinical departments in the College of Medicine, the Department of Pharmacology offers a Master of Science degree program in clinical pharmacology 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. Any of these course requirements may be waived at the request of the trainee if his or her advisor agrees that the trainee has met them satisfactorily at a prior time.

71:253 Pharmacology Research
71:204 Pharmacology Seminar
71:206 Biochemical Pharmacology
71:210 Special Topics in Pharmacology
83:187 Biometrics and Bioassay
71:212 Toxicology
71:216 Clinical Toxicology
78:300 Clinical Pharmacology and Therapeutics Lecture Series

The trainee may audit 71:105 Pharmacology for Health Sciences: Medical, and may take additional courses appropriate to his or her program, including:

71:205 Advanced Cardiovascular Pharmacology and Physiology
71:213 Advanced Neuropharmacology
71:214 Retail Pharmacology

Courses in other departments 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 thesis.

Doctor of Philosophy

Course requirements for the Ph.D. in pharmacology are as follows:

71:100 Chemical Bibliography
99:120 The Chemistry of Biological Materials
and/or
99:130 Metabolism
72:312 Medical Physiology
71:101 Pharmacology for Health Sciences: Pharmacy
83:187 Biometrics and Bioassay
71:105 Pharmacology and Toxicology
71:206 Biochemical Pharmacology
71:203 Pharmacology Basic/Advanced
71:204 Pharmacology Seminar
71:207 Pharmacology of Excitable Cells
71:215 Introduction to Pharmacology
and one more graduate biochemistry course(s)

The student must complete at least one additional course in drug action or his areas 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. comprehensive exam, usually at the end of two and one-half years, the student begins or continues his or her Ph.D. thesis research. Thesis research usually requires two years beyond the comprehensive examination. 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

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Financial Aid

Financial support is available for all predoctoral and postdoctoral students in pharmacology.
methodology, the department participates in extensive collaborative research with other departments, particularly in the College of Medicine. Medical epidemiology, while also linked to the clinical activities in the University Hospitals and Clinics, is primarily oriented toward the community.

Teaching and research are concerned with basic epidemiologic methods, but the emphasis is on application to community health problems. Areas of specific interest include the organization and delivery of health services and the description, etiology, and control of acute communicable and chronic diseases, as well as clinical epidemiology. There is a special emphasis within the department on the epidemiology of cardiovascular diseases and cancer.

A prominent program is the development, evaluation, and field testing of a vaccine against achalasia/carcinoma (test level). Examples of specific ongoing programs include investigations of the problems of aging, occupational medicine, a summer medical student primary care program for migrant farm workers, cardiovascular disease and hypertension screening program, cancer epidemiology through the State Health Registry of Iowa and the Iowa Cancer Epidemiology Research Center (both based within the department), major participation in evaluation of health services research activities on a University-wide basis, the study of the health effects of pesticides, and the study of agricultural worker accidents and trauma. Consultation on epidemiologic problems is given widely in other areas of research and applied clinical and community activities.

All departmental programs are enhanced through affiliations with the University Hygienic Laboratory, Environmental Health Services, the College of Veterinary Medicine, the College of Engineering, Health Services Research Center, and the Iowa cancer health delivery Programs.

Graduate Programs

The master's program offers a degree with emphasis in environmental health, biostatistics, community health, or for those who already are health professionals. The Ph.D. program is available in an emphasis in epidemiology, biometry, or environmental health.

While pursing a degree program, students are expected to maintain a 3.0 grade-point average in all didactic courses. Students receiving more than 8 semester hours or a grade of lower than C- in a departmental course will be dismissed from the program.

A joint master's options exists between the Urban and Regional Planning Program and the College of Medicine and Environmental Health in the College of Medicine. This option results in an M.A. or an M.S. in Planning and an M.S. in Preventive Medicine and Environmental Health. Separate admissions to both academic units are required.

Institute of Agricultural Medicine

The Institute of Agricultural Medicine is housed in the Agricultural Science Research Facility on the Osage Campus. Research, teaching, and extension activities concern the safety and health problems of rural towns. Areas of study include environmental toxicology, comparative medicine, occupational health, the Accident Prevention Laboratory, and the Iowa Pesticides Epidemiology Studies Center.

Financial Aid

A limited number of research assistants and tuition grants are available within the department.

Admission

Application deadlines are July 15 for fall semester, December 1 for spring semester, and May 1 for the summer season. These deadlines apply both to University of Iowa and to Non-University of Iowa students.

Minimum grade-point average requirements are 3.0 for admission to the master's program, 3.0 for the Ph.D. Acceptance completion of the Graduate Record Examination (GRE) Agirole Test is also required. (The acceptable score for most students is a combined verbal and quantitative score of 1050.)

The applicant must have an undergraduate major or course background in science or mathematics, depending on his or her proposed program of graduate study. However, to be considered for admission to the master's program with emphasis on community health, applicants as a rule must already possess or be pursuing an advanced degree in the health sciences and wish to apply preventive medicine and environmental health principles to their respective professional activities.

Applicants who meet the requirements for the M.S. or Ph.D. programs but who do not wish to work towards an advanced degree may be admitted on Professional improvement status. Also, applicants are required to: (1) specify on the application form the program (Ph.D.) to which they are applying; (2) forward three letters of recommendation; and (3) submit a short description of why they want the degree and their professional goals.

Courses

49100 Cooperative Educational Internship 0.5
Internship for training occupational health professionals (COHPs) agreement.

51010 Dynamics of Health 3.0
Survey of the nature, extent, and role of disease in Western society, with emphasis on pathogenesis, epidemiology, and prevention to prevent health problems investigation. Offered fall semesters.

51011 Man and the Environment 3.0
Human ecology in relation to potential and demonstrated effects of biological, chemical, physical, and sociological factors of environment on health. An interdisciplinary course, teacher-directed.

51027 Medical Epidemiology 3.0
Study of principles, methods, and applications of epidemiology. A course on the design, execution, and interpretation of epidemiologic studies, including identification, ascertainment, and analysis of disease, morbidity, and mortality; a course on the design, execution, and interpretation of public health studies, including identification, ascertainment, and analysis of disease, morbidity, and mortality.

51126 Statistics 3.0
Survey of statistical methods for persons who are familiar with elementary statistics. A brief introduction to statistical terminology and methodology. Topics include descriptive statistics, statistical inference, and experimental design. Limitations on non-normality, confounding factors, tests of hypothesis, terminology of clinical trials and epidemiology. Primarily for training medical students. Offered fall semester.

51150 Public Health Aspects of Food and Housing 3.0
Includes deficiency and toxic diseases; fundamentals of building and housing codes, their administration and enforcement; environmental health promotion can be presented in residential institutions. Offered fall semester.

51186 Principles of Epidemiology 3.0
An introduction to the principles of scientific inquiry and analysis of data. Limitations on normality and non-normality. Limitations on the design and conduct of public health studies. Introduction to the design and analysis of survey data. Prerequisites: college algebra. Offered fall semester.

51155 Design and Analysis of Experiments in the Biomedical Sciences 3.0
This course includes an introduction to the design and analysis of experiments in the biomedical sciences. Limitations on the design and analysis of survey data. Prerequisites: college algebra. Offered fall semester.

51155 Introduction to the Design of Sample Surveys 3.0
Techniques of constructing and analyzing sample surveys, including general methods of stratification, proportional allocation of samples, random sampling, current sampling techniques, selection of sample sizes, and applications to epidemiologic and public health surveys. Calculation of quantities of direct and indirect controls, construction, modified, and survey methods. Prerequisite: BI 101 or equivalent. Offered fall semester. 

51181 Biostatistics in Medicine 3.0
Basic statistics for the analysis and interpretation of experimental biological data. Includes: biostatistics of student's t-test, analysis of variance, linear regression, chi-square; hypothesis testing, clinical trials, observation studies, and other applications. Prerequisites: BI 101 or equivalent. Offered fall semester.
Psychiatry

Department head: George W. Wurtz

The Department of Psychiatry is engaged in teaching medical students and training resident physicians for academic and clinical careers in psychiatry. It offers no degree program. Its instruction of medical students occurs principally during their third year, in the course of a six-week clerkship.

The department maintains a four-year training program approved by the 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: The Broadstone Hospital in Des Moines, the Iowa Security Mental Facility at Oakdale, the Mid-Iowa Center for Community Mental Health in Iowa City, and the Mental Health Institute at Independence, Iowa.

The department offers an approved two-year residency in child psychiatry.

The department staff is actively involved in clinical and family studies of psychiatric disorders, and is involved in research in the fields of genetic and biological psychiatry, psychopharmacology, neurochemistry, neurophysiology, and psychosocial aspects of behavior.

Many opportunities are available for students interested in psychiatric research. The basic science areas of neurotransmitter mechanisms, neurophysiology, and electrophysiology offer additional opportunities to students and residents for special study and research. The clinical areas of psychiatry, child psychiatry, and group psychotherapy also offer opportunities to a limited number of students for research and further study.

Courses

76.150: Psychiatry for Physican Assistant 
76.330: Research in Psychiatry
76.331: Medical Students, Graduate Students, and Physician Assistants---a seminar for special investigations in biological or psychological problems related to psychiatry.
76.350: Psychiatry in Psychiatry

Courses Open Only to Medical Students

75.01 Psychiatry
75.02 Psychiatry Open to Medical Students

75.31 General Hospital Psychiatry
75.33 Adult Psychiatry, Psychiatric Hospital
75.334: Hospital Psychiatry, Inc. Clinic
75.336: Child Psychiatry, Psychiatric Hospital, Children's Services
75.36 Advanced Clerkship in Child Psychiatry
75.37 Emergency Room Psychiatry, Broadstone Hospital, Des Moines
75.39 Advanced Clerkship in Adolescent Psychiatry

76.01 Psychiatry elective

76.03 Community Child and Adolescent Psychiatry

76.04 Consultation service in psychiatric training.
76.05 Consultation service in psychiatric training.
76.06 Consultation service in psychiatric training.
76.07 Consultation service in psychiatric training.
76.08 Consultation service in psychiatric training.
76.09 Consultation service in psychiatric training.

