College of Liberal Arts

Robert G. Landen, Dean
Charles O. Jackson, Associate Dean
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The arts and sciences encompass the entire range of human knowledge, from the earliest records to the latest laboratory results. All that human beings have observed about themselves, about their societies, and about the natural world around them is of concern to one or another of the arts and sciences.

The curriculum of the College of Liberal Arts reflects this wide-ranging concern with the life of the mind. It emphasizes the breadth of human knowledge, perceived not only in terms of the traditional categories of the humanities and the natural and social sciences but also in broader perspectives which extend across academic fields and reach beyond the boundaries of a college of liberal arts. It also stresses depth of learning, thereby seeking to acquaint the student with the rigors of the intellectual process through a study of the liberal arts one thus learns to participate in an intellectual tradition which is independent of particular teachers and which guides one in the choice of subjects for investigation and in the interpretation of those subjects. With time the individual begins to apprehend the great outlines of knowledge, the principles upon which it rests, the scale of its parts, and its lights and shadows.

The central purposes of a liberal education include the encouragement of intellectual tolerance, a dedication to the quest for knowledge as a worthwhile goal in and of itself, and the cultivation of a responsible, creative, individual mind. These qualities should enable one to develop throughout life an ability to reason and to express oneself clearly, an incentive to absorb emerging knowledge, and a competence to confront the uncertainties of human experience. For the student whose interests and talents lead into research, scholarship, and teaching, a liberal education provides an invaluable foundation. For the individual who enters business, industry, the professions, or government service, it furnishes a broadly useful and well-rounded educational background. For all it offers the opportunity to share in a rich intellectual heritage, in the adventures of the mind, and in the life of the educated imagination. A liberally educated person is identified not so much by specific knowledge as by quality of mind and by creative response to the challenges of the times.

At the heart of a liberal education is an appreciation of and a familiarity with a great triad: language, literature, and the arts; history and society; science and mathematics. These three great well-springs of human thought are sources of the programs of study offered students in the College of Liberal Arts.

Programs of Study

Granting the broad, general goals of a liberal education, students come into the college with a wide variety of specific educational and vocational objectives. Recognizing this diversity, the College offers a number of different programs of study leading to the baccalaureate degree, and also several preprofessional curricula which prepare the student for advanced study but do not lead to a degree from this college.

Degrees Offered

(1) BACHELOR OF ARTS

The Bachelor of Arts is the basic liberal arts degree, representing the attainment of a broad knowledge of the arts and sciences as well as a comprehensive understanding of one or more areas of special interest. Four programs leading to this degree are open to the student:

(a) Basic Program—The program appropriate for most B.A. students, it is developed around broad area requirements in the Triad plus intensive study in one or more of the specified departments or interdisciplinary major fields described below.

(b) Individualized Program—Designed for students whose educational goals are best met by a program tailored to their particular needs, it is similar to the Basic Program in broad area requirements but permits the student to develop an individual concentration incorporating work in two or more departments.

(c) College Scholars Program—Intended for a limited number of students who are especially highly qualified and motivated and who have been selected to undertake this honors-level program, the College Scholars Program permits the student maximum freedom to design a curriculum to meet particular interests and goals.

(d) Pre-Professional Program—The Pre-Professional Program is offered for those who wish to participate in one of the cooperative 3-1 curricula in the health sciences (medicine, dentistry, pharmacy, or medical technology). The student proceeds directly to specialized training in the chosen area after the third year of liberal arts study and offers the first year of professional study in lieu of a major concentration in the college in satisfying the requirements for the B.A. degree.

(2) BACHELOR OF FINE ARTS

The Bachelor of Fine Arts degree represents intensive study preparing students for graduate study and professional positions in art. The degree is offered with a major in studio art. Recommended course combinations for those who desire to concentrate in communication design, drawing, painting, oil, watercolor, printmaking or sculpture are available in the art department office.

(3) BACHELOR OF MUSIC

The program leading to the Bachelor of Music degree prepares students for graduate study and for positions in which a professional degree is required. The degree is offered with a major in music which has concentrations in music theory,
concentration. Elective courses may be taken at any time.
Advisers in the Liberal Arts Advising Center (220 Ayres Hall), in the various
major departments, in the University Counseling Center, and elsewhere on
campus are available to assist students with their program planning. In the final
analysis, however, only the student can determine the program which will best
satisfy particular needs.

Requirements for Degrees
Bachelor of Arts
As has already been stated, the
general liberal arts degree is the Bachelor
of Arts, and it is the appropriate objective
for most students in the college.
Requirements for this degree and
the several curricular programs which lead to
it will now be discussed in detail.

GENERAL REQUIREMENTS
Each student seeking a Bachelor of
Arts degree must develop a program
which includes the following:
(1) A minimum of 180 credit hours;
(2) At least 60 credit hours in courses
numbered 3000 or above;
(3) Appropriate work to satisfy the broad
requirements of the Triad, counting no
course for more than one Triad area
(Basic Program, Individualized Program,
and Pre-Professional Program only);
(4) A major consisting of at least 36 credit
hours in courses numbered 2000 or
above as specified by the department
or program, and counting no course in
this major which has been used for
Triad credit. (A course which satisfies
a Triad requirement may serve, however,
as prerequisite or corequisite to a
major.) A major must be earned in every
course counted as part of a major.
Students transferring from
other institutions must complete at
least 12 credits at The University of
Tennessee, Knoxville in each major
awarded on this campus.

Multiple Majors:
After the general requirements
described above have been satisfied,
additional majors may be recorded on the
transcript without regard to course overlap
among majors or among those additional
majors and Triad requirements. Students
developing multiple majors must
specifically declare this intent at the time
they apply for graduation. Once a student
has graduated, the establishment of
additional majors becomes subject to
University second-degree requirements.

Optional Minors:
If desired, and at the time of applying
for graduation, single or multiple minors
may be recorded on the academic record
without regard to course overlap among
minors and majors or among minors and
Triad requirements. Minors require a
minimum of 24 credit hours in courses
numbered 2000 or above. They are
available in most departments or programs
in which majors are offered and are
available in the following:

- Biochemistry
- Physical Sciences
- Portuguese
- Women’s Studies

Minors may be developed in other
colleges or schools of the University, but
they must be approved by the department
head in which the minor is proposed.
as well as the Assistant Dean for Student
Academic Affairs in Liberal Arts. At least 6
of the 24 credit hours required for a minor
must be completed at The University of
Tennessee, Knoxville.

I. Basic Program
A. THE TRIAD:
Language, Literature, and the Arts
History and Society
Science and Mathematics

Language, literature, and the arts play
a vital role in shaping human experience
and perception. They give expression to
human thought and feeling and give form
and order to a sense of the world. The
written and spoken word, the dramatic
motion and gesture of theatre, film, and
dance, the detailed structures which
address the eye and ear in painting and
sculpture, architecture and music—all of
these help to define what is human.

It is important that every student of
liberal arts become acquainted with these
modes of experience within this culture
and through exposure to cultures that are
foreign, distant, and strange. To know
what one is not is essential for knowing
what one is.

Although there is no universal formula
for determining which disciplines, skills,
and enjoyments are of primary or of
secondary importance, the written
and spoken word has a wide range of
reference than any other human skill. A
basic competence in writing and reading is
thus a minimal condition for knowing how
to think about and relate all other
activities.

The study of history is an integral part
of a liberal education. Because human
beliefs build upon a historically
understanding of the present requires an
historical perspective. Such perspective
may be developed by a number of
courses, including the traditional survey of
western civilization or other broad surveys
such as Asian history, Latin American
history, history of the United States, and
Afro-American history. More specialized
courses in the history of particular
segments of human experience, e.g.,
philosophy or religion, may also prove
valuable.

A liberal education presupposes not
only an awareness of the past but also a
familiarity with contemporary social
institutions, processes, and practices.
From a wide variety of offerings in the
social sciences the student can choose
courses useful in acquiring that familiarity.
Only by such knowledge can people of
good will hope to maintain humane values
in a world whose pressures for
urbanization, and other dimensions of
technological change challenge traditional
The student may select any one of the following three options to satisfy this requirement:

(i) 8 hours of literature in a foreign language in the 3000-level or above. Prerequisites include intermediate-level competence in the language, demonstrated by diagnostic (non-credit) or proficiency (credit) examination or by completion of the 3000-level sequence in that language.

(ii) Intermediate-level competence in a foreign language demonstrated by diagnostic (non-credit) or proficiency examination or by completing a 2000-level sequence (or an approved equivalent) in that language, and a minimum of two courses of literature in English (originally in English or in translation) drawn from the list of courses published by the Committee on Language, Literature, and the Arts, available in the Liberal Arts Advising Center.

(b) 8 hours in courses with emphasis on man and society which are not primarily historical in nature; no more than two courses may be taken from either categories (a) or (b).

A list of courses which satisfy this requirement is published by the Committee on History and Society and is available in the Liberal Arts Advising Center.

(3) **Science and Mathematics**

Each student must complete 24 hours of course work in this area, including:

(a) One of the following two options:

(i) An 8-hour sequence in a biological science; or

(ii) An 8-hour sequence in a physical science.

(b) 16 hours drawn from additional courses in the biological and/or physical sciences or from designated courses in:

(iii) the history of thought, philosophy, or social impact of science;

(iv) mathematics and logic.

No more than 16 hours may be applied toward this requirement from any one of the above four categories.

A list of courses which satisfy this requirement is published by the Committee on Science and Mathematics and is available in the Liberal Arts Advising Center.

**B. THE MAJOR**

In many ways the most important part of each student's program is the major, for it is in this intensive study of one more or less limited field of knowledge that the individual begins to find a niche in the world of intellectual endeavor. The major may be drawn from the offerings of a single department or it may bring together related concerns of two or more departments. In either case the student should work out a program of study which has a definite design and aims at some overall objective. Guidelines are published by each major department or by an interdepartmental committee to assist the student in ascertaining goals and to provide a framework within which to develop a particular program. Additional assistance in the form of personal counseling is available in the Liberal Arts Advising Center and from designated faculty advisers in each major department or area.

Requirements for the specified majors available to students in the Basic Program vary from a minimum of 36 to a maximum of 56 credit hours in courses numbered 2000 and above, including prerequisites and corequisites (i.e., supporting courses in other departments or areas). Insofar as it is consistent with the objective of a total program designed reasonably between broad area requirements in the Triad, the major, and supplementary courses, the student may elect as many courses as desired in any department or area.

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*See Phi Beta Kappa requirements in mathematics, page 38."
Majors available in the Basic Program:

- Anthropology
- Art
- Art History
- Audiology
- Biology
- Botany
- Chemistry
- Computer Science
- Cultural Studies
- Economics
- English
- French
- Geography
- Geology
- German
- Greek
- History
- Human Services
- Italian
- Latin
- Mathematics
- Microbiology
- Music
- Philosophy
- Physics
- Political Science
- Psychology
- Religious Studies
- Russian
- Sociology
- Spanish
- Speech Pathology
- Speech & Theatre
- Statistics
- Zoology

C. SUPPLEMENTARY ELECTIVE COURSES

At least one-fourth of each student's curriculum in the Basic Program will be made up of courses selected according to the individual's interests to supplement and support the work being done in the major and in the Triad. This dimension of the student's experience in the University represents that freedom within which total education may be rounded out as enriched. Elective courses should be chosen with care so that they will truly enhance the student's total program and help in the achievement of well thought-out educational objectives.

Some of the choices which the student might make in selecting the elective courses are:

1. Additional courses in the major
2. A related minor
3. An area in the arts
4. An off-campus quarter

Only the student's imagination and initiative and the willingness to conceive and develop a totally meaningful academic program limit the choices of supplementary elective courses.

II. Individualized Program

The Basic Program described above will meet the educational needs of most of the students enrolling in the college. Some, however, come with particular strengths in their preparation or with special interests which do not coincide with the departmental or interdepartmental majors specified in the Basic Program. For these students the Individualized Program has been established as a means of attaining a closer correlation between student needs and academic programs.

Students in the Individualized Program will normally satisfy the broad requirements of the Triad, just as those in the Basic Program do, although some latitude is provided for substitutions approved by the student's adviser and the dean of the College. The point at which the greatest degree of individualization takes place, however, is in the area of concentration. Although the quantitative aspect of the area of concentration is the same as for the major in the Basic Program (i.e., a minimum of 36 hours in courses numbered above 2000), there is no restriction in principle on the choice of courses of which it is comprised. The student may design a program, in consultation with an adviser, and submit it for consideration to the Committee on the Individualized Program. The proposed courses of study must have some clear central purpose, usually implemented through intensive work in two or three departments, wherein undirected scattering of courses will not be approved. For further information consult the program director, Dr. Harry Jacobson (Ayres Hall).

III. College Scholars Program

A limited number of freshmen, entering transfer students with less than 60 credit hours, and resident students with less than 90 credit hours are invited each year to enroll in the distinguished honors curriculum. Selection is based on previous academic record, test scores, recommendations, a written essay, and a personal interview. Admission is provisional for two quarters; continuation depends upon maintenance of a satisfactory record (normally 3.25 or above) and evidence of ongoing motivation and interest.

The College Scholars Program affords the highest degree of freedom to the student in developing a meaningful curriculum. Each program is worked out individually with a special adviser (tutor) who under ordinary circumstances continues to advise the student throughout the college career. Together they determine what kinds of course work and/or other learning experiences will best fulfill the student's objectives, while at the same time achieving the kind of liberal education the college believes is important for every student. In the final two years of the program students will be heavily involved in independent study or research resulting in a senior honors thesis or project report.

Further information and applications may be obtained from the program director, Dr. Harry C. Jacobson, 226 Ayres Hall.

IV. Preparation for the Health Professions

Pre-Dental
- Pre-Dental Hygiene
- Pre-Medical
- Pre-Medical Record Administration
- Pre-Medical Technology
- Pre-Nursing
- Pre-Pharmacy
- Pre-Physical Therapy
- Other Health Professions

Pre-health professional programs are available for students who plan a career in one of the health professions. The programs preparing students for the study of medicine, dentistry, and pharmacy include specified courses required for admission to the respective colleges of The University of Tennessee Center for the Health Sciences at Memphis (UTCCHS), as well as with a qualified for the Bachelor of Arts degree in the College of Liberal Arts at The University of Tennessee, Knoxville.* The pre-medical technology program prepares students to undertake professional training during the fourth year of study at UTCCHS. Other pre-health professional programs—dental hygiene, medical record administration, nursing, pharmacy, and physical therapy—are offered for those students who are planning to pursue professional training in health professional areas which lead to an undergraduate degree at UTCCHS but not to a degree from UTK.

NOTE: UTCCHS is a state-supported institution and by legislative intent is required to admit all qualified Tennessee residents prior to considering out-of-state students. At the present time there are more qualified Tennessee applicants than there are places available; therefore, out-of-state applications are not being considered. The only exception to this policy is the non-resident applicant who is the son or daughter of an alumnus or alumnaw of UTCCHS and who has completed all or a major portion of work at a college in the University of Tennessee system and is otherwise qualified competitively.

Admission to any program at UTCCHS or to the Medical Technology Program at the UT Memorial Research Center and Hospital is at the discretion of that program's admissions committee.

Transmission to The University of Tennessee and completion of a professional school in the College of Liberal Arts does not assure admission to any professional training program.

Because the competition for admission to most programs in the health professions is keen, pre-health professional students are encouraged to work towards the completion of a degree program in a major which will enable the individual to adapt to an alternative program in the event admission to the desired program is not achieved. The preparatory courses necessary for professional study can be incorporated into the chosen major program.

Students in a pre-health professional program should consult with a health professional adviser in the Liberal Arts Advising Center (220 Ayres Hall) or the Coordinator of the Health Professions Office (218 Ayres Hall) for more information about the programs outlined below. Bulletins describing the various pre-health professional programs, including a detailed statement of requirements, may be obtained from the Health Professions Office, 218 Ayres Hall.

*Students wishing to prepare for professional training at institutions other than UTCCHS should consult the catalogs of such institutions to determine the specific preparation required for admission.
The University of Tennessee, Knoxville, before entering UTCCHS. Although the B.A. degree is not required for admission to the College of Dentistry at Memphis, most of the students accepted into the study of dentistry have the baccalaureate degree before admission. Therefore, pre-dental students are encouraged to plan to complete all requirements for the B.A. degree before enrolling in the College of Dentistry.

**Freshman**

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<tbody>
<tr>
<td>English 1510-20</td>
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<tr>
<td>Chemistry 1110-20-30</td>
<td>12</td>
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<tr>
<td>Mathematics (1540) 1550-60 or 1840-50</td>
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<tr>
<td>Triad I (Language, Literature &amp; the Arts)</td>
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**Sophomore**

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**Junior**

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<td>Physics 2210-20-30</td>
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<td>Speech 2111</td>
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<td>*Biological and/or zoology</td>
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**Senior**

Completion of major program and B.A. requirements or Completion of one year at the UTCCHS

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The College offers both three-year and four-year programs leading to the degree of Bachelor of Arts for students preparing for the study of medicine. Both programs are based upon the program outlined below. In the three-year program the student must complete at least 135 credit hours while enrolled in the college, and the B.A. degree is granted upon satisfactory completion of the first year of study at the UTCCHS. In the four-year program the degree is granted upon completion of 180 or more credit hours while enrolled in the college, including a major of 36 or more hours in addition to the courses outlined below. The requirements for a major are waived for those taking their fourth year at UTCCHS. Students in either the three- or four-year program must complete the last 45 hours of credit in residence at UTK before entering UTCCHS.