76.999: Special Studies on Campus
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Radiation Biology

Program director: James W. Osborne
Faculty: professors Frank H. Hohimer, Charles C. Bumett, James W. Osborne, J. P. R. Stoll, J.

76.030: Radiation Biology

The program provides in-depth training and research experience in the study of the physical, chemical, and biological effects of radiation and the theoretical and practical application of radiation methodology. The program stresses the importance of these areas to scientific research, clinical medicine, and the general public.

Undergraduate Study

Two courses, 77.103 Introduction to Radiocarbon and Radiobiology and 77.104 Environmental and Radiological Health Physics, are open to students majoring in the natural arts or professional colleges. These courses should be of interest to students who plan to enter medicine, nuclear medicine technology, environmental health, or similar programs.

Graduate Programs

The M.B. program in radiation biology emphasizes the technical aspects and serves well as a minor field for students whose major interest is in another related field.

The Ph.D. program is open to graduate students with a background of study in physics, chemistry, mathematics, biology, health sciences, veterinary medicine, or engineering. Ordinarily, the M.B. in this or a related field is required for admission to the Ph.D. program, but consideration is given to other methods of qualifying.

After completion of the introductory courses, the student may emphasize a particular aspect of the field. The details of the program are arranged 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 coverage of subjects is 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 reading knowledge of one or more languages other than English and a practical competence in biological statistics or computer programming before taking the final examination.

Students who have completed a semester of academic experience as a teaching assistant and at least one as a research assistant. No registration is required and no academic credit given.

Special Programs

Postdoctoral training is available by arrangement with the program chairman and individual faculty members.
Surgery

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 clinical 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, histology, microbiology, pathology, vascular, transplantation, organ preservation, cardiovascular, and neurosurgery and oncoLOGY.

Courses

751 Fundamentals of Patient Care 5-6 h. Breakthrough primer course in emergency medical services, trauma, and practical exercises and application of material presented. 752 Vascular Research 3 h.

753 Clinical Surgery 4-5 h. Six-week course, required of all medical students; students rotate across different surgical teams and work on wards, in clinics, and in the operating room, and help with emergencies and emergency room. 753/100 Emergency Room Elective for Physician Assistant Students 3 h.

751/102 Surgery Elective for Physician Assistant Students 3 h.

751/15 Advanced Emergency Medicine 4-5 h. Four-week course of intensive instruction in acute and chronic medical, surgical, and traumatic problems; includes lectures, lab exercises, computer exercises, and independent study. Designed for those planning careers in emergency medicine. 754/15 Advanced Clinical Surgery 2 h.

755/15 Advanced Surgical Endovascular Training 1 h.

758/21 Geriatric Surgery 3 h. Experience in diagnosis and management of major medical problems, including infection and postoperative complications in the elderly. Students rotate in 3-week blocks and receive weekly evaluation from their instructor. Prerequisites: 758 and consent of instructor. 758/21 Emergency Room on Campus 3 h.

758/21 Emergency Room Off Campus 3 h.

758/21 Emergency Room On Campus 3 h.

758/21 Emergency Room Off Campus 3 h.

758/21 Emergency Room On Campus 3 h.

758/21 Emergency Room Off Campus 3 h.

760/21 Pediatrics on Call 3 h.

Urology

The Department of Urology is the University of Iowa College of Medicine. It offers courses in all three fields of urology, as well as the graduate program in urology. The University of Iowa College of Medicine also offers a residency program in urology.
The Department of Urology participates very actively in 521.111 Introduction to Critical 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, reconstructive urology, and the entire field of urology. In the required third-year clerkship, the department offers the basics of the 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 urology research areas. The department offers special elective courses in these areas.

Courses
77-111 Clinical Urology 3 a.h.
Thematic ten-week course of study on urology with junior medical students responsible for patient care under supervision of residents.

79-108 General Urology 4 a.h.
Student assumes integral member of urologic staff, spends full time in department for four weeks; assignment is surgeon in department; under direction of junior and senior staff.

79-110 Advanced Urology 4 a.h.
Individual projects either preclinical or clinical, supervised by chief resident, junior and senior staff and, where applicable, a member of either clinical department or preclinical department. Upon completion of the project, the student will prepare a thesis and undergo oral examination.

79-111 Urology Research 4 a.h.
Full time in department of Urology and Radiology, where instruction, supervision, and evaluation of student's work are provided by department staff and, where applicable, a member of either clinical department or preclinical department. Upon completion of the project, the student will prepare a thesis and undergo oral examination.

79-112 Urology Research 4 a.h.
Participation with various and Pathology departments in study of urologic material derived from pathologic examinations and surgical procedures, under study of collected pathologic material, will assist in research in department. Upon completion of the project, the student will prepare a thesis and undergo oral examination.

79-115 Pediatric Urology 4 a.h.
Research and clinical study of pediatric urologic disease. Assignment may include participation in surgery without permission of department head. Upon completion of project, student prepares thesis, and undergoes oral examination.

79-116 Urologic Oncology 3 a.h.
Incorporate clinical experience in diagnosis and management of all types of genitourinary neoplasms; assignment to clinic or surgery service with resident in urology or surgical service under direction of attending surgeon; student prepares thesis on some aspect of one of these tumors, takes written examination.

79-117 Basic Urologic and Radiology 5 a.h.
Accreditation of certain status for urologic technologists, laboratory methods of measuring essential parameters, assessment and management of clinical problems, time devoted to evaluation of renal insufficiency problems.

79-118 Urology Internship 5 a.h.
Technically supervised by attending urologists of the department.

79-119 Special Studies In Urology 5 a.h.
Individual projects or clinical projects approved by chief resident. Supervised by residents in urologic service staff; and, where applicable, a member of urologic or surgical department. No program approved or tutored without permission of department head. Upon completion of project, student prepares thesis, and undergoes oral examination.
The College of Nursing is an integral part of the University Health System, sharing in and contributing to teaching, research, and patient-care resources which have earned international recognition. This provides an unusually fine setting for college preparation for nursing, because the educational and clinical resources which are needed to educate nurses are available on or near the campus. This also makes it possible for the faculty and students to participate fully in University life and to contribute their time, interest, and abilities to the many general and special activities of a major and modern university.

Both the baccalaureate and graduate programs are accredited by the Department of Baccalaureate and Higher Degree Programs of the National League for Nursing, the professional baccalaureate granting 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 practice as registered nurses.

Undergraduate Program

Men and women educated as professional nurses are in demand in a variety of jobs and opportunities in community health nursing services, public health, offices, clinics, hospitals, armed forces, the Peace Corps, the World Health Organization, the Red Cross, home and foreign missions, youth camps, and professional organizations. A professional nurse may be engaged in private nursing, research, teaching, or private practice.

A bachelor's degree program, such as that offered by The University of Iowa, provides college-level preparation for careers in the hospital 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 combining general education with specific career preparation, a college or university program affords these advantages—nearly less important—of full participation in the social, cultural, and recreational activities of a highly diversified campus community. In nursing no less than in other pursuits, a college or university background enables many young people not only to realize their highest career potentialities, but to achieve the greatest measure of self-sufficiency in life.

The baccalaureate program is designed to provide both liberal and professional education. The basic 128-semester-hour program consists of 36 semester hours of general education courses, 42 semester hours of supportive preparation courses, and 50 semester hours of course work in nursing. Most students complete the program in four and one-half academic years.

Course offerings are based on the concepts of health, deviations from health, and nursing intervention, and are presented in progressive levels of concreteness 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 others than to the acutely 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 two-year transfer plan include Iowa State University, the University of Northern Iowa; and Upper Iowa, Bink Cull, Morningide, Loras, Luther, Clarke, Simpson, Coe, and Wartburg. Opportunities for transfer to accredited colleges in the Midwest City, Marshalltown, Muscatine, Clarion, Iowa Falls, Ankeny, Boone, and Fort Dodge are also available.

Completion of the two-year transfer sequence at a cooperating institution does not guarantee admission to the College of Nursing; admission standards for two-year transfers are the same as for all other College of Nursing applicants. Prospective two-year transfer students who want more information about this plan should contact the cooperating institution of their choice.

Registered Nurses

With some modifications, registered nurses who excel in the baccalaureate program in nursing at least complete the same liberal arts and science courses as students with no previous nursing preparation. Registered nurses planning to enroll the baccalaureate program at
Faculty Advisers
Advisers from the college are available to help prospective nursing students plan their programs, and each student will be assigned a faculty adviser. 

Student Organizations
College of Nursing students have their own Association of Nursing Students and are also eligible for membership in the national and state associations of registered nurses.

Expenses
Students are the general University fee throughout the program and purchase their own uniforms. The cost of a uniform order currently is about $110. Students must also purchase white gowns, a stethoscope, and a wrist watch with a full- sweep second hand. Students usually need to provide their own transportation once enrolled in clinical nursing courses.

Financial Aid
In addition to the assistance available to University students generally, there are assistance programs specifically for nursing students. For further information about financial assistance, write to the University Office of Student Financial Aid.

Admission
High School Background
The college strongly recommends four years of English and four years of mathematics, one year each of biology, chemistry, and physics, plus other college preparatory courses selected with the help of the high school counselor.

College Background
Applicants for admission to the undergraduate program in nursing must present a minimum of 36 semester hours completed at an accredited college, including three of the five required baccalaureate science courses (University required organic, inorganic, and organic-physiological chemistry, biology, and mathematics) and satisfaction of the following general education requirements:

Rhetoric—eight semester hours; a student who has earned six semester hours of credit in English composition may complete the speech component at another college.