Although the B.A. degree is not required for admission to the College of Medicine, most students accepted into the study of medicine have the baccalaureate degree before admission. Therefore, pre-medical students are encouraged to plan to complete all requirements for the degree before enrolling in the College of Medicine.

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Bulletins describing the pre-medical program and requirements in detail may be obtained from the Health Professions Office, 218 Ayres Hall.

**PRE-DENTAL HYGIENE PROGRAM**

A Bachelor of Science in Dental Hygiene is granted by UTCCHS upon completion of a program which includes 96 hours of prescribed courses in the College of Liberal Arts and 6 quarters of study at UTCCHS. Students interested in the pre-dental hygiene program are encouraged to consult with a health professions adviser in the Liberal Arts Advising Center or the Coordinator of the Health Professions Office for more information. Bulletins describing the pre-dental hygiene program and requirements in detail may be obtained from the Health Professions Office, 218 Ayres Hall.

**PRE-MEDICAL PROGRAM**

The college offers both three-year and four-year programs leading to the degree of Bachelor of Arts for students preparing for the study of medicine. Both programs are based upon the program outlined below. In the three-year program the student must complete at least 135 credit hours while enrolled in the college, and the B.A. degree is granted upon satisfactory completion of the first year of study at the UTCCHS. In the four-year program the degree is granted upon completion of 180 or more credit hours while enrolled in the college, including a major of 36 or more hours in addition to the courses outlined below. The requirements for a major are waived for those taking their fourth year at UTCCHS. Students in either the three- or four-year program must complete the last 45 hours of credit in residence at UTK before entering UTCCHS.

Although the B.A. degree is not required for admission to the College of Medicine, most students accepted into the study of medicine have the baccalaureate degree before admission. Therefore, pre-medical students are encouraged to plan to complete all requirements for the degree before enrolling in the College of Medicine.

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**PRE-MEDICAL RECORD ADMINISTRATION PROGRAM**

Admission to the medical record administration program at UTCCHS, leading to a Bachelor of Science in Medical Record Administration requires completion of 135 hours of prescribed courses. Classes are admitted in September; applications must be filed by April 15. The selection process usually includes interviews with members of the faculty.

Students interested in the pre-medical record administration program are encouraged to consult with a health professions adviser in the Liberal Arts Advising Center or the Coordinator of the Health Professions Office for more information. Bulletins describing the medical records administration requirements may be obtained from the Health Professions Office, 218 Ayres Hall.

**PRE-MEDICAL TECHNOLOGY PROGRAMS**

The college offers two programs leading to the study of medical technology.

1. The Science-Medical Technology Curriculum leading to a Bachelor of Arts degree with a major in medical technology from The University of Tennessee.

2. The Pre-Medical Technology Program leading to a degree of Bachelor of Science in medical technology from UTCCHS.

**Science-Medical Technology Curriculum**

The Science-Medical Technology Curriculum is a three-year program consisting of a minimum of 135 credit hours in the college. Students who complete this curriculum satisfactorily may apply for admission to the course of study in medical technology at The University of Tennessee Memorial Research Center and Hospital in Knoxville (UTMRCH). Successful completion of this course, which results in the granting of 50 credit hours, makes the student eligible for a Bachelor of Arts degree with a major in medical technology from The University of Tennessee. In addition, a Certificate of Laboratory Training will be awarded by UTMRC. Students will then be eligible for examination by the Board of Registry of the American Society of Clinical Pathologists in order to be certified as registered medical technologists.

**Freshman**

<table>
<thead>
<tr>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>English 1510-20</td>
<td>8</td>
</tr>
<tr>
<td>Biology 1210-23-30 or Zoology 1118-28-38</td>
<td>12</td>
</tr>
<tr>
<td>Chemistry 3211-21-31 and 3219-29-39</td>
<td>12</td>
</tr>
<tr>
<td>Triad I</td>
<td>8</td>
</tr>
<tr>
<td>Triad II</td>
<td>8</td>
</tr>
<tr>
<td>Electives</td>
<td>4</td>
</tr>
<tr>
<td>(Total 135)</td>
<td>48</td>
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</table>

**Sophomore**

<table>
<thead>
<tr>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemistry 3211-21-31 and 3219-29-39</td>
<td>12</td>
</tr>
<tr>
<td>Triad I</td>
<td>8</td>
</tr>
<tr>
<td>Triad II</td>
<td>8</td>
</tr>
<tr>
<td>Electives</td>
<td>4</td>
</tr>
<tr>
<td>(Total 135)</td>
<td>48</td>
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**Junior**

<table>
<thead>
<tr>
<th>Hours</th>
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<tbody>
<tr>
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<tr>
<td>Triad II</td>
<td>8</td>
</tr>
<tr>
<td>Electives</td>
<td>4</td>
</tr>
<tr>
<td>(Total 135)</td>
<td>48</td>
</tr>
</tbody>
</table>

**Senior**

Completion of major program and B.A. requirements or Completion of one year at UTCCHS.

Bulletins describing the pre-medical program and requirements in detail may be obtained from the Health Professions Office, 218 Ayres Hall.

**PRE-MEDICAL RECORD ADMINISTRATION PROGRAM**

Admission to the medical record administration program at UTCCHS, leading to a Bachelor of Science in Medical Record Administration requires completion of 135 hours of prescribed courses. Classes are admitted in September; applications must be filed by April 15. The selection process usually includes interviews with members of the faculty.

Students interested in the pre-medical record administration program are encouraged to consult with a health professions adviser in the Liberal Arts Advising Center or the Coordinator of the Health Professions Office for more information. Bulletins describing the medical records administration requirements may be obtained from the Health Professions Office, 218 Ayres Hall.
The three-year and four-year programs, which lead to a Bachelor of Arts degree from The University of Tennessee, Knoxville, as well as to the professional degree in pharmacy from UTCCHS, are based upon the program outlined below. In the three-year program, the student must complete at least 135 credit hours while enrolled in the College of Liberal Arts, and the B.A. degree is granted upon satisfactory completion of the first year of study at Memphis. In the four-year program the degree is granted upon completion of 180 or more credit hours while enrolled in the college, including a major of 36 or more hours in addition to the courses outlined below. The requirement for a major is waived for those taking their fourth year at UTCCHS. Students in either the three- or four-year program must complete the last 45 hours of credit in residence at The University of Tennessee, Knoxville, before enrolling in the College of Pharmacy.

### Freshman

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>English 1510-20</td>
<td>3</td>
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</tr>
<tr>
<td>Chemistry 1110-20-30</td>
<td>12</td>
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</tr>
<tr>
<td>Mathematics 1550-60 or 1840-50</td>
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</tr>
<tr>
<td>Psychology 2500</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Triad I (Language, Literature &amp; the Arts)</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Triad II (History, Geography)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Elective</td>
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<td>48</td>
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### Sophomore

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
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</thead>
<tbody>
<tr>
<td>Biology 1210-20-30 or Zoology 1118-28-38</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Chemistry 3211-21-34 or 3219-29-39</td>
<td>12</td>
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</tr>
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<td>Speech 2311</td>
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<tr>
<td>Triad I</td>
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<tr>
<td>Triad II</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Elective</td>
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### Junior

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<tr>
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<tr>
<td>Physics 2210-20</td>
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<td></td>
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<tr>
<td>Triad I</td>
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<td>Triad II</td>
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<td>12</td>
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<tr>
<td>Electives</td>
<td>8</td>
<td>39</td>
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### Senior

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Completion of major program and B.A. requirements</td>
<td>45</td>
<td></td>
</tr>
<tr>
<td>Completion of one year at the UT Center for the Health Sciences</td>
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<td></td>
</tr>
<tr>
<td>Electives</td>
<td>8</td>
<td>12</td>
</tr>
</tbody>
</table>

* Senior (Total 135)

or equivalent honors courses.

* The College of Pharmacy requires a minimum of 6 hours of English or foreign language in addition to English 1510-20.

* The College of Pharmacy requires a minimum of 6 hours in social science in addition to Psychology 2500. The remaining hours may include courses chosen from economics, history, political science, psychology, or sociology.

* Recommended electives include Classics 2710 and 2720 and courses in business administration, particularly accounting, economics and marketing.

### PRE-PHYSICAL THERAPY PROGRAM

Admission to the physical therapy program at UTCCHS, leading to the degree of Bachelor of Science in Physical Therapy from UTCCHS, requires completion of 135 hours of prescribed courses while enrolled in the College of Liberal Arts. The program in Memphis is 15 months in length.

Students interested in the pre-physical therapy program are encouraged to consult with a health professions adviser in the Liberal Arts Advising Center or the Coordinator of the Health Professions Office for more information. Bulletins detailing the specific courses of the pre-health program in detail may be obtained from the Health Professions Office, 218 Ayres Hall.

### OTHER HEALTH PROFESSIONS

- Cytotechnology
- Histotechnology
- Optometry
- Radiologic Technology
- Veterinary Medicine

A library of materials about career opportunities in the health professions, including all allied health areas, has been developed and is located in the Health Professions Office, 218 Ayres Hall. Academic advisers are available to assist students in planning their programs in order to meet the requirements for admission to other programs.

### Bachelor of Fine Arts

The Bachelor of Fine Arts degree represents intensive study preparing the student for graduate programs and careers relating to art. A minimum of 180 credit hours are required for graduation. Although there are no specific concentrations within the major, guidelines for the following recommended programs are available in the departmental office: (1) communication design, (2) drawing, (3) painting, (4) oil, (5) watercolor, (6) printmaking, and (7) sculpture. Transfer student are advised that a minimum of 28 credit hours in studio courses and 8 upper-division credit hours in art history must be earned at The University of Tennessee, Knoxville. The Bachelor of Fine Arts degree and its major will be recorded as follows:

Bachelor of Fine Arts
Major: Studio Art

### Core Curriculum:

The core program is required of all B.F.A. candidates. It is designed to give a broad art background, in both studio and art history, at the earliest possible time. This background, during the freshman and sophomore years, gives a foundation upon which the student may build, and an opportunity to become acquainted with the various artistic disciplines. This gives each student the understanding to plan a better program during the remaining two years. Unless otherwise stated, the core program is nonsequential, but should be completed by the end of the first two years. Core courses are as follows:

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Art History</td>
<td>Art 1810</td>
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<tr>
<td>Art 1825</td>
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<td>4</td>
</tr>
<tr>
<td>Art 2715</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>A minimum of 8 hours of history courses</td>
<td>8</td>
<td></td>
</tr>
</tbody>
</table>
studio:

hours credit

* art 1115 studio fundamentals: begin drawing...4
* art 1125 studio fundamentals: sculpture...4
* art 1135 studio fundamentals: composition...4
* art 2105 introduction to drawing...4
* art 2205 introduction to painting...4
* art 2305 introduction to sculpture...4
* art 2505 introduction to printmaking...4

52 hours

* prerequisite to 2000 level courses for b.f.a. program.

General Curriculum:
In addition to the core program, b.f.a. candidates must fulfill the following general requirements:

A. Core Courses
I. Language, literature and the arts
   a. minimum of 8 hours English composition...8
   b. history and society minimum of 8 hours...8
   c. science and mathematics minimum of 8 hours...8
   d. minimum of 20 hours...20
B. Philosophy 3910...4
C. Non-Art electives
   a. minimum of 40 hours...40
D. art electives
   a. minimum of 12 hours...12
   b. minimum of 20 hours...20
   c. minimum of 40 hours...40
   d. consent of department...40
E. unsatisfied requirements...180 hours

College of liberal arts program:
A program of 180 hours to be determined by the student and approved by the department of art honors committee. This program allows the gifted student greater opportunity for establishing a unique education in studio art, which may include independent study, off-campus study, or foreign study in addition to formal class work. Participation and graduation in the College Arts Program will be noted on the student's transcript.

Students may apply for the program upon completion of 45 credit hours, but will not normally be considered after the completion of 90 hours. Admittance to the College Arts Program is based on four criteria: (1) an overall grade-point average of at least 3.0, (2) a portfolio of work, (3) the proposed course of study, and (4) a personal interview. A minimum grade-point average of 3.25, at least 12 hours per quarter, and evidence of continuing motivation and interest must be maintained to remain in the program. Each College Artist will normally enroll in one or more general or departmental honors courses each quarter, and must participate in an honors exhibition prior to graduation.

studio honors courses:
Courses are designed for the exceptional student. Honors courses may be taken in any of the areas of studio instruction, and admittance is based on the following criteria:
A. grade-point average of 3.2 in studio art courses
B. portfolio of class and/or outside work
C. recommendation of the studio faculty, and/or approval of the instructor
Continued participation is subject to periodic review by the faculty. Students qualified for honors courses will enroll in course numbers which most closely parallel their present level, i.e. sophomores in 2008, juniors in 3008, seniors in 4008. Each course number may be repeated for a maximum of 24 hours credit.

Bachelor of Music:
The Department of Music offers the degree of Bachelor of Music with concentrations in music theory, composition, music history and literature, piano literature, and applied music, with emphasis on voice, piano, organ, and church music, strings, woodwind, brass, and percussion instruments, studio music and jazz. The study is designed to prepare students for graduate study or for positions in music for which a professional degree is required.

Students who plan to work for this degree are assigned an adviser in the Department of Music at the time they enter the program. Continuation in the program at the 3000 level requires the achievement of an average of 2.5 or better in all music courses taken. The minimum requirement for the degree is 180 credit hours, including the specified courses outlined below.

Note: In addition to the concentrations offered in the Bachelor of Music curriculum, a major in music with a concentration in either music history and literature or applied music is available in the Bachelor of Arts curriculum.

Music Theory:

### Freshman

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>English 1510-20</td>
<td>8</td>
<td>2</td>
</tr>
<tr>
<td>Music 1119-28-38</td>
<td>12</td>
<td>4</td>
</tr>
<tr>
<td>Music 1113-23-33</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Music 1340</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Ensemble</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Liberal arts electives</td>
<td>12</td>
<td>4</td>
</tr>
<tr>
<td>Music 2000</td>
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<td>0</td>
</tr>
</tbody>
</table>

**Sophomore**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Music 2119-28-38</td>
<td>12</td>
<td>4</td>
</tr>
<tr>
<td>Music 2123-23-33</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Music 2310-20-30</td>
<td>9</td>
<td>3</td>
</tr>
<tr>
<td>Music 2500</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>Applied music</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Ensemble</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Liberal arts electives</td>
<td>12</td>
<td>4</td>
</tr>
<tr>
<td>Music 2000</td>
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**Junior**

<table>
<thead>
<tr>
<th>Course</th>
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<th>Credit</th>
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</thead>
<tbody>
<tr>
<td>Applied music</td>
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<td>1</td>
</tr>
<tr>
<td>Music 3111-21-31</td>
<td>9</td>
<td>3</td>
</tr>
<tr>
<td>Music 3112-22</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>Music 3113-23</td>
<td>6</td>
<td>2</td>
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<tr>
<td>Music 4112 or 4115</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Ensemble</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Music history/literature (3000-level and above)</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>Electives</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>Music 2000</td>
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**Senior**

<table>
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<tr>
<th>Course</th>
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<tbody>
<tr>
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<td>1</td>
</tr>
<tr>
<td>Music 4111</td>
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<td>1</td>
</tr>
<tr>
<td>Music 4112 or 4115</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Music 4112-4115</td>
<td>3</td>
<td>1</td>
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<tr>
<td>Music 4131</td>
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<td>Ensemble</td>
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<tr>
<td>Electives</td>
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<td>4</td>
</tr>
<tr>
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</table>

**Total:** 180 hours

Music History and Literature:

### Freshman

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<tr>
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<td>Music 1119-28-38</td>
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<td>Music 1113-23-33</td>
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<td>Music 1340</td>
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<td>Ensemble</td>
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<tr>
<td>Liberal arts electives</td>
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<td>4</td>
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<tr>
<td>Music 2000</td>
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**Sophomore**

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<tr>
<th>Course</th>
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<tbody>
<tr>
<td>Music 2119-28-38</td>
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<tr>
<td>Music 2123-23-33</td>
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<tr>
<td>Music 2310-20-30</td>
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<td>Music 2500</td>
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<td>4</td>
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<tr>
<td>Music 2000</td>
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</table>

**Junior**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applied music</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Music 3111-21-31</td>
<td>9</td>
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<td>Music 4112 or 4115</td>
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<tr>
<td>Ensemble</td>
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<td>1</td>
</tr>
<tr>
<td>Music history/literature (3000-level and above)</td>
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<tr>
<td>Electives</td>
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<td>2</td>
</tr>
<tr>
<td>Music 2000</td>
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**Senior**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Music 4100</td>
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<td>Music 3199</td>
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<tr>
<td>Liberal arts electives</td>
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<tr>
<td>Electives</td>
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<td>4</td>
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<tr>
<td>Music 2000</td>
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</table>

**Total:** 180 hours

College of Liberal Arts 183

COMPOSITION:

### Freshman

<table>
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<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>English 1510-20</td>
<td>8</td>
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<tr>
<td>Music 1119-28-38</td>
<td>12</td>
<td>4</td>
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<td>Music 1113-23-33</td>
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<tr>
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**Sophomore**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
</tr>
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Preparation for Other Professions

Law
Students who plan to study law should consult the statement regarding admission to the College of Law (page 173) and discuss their programs with advisers in the Liberal Arts Advising Center.

Library Science
Certain courses in the Graduate School of Library and Information Science are open to students in the College of Liberal Arts interested in beginning positions in a library or in preparation for future graduate study in librarianship. For further information, see page 51 or consult the Director of the Graduate School of Library and Information Science.

Planning
Students who wish to consider a career in city and regional planning or a related field will find a brief description of the program of the Graduate School of Planning on page 52. Students are accepted into planning from a broad variety of undergraduate backgrounds. Detailed information on the planning profession, admission requirements and the program of study may be obtained from the Graduate School of Planning.

Public Administration
Students majoring in political science who wish to prepare for an administrative career in the public service may select courses to fit that objective. The concentration appearing below is suggested for students with public service career interests. The degree to be awarded is a Bachelor of Arts with a major in political science, augmented by supportive work in related disciplines.

Freshman

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Political Science 2510-20, 2530</td>
<td>8</td>
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Sophomore

<table>
<thead>
<tr>
<th>Course</th>
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</thead>
<tbody>
<tr>
<td>Economics 2110-20-30.</td>
<td>9</td>
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Junior

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>Political Science 3565-66</td>
<td>8</td>
</tr>
<tr>
<td>Political Science 3545-48 or 3601-02-03-04</td>
<td>8</td>
</tr>
<tr>
<td>Economics 3340</td>
<td>3</td>
</tr>
<tr>
<td>Accounting 2110-20-30</td>
<td>9</td>
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Senior

<table>
<thead>
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<th>Course</th>
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</thead>
<tbody>
<tr>
<td>Political Science 4610-20-20</td>
<td>7</td>
</tr>
<tr>
<td>Political Science 4410</td>
<td>4</td>
</tr>
<tr>
<td>Economics 3410</td>
<td>3</td>
</tr>
<tr>
<td>Accounting 3510</td>
<td>3</td>
</tr>
<tr>
<td>Finance 4530-60</td>
<td>6</td>
</tr>
</tbody>
</table>

In addition, sufficient electives in political science must be taken to meet the number of hours required for a major in political science.

Further information may be obtained in the Department of Political Science.

Social Work

Students who wish to prepare for graduate professional training in social work will find a brief description of the program of the School of Social Work on page 53. Detailed information about courses and curriculum, as well as degree requirements for admission, will be found in the catalog of the School of Social Work.

Teaching

Students in the College of Liberal Arts who wish to be certified for secondary school teaching must satisfy state certification requirements as well as all degree requirements of the College of Liberal Arts, and must be recommended for certification by the College of Education. The College of Education is approved by the National Council for Accreditation of Teacher Education (NCATE); recommendation for certification by the college, therefore, in effect certifies the student in thirty states.

Application for admission to the Teacher Education Program should be made during the second or third quarter of the sophomore year in the office of the dean of the College of Education, 212 Claxton Education Building. Criteria for admission are: (1) a 2.2 cumulative grade point average; (2) satisfactory ratings in a speech and hearing exam as determined by tests administered by the Speech and Hearing Center; (3) a personality inventory; (4) satisfactory student conduct records; (5) a successful field experience.

One quarter during the senior year must be reserved for student teaching (Education C8 4710-20). Application for student teaching must be filed not later than January 1 of the year preceding the academic year in which the student teaching will be undertaken. Those planning to student teach during the 1980-81 academic year must apply by January 1, 1980.

Curricula for students seeking teacher certification should include the following:

1. English 1010-20; 1031 or 1032 or 1033
2. 16 hours, representing at least 3 fields, including:
   - 4 hours of 2000-level English
   - 12 hours of the student's choice from anthropology, art, English literature, Library and Information Science 3510-20-30, foreign language (beyond the elementary level), history (upper division), music, philosophy, or religious studies

3. Language, Literature, and the Arts:
   - 0-24 hours, the number of hours and choice of courses depending upon the options selected and the choices made in (2) above

4. History and Sociology:
   - (a) One of the 8-hour historical sequences in category (a) of the Triad list
   - (b) Psychology 2500 or 2518
   - (c) 4 hours from anthropology, economics, geography, human services, political science or sociology courses on the Triad list
   - (d) 0-8 additional hours of the student's choice from courses on the Triad list

5. Science and Mathematics:
   - (a) One of the 8-hour natural science sequences in categories 1 or 2 of the Triad list
   - (b) 4 additional hours of natural science courses in categories 1 and 2
   - (c) 4 hours of mathematics courses in category 4
   - (d) 8 additional hours of the student's choice from courses on the Triad list

6. Speech 2311
7. 9 hours in health and physical education, including at least 3 hours of health education, physical education, or recreation and 2 hours of physical education

8. Professional Education courses:
   - (a) Education C8 3101-20-30
   - (b) Educational Psychology 3810
   - (c) 6 hours of appropriate methods courses
   - (d) Education C8 3521-22-23
   - (e) Education C8 4710-20 (student teaching)
   - (f) 6 hours of electives from the College of Education

9. Additional courses necessary to complete liberal arts major(s)
10. Additional courses required for certification in teaching subject area(s) (Consult Certification Clerk, 212 Claxton Education Building)

11. Electives to reach total of 180 hours, including at least 60 upper-division hours, required for graduation.

NOTE: The same course may be applied both to certification requirements and to Triad or major requirements of the College of Liberal Arts.

*Admission to the Teacher Education Program is prerequisite for upper-division courses in professional education

Theology

Students planning to study theology should follow one of the Bachelor of Arts curricula. Any liberal arts major is acceptable for admission to most theological schools; strong preparation in literature, philosophy, history, religious
studies, and social science is desirable. Students may wish to consult with faculty members in the Department of Religious Studies in planning their programs.

General Information

Admission to the College

For information regarding admission to the College of Liberal Arts, see page 17.

Course Load

The average course load in the college for any quarter is 14-16 credit hours. The University defines full-time undergraduate students as those who register for a minimum of 12 hours. The maximum number of hours which may be taken by liberal arts students is 17, exclusive of elective work in ensemble music and physical education. Exceptions to this rule will require approval by the Assistant Dean for Student Academic Affairs (218 Ayres Hall).

Lower Division—Upper Division

Courses numbered at the 1000 and 2000 levels are considered lower division and are normally taken by students in the freshman and sophomore years. Courses numbered 3000 and above are upper division and are designed for students at the junior and senior levels.

Satisfactory/No Credit Courses

A few courses in the college are offered only on a Satisfactory/No Credit (S/NC) basis and students may elect to take others on this basis, except in areas where the option is specifically prohibited. Such courses, if successfully completed, will count as hours for graduation although neither S nor NC grades will be calculated in the student's grade point average. Satisfactory is defined as C or better work on the traditional grading scale and No Credit is defined as less than C. The following regulations apply:

1. S/NC courses, except those offered only on this basis, may not count for Triad requirements or major and minor requirements unless specifically permitted by petition. This restriction applies also to major or minor prerequisites or corequisites.

2. The maximum number of S/NC elective hours which may be counted toward graduation is 30, exclusive of courses offered only S/NC, physical education courses and/or satisfactory hours earned by examination, military service, etc.

3. A student who desires to take a course S/NC should indicate that intention at the time of registration. A change from S/NC grading to regular grading or from regular grading to S/NC will not be permitted beyond the add deadline in each quarter. (Exception: Students who register for a course S/NC in a restricted area will be required to change to regular grading when the error is discovered.)

4. A transfer student who has more than 30 S/NC or equivalent hours earned prior to admission to the University of Tennessee, Knoxville, may count all of these hours toward graduation but may not elect additional S/NC hours.

5. A transfer student with S/NC or equivalent credit earned prior to admission to the University of Tennessee, Knoxville, in a course which satisfies a Triad requirement may count it for that purpose. In the case of a course which satisfies a major or minor requirement, statement (1) applies. The option of taking courses on a S/NC basis is provided to encourage the able student to venture beyond the limits of those courses in which the student does well and, motivated by intellectual curiosity, to explore subject matter in which performance may be somewhat less outstanding than work in preferred subject fields.

Note: Students planning to seek admission to graduate or professional schools (especially in the health sciences) should discuss with their advisers possible limitations on exercise of the S/NC option before registering for courses on this basis.

Off-Campus Study

Recognizing that learning is not restricted to formal classroom situations, the college provides for students to earn credit toward graduation for approved off-campus study. Such study may be undertaken only with prior approval of the faculty member and the department concerned. It may include certain kinds of work experiences, community involvement, working in political campaigns, etc. Credit per quarter will vary from 1-16 hours. Up to 24 hours of credit earned in this way may be applied toward a degree in the college, although individual departments may limit the number of hours which may be applied toward a specific major.

Independent Study

Certain educational goals may best be met through independent study done by an individual under the direction of a faculty member. Students who wish to do such independent work should obtain the approval of the faculty members and the departments concerned prior to embarking upon their study. Credit per quarter will vary from 1-16 hours. Up to 24 hours of credit earned in this way may be applied toward a degree in the college, although individual departments may limit the number of hours which may be applied toward a specific major.

Study Abroad and Foreign Study Courses

Several opportunities for study abroad are available to students in the college. One avenue is through group programs arranged and supervised by departments of the college on a full-quarter or summer term basis. A second is through group programs conducted abroad by other academic institutions to which UTK students with approval may enroll for credit. Assistance in identification of and registration in such programs may be obtained through the Overseas Study Information Service located in the University Center, Division of International Education. A third opportunity is through individualized programs under the foreign study number 4101. The nature of this work as well as credit for it should be negotiated by students in advance to departure with the appropriate liberal arts departments. Credit will be awarded only after completion of all agreed upon requirements, and may vary from 1-16 hours in any one department. Up to 24 hours of such credit, exclusive of that earned in group programs offered by departments, could apply toward a degree in the college. Departments may in any of the above forms, however, limit the hours of credit which can be applied toward a given major.

Liberal Arts Advising Center

Academic advising for students of the college is offered through the Liberal Arts Advising Center, 220 Ayres Hall, as well as through the several major departments. The Advising Center is staffed on a regularly scheduled basis by members of the college faculty, each of whom has been trained for this specialized work. Students in their first quarter of residence are assigned to the Advising Center, where they may relate themselves to a particular adviser of their choice or consult the person on duty at the time they need assistance. Most students continue in this relationship to the Advising Center until they have determined their major, normally by the beginning of the junior year, at which time they may be transferred for advising to a faculty member in the major department.

Student Academic Affairs Office

Academic assistance for students is also provided through the Student Academic Affairs Office, 218 Ayres Hall. This office serves primarily those students not assigned to the Liberal Arts Advising Center, helping them meet a variety of academic needs related to the development of their academic programs, satisfying graduation requirements, etc. For those who are planning careers in the health sciences it provides a liaison with the Center for the Health Sciences. Each quarter the Student Academic Affairs Office issues the Liberal Arts Quarterly Bulletin in order to keep students informed about changes in the college curriculum as well as matters relating to registration, courses, and requirements.

Office of Black Studies

The Office of Black Studies, 812 Volunteer Blvd., coordinates the various departments and colleges of the University with respect to the development of curricular changes and innovations which incorporate the Black experience into academic and advising programs of the institution, supplies information on financial assistance for Black students, and serves as the focal point for the coordination and development of an improved and expanded Black Studies Program at the University.
Black Cultural Center
The Black Cultural Center represents one effort by the University to promote greater awareness of the nature of the Black experience and the contribution of Black America to the national past. The Center seeks to fulfill this role through a variety of programs and occasions. Typical of its cross-campus work is sponsorship of Black History Week, and the Black Arts Festival. Within the Center itself exhibits related to the Afro-American past, small group lectures, group study sessions, and a tutorial program aimed especially at minority students are a few of the ongoing activities.

The Center is located at 812 Volunteer Blvd. All members of the University community are invited to visit this location and utilize the opportunities provided by the Center for increased knowledge about the Black experience. For further information contact the director.

Bureau of Public Administration
The University has established in the college a Bureau of Public Administration, for the purpose of promoting sound governmental administration through research, publication, and consultation. Offices and staff are maintained in both Knoxville and Nashville. The head of the Department of Political Science serves as director of the Bureau of Public Administration.

Psychological Clinic
The Psychological Clinic is an outpatient psychodiagnostic and treatment center established by the University within the Department of Psychology. It provides advanced graduate training for students in clinical psychology and also serves as a training facility for graduate students in the School of Social Work. Referrals for treatment come from many sources, including self-referrals and referrals by relatives and friends by various social and mental health agencies. Treatment services are available to anyone regardless of residence, sex, age, race, or citizenship.

University Theatres
The Department of Speech and Theatre offers a full schedule of dramatic presentations in three different theatres. The Clarence Brown Theatre has outstanding facilities for prosenium and open staging and for film productions, and, in a separate Studio Theatre, for laboratory productions. Carousel Theatre is designed for arena staging, and can be converted for open-air performances in the summer.

Instructional Facilities
The college carries out its varied teaching and research activities in more than two dozen principal buildings in two areas of the campus, as well as in a number of converted residences which provide offices, studios, and study space. The center of the two clusters of buildings is on "The Hill," and includes Ayres Hall (psychology and mathematics), Austin Peay (psychology), Hesler (biological sciences), Physics (physics and astronomy), Geology-Geography (geology and geography), and Dabney and Buehler (chemistry). West of "The Hill" is a recently built group of buildings for the humanities, social sciences, and fine arts: McClung Tower and the Humanities-Social Sciences classroom building (classics, English, foreign languages, history, human services, philosophy, religion, studies, sociology, and speech and theatre), the Music Building (music), and the Hearing and Speech Center (audiology and speech pathology). In this area also are the McClung Museum and the Clarence Brown and Carousel Theatres, as well as the Undergraduate Library. Anthropology is housed in South Stadium, and art utilizes several small buildings for its studies.

College Offices
The College Administrative Office is in 226 Ayres Hall and houses the office of the Dean. Associate Dean as well as the office of Curriculum and Special Programs. The Student Academic Affairs Office is in 218 Ayres Hall. The Liberal Arts Advising Center is in 220 Ayres Hall.

Departments of Instruction
American Studies
See Cultural Studies.

Ancient Mediterranean Civilizations
See Cultural Studies.

Anthropology (122)

Professors:
W.M. Bianco (head), Ph.D., Pennsylvania; C.H. Faulkner, Ph.D., Indiana; A.K. Guthe, Ph.D., Michigan; P.W. Pamfley, Ph.D., Texas A&M.

Associate Professors:
I. Harrison, Ph.D., Syracuse; R.L. Jantz, Ph.D., Kansas.

Assistant Professors:
A.W. Britain, M.A., Pennsylvania State; W.E. Kipper, Ph.D., Missouri; M.H. Logan, Ph.D., Pennsylvania State; R.D. McCracken, Ph.D., Colorado; G.F. Schroedl, Ph.D., Washington State; F.H. Smith, Ph.D., Michigan.

Research Assistant Professor:
J. Chapman, Ph.D., North Carolina.

Visiting UNDERGRADUATE

A major in anthropology shall consist of 39 hours, 12 of which are to be in the introductory 2000-level courses. Of the remaining 27 hours, 4400 and six hours of 3000 level or above courses are required in each of these subfields: (a) Cultural; (b) Physical; and (c) Archaeology.

(a) Cultural: 3410, 3440, 3450, 3510, 3530, 3540, 3710, 3800, 4111, 4200, 4210, 4240, 4250, 4259, 4400, 4420, 4430, 4440, 4500, 4510, 4550, 4575, 4590, 4740.
(b) Physical: 3070, 3090, 3920, 3930, 4930, 4950, 4960, 4970.
(c) Archaeology: 3610, 3620, 3630, 3640, 3660, 4400, 4500, 4600, 4610, 4640, 4650.

A minor in anthropology consists of 27 hours including the 2510, 2520, 2530 introductory courses.

2510 Human Origins (4) Non-technical survey of man's primate background, fossil primates, fossil man, and living races of mankind.

2520 Prehistoric Archaeology (4) Survey of prehistory culture with special emphasis on method theory in archaeology; prehistory of western Europe and Africa; archaeology in Americas.

2530 Human Culture (4) Introduction to ethnology: survey of nature of culture and society and similarities and differences in man's material culture, social, economic, and political organizations, his ideology, art, and language.

2540 Introduction of Linguistic Anthropology (4) Basic linguistic concepts. Aspects of language studied by anthropologists and sociolinguists.

3070 Genetics and Society (3) (Same as Botany 3070.)

3333 Visiting Lecture Program (3) Developed around lectures by visiting scholars in physical anthropology, cultural anthropology, and archaeology. Offered fall quarter with subspecialties repeated on rotating basis. May be repeated. Maximum credit, 6.

3410 Principles of Cultural Anthropology (3) Basic concepts and objectives in study of culture. Range of cultural phenomena and approaches to its study. 2530 recommended.

3440 Religion of Primitive Peoples (3) Religions of non-literate peoples. Beliefs and practices in their social and cultural systems. 2530 recommended. (Same as Religious Studies 3440.)

3450 Community Studies in Complex Culture (3) Review of cross-cultural comparative urban and village communities and methodologies used in community studies. 2530 recommended.

3490 African Religions (4) (Same as Religious Studies 3490 and Black Studies 3490.)

3510 Peoples and Cultures of mainland Asia (3) Ethnographic survey of indigenous cultures of mainland Asia. Cultural diversity and human ecology in a real perspective. 2530 recommended.

3530 Peoples and Cultures of Africa (3) Ethnographic survey of African peoples of sub-Saharan Africa. Cultural diversity and human ecology in a real perspective. 2530 recommended.

3540 North American Indians (3) Ethnographic survey of cultures of Arctic, Southwest, Plains and Eastern areas. Emphasis on cultural differences of peoples occupying these areas during pre-colonial period. 2530 recommended.