Mathematics—three years of high school mathematics, or a score of 28 on the American College Testing, or completion of a college course in mathematics comparable to or higher than 22D-1 Intermediate Algebra.

Chemistry—high school chemistry or its equivalent (if taken at the college level it may be included in the 30 semester hours required for admission); 

Physics—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—3 semester hours; and 

Statistics—3 semester hours.

Preclinical Background
Including the biological science courses required for admission to the college, the student must satisfy the following requirements before beginning clinical nursing course work:

Animal biology
Chemistry (inorganic and organic-physiological chemistry)
Human anatomy
Human physiology
Microbiology
Nutrition
Psychology
Sociology
Anthropology
Human development and behavior

(These courses may be completed with the clinical nursing course.)

Standards
To be considered for admission to the College of Nursing, the applicant should have satisfactorily completed college coursework taken.

American College Tests
All applicants for admission to The University of Iowa must complete the American College Tests. For information on the tests, write to the American College Testing Program, Box 451, Iowa City, Iowa 52240.

Selection Factors
Eligibility for minimum admission requirements does not guarantee admission to the College of Nursing. From applicants who meet minimum requirements, the college's admission committee selects those who appear to be best qualified. The committee may require personal interviews. A physical examination report and specific health examination requirements are to be on file at 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 for the fall semester, and June 15 for the spring semester.

Master of Arts
The University of Iowa Master of Arts program in nursing is accredited by the National League for Nursing. The curriculum is designed to build upon general and professional baccalaureate study in which nursing is an upper-division offering. For this reason, graduation from an N-approved baccalaureate degree program is one of the admission requirements.

The aim of the program is to prepare students in an area of nursing specialization and to allow for development of skill in a role area related to their career goals. The curriculum has a 17 semester hour core of advanced nursing courses which are designed to serve as the foundation for specialization and role preparation in specific areas. Since the approach to nursing specialization may be broad or narrow, the curriculum offers three 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 areas and types of field experiences to fulfill the praxis component of the specialization courses. Through selection of relevant concepts taught in these courses, by selection of specific courses in the supporting area, and through an area focus selected for study in their thesis project.

Similarity, role preparation is available in these areas: administration, education, and advanced clinical practice. Because the program's flexibility is to be flexible enough to accommodate diverse student interests, the time of completion is flexible as in the role preparation areas. Students, for instance, may select most of their supporting coursework in administration or management in order to allow for maximum preparation in that role area.

Although the courses offered by the College of Nursing emphasize a holistic approach to patients or clients, it is possible to concentrate on either the behavioral or biological dimension. Students interested in mental health nursing, for example, may select courses, field experiences, and supporting course work to expand their knowledge and skills in this area. More preparation in advanced clinical practice with an emphasis on mental health with nursing would further accommodate that interest area. This will result to be that, with the assistance of their academic advisor, student can design
Degree Requirements

The 45 semester-hour curriculum will ordinarily require four semesters of full-time study for completion. 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 with oral defense and a written, comprehensive examination.

The master's degree curriculum is structured into five components:

1. Advanced Nursing Care (17 semester hours): Core is work in the areas of conceptual and theoretical foundations for nursing (five semester hours), leadership in nursing practice (five semester hours), and advanced practice nursing (six semester hours). Students are expected to complete both a thesis project with oral defense and a written, comprehensive examination.

2. Thesis (five semester hours): Every student is expected to write and successfully defend a thesis. This involves a systematic inquiry into a nursing problem to include such methodologies as historical research, case studies, analytical literature review, surveys, or experimental studies which meet the requirements of the Graduate College.

Plan of Study

The plan of study described below would require full-time study. Students would proceed through courses in approximately the same way, but over a longer period of time. Taking one or two courses per semester, for example, would extend the time of study to three to five years.

First Year

Fall Semester
96:220 Conceptual and Theoretical Foundations for Nursing 1 3.0h.
96:204 Leadership in Nursing: Theory and Application 3.0h.
Supporting course 3.0h.
Total 9.0h.

Spring Semester
96:011 Conceptual and Theoretical Foundations for Nursing 1 2.0h.
96:222 Child Health Nursing I 4.0h.
96:226 Adult Health Nursing I 4.0h.
96:234 Community /Family Health Nursing 1 4.0h.
96:210 Methods of Research in Nursing 3.0h.
Supporting course 3.0h.
Total 12.0h.

Second Year

Fall Semester
96:211 Methods of Research in Nursing Research II 3.0h.
96:223 Child Health Nursing II 4.0h.
96:227 Adult Health Nursing II 4.0h.
96:233 Community /Family Health Nursing II 4.0h.
96:246 Curriculum Development in Nursing Education 3.0h.
96:266 Clinical Specialization I, Process, Roles, and Strategies I 3.0h.
96:268 Clinical Specialization: Process, Roles, and Strategies I 3.0h.
Total 12.0h.

Spring Semester
96:278 Professional Seminar: Issues in Nursing 2.0h.
96:247 Nursing Education Process, Roles, and Strategies II 3.0h.

Total 11.0h.

Graduate Admission

Students should seek admission to the graduate program in nursing through direct application to the Graduate College of the University. Minimum requirements for admission to the Graduate College are a completed application official transcripts from other institutions attended; Graduate Record Examination (GRE) Aptitude Test scores, scores from the Test of English as a Foreign Language (TOEFL), when appropriate; and a 2.5 minimum grade-point average for regular admission, a 3.0 for conditional admission.

In addition to the general requirements for admission to the Graduate College, the College of Nursing requires that the applicant:

- Possess a bachelor's degree with a major in nursing from a program accredited by the National League for Nursing;
- Fulfill the legal requirements for the practice of nursing in at least one state in the United States;
- 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 2.5 undergraduate grade-point average for conditional admission; no recommendations from three persons familiar with his/her competency in the practice of nursing and potential for leadership and scholarship;
- Submit the score from the Miller Analogies Test;
- Submit a 600-word essay detailing career goals; and
- Have successfully completed a basic statistics course.

Applications for master's degree candidacy are reviewed on a continuing basis. For review, the applicant's file must be complete, with all relevant admission materials having been submitted. Deadline for fall and fall semester admission deadlines is December 1. Initial course enrollment may begin any term.

All regulations of the Graduate College pertaining to academic probation, and dismissal are applicable to graduate students in nursing. Transfer credits applicable to the master's degree program are limited, and must be approved by the dean for the graduate programs in nursing and by the student's advisor.
Professional Improvement

Some nurses may wish to take course work at the University to fulfill the objectives of professional or personal improvement only. Such individuals may request admission to the professional improvement category. This admission status will allow the student to take some graduate courses in the University without commitment to a degree objective.

Admission

As a professional improvement student you must fulfill the University's University requirement before the end of first semester registration. Deadlines are October 15 for admission in the fall semester, December 1 for admission in the spring semester and May 1 for admission in the summer session. Since acceptance as a professional improvement student requires training in principles and application procedures for the professional nursing profession, professional improvement students are required to follow the clinical procedure described in the preceding section if they wish to seek admission as a master's degree candidate. Only three semester hours, or one required nursing core course, taken under professional improvement status, may transfer to the M.A. requirements.

Continuing Education

Through the Department of Continuing Nursing Education, the college offers noncredit courses of major health care programs for regulatory nurses. Programs for regulatory nurses are scheduled on campus and at community sites throughout the state. Continuing education units (CEUs) are awarded for each program. Continuing education classes are usually held Wednesday evenings from one until 10 o'clock hours of instruction. Continuing education credits of 1 CEU or more are awarded.

Continuing Education Unit, Inc.

An online Board of Nursing approved provider number 1 and is accredited by the National Accreditation Board, American Nurses' Association.

Pediatric Nurse Practitioner Program

This program offers graduate credit with a commitment to continuing education sponsored jointly by the Department of Pediatrics, College of Medicine and the College of Nursing. It prepares nurse practitioners who may work in pediatric settings. Pediatric nurse practitioners are expected to work in child health care settings, in clinical or in private practitioner offices. Pediatric nurse practitioners require a minimum of one semester of post-study. Clinical experience in this care for children includes a preceptorship which may be arranged in a variety of settings, either hospital or community-based.

Admission

Applicants must have a baccalaureate in nursing and be registered to practice professional nursing in Illinois (or be eligible for licensure by endorsement) and have one year of experience in child health care delivery. The general requirements for admission to the Graduate College apply.

Facilities

The Nursing Building is centrally located on the University's main campus in close proximity to the colleges of Medicine, Pharmacy, Dentistry and Medicine; the Colleges of Education and Science; the Health Sciences Library and the Health Sciences Center. The Nursing Building is the centerpiece of the building. The building consists of two floors with varied and specialized facilities. Administrative offices are located on the first floor. Faculty offices are located on every floor. The building includes faculty offices and research laboratories located throughout the building. Conference room, studio rooms, and meeting rooms are conveniently located. Research faculty in the building provide quick access to computer/computing equipment and programmable minicomputers.

Courses

Undergraduate

664 Introduction to Health and Health Care

680 Human Development and Behavior

700 Health Science Laboratory

780 Family Planning

782 Introduction to Family Planning

910 Family Planning Counseling

911 Family Planning Counseling Practice

912 Family Planning Counseling Practice

913 Family Planning Counseling Practice

914 Family Planning Counseling Practice

915 Family Planning Counseling Practice

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1000 Family Planning Counseling Practice
8.245 Trauma/wound management of mental health
Nursing
3 a.h.
Understand the concepts of mental health and mental illness. Treatment modalities and their application in mental health nursing practice.

8.250 Nursing Administration: Process, Roles, and Strategies
2 a.h.
Familiarize with the concepts and responsibilities of the nurse administrator. Emphasis on administrative functions of the nurse administrator in a hospital setting. Focus on assessment, planning, organizing, leading, and evaluation of nursing care delivery systems. This course is a prerequisite for the completion of the Master of Science in Nursing degree program.