3545 Indians of Northwest North America (3) Survey of American Indian cultures found in Northern Great Basin, Columbia Plateau, Northwest Plains, and Northwest Coast. Prerequisite: 2530 recommended.

3555 Cherokee Ethno History (3) Survey of socio-political aspects of internal affairs and external relationships from first European contact to present. Emphasis on 18th and 19th centuries.

3575 Afro-American Anthropology (3) Anthropological perspectives on black cultures in New World: examination of African-Americans via anthropological theories and methodology.

3580 Peoples and Cultures of Mesoamerica (3) Ethnographic survey of aboriginal peoples and postcolonial changes in Mesoamerican cultures. Emphasis upon analysis of small rural communities using modern village studies as source material. Recommended prerequisite: 2530.

3610 Archaeology of United States and Canada (3) Survey of prehistoric peoples north of Mexico from initial occupation to European contact. 2530 recommended.
190 College of Liberal Arts

5100 Seminar in Cultural Anthropology (3, 3, 3)
5103 Independent Study (1-12)
5104 Seminar in Zooarchaeology (3)
5149 Laboratory Studies of the Vertebrate Skeleton (4)
5159 Laboratory Study of the Mollusca (4)
5160 Seminar in Archaeology (3-6)
5200 Special Topics in Anthropology (3)
5210 Community Anthropology: The Local Community (3)
5340 Fieldwork in Archaeology (3-6)
5400 History of Anthropological Theory (3)
5440 Peasant Societies (3)
5450 Comparative Social Organization (3)
5460 Quantitative Methods in Anthropology (3)
5470 The Healer in Cross-Cultural Perspective (3)
5600 Theory in Archaeology (3)
5610 Problems in North American Archaeology (3)
5620 Problems in Old World Archaeology (3)
5630 The Maya (3)
5640 Archaeological Resource Management (3)
5660 Seminar in Prehistoric Lithic Technology (3)
5670 Seminar on Aboriginal Lithic Resources (3)
5700 Theory in Folk Culture Studies (3)
5710 Problems in Folk Culture Studies (3)
5900 Dental Anthropology (3)
5910 Measurement of Man (3)
5920 Advanced Physical Anthropology (3)
5930 The Human Skeleton in Forensic Medicine (3)
5940 Skeletal Biology of Early Human Population (3)
5945 Comparative Primate Anatomy (4)
5950 Paleopathology (4)
5960 Dermatoglyphics (3)
5970 Emergence and Early Evolution of Man (3)
5980 Neanderthal Man and Human Evolution (3)
5990 Human Variation (3)
6000 Doctoral Research and Dissertation
6410-20-30 Seminar in Cultural Anthropology (3, 3, 3)
6610 Selected Topics in Archaeology (3)
6910 Selected Topics in Physical Anthropology (3)
6970 Seminar in Human Paleontology (3)

Arabic
See Romance Languages.

Art (140)

Associate Professors:


Assistant Professors:


PI BETA PHI ARROWMOUTH SCHOOL OF CRAFTS


Art has two aspects: history of art and practice of art. One of the practice of art is required of art history majors; knowledge of art history is required of studio majors.

The department reserves the right to acquisition of student work. Each summer the craft workshops in Gatlinburg, Tennessee, are made possible through cooperative efforts between the Department of Arts and the Pi Beta Phi Arrowmouth School of Crafts. The Pi Beta Phi Fraternity provides the funds, the facilities and the management for Arrowmouth. The University of Tennessee, Knoxville, Department of Art appoints the instructors, and provides for the administration of craft classes with appropriate accreditation. In addition to providing advanced instruction in design and craft workshops, the Greek classes taught by nationally known carperspersons, the craft workshops have expanded to a full-bodied program serving as a training center for artists and craftsmen throughout the United States. Also, cooperation with national and local craft organizations has so stimulated the work of the carperspersons throughout the area that their work has gained national recognition.

UNDERGRADUATE

B.A. Major: Art History—Consists of 36 hours in art history courses numbered 2000 and above. Courses numbered 2000 and above in the following areas may also be included in the 36 hours: Greek and Roman art and archaeology, aesthetics, history and theory of architecture (School of Architecture), and up to eight hours in studio courses in the Department of Art. Undergraduate work in art history is enhanced by a knowledge of at least one foreign language. Graduate work normally requires a reading knowledge of at least two foreign languages.

B.A. Major: Art (Concentration in Studio)—Art 1115-25-35 and Art 2715, and eight additional hours of art history are prerequisite to a major of 36 hours of courses numbered 2000 and above, including a minimum of 21 hours in upper-division courses. Minor: none offered.

For information regarding the Bachelor of Fine Arts degree, see page 182.

1115-25-35 Studio Fundamentals (4, 4, 4) 1115—Beginning drawing; 1125—Surface composition and color; 1135—Real space and volume. For art, architecture, related arts and art education majors. Others with consent of instructor only.

1815-25 World Art (4, 4) A survey; 1815—prehistory to 1400; 1825— to present.

2008 Honors: Art (4) Intensified study for the exceptional student. May be repeated for a maximum of 24 credit hrs.

2105 Intermediate Drawing (4) Prereq: 1115.

2106 Special Topics in Drawing (4) Student or instructor initiated course offered at convenience of department. Prereq: Determined by department. May be repeated. Maximum credit 16 hrs.

2115 Life Drawing (4) Prereq: 2105. May be repeated for a maximum of 8 credit hrs.


2205 Introduction to Painting (4) Oil, acrylic and watercolor. Prereq: 1115-25-35 for art majors.

2206 Special Topics in Painting (4) Student or instructor initiated course offered at convenience of department. Prereq: Determined by department. May be repeated. Maximum credit 16 hrs.

2215 Painting II (4) Oil and acrylic. Prereq: 2205. May be repeated for a maximum of 8 credit hrs.

2315 Watercolor II (4) Prereq: 2205. May be repeated for a maximum of 8 credit hrs.

2405 Introduction to Sculpture (4) Prereq: 1115-25-35 for art majors.

2406 Special Topics in Sculpture (4) Student or instructor initiated course offered at convenience of department. Prereq: Determined by department. May be repeated. Maximum credit 16 hrs.

2425 Painting III (4) Prereq: 2405. May be repeated for a maximum of 8 credit hrs.


2456 Special Topics in Communication Design (4) Student or instructor initiated course offered at convenience of department. Prereq: Determined by department. May be repeated. Maximum credit 16 hrs.


2516 Advertising Design (4) Fundamentals of lettering and layout for newspaper, magazine television, outdoor advertising. Non-art majors only.

2545-55-65 Photo-Graphics (4, 4, 4) Introduction to art of photography.

2605 Introduction to Printmaking (4) Relief, lithography, intaglio, and screen printing. Prereq: 1115-25-35 for art majors.

2606 Special Topics in Printmaking (4) Student or instructor initiated course offered at convenience of department. Prereq: Determined by department. May be repeated. Maximum credit 16 hrs.

2615 Intaglio II (4) May be repeated for a maximum of 8 credit hrs.

2616 Lithography II (4) May be repeated for a maximum of 8 credit hrs.
2675 Survey of Contemporary Art (4) 1945 to present.
2725 Black Art (4) Black artists in society. Emphasis on contemporary art forms. 2935 Film Design (4) Introductory theory and practice of film making. Emphasis on graphic elements through use of motion picture camera. May not receive credit for both 2915 and 2935.
3008 Honors: Intermediate Art (4) Intensified study for the exceptional student. May be repeated for a maximum of 24 credit hrs.
3115 Drawing III (4) May be repeated for a maximum of 12 hrs. Prereq: 2115.
3215 Painting III (4) May be repeated for a maximum of 12 hrs. Prereq: Consent of instructor.
3315 Watercolor III (4) May be repeated for a maximum of 12 hrs credit. Prereq: Consent of instructor.
3415 Sculpture III (4) May be repeated for a maximum of 12 hrs.
3516 Typography (4) Theories and techniques of typography and printing as a fine art medium. May be repeated for a maximum of 12 hrs.
3517 Airbrush (4) Techniques and creative applications. May be repeated once for credit. For art majors only.
3525 Visual Communications II (4) Advanced pictorial perception, concepts, methods, and techniques for designer. Prereq: 2525.
3615 Intaglio III (4) May be repeated for a maximum of 12 hrs.
3616 Lithography III (4) May be repeated for a maximum of 12 hrs.
3617 Advanced Screen Printing (4) May be repeated for a maximum of 12 hrs.
3704 History of Medieval Art (4) Early Christian, Byzantine, Romanesque, Gothic. Changing imagery of Christ, God, Mary. Production and illus-
mination of manuscripts. Construction of basilicas; symbolism of domes, towers. Mosaic, fresco, diastyle sculpture.
3705 Northern European Painting: 1350-1600 (4) Painting and printmaking of the low countries. France, Germany, and England, includes interna-
tional style manuscripts, Van Eyck, Bosch, Durer, Holbein, and Bruegel.
3715 Early Italian Renaissance Art: 1300-1500 (4) Painting, sculpture, and architecture. Includes Giotto, Masaccio, Donatello, Brunelleschi, Alberti, Botticelli, and Leonardo.
3716 Art in Southern Europe and New World in Six-
teenth Century (4) Italy, Spain and Latin America, 1475-1600. Emphasis on Leonardos, Michelangelo, Paolozzi, Fontoro, Bellini, Giorgiones, Titian, Tin-
toretto, Veronese, and artistic relations between Iberia and Latin America.
3725 Art of Southern Europe and New World in Seventeenth and Eighteenth Centuries (4) Emphasis on El Greco, Caravaggio, Zurbaran, Velazquez, Bernini, Tiepolo, Goya, artistic relations between Iberia and Latin America, and the urban develop-
ment of Rome.
3726 Art of Northern Europe in Seventeenth and Eighteenth Centuries (4) Emphasis on Rembrandt, Vermeer, Hals, Rubens, Poussin, Callot, Georges-
de la Tour, Watteau, David, urban development of Paris and London, and pilgrimage churches of southern Germany.
3735 History of Nineteenth-Century Painting in Europe and America (4) Emphasis on France: Neo-
CLASSICISM. Romanticism, Friedrich, Constable, Turner, Corot and Barbizon landscapists, Hud-
son-River Group, Pre-Raphaelite Brotherhood, Manet, Courbet, Impressionism, Eakins, Homer, Seurat through Cézanne.
3736 History of Twentieth-Century Painting in Europe and America (4) Fauvism, Die Brucke, Cubism, Der Blaue Reiter, Futurism, Dada and Surrealism, geometric abstraction, social com-
mentary painting, Abstract Expressionism in the U.S. and parallels in Europe; Pop, Op, Minimal, and Concept Art.
3745 History of Modern Architecture in Europe and America (4) Survey of nineteenth-century styles, Sullivan and skyscraper, Twentieth century: Viennese leaders, the Bauhaus, Gropius, Van der Rohe, Le Corbusier, and Wright. Aalto to Kahn, Tange and Metabolism, Archigram, Soleri, and Venturi.
3746 History of Modern Sculpture in Europe and America (4) From 1800 to 1900: Neoclassicism to Rodin. From 1900 to present: emphasis on Cub-
ism, Constructivism, Expressionism, Assem-
ble, Pop, Primary Forms, Environments, and Earthworks.
3755 History of North American Art (4) Survey of landmarks in painting, architecture, sculpture, and design from prehistory to 1900.
3766 History of Twentieth-Century American Art (4) Analysis of developments in architecture, painting, sculpture and design from 1900.
3776 Nineteenth Century American Painting (4) From West and Copley to emergence of "The Right."
3777 Art of Indian Asia (4) History of Indian art with consideration of art of Central Asia and Southeast Asia.
3778 Chinese Art (4)
3779 Japanese Art (4)
3811 Introduction to Museology (3) Concepts, practices and historical development of museums of art, archaeology, anthropology and science. (Same as Anthropology 3811.)
3905 Film Design (4) Theory and practice of film making. Prereq: 2935.
3945 Cinematography (4) Familiarization with photographic processes and basic production techniques; artistic potential of film, aesthetic problems and challenges of the medium. May be repeated for a maximum of 12 hrs.
4008 Honors: Advanced Art (4) Intensified study for the exceptional student. May be repeated for a maximum of 24 credit hrs.
4015 Individual Problems (4) May be repeated for a maximum of 12 hrs credit. Prereq: Consent of instructor.
4106 Special Topics in Drawing (4) Student or instructor initiated course offered at conven-
ience of department. Prereq: Determined by de-
partment. May be repeated. Maximum credit 16 hrs.
4101 Foreign Study (1-16) See page 187.
4102 Off-Campus Study (1-16) See page 187.
4103 Independent Study (1-16) See page 187.
4115 Drawing IV (4) May be repeated for a maximum of 12 hrs. Prereq: 12 hrs of 3115.
4206 Special Topics in Painting (4) Student or instructor initiated course offered at conven-
ience of department. Prereq: Determined by department. May be repeated. Maximum credit 16 hrs.
4215 Painting IV (4) May be repeated for a maximum of 12 hrs. Prereq: Consent of instructor.
4315 Watercolor IV (4) May be repeated for a maximum of 12 hrs. Prereq: Consent of instructor.
4406 Special Topics in Sculpture (4) Student or instructor initiated course offered at conven-
ience of department. Prereq: Determined by department. May be repeated. Maximum credit 16 hrs.
4415 Sculpture IV (4) May be repeated for a maximum of 12 hrs.
4506 Special Topics in Communication Design (4) Student or instructor initiated course offered at convenience of department. Prereq: Determined by department. May be repeated. Maximum credit 16 hrs.
4515 Visual Communications IV (4) Corporate de-
4525 Visual Communications V (4) Corporate de-
4535 Visual Communications VI (4) Visual and writ-
ten presentation of major graphic problem. Prepa-
ration of portfolio. Prereq: 4525.
4545 Visual Communications Seminar (2) Political, social, economic, and moral problems of con-
temporary designer. Prereq: 4515.
4606 Special Topics in Printmaking (4) Student or instructor initiated course offered at conven-
ience of department. Prereq: Determined by department. May be repeated. Maximum credit 16 hrs.
4615 Intaglio IV (4) May be repeated for a maximum of 12 hrs.
4616 Lithography IV (4) May be repeated for a maximum of 12 hrs.
4617 Advanced Screen Printing (4) May be re-
peated for a maximum of 12 hrs.
4855 Studies in Art History (2) Concentration in selected areas. Prereq: 16 hrs of art history and consent of instructor. May be repeated. Maximum credit 6 hrs.

GRADUATE

There are two advanced degrees available in this department: Master of Arts and Master of Fine Arts. In addition to meeting requirements of the Graduate School, applicant must have an undergraduate major in art or outstanding proficiency. Examples of work will be requested. For additional information regarding these programs, write to the head of the department.

5000 Thesis
5002 Non-Thesis Graduation Completion (3-15)
5011-21-31 Exhibition in Lieu of Thesis (3, 3, 3)
5101 Foreign Study (1-12)
5102 Off-Campus Study (1-12)
5103 Independent Study (1-12)
5115 Graduate Drawing I (2-6)
5155 Graduate Drawing II (2-6)
5215 Graduate Painting I (2-6)
5255 Graduate Painting II (2-6)
5315 Graduate Watercolor I (2-6)
5355 Graduate Watercolor II (2-6)
5415 Graduate Sculpture I (2-6)
5455 Graduate Sculpture II (2-6)
5515 Graduate Communication Design I (2-6)
5555 Graduate Communication Design II (2-6)
5615 Graduate Printmaking—Lithography I (2-6)
5616 Graduate Printmaking—Intaglio I (2-6)
Asian Studies
See Cultural Studies.

Astronomy
See Physics and Astronomy.

Audiology and Speech Pathology (160)
Professors:
H. L. Luper (Head), Ph.D. Ohio State; S. Adler, Ph.D. Ohio State; C. W. Asp, Ph.D. Ohio State; P. J. Carney, Ph.D. Iowa; D. M. Lipscomb, Ph.D. Washington; F. M. Naber, Ph.D. Czech Technical (Prague); H. A. Peterson, Ph.D. Illinois; B. Silverstein, Ph.D. Purdue.

Associate Professors:
S. B. Burchfiel, Ph.D. Michigan State; C. G. Maisel, M. Ed. Texas.

Assistant Professor:
T. O. Davidson, M.A. Tennessee.

Instructors:

UNDERGRADUATE

General Information. One of society’s most significant developments has been the acquisition of organized systems of communication. Basic to most human language systems has been dyadic oral-aural communication. The Department of Audiology and Speech Pathology offers courses in the scientific study of oral-aural communication with special attention to variations considered normal or abnormal. Many of the courses offered in the department cover information that should be valuable to students planning to enter any social service discipline. Suggested electives for nondepartmental majors include: 3010, 3040, 3050, 3710, 4070, 4720, and 4750.