8.251 Nursing Administration: Process, Roles, and Strategies
3 a.h.
Analyze the roles and responsibilities of the nurse administrator. Emphasis on strategies used by the nurse administrator in a hospital setting. Focus on assessment, planning, organizing, leading, and evaluation of nursing care delivery systems. This course is a prerequisite for the completion of the Master of Science in Nursing degree program.

8.252 Clinical Specialization: Process, Roles, and Strategies I
1 a.h.
A review of the role of the clinical specialist through the prism of an empowerment process of clinical efficacy. Emphasis on practical application and implementation of strategies to improve patient care outcomes. Focus on the role of the clinical specialist in the development and implementation of evidence-based practice. This course is a prerequisite for the completion of the Master of Science in Nursing degree program.

8.253 Clinical Specialization: Process, Roles, and Strategies II
2 a.h.
Integration, development, and integration of the clinical specialist role. Application of skills acquired in previous courses to the practice setting. Focus on the role of the clinical specialist in the development and implementation of evidence-based practice. This course is a prerequisite for the completion of the Master of Science in Nursing degree program.

8.254 Advanced Topics in Nursing Research and Theory
An
Prerequisite: consent of instructor.

8.255 Topics
An
The pharmaceutical sciences are concerned with the discovery, development, production, and dispensing of medicinal products and monitoring of their activity. The pharmacist is also trained to identify, analyze, detect, control, 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 use, and activity in the normal individual as well as in the ill patient, and be familiar with their 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.

Nearly everyone is familiar with the community pharmacist and his pharmacy in which he or she practises. The size and type of practice may vary—community pharmacies may be large or small, operated by individuals or by corporations. The pharmacist who staff these pharmacies is responsible for the safety and health of patients. More than 100,000 men and women practice in community pharmacy.

Another group of pharmacists is employed in pharmacy research work. The government employs pharmacists in the Public Health Service, Veteran Administration, Food and Drug Administration, and in the armed forces. Many pharmacists assume administrative positions in industry, including manufacturing, research and development, control, marketing and advertising. In addition to these pharmacists, numerous others are employed in pharmaceutical sales. Pharmacy training is especially valuable to these men and women, who are responsible for acquainting physicians, dentists, veterinarians, and other physicians 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 overwhelmingly growth in 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 areas, including pharmacy technology, biopharmaceutics, medicinal chemistry and natural products, pharmaceutical aseconomics, and clinical and hospital pharmacy.

The college of Liberal Arts, Business Administration, Dentistry, Law, and Medicine contributes to the education of pharmacy students by providing instruction in the physical sciences, basic medical sciences, business, law, humanities, and social sciences.

Basilvly, the Baccalaure of Science program in pharmacy consists of one year of pre-pharmacy study, taken in the College of Liberal Arts at The University of Iowa or in accredited community or liberal arts college, and four years of pharmacy study.

It is possible to transfer into the College of Pharmacy after two years of college-level work at an approved institution. A student entering the college after two years of preprofessional study can complete the professional program in three years if the preprofessional study includes, in addition to the basic preprofessional requirements, at least eight semester hours of organic chemistry, from five to eight semester hours of botany 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 Pharmacist Examination given by the Iowa Board of Pharmacy Examiners.

The professional curriculum includes a minimum of 18 semester hours of electives; eight of these must be taken in the fourth professional year. By choosing appropriate electives, the student may focus on such special areas as clinical or hospital pharmacy or pre-professional study.
The Professional Curriculum

First Year

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>46:13</td>
<td>Pharmacy Math</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>37:9</td>
<td>Principles of Animal biology</td>
<td>5 s.h.</td>
</tr>
<tr>
<td>4:121</td>
<td>Organic Chemistry I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>4:101</td>
<td>Elementary Quantitative Analysis</td>
<td>4 s.h.</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>16 s.h.</td>
</tr>
</tbody>
</table>

Second Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>46:14</td>
<td>Pharmacy Orientation</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>8E:1</td>
<td>Principles of Economics</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>4:120</td>
<td>Organic Chemistry II</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>4:141</td>
<td>Intermediate Chemistry Laboratory I</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>*50:102</td>
<td>Principles of Human Anatomy</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>*</td>
<td>&quot;Elective&quot;</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Total</td>
<td>16 s.h.</td>
</tr>
</tbody>
</table>

*Also offered first semester for students on a 2-3 program only.

**18 semester hours of electives are required, of which at least eight must be taken in the P-4 year.

Second Year

First Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>46:23</td>
<td>Pharmacology I</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>96:175</td>
<td>Biochemistry for Pharmacy</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>6:147</td>
<td>General Microbiology</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>*40:105</td>
<td>Principles of Human Anatomy</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>12 s.h.</td>
</tr>
</tbody>
</table>

Second Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>46:24</td>
<td>Pharmacology II</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>46:029</td>
<td>Pharmaceutical Social Economics: Health Care Systems</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>46:128</td>
<td>Medicinal Chemistry: Natural Products I</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>72:150</td>
<td>Intermediate Physiology</td>
<td>4 s.h.</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>16 s.h.</td>
</tr>
</tbody>
</table>

*May be taken in second semester of freshman year.

Third Year

First Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>46:131</td>
<td>Medicinal Chemistry: Natural Products II</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>66:203</td>
<td>Introduction to Human Pathology</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>71:101</td>
<td>Pharmacology for Health Sciences: Pharmacy</td>
<td>5 s.h.</td>
</tr>
<tr>
<td>46:35</td>
<td>Pharmaceutical Social Economics: Practice Management</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>16 s.h.</td>
</tr>
</tbody>
</table>

Second Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>46:132</td>
<td>Medicinal Chemistry: Natural Products III</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>71:103</td>
<td>Pharmacology and Toxicology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>46:55</td>
<td>Pharmacology III</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>46:120</td>
<td>Clinical Pharmacy: Case Study</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>*46:81</td>
<td>Clinical Pharmacy: Drug Information</td>
<td>2 s.h.</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>15 s.h.</td>
</tr>
</tbody>
</table>

*May be taken in first semester of fourth year.

Fourth Year

First Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>46:41</td>
<td>Jurisprudence</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>46:43</td>
<td>Pharmacotherapeutics IV</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>46:30</td>
<td>Clinical Pharmacy: Community Pharmacy</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>46:61</td>
<td>Clinical Pharmacy: Drug Information</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>46:111</td>
<td>Clinical Pharmacy: Therapeutics I</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>*</td>
<td>&quot;Electives&quot;</td>
<td>6 s.h.</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>16-18 s.h.</td>
</tr>
</tbody>
</table>

Each P-4 student must complete six clinical clerkships (usually three each semester). Two of these are required (46:80 and 46:81). Some of the remaining clerkships may be used to satisfy the P-4 requirements.

Second Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>46:60</td>
<td>Clinical Pharmacy: Community Pharmacy</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>46:112</td>
<td>Clinical Pharmacy: Therapeutics II</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>*</td>
<td>&quot;Electives&quot;</td>
<td>6-9 s.h.</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>12-15 s.h.</td>
</tr>
</tbody>
</table>

*May be taken in either semester.

"A minimum of eight of the "Electives" must be taken in the P-4 year.

Professional Electives

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>46:48</td>
<td>Community Pharmacy Retailing</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>46:50</td>
<td>Pharmaceutical Chemistry: Drug Analysis</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>46:52</td>
<td>Social Work Seminar</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>46:55</td>
<td>Non-Psychiatric Drugs</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>46:56</td>
<td>Clinical Pharmacy Family Practice Therapeutics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>46:58</td>
<td>Clinical Pharmacy: Psychopharmacology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>46:59</td>
<td>Clinical Pharmacy: Geriatric Therapeutics</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>46:87</td>
<td>Clinical Pharmacy: Neurology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>46:89</td>
<td>Clinical Pharmacy, Elective Calculus</td>
<td>1-6 s.h.</td>
</tr>
<tr>
<td>46:101</td>
<td>Pharmacy: Projects</td>
<td>1-3 s.h.</td>
</tr>
<tr>
<td>46:103</td>
<td>Physical Pharmacy</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>46:104</td>
<td>Pharmacokinetics and Biopharmacology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>46:106</td>
<td>Industrial Pharmacy Survey</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>46:107</td>
<td>Hospital Pharmacy</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>46:108</td>
<td>Hospitalized Pharmacy Survey</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>46:114</td>
<td>Advanced Clinical Pharmacy</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>46:120</td>
<td>Clinical Pharmacy: Psychotherapy</td>
<td>4 s.h.</td>
</tr>
</tbody>
</table>

46:135 Perspectives in MCP Research | 1 s.h. |
46:136 Introduction to Medical Chemistry Natural Product Research | 1-2 s.h. |
46:147 Introduction to Research Methods | 3 s.h. |
46:146 Communications Skills for Pharmacists | 3 s.h. |

Graduation: Before graduation, the baccalaureate program in pharmacy requires the student to complete satisfactorily the required courses in addition to 18 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, readmission, credit by examination, minimum schedule, second-semester-only option, waiver or substitution of courses, cancellation or registration, drop date and correspondence study, see the "College of Pharmacy" section in the current Schedule of Courses.

Admission

Application to the College of Pharmacy requires the following preprofessional course work:

Rhetoric: eight semester hours or six hours of transfer credit in English composition and rhetoric, and two hours in speech.

General chemistry: eight semester hours.

Mathematics: two or four semester hours of a satisfactory differential and integral calculus course.

Physics: a one- or two-semester course in basic physics. A one-year animal biology or zoology course may be acceptable. 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 of the college.

The applicant must have earned a 2.0 cumulative grade-point average on all college work, including transfer courses.

Fulfillment of these requirements does not ensure admission to the college.

From applicants who qualify, the admissions committee selects the best-qualified applicants.

Transfer Students

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 course 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. 

Transfer with Advanced Standing 

Students transferring from other colleges of pharmacy accredited by the American Council on Pharmaceutical Education receive credit toward the Bachelor of Science degree in pharmacy for satisfactorily completed course work required in this curriculum. However, at least one academic year (30 semester hours) of residence in the University of Iowa College of Pharmacy is required for the degree.

Students transferring from nonpharmacy colleges may receive credit for work required in the Bachelor of Science curriculum in pharmacy, but still must expect to be enrolled for at least three years in the College of Pharmacy.

A minimum grade of C is required for work applied toward the pharmacy degree.

Doctor of Pharmacy Program

The Doctor of Pharmacy (Pharm. D.) program is a two-year, post-baccalaureate professional degree program which combines didactic course work and clinical clerkship. The major goal of the program is to produce the health-care system with pharmacists who are specifically prepared to assume an extended role in monitoring, evaluating, and optimizing drug therapy in hospitalized and ambulatory patients. This program is available to graduates of baccalaureate programs of high quality pharmacy graduates. Prospective students may obtain specific information about the Pharm. D. program by writing to The University of Iowa, College of Pharmacy, Iowa City, Iowa 52242.

Graduate Programs

The college has graduate programs in each of its four academic divisions. Masters, Doctoral and philosophy programs are available in pharmaceutical sciences, medical chemistry, medicinal chemistry, and pharmaceutical and socioeconomic sciences. A masters of Science degree is available in clinical-hospital pharmacy.

Advanced study in the pharmaceutical sciences improves the student for research, teaching, and administrative positions in the pharmaceutical, chemical, and agricultural chemical industries, in college and government agencies, and in a number of health-related governmental organizations.

The application deadline for the Pharm. D. program is January 1 for fall admission. GRE scores are not necessary for recommendation.

Courses

Undergraduate Pharmaceutics

6412 Pharmi. Sci. Application of systems of weights and measures and nomenclature of pharmaceutical substances. Preparation and quality control of dosage forms. Lecture and laboratory instruction in the identification and application in pharmacy of selected compounds.


6421 Pharmacology A. Knowledge and laboratory assessment of practical and physical laws in the formation and preparation of solid dosage forms, including solutions, ointments, and capsules. Prerequisites: 45 A, 4 B, and 296.

6423 Pharmacology B. Fundamentals in drug absorption kinetics, and biological factors which influence the rate of drug absorption. Laboratory techniques in the study of selected and review of selected therapeutic groups. Prerequisites: 45 A, 4 B, and 296.

6426 Pharmacology C. Lecture on availability and bioavailability aspects of drug therapy. formation, including lipids, serum proteins, enzymes and stability; laboratory investigatory techniques in compounds and compounds in human volunteers. Prerequisites: 45 A, 4 B, and 296.

Graduate Pharmaceutics

4511 Pharmaceutics I. Basic and applied research problems of pharmacological sciences. Prerequisites: 45 A or above standing, open to graduate students.

5110 Product Pharmacy Surface and interfacial phenomena, absorption, and delivery of drugs. Prerequisites: 45 A or above standing.

4520 Pharmacokinetics and Pharmacodynamics Principles of pharmacokinetics and pharmacodynamics. Prerequisites: 45 A or above standing.

4522 Pharmacology. Laboratory, laboratory, and clinical-therapeutic analysis of controlled release systems and new and established methods of pharmaceutical sciences. Prerequisites: 45 A or above standing.

4524 Pharmacology. Laboratory, laboratory, and clinical-therapeutic analysis of controlled release systems and new and established methods of pharmaceutical sciences. Prerequisites: 45 A or above standing.

4526 Pharmacology. Laboratory, laboratory, and clinical-therapeutic analysis of controlled release systems and new and established methods of pharmaceutical sciences. Prerequisites: 45 A or above standing.

4528 Pharmacology. Laboratory, laboratory, and clinical-therapeutic analysis of controlled release systems and new and established methods of pharmaceutical sciences. Prerequisites: 45 A or above standing.

4530 Pharmacology. Laboratory, laboratory, and clinical-therapeutic analysis of controlled release systems and new and established methods of pharmaceutical sciences. Prerequisites: 45 A or above standing.

5111 Pharmacology. Laboratory, laboratory, and clinical-therapeutic analysis of controlled release systems and new and established methods of pharmaceutical sciences. Prerequisites: 45 A or above standing.

5112 Pharmacology. Laboratory, laboratory, and clinical-therapeutic analysis of controlled release systems and new and established methods of pharmaceutical sciences. Prerequisites: 45 A or above standing.

5113 Pharmacology. Laboratory, laboratory, and clinical-therapeutic analysis of controlled release systems and new and established methods of pharmaceutical sciences. Prerequisites: 45 A or above standing.

5114 Pharmacology. Laboratory, laboratory, and clinical-therapeutic analysis of controlled release systems and new and established methods of pharmaceutical sciences. Prerequisites: 45 A or above standing.

5115 Pharmacology. Laboratory, laboratory, and clinical-therapeutic analysis of controlled release systems and new and established methods of pharmaceutical sciences. Prerequisites: 45 A or above standing.

5116 Pharmacology. Laboratory, laboratory, and clinical-therapeutic analysis of controlled release systems and new and established methods of pharmaceutical sciences. Prerequisites: 45 A or above standing.

5117 Pharmacology. Laboratory, laboratory, and clinical-therapeutic analysis of controlled release systems and new and established methods of pharmaceutical sciences. Prerequisites: 45 A or above standing.

5118 Pharmacology. Laboratory, laboratory, and clinical-therapeutic analysis of controlled release systems and new and established methods of pharmaceutical sciences. Prerequisites: 45 A or above standing.
Continuing Education

The Division of Continuing Education was established under 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 several departments and colleges of the University and by bringing the University generally into direct contact with the citizen." The division's organization and services include:

Center for Credit Programs

Correspondence Courses

Correspondence courses are available for credit toward a degree, for preparation for special occupations, or for self-improvement. Students resident at The University in Iowa must obtain the permission of the dean of their college to enroll in correspondence courses for degree credit. Correspondence study is offered in anthropology, business administration, chemistry, communication and theatre arts, economics, education, engineering, English, French, geology, geography, German, history, home economics, journalism, Latin, letters, mathematics, nursing, physical education, political science, psychology, religion, social work, sociology, Spanish, and zoology. Noncredit courses offering CEEU awards are available in areas such as advertising, medical terminology, nursing, time management, mathematics review, religious studies, and secretarial skills.

There is a $5 enrollment fee. The course fee is $30 per semester hour. Fees are payable at the time of registration. A catalog including procedure and enrollment forms may be obtained from Correspondence Study, W400 Seashore Hall.

In cooperation with the Department of Defense, the University offers many correspondence courses to men and women in the armed services. Armed services personnel should ask their education officer for information.

Veterans may enroll for correspondence courses concurrently with other academic study under Public Law 89-554. Veterans are referred to the Veterans Affairs Office of the University.

Off-Campus Classes

The division offers off-campus classes in liberal arts, business administration, education, and engineering. Classes are scheduled where they may best serve the off-campus students and at the request of public school officials, or where professional, industrial, or other qualified groups indicate a specific need for educational services. Courses offered in engineering are scheduled on a contractual basis; courses in liberal arts, business administration, and education require enough enrollments to meet course expenses. For information, write to Off-Campus Courses and Programs, W400 Seashore Hall.

Saturday and Evening Class Program

This program provides credit course offerings for part-time undergraduates, graduates, or unclassified students. Courses are offered from schools and departments of the University. For a Saturday and Evening Class Program catalog, write to Saturday and Evening Class Program, W400 Seashore Hall.

Bachelor of Liberal Studies Degree

The Bachelor of Liberal Studies degree is designed to serve adults who cannot attend college as full-time on-campus students. Credit 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 new-shaper, radio, and television courses and two-way audio conferences called telebridge. For information, write to the Center for Credit Programs, W400 Seashore Hall.

Education Tests

Standardized tests and scales developed at The University of Iowa are published and distributed as a non-profit basis to schools, public agencies, and industrial times in Iowa and throughout the nation. For catalogs, write to Education Tests, W316 Seashore Hall.

Center for Conferences and Institutes

The center serves as an auxiliary agency of the University for developing, coordinating, and conducting noncredit continuing education programs for
nonresident adults and for administering the University's Continuing Education Unit (CEU) program. The center's primary goal is to enhance the usefulness of the University as a center of learning and to provide educational opportunities for people who are no longer full-time students but who seek new knowledge related to their jobs, professions, or special interests.

Each year more than 30,000 adults receive training in the center's varied programs, which represent a cooperation among the University and the various colleges, departments, and disciplines within the University. The marshaling of appropriate personnel, coupled with the professional planning and execution of conferences and other non-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 academic continuing education offerings held in the Iowa Memorial Union for other than on-campus student groups. All members of the faculty and staff who plan University conferences and other University-related group functions to be held on campus (or in the Iowa City-Coralville community) are expected to schedule these activities through the conference center office and to utilize the conference facilities, dining services, and other available 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 courses of special interest to adults. Courses are normally conducted at the Iowa Memorial Union during evening hours by University-affiliated instructors. Continuing education units are awarded for course completion. For current offerings, contact the Office of Conferences and Institutes.

Radio Broadcasting Services

WSUI and KSUI-FM serve the needs and interests of the people of eastern Iowa with 18 hours daily broadcasts which extend the resources and activities of the University. The broadcast schedule consists of educational, community, and informational programming not available elsewhere. As an affiliate of National Public Radio (NPR), WSUI contributes program material to this non-commercial network of more than 200 non-commercial radio stations. The main studios and offices are located in 3300 Engineering Building, and a free copy of the stations' Program Guide may be obtained by writing to their 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 practical handbooks to issues papers; and Consultation services, ranging from answering "how-to" questions to saving on statewide 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 activities involving 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 a liaison service between the University and statewide professional educator associations as well as regional professional organizations, and coordinates relevant research.
- Facilitates university-community college faculty relations.
- Coordinates articulation of university-community college institutional policy and curricula.
- Provides in-service training and development opportunities for community college personnel and assists the College of Education and other University colleges and departments in providing degree programs for community college personnel leading to state certification.
- Participates in state, regional, and national approval, accreditation, and certification 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 residence for the biological sciences on Lake Okoboji, 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 pay and summer schools are available. For information, write to the Division of Continuing Education.