Majors. The two majors (audiology and speech pathology) within the department are preprofessional; that is, they are preparatory to graduate work and to professional certification in some aspect of communicative disorders. The master’s degree is required for most professional certification and employment positions. Within the broad coverage of audiology, it is possible for a student to specialize to a limited extent by choosing elective courses which emphasize traditional diagnostic audiology or aural habilitation-rehabilitation. Students in speech pathology may specialize to a limited extent by choosing elective courses which emphasize speech disorders, language disorders, or cultural language differences. Students desiring school certification in speech and hearing education of the deaf should consult the Department of Special Education and Rehabilitation for specific requirements. A major in speech pathology consists of Audiology and Speech Pathology 3010, 3040, 3050, 3065, 3200, 3310, 4040, 4330, 4650, 4720, plus not less than 9 nor more than 15 credit hours from the following: 3070, 4310, 4340, 4400, 4610, 4930, 4940. Additional recommended courses for audiology majors are Audiology and Speech Pathology 4560, 4610, 4750 and Psychology 2500, 2520, 2540 and 3150. A major in audiology consists of Audiology and Speech Pathology 3010, 3040, 3050, 3200, 3310, 3710, 4040, 4450, 4720, 4930 plus not less than 10 nor more than 22 credit hours from the following: 3065, 4320, 4460, 4470, and 4940. Additional recommended courses for speech pathology majors are: Audiology and Speech Pathology 4250, 4450, 4460, 4470, 4750, Anthropology 2530 or 3410, Psychology 2530, 2550, 2560, 3150, Special Education 4030, 4341, 4342, 4110, 4120, 4130, 4610, and Child and Family Studies 4810.

1261 English Pronunciation for Foreign Students (3) (Same as English 1261.)

3010 Basic Acoustics in Speech and Hearing (3) Fundamental aspects of acoustics in speech and hearing including physics of sound.

3040 Introduction to Speech Pathology and Audiology (3) Nature, etiology, and incidence of speech, hearing, and language disorders.

3050 Speech Science I: Phonetics (3) Basic phonetics including recognition and production of spoken English sounds with analysis of their formation; acoustic characteristics of speech and speech perception. Prereq: 3010.

3065 Speech Science II (4) Anatomy and physiology of speech production mechanism. Prereq: 3050.

3200 Speech and Language Development (4) Speech and language development in the normal child including development of distinctive features and implications for diagnosis of speech and language development. Prereq: Psychology 3560 or Education 2430.

3310 Articulation Disorders (4) Etiology, diagnosis, and treatment of articulatory defects. Prereq: 3050. (Same as Special Education 3310.)

3710 Audiology I (3) Fundamental aspects of normal hearing including anatomy and physiology of ear and basic audiometric principles. Prereq: 3010. (Same as Special Education 3710.)

4040 Appraisal of Speech and Language Disorders (4) Diagnostic procedures for children and adults with speech and language problems including ob- servation and practice with diagnostic tests. Prereq: 3050. (Same as Special Education 4040.)

4070 Free Association (4) Oral and written free association as process for diagnosing and treating communication disorders. Includes didactic self analysis.

4101 Foreign Study I (1-16) See page 187.

4102 Off-Campus Study I (1-16) See page 187.

4103 Independent Study I (1-16) See page 187.

4190 Speech Development of the Hearing Impaired (3) Prereq: 3050. (Same as Special Education 4190.)

4200 Practicum in Speech Development of the Hearing Impaired (3) (Same as Special Education 4200.)

4210 Language Development of the Hearing Impaired (3) (Same as Special Education 4210.)

4220 Language Development of the Hearing Impaired (3) (Same as Special Education 4220.)

4250 Introduction Psychology and Education of the Deaf (3) (Same as Special Education 4250.)

4310 Stuttering (3) Nature and treatment. Review and integration of various theories. (Same as Special Education 4310.)

4320 Clinical Practice in Speech Pathology (1-4) Prereq: 3040, 3050, 3310, 4040, and consent of instructor. S./NC. (Same as Special Education 4320.)

4330 Clinical Practice in Speech Pathology (1-4) Prereq: 4320 and consent of instructor. S./NC. (Same as Special Education 4340.)

4340 Clinical Practice in Speech Pathology (1-4) Prereq: 4330 and consent of instructor. May be repeated for credit. S./NC. (Same as Special Education 4340.)

4400 Voice Disorders (4) Etiology, diagnosis, and treatment of organic and functional voice disorders. Prereq: 3065. (Same as Special Education 4400.)

4450 Clinical Practice in Audiology (1-6) Prereq: 4460 and 4940. S./NC. (Same as Special Education 4450.)

4460 Clinical Practice in Audiology (1-6) Prereq: 4460. S./NC. (Same as Special Education 4460.)

4470 Clinical Practice in Audiology (1-6) Prereq: 4460. May be repeated for credit. S./NC. (Same as Special Education 4470.)

4520 Speech Pathology (3) Independent study of special problems in speech pathology. Prereq: Consent of instructor.

4550 Problems in Speech Pathology (3) Prereq: Consent of instructor.

4620 Birth Defect Syndromes and Language Retardation (3) Examination of research literature relevant to birth defects and language retardation including clinical, educational and socio-emotional implications of such disorders. Prereq: 4610 or consent of instructor.

4630 Practical Applications of Language Habilitation Techniques (3) Discussion and demonstration of various methods and procedures used in treating language retarded children. Prereq: 4610 or consent of instructor.

4640 Parent Participation in Language Habilitation Programs (3) Nature of counseling and educational relationships with parents of exceptional children including parental support for families, behavior management strategies, home training methods. Prereq: 4610 or consent of instructor.

*ADMISSION TO CLINICAL TRAINING IN SPEECH PATHOLOGY AND AUDIOLOGY*

Students who wish to enroll in clinical practice courses in audiology and speech pathology must apply for admission at the Department Office at least one quarter prior to the anticipated enrollment. Clinical course admissions will be decided by the Department Clinical Practice Committee prior to the preregistration deadline. The number of admissions will be determined by limitations due to available supervisory staff, clinical facilities and clinical caseloads. Applicants will be selected for admission based on their relative adequacy and potential as determined by such measures as overall grade-point averages, grade-point averages in specified basic courses taught in the Department of Audiology and Speech Pathology, aptitude tests or other such indicators the committee may elect to use. Once admitted to the Clinical Training Program, students will be continued in the program as long as they are clinically and academically successful. Whenever possible, students will be informed of their acceptance and continuation and/or discontinuation prior to the advance registration deadline of the subsequent quarter.
Botany (198)

Professors:
R.W. Holton (Head), Ph.D. Michigan;
E.E.C. Clebsch, Ph.D. Duke; H.R. DeSelms, Ph.D. Ohio State; W.R. Herndon (Vice Chancellor for Academic Affairs), Ph.D. Vanderbilt, L.W. Jones, Ph.D. Texas; J.F. McMinn (Director of Ecolgy Program), Ph.D. Emory; F.H. Norris, Ph.D. Ohio State; R.H. Petersen, Ph.D. Columbia; A.J. Sharp (Emeritus), Ph.D. Ohio State; P.L. Waine, Ph.D. Texas.

Associate Professors:
C.C. Amundsen, Ph.D. Colorado; M.W. Birnem, Ph.D. Texas; J.D. Caponetti, Ph.D. Harvard; A.M. Evans, Ph.D. Michigan; A.S. Heilman, Ph.D. Ohio State.

Assistant Professors:
L.G. Hickok, Ph.D. Massachusetts;

Instructor:
M.E. Held, M.S. Western Kentucky.

UNDERGRADUATE

Major: Consists of Biology 3110-20-30; 23 upper-division hours of botany, including 3210 and at least 2 hours from 4710-20-30, plus 4 hours of upper-division courses from a related biological science (zoology, microbiology, biochemistry, agricultural biology, forestry, ornamental horticulture and landscape design, or plant and soil science). Not more than 3 hours from 3050, 3070; 3090 allowed for major credit. Prerequisites to this major are Botany 1110-20-40 or 1118-28 or Biology 1210-20-30; and Chemistry 1110-20-30.

Botany 1110-20 or 1118-28 or Zoology 1118-28; Chemistry 1110-20-30. Corequisites are Math 1481-51 or 1550-60 (Math 1841-51 is recommended choice); a year sequence in physics (except 1410-20-30) or Geology 1410-20-30.

Note: Students majoring in biology are advised to exercise care in fulfilling the science and mathematics Triad requirements. Math 1841-51 (or in some cases 1550-60) and Chemistry 1110-20-30 or equivalent (20 hours altogether) must be completed by biology majors. Students majoring in biology are advised to consider completion of a physical science minor (see page 224).

Minor: Consists of Biology 3110-20-30 and 12 hours of upper-division courses chosen from the list below. Biochemistry 4110-20, 4119, 5010; Botany, any 3000- or 4000-level courses; Microbiology, any 3000- or 4000-level courses; Zoology, any 3000- or 4000-level courses except 3010-20-30. (In meeting the upper-division minimum requirement, not more than 10 hours may be credited from any one biological science department, and not more than 4 hours of research courses may be credited.) Prerequisites to the minor are introductory biology courses (Biology 1210-20-30 or Botany 1110-20 or 1118-28 or Zoology 1118-28); Chemistry 1110-20-30.

Note: Certain upper-division courses require organic chemistry or other prerequisites—consult the catalog description in each case.

1210-20-30 General Biology (4, 4, 4) 1210—Biology of cells: chemical basis of life, cell structure and function, energy metabolism, cell division, DNA, RNA, and protein synthesis, monera, protists, and fungi. 1220—Biology of plants and animals: survey of plant kingdom, structure and function of plant tissues, plant growth and reproduction, survey of the animal kingdom, reproduction and development in animals, animal tissue and organ systems. 1230—Genetics, evolution, populations and ecology. May be taken in any sequence. Students who receive credit for 1210-20-30 may not also receive credit for Botany 1110-20, 1118-28 or Zoology 1118-28-38.

3110 General Genetics (4) Classical and modern principles of heredity. Prereq: 1210-20-30 or Botany 1110-20-30 of 1118-28 or Zoology 1118-28; Chemistry 1110-20-30. Corequisites are Math 1481-51; a year sequence in physics (except 1410-20-30); and Chemistry 2140-49.

B. Concentration in Organismal and Systems Biology. Consists of Biology 3110, 3120, 3130, Chemistry 3211-21-31, 3219-29-39, and 18 of upper-division courses from Biochemistry 4110-20, 4119, 5010; Botany, any 3000- or 4000-level courses including not more than one from 3050, 3070, 3090; Microbiology, any 3000- or 4000-level courses; Zoology, any 3000- or 4000-level courses except 3010-20-30 and 3090. In meeting upper-division minimum requirement, not more than 12 hours may be credited from any one biological science department, and not more than 4 hours of research courses may be credited. Prerequisites to this emphasis are Biology 1210-20-30 or Chemistry 1110-20-30.

Black Studies

See Cultural Studies.
Corequisites are Math 1840-50 or Math 1550-60; Physics 1210-20-30 or Physics 2210-20-30 or Chemistry 3211-23-31, 3219-29-39 or Geology 1510-20 plus 4 additional hours in geology.

Minor: Consists of Biology 3110-20-30 and another 24 hours upper-division in Biology. At least 3 of those hours must be upper-division courses in a related biological science (zoology, microbiology, biochemistry, agricultural biology, forestry or plant and soil science).

1110-20 Fundamentals of Botany (4, 4) Nature and development of plants, including processes, structure, life histories, inheritance, ecology and importance to man. Enrollment in sequence is desirable. Two 1-hr discussions and approximately 3 hrs audio-tutorial laboratory per week. Students may not receive credit for both Botany 1110-20 and Biology 1210-20-30.

1118-28 Honors: Fundamentals of Botany (6, 6) Honors course designed for superior students in beginning botany. Open to freshmen with a score of 27 or better on national science section of American College Testing Program, and sophomores who have a cumulative grade point average of 3.25 (or 3.5 in the sciences) or who are approved through an interview with a member of botany fac-
ulty. Students receiving C or D in 1118 must transfer to 1120. Three 2-hr lecture-lab-discussion periods. Must be taken in sequence. Students may not receive credit for both Botany 1118-28 and Biology 1210-20-30.

1140 Selected Topics in General Botany (4) Areas will include plant physiology, plant populations, ecological genetics, environment-ion interactions and impact of human activities on biological resources. Lectures, laboratory, field trips and individual projects. Two hrs lecture-discussion and 4 hrs laboratory per week. Occasional field trips. Prereq: Botany 1110-20 or Biology 1210-20-30.

3010-20 Plants in Evolution (4, 4) Monera to angiosperms; emphasis on evolutionary relationships, morphology and development. Not for botany graduate credit. Prereq: 6 hrs in biological sciences.

3020 Field Botany (4) Study of plants in natural environments including plant identification, collection, preservation and basic ecological concepts. Prereq: 6 hrs in biological sciences. Not for botany graduate credit.

3031-32 Field Botany (4, 4) Emphasis on fall and winter flora, respectively. Prereq: 3030. Need not be taken in sequence.

3050 Socio-Economic Importance of Plants (3) Significance of plants in origin and development of human cultures, evolution of cultivated plants, and role of plants in present civilizations. Occasional field trips. Not for botany graduate credit.

3070 Genetics and Society (3) An introduction to genetics, anthropology and evolution with emphasis on their implications for human society. Not for botany graduate credit. (Same as Anthropology 3070.)

3090 Biology and Human Affairs (3) Basic biological principles involved in deterioration and preservation of an environment in which man and his cultures may survive. Not for botany graduate credit. (Same as Zoology 3090.)

3130 Introductory Plant Pathology (4) Same as Agricultural Botany 3130.

3210 Introductory Plant Physiology (4) Organismal physiology of plants: water relations, mineral nutrition, morphogenesis, elements of metabolic processes, effects of age, light, natural rhythms, temperature and other environmental factors. Lecture and lab. Not for botany graduate credit. Prereq: One year general chemistry and one year biological science.

3300 Biological Oceanography (3) Distribution of abiotic factors in the sea and their effect on plankton growth; composition of zoo- and phytoplankton and processes affecting each; food webs in the sea; role of hyper-productive regions (estuaries, upwellings). Prereq: Chemistry 1110-20 and any Biology 1210-20-30 or Botany 1110-20 or Geology 2710.

4000 Tutorial in Botany (2) Individual, independent study under guidance of selected staff. By application only. May be repeated with consent of department.

4030 Mechanisms of Plant Speciation (4) Processes of plant speciation emphasizing population genetics, isolation, drift, hybridization, variation in populations, establishment of population barriers and other aspects of plant speciation. Prereq: 3010-20 and Biology 3110.


4240 Paleobotany (4) (Same as Geology 4240.)

4310 Plant Ecology (4) Interactions between individuals, species communities and their environments. Circulation of energy and matter in ecosystems. Weekly field trips or laboratory periods, and at least two weekend field trips. Prereq: 3030 or equivalent.

4410-20-30 Undergraduate Research Participation (2, 2, 2) Experience in active research projects under supervision of staff members. Prereq: Junior or senior standing, minimum grade average 3.0, consent of instructor.

4710-20-30 Senior Seminar (1, 1, 1) At least 2 hrs of 4710-20-30 are required of botany majors. Prereq: Senior standing.

5000 Thesis

5002 Non-Thesis Graduation Completion (3-15)

5003-04 Non-Thesis Research (3, 3)

5011 Mycology (4)

5012 Morphology and Evolution of Phycocyanetes (4)

5017 Field Mycology (4)

5021 Bryology (4)

5022 Lichenology (4)

5031 Vascular Plant Taxonomy (4)

5061 Physiology (4)

5065 Phytoplankton Ecology (4)

5070 Principles of Biological Illustration (3)

5080 Pteridology (4)

5090 Morphology and Evolution of Basidiomycetes (4)

5120 Agrostology (4)

5150 Advanced Morphology of Flowering Plants (4)

5160 Biosystematics (4)

5210 Advanced Plant Physiology I (3)

5220 Advanced Plant Physiology II (3)

5290 Quaternary Problems (4)

5310-20-30 Special Problems in Botany (1-6, 1-6, 1-6)

5340 Plant Geography (4)

5350 Analysis of Plant Communities (4)

5410-20-30 Seminar in Teaching of College Botany (1, 1, 1)

5440 Seminar in Botany (1)

5510-20-30 Systems Ecology (3, 3, 3)

5780 Plant Cytology (4)

5810 Cytogenetics (4)

5820-21-22-23-24 Methods and Instrumentation in Laboratory Investigations (1, 1, 1, 1, 1)

5830 Field Methods in Plant Ecology (4)

5850-51-52-53-54 Methods and Instrumentation in Field Investigations (1, 1, 1, 1, 1)

5870 Experimental Plant Genetics (4)

5910-20 Developmental Plant Morphology (3, 1)

6000 Doctoral Research and Dissertation

6010 Advanced Topics in Morphology of Vascular Plants (2-4)

6060 Advanced Topics in Cryptogamic Botany (2-4)

6210 Photobiology (3)

6310 Advanced Topics in Cytology and Cell Biology (2-3)

6320 Ecosystems of the World (3)

6420 Advanced Topics in Genetics (2-4)

6620 Seminar in History of Botany (2)

6820 Advanced Topics in Plant Physiology (2-4)

6830 Advanced Topics in Ecology (2-4)

6930 Advanced Topics in Systematic Botany (2-4)

Chemistry (235)

Professors: D. A. Shirley (Head), Ph.D. Iowa State; N. S. Bowman, Ph.D. Princeton; C. A. Buehler (Emeritus), Ph.D. Ohio State; W. E. Bull, Ph.D. Illinois; C. J. Collins, Ph.D. Northwestern; J. A. Dean, Ph.D. Michigan; J. F. Eastham, Ph.D. California (Berkeley); W. H. Fletcher, Ph.D. Minnesota; C. W. Keenan, Ph.D. Texas; D. C. Klein, Ph.D. Princeton; J. W. Larsen, Ph. D. Purdue; M. H. Lietzke, Ph.D. Wisconsin; G. Mamantov, Ph.D. Louisiana State; A. D. Malen, Ph.D. Emiriius, Ph.D. Penn State; G. D. Kelley, Ph.D. California (Berkeley); G. K. Schweizer, Ph.D. Illinois; H. A. Smith (Emeritus), Ph.D. Harvard; W. T. Smith (Emeritus), Ph.D. Ohio State; W. A. Van Hook, Ph.D. Johns Hopkins; E. L. Wehrly, Ph.D. Purdue; T. F. Williams, Ph.D. London (England); J. H. Wood (Emeritus), Ph.D. North Carolina.