Macbride Field Campus

The University holds a lease from the U.S. Army Corps of Engineers on two tracts of land in the Coralville Reservoir area near Iowa City. The two tracts total approximately 820 acres. One tract is reserved for biological research, the other for University-wide activities. Developments in the area to date include provision of an all-weather road, water supply, electric power, maintenance storage facilities, a boathouse and sailing facilities, field archery course, facilities for handicapped persons, and picnic areas. A small nature lodge is available to school groups.

Audiovisual Center

The mission of the Audiovisual Center is to assist the faculty and students in the improvement of the teaching-learning process through the effective use of educational 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, available on campus without charge for instruction and curriculum-related activities, and for rental to off-campus requestors. Smaller collections of audio and video recordings, 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, slides, filmstrips, opaque, and overhead projectors, portable projection screens; audio tape recorders; record players; portable public-address systems; and display devices (exhibits, easels, boards). There is a nominal charge for projectionist service and for equipment requested for conferences and/or off campus use. Repair service is available at a nominal charge for all AV equipment, including TV systems.

Media Production

Professional services, facilities, and equipment are available to produce original software in all media:

Graphica—design, layout, paste-up, illustrations, charts, graphs, lettering, etc.

Audio—recording, editing, duplication, transcription service

Motion picture—scripts, cinematography, editing, and printing laboratory

Photography—portraits, passports, slides shows, filmstrips, 35mm slide duplication, printing and processing services

Television—video production, color and black and white (1-inch, 2-inch, and cassette); systems design; equipment maintenance; tape rental

Fabrication—design and construction of displays, special audiovisual equipment and furniture

Marketing—sales, distribution, second marketing of University-originated products and services.

Satellite Centers

Satellite centers are established, as needed, through cooperative arrangements between the Audiovisual Center and departments, schools, colleges, and other service agencies.
Administrative Officers

State Board of Regents
The University of Iowa, Iowa State University, Iowa State University, Science and Technology, the University of Northern Iowa, the Iowa State University, School of the Visual and Performing Arts, and the Iowa State University for the Deaf are governed by the State Board of Regents, consisting of the members. The board membership is as follows:

President: S.J. Brownlee, Emmetsburg
Vice President: Peg Anderson, Bettendorf
Secretary-Treasurer: Andy Harris, Cedar Rapids
Treasurer: Ann Jorgensen, Garnett
John McDonald, Dallas Center
June Murphy, Des Moines
Arthur Nes, Carroll
Fred W. Nolling, Waterloo
Peter J. Wanstrand, Ames
Executive secretary: R. Wayne Richey

Central Administration
President: James O. Fredrickson
Vice President for Academic Affairs and Dean of Faculties: Richard D. Remington
Vice President for Educational Development and Research: Dean of the Graduate College: Duane C. Sprinkles
Vice President for Finance and University Services: Randall P. Beazin
Vice President for Student Services and Dean of the Academic Affairs: Philip G. Hubbard

Academic Affairs
Vice President and Dean of Faculties: Richard D. Remington
College of Business Administration
Acting Dean: Emmett J. Vaughan
Industrial Relations Institute: Director: Anthony J. Stansell
Institute of Accounting Research: Director: William R. Kinney
Institute for Economic Research: Director: Jerrod Barnard
Institute for Insurance Education and Research: Director: Emmett J. Vaughan
Institute for Entrepreneurship: Management: Emmett J. Vaughan
Labor Center: Emmett J. Vaughan
Management Center: Emmett J. Vaughan

College of Dentistry
Dean: James H. McLellan
Dean of Dental Research: Director: Ian MacKenzie

College of Education
Dean: Charles W. Case
Iowa Institute for School Executive Directors: George A. Chambers

College of Engineering
Dean: Robert G. Herling
Institute of Hydraulics Research Director: John F. Kennedy
Graduate College
Dean of Graduate College: Duane C. Sprinkles
Dean of Advanced Studies: Roland W. Ruhuta

College of Law
Dean: N. William Hess

College of Liberal Arts
Dean of Liberal Arts: Howard Luster
School of Art and Art History Director: Wallace J. Toms
School of Journalism and Mass Communication Director: Kenneth Bruck
School of Letters Acting Director: Richard Lloyd-Jones
School of Library Science Director: Carl F. Orman
School of Music Director: Marilyn F. Bonilla
School of Religious Studies: Dean: John P. Boyle
School of Social Work Director: Ralph E. Anderson

College of Medicine
Dean: John W. Eckstein

College of Nursing
Dean: Geraldine Fenton

College of Pharmacy
Dean: Dale E. Wurster

Division of Continuing Education
Dean: Robert F. Ray
Audiovisual Center Director: William Oglesby
Center for Conferences and Institutes Director: Russell A. Mayo
Center for Credit Programs Acting Director: M. Dean Donato
Community College Affairs Director: Duane G. Anderson
Institute of Public Affairs: Director: Clayton Ringgenberg
Iowa Lakeside Laboratory Director: Richard V. Bogdanski
MacBride Field Campus Director: N.R. Holscepel
Radio Stations WSUI-KSUJ Director: George S. Klinger

Iowa Center for the Arts
Chair: Philip G. Hubbard

Library
University Librarian: Dale M. Bentz
Zepel, Milton, M.A. Iowa 1956; Ph.D. 1958; associate professor emeritus, German, 1969
G., Ronald C., B.S. Wooten 1944; M.D.
Graduate School and University Medical Center, 1948; professor, Internal Medicine, 1960 (1950)
Zellweger, Hans, M.D. Zurlith (Switzerland) 1934; professor emeritus, Pediatrics, 1957 (1977)
Zelton, Robert N., B.S. Iowa 1929, M.S.
1932, Ph.D. North Carolina 1934; assistant professor, Pharmacy, 1932
Zenitski, Pearl, S.S.N.E. Loyola 1942, M.A.
Iowa 1950; assistant professor emeritus, Nursing, 1952 (1952)
Ziegler, Sigfried E., M.D. Innsbruck (Austria) 1959; professor, Pediatrics, 1972 (1972)
Zima, William J., B.S.A. Carthage 1947, M.A.
Iowa 1949; associate professor, School of Journalism and Mass Communication, 1960 (1972)
Zimmernann, Gerald K., B.A., B.Sc.
1959, M.S. Southern Illinois 1961, Ph.D. Iowa 1963; assistant professor, Spanish, Psychology and Anthropology, 1964
Ziersc, James H., B.S. Cornell of St. Thomas 1965, M.D. Iowa 1967; clinical assistant
professor, Pediatrics, 1974
Zirkelbach, Vajdy K., M.D. Belgrade
(Yugoslavia) 1932; clinical assistant professor, Pediatrics, 1974
Ziskok, Joseph J., B.A. Carrollton 1962, M.D.
Cornell 1966; associate professor, Obstetrics and Gynecology, 1975 (1975)
Zuber, Ernest V., Jr., B.B.A. Iowa 1961, M.A.
(1974)
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 state universities shall be classified as a resident or nonresident for administrative, tax, and tuition purposes by the registrar or someone designated by the registrar. The decision shall be based upon information furnished by the student and other relevant information. The registrar, or designee, is authorized to require such written documents, affidavits, examinations, 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 domicile or nonresidency classification, the place of residence is essentially one of domicile. In general, the domicile of a person is that person's fixed, permanent home and place of habitation. It is the scene of 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 whose domicile is elsewhere. A student shall not be considered domiciled in Iowa unless the student is a continuous physical resident in the state and intends to make a permanent home in Iowa.

(d) A person who comes to Iowa from another state or from outside the United States for a period of less than four years and who has no intention of establishing domicile in Iowa shall be classified as a nonresident student.

1.4(2) Facts.
(a) A person who has moved into the state as the result of military or civil orders from the government for other than educational purposes, or the dependent of such a person, is entitled to resident status.

(b) However, if the arrival of one or more persons under orders to the same destination, or the dependent is first enrolled, resident status will be established at a date not less than one year after the date the individual enrolled in Iowa.

(c) A student shall not be considered domiciled in Iowa unless the student is a continuous physical resident in the state and intends to make a permanent home in Iowa.

(d) A person who claims domicile in Iowa based on dependency on another for financial support, or as a result of marriage to a resident, shall be so classified only if the student can prove the existence.

(e) A student who is domiciled in Iowa as a result of marriage, or as a result of the death of a parent, shall be classified resident in Iowa only if the student can prove dependency on the deceased as the principal source of support.

(f) A person who has been classified as a resident of Iowa, but who is domiciled in Iowa as a result of marriage, or as a result of the death of a parent, shall be classified resident in Iowa only if the student can prove dependency on the deceased as the principal source of support.

(g) A person who has been classified as a resident of Iowa, but who is domiciled in Iowa as a result of marriage, or as a result of the death of a parent, shall be classified resident in Iowa only if the student can prove dependency on the deceased as the principal source of support.

(h) A person who has been classified as a resident of Iowa, but who is domiciled in Iowa as a result of marriage, or as a result of the death of a parent, shall be classified resident in Iowa only if the student can prove dependency on the deceased as the principal source of support.

(i) A person who has been classified as a resident of Iowa, but who is domiciled in Iowa as a result of marriage, or as a result of the death of a parent, shall be classified resident in Iowa only if the student can prove dependency on the deceased as the principal source of support.

(j) A person who has been classified as a resident of Iowa, but who is domiciled in Iowa as a result of marriage, or as a result of the death of a parent, shall be classified resident in Iowa only if the student can prove dependency on the deceased as the principal source of support.