Associate Professors: J. E. Bloor, Ph.D. Manchester (England); J. O. Chambers, Ph.D. Kansas; G. W. Kabalka, Ph.D. Purdue; J. F. Kinzie, Ph.D. Akron; C. A. Lane, Ph. D. California (Berkeley); R. M. Magid, Ph.D. Yale; R. M. Pagon, Ph.D. Wisconsin; J. R. Peterson, Ph.D. California (Berkeley).

Assistant Professors: J. L. Aclock, Ph.D. Indiana; F. A. Grimm, Ph.D. Cornell; J. D. Kovac, Ph.D. Yale; L. J. Magid, Ph.D. Tennessee; F. M. Schell, Ph.D. Indiana; C. Woods, Ill, Ph.D. North Carolina State.

*Alumni Distinguished Service Professor.

UNDERGRADUATE

For information regarding the Bachelor of Science in Chemistry degree and the cooperative program in chemistry, see page 185.

There are two alternative routes for the student to take in designing a program for a B.A. degree with a major in chemistry.
Concentration A is designed to prepare the student for a career as a professional chemist or for entrance into graduate school in such fields as chemistry, biochemistry, geochemistry, etc. This program has similarities to that leading to the degree of Bachelor of Science in Chemistry, but it affords more opportunity for selection of electives outside the department and outside of science. Unlike the Bachelor of Science in Chemistry degree, this B.S. degree using Concentration A is not approved by the Committee on Professional Training of the American Chemical Society.

The prerequisites consist of Chemistry 1110-20-30, Mathematics 1840-50-60, 2840-50, Physics 2510, 2310-20. The concentration consists of Chemistry 2140, 2149, 3211-21-31, 3219-29-39, 3410-20-30, 3429 plus at least 10 hours of additional upper-division work in chemistry. (Up to six hours of biochemistry 4000 level and above or Geology 4610 may be applied to the ten hour requirement.) While not required, it is strongly recommended as an elective for minors in this concentration.

Concentration B is designed for students who have career objectives in fields of chemistry and allied fields where chemistry has direct applications, such as medicine, dentistry, pharmacy, law, business and ecology. This concentration, supplemented by appropriate courses from other areas, is suitable for students planning careers in these areas. Concentration B is specifically designed to provide more elective hours which may be employed in fields which are related to chemistry. Concentration B is not appropriate for students intending to become professional chemists.

The prerequisites consist of Chemistry 1110-20-30, Mathematics 1540-50-60 or 1840-50-60 and any one of the following natural science options: (a) Physics 2210-20-30 or 2510, 2310-20; (b) Biology 1510-20; (c) Biology 2170-20, 3110-20 and Microbiology 3000, 3005; (d) Botany 1110-20. The concentration consists of Chemistry 2140, 2149, 3211-21-31, 3219-29-39, 4250 plus at least 10 hours of additional upper-division work in chemistry. (Up to six hours of biochemistry 4000 level and above or Geology 4610 may be applied to the ten hour requirement.)

A minor in chemistry shall consist of the successful completion of 24 hours of chemistry courses numbered 2000 and above including Chemistry 2140-49 (4 hours) and at least one of the following sequences: Chemistry 3211-21-31, 3219-29-39 (12 hours) or Chemistry 3410-20-30 (9 hours) or Chemistry 4910-20-30 (9 hours).

Placement in Freshman Sequences: The sequence which meets all requirements of a year of general chemistry and is a prerequisite for upper-division courses is 1110-20-30. The 1500 and 1600 series have more limited applications. The 1500 series emphasizes organic and biochemistry and may be used as a prerequisite only for 2230 and 3219-29-39. The 1600 series is for non-science majors and does not provide an adequate background for any additional courses in chemistry. It is possible to move from one sequence to another if permission for substitution is obtained in advance. For example, a student who finds a need to complete the sequence after having completed 1510 may substitute 1510 for 1110 with the approval of the chemistry department and may then take 1120 followed by 1310. However, no single quarter of courses 1100, 1120, 1200 or 1220 sequences may be substituted for 1120 or 1130. Credit may be received for only one of the courses 1110, 1510, or 1610.

In any chemistry course above the freshman level which has Chemistry 1110-20-30 as a prerequisite, 1510-20-30 may be used as a prerequisite with approval of the chemistry department.

Chemistry 1111-28-38 is an honors course designed for the student who has already made considerable progress in science. Class size may be limited to promote faculty-student interaction.

Selection of courses for the high school chemistry grade, and if necessary, performance on a placement examination to be given during the first class meeting. A student receiving a passing grade below B in 1110 is not recommended to work by taking 1120-30. A student receiving a grade of C or D in 1128 will not be eligible for 1138 and must take 1130 to get the full 12 hours credit.

Beginning students who have had high school chemistry and who have had additional experience (e.g., summer institute study, special research projects, home laboratory) are invited to apply during the summer to the head of the department for permission to take a proficiency examination in one or more quarters of freshman chemistry. If a satisfactory grade is made on the examination, credit will be allowed for the quarter (or course) for which the exam was taken.

1110-20-30 General Chemistry (4, 4, 4) General course in chemistry based on ACT score. Chemistry 1110—Modern atomic theory, chemical bonding, stoichiometry and quantitative treatment of gas laws. 1120—Inorganic solutions, chemical equilibria, and thermodynamics. 1128—Descriptive chemistry of non-metallic and metallic elements, and introduction to organic and biochemistry. Must be taken in sequence. 3 hrs and 1 lab.

1118-28-38 Honors: General Chemistry (4, 4, 4) (See explanation above.) 3 hrs and 1 lab.

1410 Chemistry for Nurses (4) Inorganic, organic, and biochemistry. 3hrs and 1 lab.

1420 Chemistry for Nurses (4) Aromatic compounds and biological chemistry. Prereq: 1410. 3 hrs and 1 lab.

1510-20-30 General Chemistry (4, 4, 4) Introductory course with emphasis on topics relating to living systems. 1510—Bonding and molecular structure, gas laws, liquid and solid state, solutions, colloids. 1520—Aids and bases, oxidation and reduction, kinetics and equilibria. Introduction to organic chemistry, alkanes, unsaturated and aromatic hydrocarbons. 1530—Structure and reactions of various organic functional groups. Introduction to biochemical—amino acids and proteins, carbohydrates, lipids, nucleic acids. Must be taken in sequence. 3 hrs and 1 lab.

1610 Chemistry and Society (4, 4) Chemistry for non-science majors emphasizing role of chemistry in dealing with current social concerns. 1610—Basic principles including particle nature of sub- stances, their structure, and chemical changes. 1620-Implementation and use of chemical principles in modern society with selected topics in areas of energy, agriculture, medicine and consumer products. Must be taken in sequence. 3 hrs and 1 lab.

2140 Analytical Chemistry (3) Principles and practice of quantitative measurements in chemical analysis. 2149—Basic concepts of spectrophotometry, elementary spectrophotometry, potentialometric methods, applications of titrimetric analysis. Prereq: 1110-20-30; coreq: 2149.

2149 Analytical Chemistry (1) Experiments on topics discussed in 2140. Prereq or coreq: 2140. 1 lab.

2230 Elements of Organic Chemistry (4) Brief treatment of organic chemistry with emphasis on compounds of biological interest. Prereq: One year of general chemistry. Not open to chemistry majors or minors. Credit may not be received for both Chemistry 2230 and 3211, toward graduation or otherwise.


3429-39 Physical Chemistry Laboratory (1, 1) Gases, liquids, chemical equilibria, solutions, phase equilibria, reaction kinetics and electrochemistry. Prereq: 3429 or 3430. Corresponding coreq: 3429 or 3430. 3451-21-31 Principles of Organic Chemistry (3, 3, 3) Structure and reactivity of aliphatic and aromatic hydrocarbons. Introduction to organic analysis and spectroscopic utility. Use of spectroscopic and physical techniques to elucidate reaction mechanisms. Reactions of aliphatic and aromatic compounds; formation of isomers; planning careers in physical or biological sciences. Must be taken in sequence. Prereq: 1110-20-30. Corresponding laboratory: 3219-29-39 or 3218, 3529-39 is a coreq; latter is recommended.

3529-39 Organic Chemistry Laboratory (1, 1) Experiments on topics discussed in 3211-31. Similar to 3219-29-39 except credit is not given for students who have or minors. Prereq: Math 1550 or equivalent, 1 yr of general chemistry.


4119 Physical Chemistry Laboratory (1) Solutions, phase equilibria, and spectroscopy. The corresponding course 4110 is coreq.

4160-70 Intermediate Physical Chemistry (3, 3) (Designed for entering graduate students who have had one year of physical chemistry. This course covers the three laws of thermodynamics, phase
equilibria and solutions, and chemical equilibria. 4170—Gases and kinetic theory, chemical kinetics, molecular spectroscopy, and introduction to chemical statistics.

4210 Advanced Analytical Chemistry (3) Chemical separations including chromatography, ion exchange and solvent extraction; spectrophotometric techniques. Prereq: 2140-49.

4219 Advanced Analytical Chemistry Laboratory (1) Experiments on topics discussed in 4210. Coreq: 4220.

4220 Advanced Analytical Chemistry (3) Electroanalytical methods of analyses (including potentiometry, coulometry, polarography, and voltammetry); magnetic resonance methods; mass spectrometry; x-ray absorption and fluorescence techniques. Prereq: 2140-49; 3420 or 4290 recommended.

4229 Advanced Analytical Chemistry Laboratory (1) Experiments on topics discussed in 4220. Coreq: 4220.

4420 Physical Inorganic Chemistry (3) Theoretical concepts leading to an understanding of inorganic chemistry; quantum theory of the atom, principles of molecular structure, and elementary nuclear chemistry. Prereq: 3410-20-30, 4110.

4430 Intermediate Inorganic Chemistry (3) Application of theoretical concepts to inorganic elements, their chemical states, and their reactions. Prereq: 4420.

4510 Organic Qualitative Analysis (3) Identification of pure-organic compounds and mixtures. Prereq: 3211-21-31, 3219-20-39 or 3219, 3529-39. 3 labs. (Not open to students who have completed 4610.)


4610-20 Advanced Chemical Experimentation (2, 2) Laboratory courses in application of modern experimental techniques to solution of chemical problems. Synthesis and characterization of organic and inorganic compounds with emphasis on independent study using advanced techniques. Prereq: 3231-39 or 3231-3539, 3430-39, 4220. Students who receive credit for 4610 may not also receive credit for 4510.

4710 Research in Chemistry (2) Open to senior majors with consent of department head. Written report must be submitted to research director at termination of project. May be repeated. Maximum 6 hrs credit.

4910-20-30 Biophysical Chemistry (3, 3, 3) Physical-chemical principles with applications to biological systems. Must be taken in sequence. Not open to students having 4910-20-30. 4910—Gases laws; first, second and third laws of thermodynamics; equilibrium, 4920—Solution chemistry; electrolyte chemistry; kinetics; nuclear chemistry; 4930—Elementary quantum chemistry; optical and magnetic spectroscopy; light scattering; macromolecular properties. Prereq: 1110-20-30, Math 1540-50 or equivalent.

4929 Biophysical Chemistry Laboratory (1) Experiments on topics discussed in 4910-20-30. Must be taken in sequence. Not open to students having 4910-20-30-39 sequence. 4920 is coreq or prereq for 4929. 1 lab.

GRADUATE

Students majoring in chemistry for the M.S. or Ph.D. degree are required to present as a prerequisite one year each of general, analytical, organic, and physical chemistry with a satisfactory record. Students lacking any of these prerequisites may be admitted with appropriate deficiencies which must be removed without graduate credit. For students minoring in chemistry, the prerequisite is two years of chemistry including quantitative analysis.

The master's and doctoral degree requirements are found in the Graduate Catalog. The department offers specialization in nine areas for the Ph.D.: analytical, environmental, inorganic, organic, physical, theoretical, chemical physics and polymer science.

5000 Thesis
5110-20-30-35 Advanced Organic Chemistry (3, 3, 3, 3)
5129 Advanced Organic Chemistry Laboratory (3)
5140 Introductory Polymer Chemistry (3)
5150 Kinetics of Polymerization (3)
5160 Organic Chemistry of Polymers (3)
5170 Physical Chemistry of Polymers (3)
5220 Analytical Chemistry of Environmental Pollutants (3)
5240 Electronics for Chemists (4)
5250-60-70 Advanced Analytical Chemistry (3, 3, 3)
5259-69-79 Advanced Analytical Chemistry Laboratory (1, 1, 1)
5340-50 Quantum Chemistry (3, 3)
5410-20-30 Advanced Physical Chemistry (3, 3, 3)
5450 Statistical Thermodynamics (3)
5511 Survey of Inorganic Chemistry (3)
5521 Survey of Analytical Chemistry (3)
5531 Survey of Organic Chemistry (3)
5550 Industrial Chemical Research (3)
5610-20-30 Chemical Basis of Energy Conversion (1, 1, 1)
5710-20-30 Theoretical Inorganic Chemistry (3, 3, 3)
5810 Nuclear Chemistry (3)
5911-21-31 Chemistry Seminar (1, 1, 1)
6000 Doctoral Research and Dissertation
6111 Selected Topics in Organic Chemistry (3)
6130 Natural Product Chemistry (3)
6150 Theoretical Organic Chemistry (3)
6160 Physical Organic Chemistry (3)
6165 Orbital Symmetry Control (3)
6175 Organic Photochemistry (3)
6190 Organometallic Chemistry (3)
6210 Advanced Analytical Spectroscopy (3)
6211 Selected Topics in Analytical Chemistry (3)
6311 Selected Topics in Polymer Chemistry (3)
6320 Natural Polymers (3)
6411 Selected Topics in Physical and Theoretical Chemistry (3)
6420 Nuclear Magnetic Resonance (3)
6430 Photochemistry and Radiation Chemistry (3)
6450 Electrochemistry (3)
6475 Electronic Structure of Radicals (3)
6480 Statistical Thermodynamics (3)
6495 Advanced Chemical Kinetics (3)
6510 Thermodynamics of Solutions (3)
6520 Magnetic Resonance (3)
6711 Selected Topics in Inorganic Chemistry (3)
6730 Topics in Quantum Chemistry (3)
6750 Molten Salt Chemistry (3)

6810 Vibrational Problems in Molecular Spectra (3)
6820 Molecular Vibration-Rotation Theory (3)
6811 Selected Topics in Nuclear Chemistry (3)

Chinese
See Cultural Studies (Asian Studies).

Classics (257)

Professors: H.C. Ruffman (Head), Ph.D. Ohio State; A. Rapp (Emeritus), Ph.D. Illinois.

Associate Professors: M.L. Henbest, M.A. Arkansas; J.E. Shelton, Ph.D. Vanderbilt.

Assistant Professors: G.C. Gesell, Ph.D. North Carolina (Chapel Hill); B.J. Levy, Ph.D. Texas; P.J. Nassen, Ph.D. Ohio State.

Greek

UNDERGRADUATE

A major in Greek consists of 39 hours of language courses numbered above 2000 but including Classics 4220. Nine hours from the following general courses may be substituted for language courses at the discretion of the department: Classics 3210-20, 3310-20, 4010. 4101 may be taken for a maximum of 6 hours.

The Greek minor consists of 24 hours in language courses numbered above 2000 including Classics 4220. Six hours from the following general courses may be substituted: Classics 3210-20, 3310, 3320.

1210-20-30 Beginning Greek (3, 3, 3) Must be taken in sequence.
2810 Xenophon (4)
2820 Homer: Odyssey (4)
2830 Homer: Iliad (4)
2840 Greek New Testament (4) Prereq: 2610 or consent of instructor.
3010 Plato (3)
3020 Herodotus (3)
3030 Euripides (2)
4020 Aeschylus, Sophocles (3)
4030 Lysias (3)
4040 Aristophanes (3)
4050-60-70 Directed Readings in Greek (3, 3, 3)

Latin

UNDERGRADUATE

A major in Latin consists of 39 hours in language courses numbered above 2000, but including Classics 4220. Nine hours from the following general courses may be substituted for language courses at the discretion of the department: Classics 3210-20-30, 3310, 3320, 3330; 4101 may be taken for a maximum of 6 hours. Greek language courses numbered above 2000 may be substituted for a maximum of 9 hours of Latin courses with consent of department.

The Latin minor consists of 24 hours in language courses numbered above 2000 including Classics 4220. Six hours from the following general courses may be substituted: Classics 3210-20-30, 3310, 3320, 3330.
Placement Examination: Students who transfer to UTK from other colleges and students who enter with high school units in Latin should register for the courses in which they would normally be placed on the basis of such credits. During the first week of the quarter a placement test will be given, and students will be advised if a change in registration is indicated by the results.

Proficiency Examinations. Students who have acquired a knowledge of Latin through private study or tutoring should request a proficiency test. A student who earns a grade of B or better in this examination is eligible for credit toward graduation. A student who omits any course in a sequence may receive credit for it by passing the appropriate proficiency examination.