(k) A person who has been classified as a resident of Iowa, but who is domiciled in Iowa as a result of marriage, or as a result of the death of a parent, shall be classified resident in Iowa only if the student can prove dependency on the deceased as the principal source of support.

(l) A person who has been classified as a resident of Iowa, but who is domiciled in Iowa as a result of marriage, or as a result of the death of a parent, shall be classified resident in Iowa only if the student can prove dependency on the deceased as the principal source of support.

(m) A person who has been classified as a resident of Iowa, but who is domiciled in Iowa as a result of marriage, or as a result of the death of a parent, shall be classified resident in Iowa only if the student can prove dependency on the deceased as the principal source of support.

(n) A person who has been classified as a resident of Iowa, but who is domiciled in Iowa as a result of marriage, or as a result of the death of a parent, shall be classified resident in Iowa only if the student can prove dependency on the deceased as the principal source of support.

(o) A person who has been classified as a resident of Iowa, but who is domiciled in Iowa as a result of marriage, or as a result of the death of a parent, shall be classified resident in Iowa only if the student can prove dependency on the deceased as the principal source of support.

(p) A person who has been classified as a resident of Iowa, but who is domiciled in Iowa as a result of marriage, or as a result of the death of a parent, shall be classified resident in Iowa only if the student can prove dependency on the deceased as the principal source of support.

(q) A person who has been classified as a resident of Iowa, but who is domiciled in Iowa as a result of marriage, or as a result of the death of a parent, shall be classified resident in Iowa only if the student can prove dependency on the deceased as the principal source of support.

(r) A person who has been classified as a resident of Iowa, but who is domiciled in Iowa as a result of marriage, or as a result of the death of a parent, shall be classified resident in Iowa only if the student can prove dependency on the deceased as the principal source of support.

(s) A person who has been classified as a resident of Iowa, but who is domiciled in Iowa as a result of marriage, or as a result of the death of a parent, shall be classified resident in Iowa only if the student can prove dependency on the deceased as the principal source of support.

(t) A person who has been classified as a resident of Iowa, but who is domiciled in Iowa as a result of marriage, or as a result of the death of a parent, shall be classified resident in Iowa only if the student can prove dependency on the deceased as the principal source of support.

(u) A person who has been classified as a resident of Iowa, but who is domiciled in Iowa as a result of marriage, or as a result of the death of a parent, shall be classified resident in Iowa only if the student can prove dependency on the deceased as the principal source of support.

(v) A person who has been classified as a resident of Iowa, but who is domiciled in Iowa as a result of marriage, or as a result of the death of a parent, shall be classified resident in Iowa only if the student can prove dependency on the deceased as the principal source of support.

(w) A person who has been classified as a resident of Iowa, but who is domiciled in Iowa as a result of marriage, or as a result of the death of a parent, shall be classified resident in Iowa only if the student can prove dependency on the deceased as the principal source of support.

(x) A person who has been classified as a resident of Iowa, but who is domiciled in Iowa as a result of marriage, or as a result of the death of a parent, shall be classified resident in Iowa only if the student can prove dependency on the deceased as the principal source of support.

(y) A person who has been classified as a resident of Iowa, but who is domiciled in Iowa as a result of marriage, or as a result of the death of a parent, shall be classified resident in Iowa only if the student can prove dependency on the deceased as the principal source of support.

(z) A person who has been classified as a resident of Iowa, but who is domiciled in Iowa as a result of marriage, or as a result of the death of a parent, shall be classified resident in Iowa only if the student can prove dependency on the deceased as the principal source of support.
exempted to have filed both resident income tax returns for each calendar year in which application for resident classification is made.

1.4(3) Guidelines
The following guidelines are used in determining the high school graduation requirements to fulfill purposes.

A. A student may be required to the any or all of the following:
1. A statement from the student describing employment and expected source of support as a student.
2. A statement from the student's employer.
3. A statement from the student's parents verifying nonsupport and the fact that the student was not listed as a dependent on tax returns for the past year and will not be so listed in future years.
4. Supportive statements from persons upon whom the student may be dependent.

B. A financially dependent student whose parents move from lives during the year at high school will be considered as a resident provided the student has not established domicile in another state.

C. A student who was a tenant resident of low may continue to be considered a resident provided that the student has continued to reside in the same place for at least half of the school year in the same manner as for an initial move to the state, unless evidence can be presented showing that home residence has been maintained according to the established requirements.

D. A student who was a tenant resident of low may return after absence of more than one year but less than two years to regain residence after one year within a full-time student.

E. A student who has been a continuous resident or member of the military service at graduation and who is not a resident of the state may become a resident at the beginning of the next academic year if the student is dependent upon the parents for major financial assistance.

F. A student who moves to lives may be eligible to continue classification as a resident for the school year in which he moves provided the student is not enrolled for more than eight months in any academic year and provides sufficient evidence of establishment of an low domicile.

G. If a person who is engaged in a religious vocation, mission, or order of the Catholic Church or any religious activities outside the school is who may be considered a resident resident of the state at the same time the person is engaged in an academic year and provides sufficient evidence of establishment of an low domicile.

1.4(4) Review committees.
These regulations shall be administered by the registrar or personnel of the registrar. The registrar or personnel is responsible for the administration of the rules. The findings of the university committee shall be appealed to the Iowa state board of regents.

1.5(262) Registration and transcripts—general.
A person may not be permitted to register for a course or courses at a state board or a state affiliated institute or any designated account owed by the person or at an affiliated college or university for which an institution exists as a tax resident has been paid.

A state board of regents institution may withhold achievement credits of the academic record of a person who has not paid all delinquent account owed by the person or at an affiliated college or university for which an institution exists as a tax resident has been paid.

1.6(262) Admission of undergraduate students directly from high school.
Students desiring admission must meet the requirements in this section and also any special requirements for the curriculum, school, or college of their choice.

Applicants must: a four formal application for admission, together with a $10.00 application fee, and have their secondary school provide a transcript of their academic record, including grades, rank in class, and certification of graduation. Applicants must also submit scores from the American College Test (ACT) or the Scholastic Aptitude Test (SAT), or an equivalent, as determined by each university. The Test of English as a Foreign Language (TOEFL) is required of foreign students whose first language is not English. Applicants may be required to submit additional information or take tests to support their applications.

1.6(262) Admission of undergraduate students by transfer from other colleges.
Students desiring admission must meet the requirements in this section and also any special requirements for the curriculum, school, or college of their choice.

Applicants must submit a formal application for admission, together with a $10.00 application fee, and request that each college they have attended send an official transcript of record to the admissions office. High school academic record and standardized test results may also be required. The Test of English as a Foreign Language (TOEFL) is required of foreign students whose first language is not English.

1.8(262) Transfer applicants.
Transfer applicants will not be admitted for the fall semester from a two-year community college or a four-year college or university for admission.

1.9(262) 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 their overall academic and standardized test records in addition to review of the college record.

1.16(262) Transfer applicants under disciplinary suspension.
Transfer applicants under disciplinary suspension will not be admitted for admission until conditions concerning the reason for the suspension has been resolved from the college suspending the suspension.
2.1(1) Application for admission.

Applications for admission to the College of Business Administration shall be submitted to the director of admission. Applicants are urged to apply as early as possible, since this will give the admission committee more time to review each application. Closing dates for receiving applications will be announced in advance of the opening date of each session.

2.1(2) Requirements for admission.

For admission to the College of Business Administration an applicant must have:

a. Completed specific course work as prescribed by the faculty of the college.

b. Achieved satisfactory academic status on the university's required examination admission examinations.

c. Maintained a satisfactory grade-point average on all courses undertaken and on all courses undertaken at The University of Iowa, in all courses undertaken in business and economics.

Applications from students who have other qualifications in meeting grade-point requirements specified above shall be considered by the admission committee of the college, and upon favorable recommendation of the committee, such students may be granted conditional or probationary admission.

*Fulfillment of the minimal requirements listed above, however, does not assure admission to the College of Business Administration. From those applicants who meet the minimal requirements, the admissions committee will select the applicants who, in their judgment, appear to be best qualified.

2.2.—2.4(262) College of Dentistry.

2.4(1) Application for admission.

Address all applications regarding admission to the Director of Admissions, The University of Iowa. Applicants are urged to apply as early as possible, since this will give the admission committee more time to review each application. Closing dates for receiving applications will be announced in advance of the opening date of each session.

Applicants for admission to dentistry are encouraged to complete a preparatory leading to a baccalaureate degree before entering dentistry. Applicants should consider completing a program of liberal arts and sciences, most of which may lead to a baccalaureate degree upon the completion of the preprofessional course during the junior year in dentistry. Preference will be given to students who have the baccalaureate degree or who have completed the requirements for the degree in a continued program.

*Fulfillment of the special requirements for admission does not assure admission to the College of Dentistry. Upon the applicants meeting the minimum requirements, the admissions committee will select the applicants who, in their judgment, appear to be best qualified for the study and practice of dentistry.

Each applicant must sign on the line the office of the director of admissions the required application form and an official transcript of each college attended.

The college work outlined below will suffice to meet the minimum academic requirements for admission to the College of Dentistry.

The college curriculum must include at least three academic years of accredited work comprising at least ninety-six semester hours and including specific required science courses as prescribed by the faculty of the college. Residence should be chosen so as to give the applicant a well-rounded education in general studies.

In order to meet minimum enrollment requirements the applicant should attain a cumulative grade-point average of 2.5. Since the quality of course work in humanistic studies is of prime importance in dentistry, special consideration to such work is given for the purpose of attaining such average is based on The University of Iowa's requirements for admission to professional dentistry. Other existing seals will be evaluated so that the entire examination of the college's requirements will be considered as part of the admission committee's consideration for admission to the College of Dentistry. Applications which have completed the requirements for "admission to dentistry less than one year prior to the beginning of the course of study in dentistry" are not eligible for admission. Preference will be given to applicants who are residents of Iowa.