Certification for Teaching Latin in Tennessee. Consult Certification Clerk, Room 212, Claxton Education Building.

1110-20-30 Beginning Latin (3, 3, 3) Must be taken in sequence.
2511-21 Intermediate Latin (4, 4, 4) 2511—Readings from the age of Cicero. 2521—Virgil’s Aeneid. Open to those who have had at least two years of high school Latin, or equivalent.
3140 Ovid (3) Prereq: 3 or 4 years of high school Latin or 2521.
3150 Plautus and Terence (3) Prereq: 3 or 4 years of high school Latin or 2521.
3160 Catullus (2) Prereq: 3 or 4 years of high school Latin or 2521.
3440 Livy (3)
3450 Pliny and Martial (3)
3460 Elegaic Poets (3)
4120 Horace, Satires and Epistles (3)
4140 Cicero and Techniques of Latin Prose Composition (4) Recommended for Latin majors and minors, especially those intending to teach or pursue graduate work. Works of Cicero studied as models for prose composition.
4310 Selected Readings from Latin Literature (3)
4320-30 Selected Readings from Latin Literature (3, 3) May be repeated for credit.
4340 Horace, Odes (3)
4350 Tacitus (3)
4360 Lucretius (3)
4370 Readings in Medieval Latin (3)

GRADUATE
5410-20-30 The Latin Epic. Lucretius, Virgil, Lucan (3, 3, 3)
5510-20-30 Roman Comedy. Plautus, Terence (3, 3, 3)

GENERAL COURSES
2700 Greek Etymology (3) Origin and derivation of words. Greek stems most commonly found in English language with special attention to words in scientific and technical vocabularies.
2720 Latin Etymology (3) Origin and derivation of words. Latin stems most commonly found in English language with special attention to words in scientific and technical vocabularies.
2810 Greek Life (4) Manners and customs, social and economic aspects of classical civilization; family, politics, laws, finance, commerce.
2820 Roman Life (4) Description same as for Greek Life 2420.

3210 Early Greek Mythology (3) Comprehensive study of Greek myths through readings, lectures, and discussion with emphasis on significance for Greek thought and current Greek literature. Texts may illustrate influence of Greek myths on art, music, and literature of ancient Greece and later cultures. (Same as Religious Studies 3210.)
3220 Greek Mythology in the Classical Period (3) A study of use of myth in literature, history, religion, philosophy, and art of Classical Age of Greece, and in high Renaissance myth from earlier periods. Familiarity with basic Greek myths is assumed. Readings, lectures, slides, and discussion. (Same as Religious Studies 3230.)
3230 Roman Mythology (3) Study of myths created by Romans, as well as those the Romans borrowed from Greeks, with reference to Roman attitude toward history, religion, Roman world with emphasis on palaces of Crete and Mycenae, Troy, and Tyros, their fall, the following Dark Age, and rebirth of Greek (3) Homer illustrated lectures.
3220 Art and Archaeology of the Aegean Bronze Age and Early Greece (3) Troy, the Cyclades Islands, Greek mainland, and Crete. Emphasis on palaces of Crete and Mycenae, Troy, and Tyros, their fall, the following Dark Age, and rebirth of Greek (3) Homer illustrated lectures.
3230 Art and Archaeology of Archaic and Classical Greece (3) Survey of development of Greek art, architecture, and sculpture, and painting from 650 B.C. to death of Alexander. Lectures, discussions.
3330 Art and Archaeology of Hellenistic Greece and Rome (3) Hellenistic Greek, Etruscan, and Roman sculpture, painting, and architecture with attention to city planning. Illustrated lectures.
3340 Cities of the Greek and Roman World (3) Archaeological survey of Greek and Roman cities from 3000 B.C. to 500 A.D. with emphasis on development of city planning and quality of life. Such cities as Mycenae, Athens, Pompeii, Alexandria, Rome, and Lepcis Magna will be studied.
3350 Shrines and Sanctuaries of the Greek and Roman World (3) Survey of major shrines and sanctuaries of Greek and Roman world with emphasis on archaeological remains. Such sites as Olympia, Epidaurus, Paestum, Cuma, Praeneste, and Baalbek will be considered. Readings in selected classical authors will add to understanding of place of great shrines and sanctuaries in Greek and Roman life.
3510 Early Greek Literature in English Translation (3) Homer’s epics to Pindar and era of Periclean Greece.
3520 Classical Greek Literature in English Translation (3) Age of Pericles: Tragedy, Thucydides, Aristophanes.
3530 Later Greek Literature in English Translation (3) Alexander’s world: Aristotle to Theocritus.
4010 Greek Drama in English Translation (3) Survey of dramatic masterpieces of Greek literature.
4011 Foreign Study (1-16) See page 187.
4210 Teaching of Latin (3) Carries no language credit. For description see Education, Curriculum and Instruction 3905. (Same as Educ. Cc/3905.)
4220 Seminar in Classical Studies (3) Special problems in literatures and other arts of Greece and Rome. For graduate students and advanced undergraduates. May be repeated for credit with consent of department.
4230 Classical Mythology and Its Uses (3) Intensive review and survey of Greek and Roman mythology for graduate students and advanced undergraduates. Emphasis on uses of classical mythology in literature, music, and plastic arts, especially of modern times.
4510 Selected Readings in Latin Literature in Translation and change of attitude toward myth from earlier periods. Familiarity with basic Greek myths is assumed. Readings, lectures, slides, and discussion. (Same as Religious Studies 3230.)

Comparative Literature
See Cultural Studies.

Computer Science (266)

Professors:
R.T. Gregory (Head), Ph.D. Illinois; F.W. Donaldson, Ph.D. Texas; T.B. Fleemmons, Ph.D. Auburn; G.R. Sherman, Ph.D. Purdue.

Associate Professors:

Assistant Professors:
C.P. Huang, Ph.D. SUNY (Buffalo); S.R. Jordan, Ph.D. Wisconsin; J.M. Moshell, Ph.D. Ohio State; C.P. Pfleeger, Ph.D. Pennsylvania State; D.W. Straight, Ph.D. Texas.

*Space Institute

UNDERGRADUATE

Computer science offers an undergraduate major and minor as well as a Master of Science degree (for details, see Graduate Catalog). Information about computer science programs may be obtained from the Science Office, 8 Ayres Hall or from the Liberal Arts Advising Center, 220 Ayres Hall.

Major: Computer Science 1510 is a prerequisite to a major in computer science which consists of 2510, 3150, 3510, 3520, 4510, and 4550, and an additional fifteen hours selected from computer science intermediate and advanced courses as listed below. Also required are Math 2840-55-00 (or the honors sequence 2848-58-68) and Statistics 3450.

Minor: A minor in computer science consists of 2510, 3510, 3520, 4550, and an additional 12 hours of computer science upper-division courses.

Introductory and Service Courses

1410 Introduction to Business Oriented Programming (3) Current and potential uses of computers as tools in the business environment with emphasis on learning FORTRAN programming. Not for computer science majors. Students may receive credit for both 1410 and 1510, intended primarily for students in College of Business Administration. Prereq: Math 1510 or Math 1840.

1510 Introduction to Computer Science (4) Computer as a tool of varied uses in modern world; emphasis on basic programming in FORTRAN. Problem-solving process; organization and characteristics of digital computers. Survey of applications of computers in various disciplines. Students may not receive credit for both 1410 and 1510. Prereq: Mathematics 1560 or Mathematics 1840.


3010 Computers and Society (3) History of computing and computer systems; capabilities of computers; applications in artificial intelligence, humanities, social sciences, sciences and engineering; computer assisted instruction, future advances in computing; careers in computing. Prereq: Consent of instructor.
3150 Introduction to Numerical Algorithms and Programming (3) Roots of equations, systems of linear equations, least-squares data fitting, numerical integration, numerical methods for ordinary differential equations. Introduction to programming in FORTRAN. 3150 and 3155 may not both be taken for credit; students with a knowledge of Pascal or C should take 3155. Prereq: 1510 or 1610 or consent of instructor. Prereq or coreq: Math 2860. (Same as Math 3150.)

3155 Introduction to Numerical Algorithms (3) Roots of equations, systems of linear equations, least-squares data fitting, numerical integration, numerical methods for ordinary differential equations. 3150 and 3155 may not both be taken for credit. Students with a knowledge of FORTRAN should take 3150. Prereq: 1510 or 1610 or consent of instructor. Prereq or coreq: Math 2860. (Same as Math 3155.)

3410 Computer Programming—COBOL (3) Computer programming in business oriented language COBOL. Prereq: 1410 or 1510 or 3150 or consent of instructor.

3910 Commercial Computer Concepts and Control (3) Elements, operation, and control of computers in a business environment. Topics include input, storage, data manipulation, output, flowcharting, and error control. Prereq: 3410 and Accounting 3210.

4310 Computation in Statistical Analysis (3) Use of digital computer in standard statistical analyses, such as frequency tabulations, Pearsonian correlation, regression, analyses of variance. Not for credit for computer science majors. Prereq: Statistics 2100 or equivalent. An elementary knowledge of a procedure-oriented language such as FORTRAN is assumed. But must be directed by computer science facility. May be repeated. May not be used as a junior student's primary interest. To be directed by computer science facility, perhaps jointly with student's faculty adviser. Prereq: Consent of instructor. May be repeated. Maximum 9 credit hrs.

Intermediate and Advanced Courses

3510 Computer Organization and Programming I (3) Problem formulation and advanced programming in FORTRAN; operation and control of digital computers. Prereq: 1510 or 2510, or 3150 or consent of instructor.


3570 Programming Languages (4) Comparison and analysis of programming languages and their features. Languages to be discussed will include SNOBOL, ALGOL, LISP, FORTRAN. Prereq: 2510.

3715 Discrete Structures (3) Introduction to discrete structures useful in computer science. Sets, set logic, Relations, functions, proof techniques, induction, logics, Graphical representations and algorithms. Prereq: 1510 or 1610 or 3150 (or equivalents). Prereq or coreq: Mathematics 2860. (Same as Mathematics 3715.)

3725 Advanced Discrete Structures (3) Advanced topics in discrete structures useful in computer science. Graphs and algorithms for manipulating data as represented by them. Algebraic structures, Boolean algebra, lattices, groups, monoids. Prereq: 3715 or equivalent. (Same as Mathematics 3725.)

4050 Number Systems for Digital Computers (3) Floating point number representation, overflow/underflow, radix number representation, multiple-modulus residue number representation, finite-segment p-adic number representation, errors in floating-point computation, finite fields and exact computation using digital computers. Prereq: 3155.

4225 Numerical Solution to Equations and Numerical Approximations (3) (Same as Mathematics 4225.)

4245 Numerical Linear Algebra (3) (Same as Mathematics 4245.)

4510 Data Structures and Non-numeric Programming (3) Design of data structures and algorithms for their manipulation. Arrays and orthogonal lists; stacks, queues, doubly-linked lists, trees, dynamic storage allocation; organization of files, programming languages for information structures. Prereq: 3520. Prereq or coreq: Knowledge of SNOBOL equivalent to that gained in 3570.


4620 Operating Systems—Case Studies (3) Alternatives in operating system design, dynamic relocation, paging, segmentation, time sharing, time slicing, protection, concurrency, real time systems. Examples from different operating systems analyzed as assigned reading. Prereq: 4610 or equivalent or consent of instructor.

4660 Compiler Construction (3) Practical experience with design of compilers. Scanning, parsing, semantic processing, code generation and optimization, error detection and error correction. Term project will include a complete compiler for small block-structured language. Prereq: 4510.


4730 Analysis of Non-numeric Algorithms (3) Study of efficient algorithms for searching (e.g., binary search, tree searches, hash coding) and sorting (e.g., heap sort, Shell's sort, quicksort). Algorithms for other non-numeric applications, such as pattern matching, graph path detection, set operations. Precise notions of time and space complexity. Polynomial complete problems. Prereq: 4510.

4750 Interactive Computer Graphics (3) Point plotting, vector generation, interactive graphical techniques, two and three dimensional transformations, perspective and line elimination, shading, software and hardware system design. Discussion of use of these techniques in design, problem solving, data representation, and many other areas. Prereq: Senior standing in computer science, electrical engineering or mathematics and a knowledge of computer programming, or consent of instructor. (Same as Elec. Engr. 4750 and Geography 4750.)

4820 Introduction to Pattern Recognition (3) (Same as Elec. Eng. 4820.)

4830 Digital Image Processing (3) (Same as Elec. Eng. 4830.)

4850 Small Computer Systems (3) (Same as Elec. Engr. 4850.)

4910 Analysis and Management of Computer Installations (3) Analysis and design of computer systems; implementation, justification, personnel in systems perspective on systems. Prereq: 3520 or equivalent.

4980-90 Special Topics in Computer Science (1-4) Credit determined at time of registration. May be repeated. May not be used as a junior student's primary interest. To be directed by computer science facility. Prereq: Recommendation of computer science staff.

GRADUATE

5000 Thesis

5002 Non-Thesis Graduation Completion (3-15)

5010 Computer Assisted Instruction (3)

5050 Computer Modeling and Simulation of Physical Systems (3)

5210 Artificial Intelligence (3)

5250 Medical Computing (3)

5430 Theory of Compilers (3)

5455 Finite Difference Methods for Partial Differential Equations (3)

5465 Finite Element Methods (3)

5475 Advanced Topics in Numerical Partial Differential Equations (3)

5655-65-75 Numerical Mathematics (3, 3, 3)

5670-80 Advanced Operating Systems (3, 3)

5710 Finite Automata Theory (3)

5720 Computability and Computational Complexity (3)

5750 Theory of Formal Languages (3)

5810 Information Organization and Retrieval (3)

5840-50 Pattern Recognition (3)

5910-20-30 Special Topics in Computer Science (1-4, 1-6, 1-8)

5940-50 Advanced Small Computer Systems (3, 3)

5970 Independent Study in Computer Science (1-3)

Cultural Studies

Director: Dr. Charles O. Jackson

Basic Faculty
J. S. Elliott, Ph.D. Russian; E. J. Gangloff, Ph.D., Special Programs; D. M. Fiene, Ph.D., Russian; J. A. Heffernan, Ph.D., English; C. O. Jackson, Ph.D., History; S. B. Kurth, Ph.D., Sociology; H. E. Lewald, Ph.D., Spanish; D. H. Littlejohn, B.A. Special Programs; P. A. Murr, Ph.D., History; C. J. Mellor, Ph.D., German; M. E. Peek, M.A. History; M. P. Rice, Ph.D., Russian; H. C. Rutledge, Ph.D., Classics; P. B. Scott, Ph.D., Home Economics; S. E. Wallace, Ph.D., Sociology.

The ideal curriculum encourages not only proficiency in a given field of knowledge but also the comprehensive understanding of its social, political, and economic implications. The cultural studies major is designed to offer a wide variety of courses in American studies, Ancient Mediterranean Civilizations, Asian studies, Black studies, comparative literature, Latin American studies, linguistics, Medieval studies, Russian and East European studies, urban studies, and women's studies.

American Studies (099)

History 2510-20 (or equivalent honors courses) are prerequisite to a concentration in American studies which consists of 36 quarter hours: English 3010-20, American Studies 3010 and 4010, and 21 hours of upper-division electives dealing with the American experience.
Nine hours of the elective group must be from one of the following disciplines: anthropology, economics, political science, or sociology. A list of acceptable elective courses is published annually by the American Studies Committee.

For further information consult the chairman of the American Studies Committee, Dr. Charles Jackson.

3010 Introduction to American Culture (3) Explores dynamics and nature of contemporary American culture.

3233-34 Forms of Popular Literature and Culture (3, 3) Same as English 3233-34.

4010 Topics in American Culture (3) Content varies. May be repeated once.

**Asian Studies (145)**

The Asian studies concentration consists of 36 quarter hours: Asian Studies 2510-20 plus 28 additional credits from Asian studies or approved departmental courses. The latter should constitute a coherent program, including a minimum of one course (3 or 4 hours) from each of the following three areas: (a) art, Asian culture, literature, and music; (b) economics, geography, history, and political science; (c) anthropology, philosophy, religious studies, and sociology. Students who prefer to use Asian Studies 2510-20 for triad or elective credit may, with permission of the program chairperson, substitute eight additional upper-division hours in acceptable courses for that required sequence in the concentration.

The Asian studies minor consists of 24 quarter hours: Asian Studies 2510-20 plus 16 additional credits from Asian studies or approved departmental courses. The latter should include a minimum of one course (3 or 4 hours) from each of the following areas: (a) art, Asian culture, literature, and music; (b) economics, geography, history, and political science; (c) anthropology, philosophy, religious studies, and sociology. Students who prefer to use Asian Studies 2510-20 for triad or elective credit may, with permission of the program chairperson, substitute eight additional upper-division hours in acceptable courses for that required sequence in the minor.

It is strongly recommended that students planning to attend graduate school take an appropriate Asian language through the intermediate level.

Further information may be obtained from the chairperson of the Asian Studies Committee, Dr. Phoebe Marr.

2510-20 Asian Civilization (4, 4) Introduction to Asian civilization by comparative study of development of religion, social institutions, and high culture in India, China, Japan, and the Islamic world. 2510—Rise of classical civilizations. 2520—Traditional cultures and their modern developments.

3310 Indian Culture (4)

3320 Chinese Culture (4)

3330 Japanese Culture (4)

3340 Islamic Culture (4)

4010-20-30 Readings in Asian Literature (4, 4, 4) Prereq: Mastery of intermediate-level of Japanese, Chinese, or Arabic and consent of instructor.