Personal interviews will be required of applicants for admission to the College of Dentistry. Applicants will be notified when they should appear for such required interviews with members of the administration.

All applicants must complete the dental aptitude tests approved by the council on dental education of the American Dental Association. Tests are given in three phases. The University of Iowa is a test site.

To facilitate early acceptance, applicants for admission to the College of Dentistry are urged to complete the
applicant no later than October in order to receive an appointment in December. Acceptable applicants are required to receive the requested degree within two weeks after notification of the recommendation for appointment. This request is not refundable and is credited toward the first fee payment. The faculty member who fails to make the deposit during the time specified forfeits a place in the program.

Applicants accepted for admission are required to submit a satisfactory physical examination report to the University student health services within two weeks following notification of acceptance. All applicants must be in reasonable health, as shown by the completion of a satisfactory examination prior to registration.

2.4(2) Advanced standing.

Applicants for admission with advanced standing are handled as individual cases.

720—2.5(262) College of Engineering.

Address all inquiries regarding admission to the College of Engineering, the University of Iowa, Iowa City, Iowa.

Closing dates for receiving applications will be announced well in advance of the spring semester of any session.

2.5(1) Admission of freshman students.

The applicant must submit a formal application for admission and must meet the secondary school graduation requirements. The applicant must also submit the following application materials to the College of Engineering: 1) A completed application form and fee of $60 or $75 as specified by the college. 2) A completed application form and fee of $60 or $75 as specified by the college. 3) A completed application form and fee of $60 or $75 as specified by the college. 4) A completed application form and fee of $60 or $75 as specified by the college. 5) A completed application form and fee of $60 or $75 as specified by the college. 6) A completed application form and fee of $60 or $75 as specified by the college. 7) A completed application form and fee of $60 or $75 as specified by the college. 8) A completed application form and fee of $60 or $75 as specified by the college. 9) A completed application form and fee of $60 or $75 as specified by the college. 10) A completed application form and fee of $60 or $75 as specified by the college. 11) A completed application form and fee of $60 or $75 as specified by the college. 12) A completed application form and fee of $60 or $75 as specified by the college. 13) A completed application form and fee of $60 or $75 as specified by the college. 14) A completed application form and fee of $60 or $75 as specified by the college.

The applicant must submit a satisfactory grade-point average and the following application materials to the College of Engineering: 1) A completed application form and fee of $60 or $75 as specified by the college. 2) A completed application form and fee of $60 or $75 as specified by the college. 3) A completed application form and fee of $60 or $75 as specified by the college. 4) A completed application form and fee of $60 or $75 as specified by the college. 5) A completed application form and fee of $60 or $75 as specified by the college. 6) A completed application form and fee of $60 or $75 as specified by the college. 7) A completed application form and fee of $60 or $75 as specified by the college. 8) A completed application form and fee of $60 or $75 as specified by the college. 9) A completed application form and fee of $60 or $75 as specified by the college. 10) A completed application form and fee of $60 or $75 as specified by the college. 11) A completed application form and fee of $60 or $75 as specified by the college. 12) A completed application form and fee of $60 or $75 as specified by the college. 13) A completed application form and fee of $60 or $75 as specified by the college. 14) A completed application form and fee of $60 or $75 as specified by the college.

Each applicant must submit a satisfactory grade-point average and the following application materials to the College of Engineering: 1) A completed application form and fee of $60 or $75 as specified by the college. 2) A completed application form and fee of $60 or $75 as specified by the college. 3) A completed application form and fee of $60 or $75 as specified by the college. 4) A completed application form and fee of $60 or $75 as specified by the college. 5) A completed application form and fee of $60 or $75 as specified by the college. 6) A completed application form and fee of $60 or $75 as specified by the college. 7) A completed application form and fee of $60 or $75 as specified by the college. 8) A completed application form and fee of $60 or $75 as specified by the college. 9) A completed application form and fee of $60 or $75 as specified by the college. 10) A completed application form and fee of $60 or $75 as specified by the college. 11) A completed application form and fee of $60 or $75 as specified by the college. 12) A completed application form and fee of $60 or $75 as specified by the college. 13) A completed application form and fee of $60 or $75 as specified by the college. 14) A completed application form and fee of $60 or $75 as specified by the college.

Applications for admission with advanced standing are handled as individual cases.

720—2.6(262) College of Law.

Address all inquiries concerning admission to the College of Law, the University of Iowa, Iowa City, Iowa.

Applications must be submitted prior to the opening date of the fall semester. Application deadlines are published in the University Catalog.

In general, applicants must submit a formal application for admission. The Director of Admissions will review all applications received prior to the opening date of the fall semester. Applicants accepted for admission are notified immediately by mail. The University reserves the right to decline any application.

2.7(1) Application for admission.

Address all inquiries concerning admission to the Director of Admissions, the University of Iowa, Iowa City, Iowa.

Beginning students may enter the College of Law only in the fall semester or the final semester. All entering students are required to be admitted on a competitive basis. The College of Law reserves the right to decline any application.

The application for admission must include the following application materials: 1) A completed application form and fee of $60 or $75 as specified by the college. 2) A completed application form and fee of $60 or $75 as specified by the college. 3) A completed application form and fee of $60 or $75 as specified by the college. 4) A completed application form and fee of $60 or $75 as specified by the college. 5) A completed application form and fee of $60 or $75 as specified by the college. 6) A completed application form and fee of $60 or $75 as specified by the college. 7) A completed application form and fee of $60 or $75 as specified by the college. 8) A completed application form and fee of $60 or $75 as specified by the college. 9) A completed application form and fee of $60 or $75 as specified by the college. 10) A completed application form and fee of $60 or $75 as specified by the college. 11) A completed application form and fee of $60 or $75 as specified by the college. 12) A completed application form and fee of $60 or $75 as specified by the college. 13) A completed application form and fee of $60 or $75 as specified by the college. 14) A completed application form and fee of $60 or $75 as specified by the college.

Beginning students must meet the following requirements for admission to the College of Law: 1) A completed application form and fee of $60 or $75 as specified by the college. 2) A completed application form and fee of $60 or $75 as specified by the college. 3) A completed application form and fee of $60 or $75 as specified by the college. 4) A completed application form and fee of $60 or $75 as specified by the college. 5) A completed application form and fee of $60 or $75 as specified by the college. 6) A completed application form and fee of $60 or $75 as specified by the college. 7) A completed application form and fee of $60 or $75 as specified by the college. 8) A completed application form and fee of $60 or $75 as specified by the college. 9) A completed application form and fee of $60 or $75 as specified by the college. 10) A completed application form and fee of $60 or $75 as specified by the college. 11) A completed application form and fee of $60 or $75 as specified by the college. 12) A completed application form and fee of $60 or $75 as specified by the college. 13) A completed application form and fee of $60 or $75 as specified by the college. 14) A completed application form and fee of $60 or $75 as specified by the college.

Each applicant must submit a satisfactory grade-point average and the following application materials to the College of Law: 1) A completed application form and fee of $60 or $75 as specified by the college. 2) A completed application form and fee of $60 or $75 as specified by the college. 3) A completed application form and fee of $60 or $75 as specified by the college. 4) A completed application form and fee of $60 or $75 as specified by the college. 5) A completed application form and fee of $60 or $75 as specified by the college. 6) A completed application form and fee of $60 or $75 as specified by the college. 7) A completed application form and fee of $60 or $75 as specified by the college. 8) A completed application form and fee of $60 or $75 as specified by the college. 9) A completed application form and fee of $60 or $75 as specified by the college. 10) A completed application form and fee of $60 or $75 as specified by the college. 11) A completed application form and fee of $60 or $75 as specified by the college. 12) A completed application form and fee of $60 or $75 as specified by the college. 13) A completed application form and fee of $60 or $75 as specified by the college. 14) A completed application form and fee of $60 or $75 as specified by the college.

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Applications for admission with advanced standing are handled as individual cases.
In medicine, special attention will be given to the appointment committee to graduate in science. The 1-2-4 course average is based Upon The University of Iowa’s 1-2-4 grading 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. Performance will be given to applicants with high scholastic standing who are residents of Iowa, and consideration will also be given to extracurricular activities. Applicants for admission are required to take the medical college admissions test which is administered for the Association of American Medical Colleges. Applicants are required to complete this test by May or October of the year preceding that for which they are applying for admission. Students may make arrangements to apply for this examination through the university examination service, the University of Iowa.

Personal interviews will be required. Applicants will be notified for the appointment for required interviews.

Applicants accepted for admission are required to attend a satisfactory physical examination report to the university student health service within two weeks following notification of acceptance.

All applicants must also remain enrolled, through student Health Service, on a regular basis of the cohort and satisfactorily vacillating against accidents prior to registration.

2.8(2) Admission to advanced standing.

If the student is considered to be a college of medicine student with the examination requirement of this college, students from other approved medical schools may be admitted to advanced standing (1-2-4) to the following conditions.

Only applicants of high academic standing will be considered.

They must present evidence showing that they have satisfactorily completed one or more of the courses listed by the college with a grade of A or above.

The committee on admissions to advanced standing will decide in each case whether the examinations in the various subjects will be required.

Applications will be considered only upon receipt of a statement from the dean or registrar of the college from which the applicant comes, showing the actual number of the course attended at the date student has completed the course or the student's work in the course is being completed. No advanced standing will be granted to students from other than approved medical schools. Students may be granted subject credit upon recommendation of the head of the department concerned, for work taken in other than medical schools.

2.8(3) Unclassified students.

Applicants for admission to the College of Medicine who are not residents of a degree and who desire to attend medical schools will be considered to attend the University of Southern Iowa. Applicants for admission to the College of Medicine are required to maintain a minimum of 3.0 (A) average in all college work taken in the College of Medicine.
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