**4012 Selected Topics in Asian Studies (4)** Content varies. May be repeated. Maximum credit 12 hrs.

**Asian Language and Literature**

**ARABIC (127)**

(See Romance Languages)

1510-20 Spoken Arabic (4, 4)

2110-20-30 Elementary Modern Standard (3, 3, 3)

3510-20 Intermediate Modern Standard (4, 4)

3610 Islamic Literature in English Translation (4)

4101 Foreign Study (1-16)

5101 Foreign Study (1-12)

5102 Off-Campus Study (1-12)

5103 Independent Study (1-12)

**CHINESE**

Asian Studies 2531-32 Elementary Chinese (4, 4) Taped language program. Must be taken in sequence.

Asian Studies 3531-32 Intermediate Chinese (4, 4) Taped language program. Prereq: 2531-32 or equivalent or consent of instructor. Must be taken in sequence.

Asian Studies 4531-32-33-34 Advanced Chinese (4, 4, 4, 4) Taped language program. Prereq: 3531-32 or equivalent or consent of instructor. Must be taken in sequence.

**HEBREW**

Asian Studies 2831-32 Elementary Modern Hebrew (4, 4) Taped language program. Must be taken in sequence.

Asian Studies 3831-32 Intermediate Modern Hebrew (4, 4) Taped language program. Prereq: 2831-32 or equivalent or consent of instructor. Must be taken in sequence.

**JAPANESE**

Asian Studies 2631-32 Elementary Japanese (4, 4) Must be taken in sequence.

Asian Studies 3831-32 Intermediate Japanese (4, 4) Prereq: 2631-32 or equivalent or consent of instructor. Must be taken in sequence.


**PERSIAN**

Asian Studies 2731-32 Elementary Persian (4, 4) Taped language program. Must be taken in sequence.

Asian Studies 3731-32 Intermediate Persian (4, 4) Taped language program. Prereq: 2731-32 or equivalent or consent of instructor. Must be taken in sequence.

**Approved Area Courses**

(a) Art, Asian Culture, Literature, and Music

Art 3775 Art of Indian Asia (4)
Art 3776 Chinese Art (4)
Art 3777 Japanese Art (4)
Asian Studies 3310 Indian Culture (4)
Asian Studies 3320 Chinese Culture (4)
Asian Studies 3330 Japanese Culture (4)
Asian Studies 3340 Islamic Culture (4)
Arabic 3610 Islamic Literature in English Translation (4)

Asian Studies 3650-60 Japanese Literature in English Translation (4, 4)
Asian Studies 3660 Modern Japanese Literature in English Translation (4)
Asian Studies 4010-20-30 Readings in Asian Literature (4, 4, 4)
Spanish 4050-60-70 Hispano-Arabic Literature and Culture (3, 3, 3)
Music 4260 Introduction to Ethnomusicology (3)
(b) Economics, Geography, History, and Political Science

Economics 4232 The Political Economy of Asian Development (3)
Geography 3870 Geography of Asia (4)
History 3790-30 History of the Middle East (3, 3)
History 3795 Contemporary Middle East (4)
History 3800 North Africa since 1830 (3)
History 3810-20-30 History of East Asia (3, 3, 3)
History 4791 Modernization of the Middle East (3)
History 4792 Historical Writers in Islamic History (3)
History 4811-21 History of Japan (4, 4)
History 4870 Cultural History of China (3)
History 4880 History of Modern China (3)
History 4890 History of Contemporary China (3)
Political Science 3621-22 Politics of Asian States (4, 4)
Political Science 3641 Government and Politics of Middle East and North Africa (4)
Political Science 3795 Contemporary Middle East (4)
(c) Anthropology, Philosophy, Religious Studies, and Sociology

Anthropology 3510 Peoples and Cultures of Mainland Asia (3)
Anthropology 4510 Peoples of China II: Chinese Society after 1839 (3)
Anthropology 4570 Peoples of Southeast Asia (3)
Anthropology 4590 Peoples of Japan (3)
Philosophy 3650 Philosophy and Religion in India (4)
Philosophy 3660 Buddhist Philosophy and Religion (4)
Philosophy 3671 Religion and Philosophy in China (4)
Religious Studies 3650 Philosophy and Religion in India (4)
Religious Studies 3660 Buddhist Philosophy and Religion (4)
Religious Studies 3671 Religion and Philosophy in China (4)
Religious Studies 3680 Islam (4)
Religious Studies 3760 Eastern Religions and Western Thought (3)
Religious Studies 3770 Zen Buddhism (3)
Religious Studies 4670 Topics in Eastern Religions (4)
Religious Studies 4960 Tradition, Change and Modernity in Asia (4)
Sociology 3672 Religion and Society in Japan (4)
Sociology 4960 Tradition, Change and Modernity in Asia (4)
Black Studies (195)

The concentration in Black studies and the minor in Black studies offer in-class, independent, and off-campus study to foster knowledge of the Black experience through a traditional academic approach as well as experiential learning. Black Studies 2010-20 are prerequisites to the concentration which consists of 36 hours from the Black Studies curriculum. A minimum of 24 hours must be in upper-division credit. Every student's program must include some individualized work under Black Studies 4102, 4103, and 4310, the nature of which should be negotiated with the program director. A maximum of 8 hours in 4102 and 4103 combined can be applied to a major and a maximum of 4 hours in 4102 and 4103 combined can be applied to a minor. In addition, courses from at least two other departments must be selected.

For further information consult the coordinator of the Black Studies Committee, Mr. Marvin Peek.

4101 Afro-American Families (3) (Same as Child and Family Studies 4810)

4880 Black Women in American Society (4) Historical and contemporary socio-economic factors in American society as they relate to the Black woman. History 1900-60 recommended. Prereq: Consent of instructor.

4880 Afro-American Psychology (3) (Same as Psychology 4880)

Approved Area Courses

Anthropology 3530 Peoples and Cultures of Africa (3)

Anthropology 3930 Biology of the Races of Man (3)

Art 2725 Black Art (4)

CFS 4310 The Afro-American Family (3)

English 2540 The Literature of Black America (4)

English 4610-20-30 Black Literature (3, 3, 3)

Geography 3830 Geography of Africa (3)

History 1950-60 Afro-American History: An Introduction (4, 4)

History 2950 Introduction to Afro-American History (3)

History 3950-60 The Negro in American History (3, 3)

Music 3350 Introduction to Afro-American Music (4)

Music 4270 Evolution of Jazz (3)

Political Science 3615-16 Black Africa: The Politics of Change and Stability (4, 4)

Political Science 3555 Minority Group Politics in the U.S. (4)

Psychology 4880 Afro-American Psychology (4)

Religious Studies 3550 Religion and Racism in America (4)

Religious Studies 3560 Black Religion in America (3)

Sociology 3330 Race, Class, and Power (4)

Sociology 3340 Sociology of Poverty and Inequality (4)

Sociology 4820 American Minority Ethnic Groups (4)

Speech 4582 Black Rhetoric (4)

Recommenda for the recommendation and the minor:
(a) Those with a concentration in Black Studies are encouraged to take a second major, with which an individually designed program in Black studies can be correlated.
(b) Students should seek academic advising from the Chairman of Black Studies for courses for the concentration or the minor which relate to career plans, preparation for graduate study, and relationship to the second major.
(c) Those with a concentration and a minor are strongly encouraged to combine classroom and experiential learning through a careful selection of courses, e.g. Human Services 4400 and/or Black Studies 4102.

Comparative Literature (260)

A concentration in comparative literature consists of 36 hours including Comparative Literature 4010, 4012-22-32, 9 hours of literature in a foreign language in courses numbered 3000 and above, and one classics course selected from Classics 4010, 4230, 4510. The remaining twelve hours should include literature courses, either in English or in a foreign language, numbered 3000 and above, from at least two of the following departments: English, Germanic and Slavic Languages, Religious Studies, Romance Languages (certain courses in Philosophy and Speech and Theatre may be substituted with the approval of the chairperson of the Comparative Literature Program). Students concentrating in comparative literature are strongly encouraged to acquire a working knowledge of a second foreign language, especially if they hope to pursue comparative literature on the graduate level.

A minor in comparative literature consists of 24 hours including Comparative Literature 4010, two courses from Comparative Literature 4012-22-32, 6 hours of literature in a foreign language in courses numbered 3000 and above, and 3 hours of literature courses numbered 3000 and above, either in English or in a foreign language, from at least two of the following departments: Classics (4010, 4230, 4510), English, Germanic and Slavic Languages, Religious Studies, and Romance Languages (certain courses in Philosophy or Speech and Theatre may be substituted with the approval of the Comparative Literature Program). Minors in comparative literature are strongly encouraged to continue their study of a foreign language beyond the minimum requirement.

For further information, consult the chairman of the Comparative Literature Committee, Dr. Harry C. Rutledge.

2010 Introduction to Comparative Literature (4) Basic knowledge, techniques, and sources necessary to compare literatures of various cultures, ages, and nations.

3236 Special Themes in Literature (3, 3) (Same as English 3236-37)

4010 Methodology of Comparative Literature (3) Research and writing of comparative literary studies. Major project will be preparation of seminar paper in comparative literature. Prereq: 2010 and one course from 4012-22-32 or consent of instructor.

4012-22-32 Special Topics in Comparative Literature (3, 3, 3) Content varies; may be repeated for credit.

5012 Comparative Theories of Literature (3)

5022 Approaches in Comparative Literature (3)

5032 Studies in Comparative Literature (3)

Approved Area Courses

Classics 3210-20-30 Greek and Roman Mythology (3, 3, 3)

Classics 4010 Greek Drama in English Translation (3)

Classics 4510 Selected Reading in Latin Literature in Translation (3)

English 3411-12-20-30 Modern Drama (3, 3, 3, 3)

English 3710 Literature of the English Bible (3)

English 3910-20-30 Comparative Literature (3, 3, 3, 3)

English 4720 Folktale (3)
English 4730 Popular Ballad (3)

English 4950 Approaches to Literature (3)

English 5860 Introduction to Literary Research (3)

German 3210-20-30 Masterpieces of German Literature in English Translation (3, 3, 3)

German 4030 German Drama in English Translation (3)

German 4040 The Modern German Novel in English Translation (3)

German 4050 The Faust Legend (3)

Russian 3210-20-30 Survey of Russian Literature in English Translation (3, 3, 3)

Romance Languages 4010 Masterpieces of French Literature in English Translation (3)

Romance Languages 4020 Masterpieces of French Drama in English Translation (3)

Romance Languages 4030 Masterpieces of Spanish Literature in English Translation (3)

Romance Languages 4040 Masterpieces of Spanish Drama in English Translation (3)

Romance Languages 4050-60-70 Dante and Medieval Culture (3, 3, 3)

Ancient Mediterranean Civilizations

The concentration in Ancient Mediterranean Civilizations consists of Classics 2810, Classics 2910, Religious Studies 2611, and 28 additional hours from the following list, distributed in such a way that no more than 20 hours are in any one of the three divisions:

(a) Ancient Near Eastern Cultures: History 3751, 3752; Religious Studies 3110, 3120, 4210.
(b) Greek Culture: Classics 3210, 3220, 3310, 3320, 3340, 3350, 4010, 4220 (where applicable), 4230 (where applicable); History 3760; Philosophy 3111, 4410, 4420; Political Science 3801.
(c) Roman Culture: Classics 3230, 3330, 3340, 4220 (where applicable), 4510; History 3770; Religious Studies 3311-12, 3330, 4310, 4640.

Courses of variable content, topics courses, reading and research, off-campus, or foreign study in the departments of Art, Classics, History, Philosophy, or Religious Studies can be applied to the three divisions as appropriate.

Students are encouraged to satisfy the Language, Literature, and Arts Triad requirement with Greek, Latin, or Hebrew in either Option I or Option II. Upper-division courses in these languages may be applied to the appropriate division listed above.

For further information, consult Dr. H.C. Rutledge (Classics) or Dr. W.L. Humphreys (Religious Studies).

Latin American Studies (600)

Concentration consists of 36 hours including Spanish 3710-20 or Portuguese 3510-20, History 3870-80-90, Political Science 3625-26, and Geography 3800 or 3790 and 7 hours of acceptable elective courses in any of the participating departments or in the Latin American studies sequence 2510-20 (4, 4) or Independent Research 4010.

Two years of Spanish or Portuguese or a practical working knowledge acquired independently are a prerequisite. Minor: Consists of 24 quarter hours selected from Geography 3800 or 3790, History 3870-80-90, Political Science 3625-26, and Spanish 3710-20 or Portuguese 3510-20, and the Latin American studies sequence 2510-20 or Independent Research 4010.

For further information, consult the chairman of the Latin American Studies Committee, Dr. H.E. Lewald.

2510-20 Introduction to Latin American Studies (4, 4) Introduction to societies of Latin America with special emphasis on dominant culture patterns, social changes, and impact of nationalism. 2510—Pre-Colonial and Colonial periods through Independence era; 2520—Latter 19th century and the Modern period.

4010 Independent Research in Latin American Studies (3-9) Directed research in any topic fully recognized by the Latin American Studies Committee and directed by a faculty member involved in the study of the Latin American area. Credit to be awarded according to the scope and length of the project.

4970 Senior Seminar (3-4) Selected topics in Latin American studies. May be repeated with consent of instructor.

Linguistics (623)

This concentration offers a broad exposure to the various fields of linguistics (including historical, descriptive and theoretical linguistics) along with an opportunity to study areas where linguistics overlaps with other disciplines such as psycholinguistics, sociolinguistics, speech pathology and the like. It is designed to prepare a student for graduate work in linguistics or related areas, or to serve as a general survey of language and linguistics. It provides additional possibility of emphasizing the teaching of English as a second language for the student interested in employment at the B.A. level. The requirements of this concentration are:

Corequisites
(a) A 3000-level sequence or its equivalent of a foreign language. (This can be accomplished by electing Option I of the Language, Literature and Arts section of the Triad requirements. The following languages offer sequences which fulfill Option I: French, German, Greek, Italian, Latin, Russian, Portuguese, Spanish.) By special permission of the Linguistics Committee, certain language-related courses may be substituted for a 3000-level sequence of the foreign language.
(b) Two quarters of a non-Indo-European language to be selected from the following: Religious Studies 3141-51 (Hebrew); Arabic 2510-20; Asian Studies 2531-32 (Chinese); Asian Studies 2631-32 (Japanese).

Concentration
The concentration shall consist of 38 hours distributed as follows:
(a) 32 hours composed of: Audiology and Speech Pathology 3050; French, German, Russian, or Spanish 4250-60-70; English 3330, 4430, 4440; Speech 4811; Linguistics 4020-30.
(b) 6 hours of the following, selected in consultation with the Linguistics Committee: Anthropology 3800; Audiology and Speech Pathology 3200, 4650, 5651, 5790; Educational Instruction 3562-63; Special Education and Rehabilitation 5220, 5310-20-30; English 3340, 4450, 4460, 4471, 4481, 5150, 5170-80; German 4310-20, 4810-20-30, 5710-20-30; Linguistics 4000; Russian 4310-20-30; Philosophy 4630; Psychology 4660, 5360-70; French 4210-20-30, 5110-20-30; Spanish 4210-20-30, 5110-20-30.
(c) Other hours may be substituted in (b) at the discretion of the Linguistics Committee.

Minor
A minor in linguistics shall consist of 27 credit hours composed of 9 from section (b) of the major selected in consultation with the Linguistics Committee, and 18 hours as follows:
Audiology and Speech Pathology 3050; Linguistics 4020-30; English 4430, French, German, Russian, or Spanish 4250-60.

NOTE: In addition to the above listed courses for the concentration and the minor there are occasionally offerings in the Honors Series in graduate seminars which may be substituted for certain requirements subject to written approval of the Linguistics Committee and the Office of the Dean.
For further information consult the chairman of the program, Dr. Jeff Mellor.

4000 Topics in Linguistics (3) Content varies. May be repeated. Maximum 10 hrs credit.

4020-30 Historical Linguistics, Neogrammam School, and Growth of Structuralism (3, 3) 4020—Traces development of scientific approach to linguistics from Jacob Grimm and Franz Bopp through 19th century. 4030—Traces change in linguistic interest brought about by Saussure's concepts and growing interest in anthropology and behavioralism on linguistic studies.

4471-81 English as a Second or Foreign Language (3, 3) (Same as English 4471-81.)

Medieval Studies (674)

A concentration in Medieval studies focuses upon culture and society from the collapse of the Roman Empire to the sixteenth century. Such a concentration offers the opportunity to deepen one’s self-awareness and broaden one’s view of the range of human possibilities by studying a very different and remote culture—its conditions of life, social and political institutions, values and ideals, and modes of perception and expression.

A concentration in Medieval studies consists of Medieval Studies 2010 and 2010 and 28 hours of upper-division courses concerned primarily with the Medieval experience, divided among the following three categories: (1) history, philosophy, political science, and religious studies; (2) language and literature; (3) arts—history of art, architecture, music, and speech and theatre. Courses should not be selected at random but should either form a related area or focus on an area of interest. For example, courses in the literature and history of Medieval England or Italy, etc., or should
revolve around a particular discipline, or two closely-related disciplines (for example, courses in the history of art and architecture). A minor in Medieval studies consists of Medieval Studies 2010 and 4010 and 16 additional hours distributed among the categories listed above for the major. Each student’s program, major or minor, must be approved in advance by the Medieval Studies Coordinating Committee, chairperson Dr. Thomas Heffernan.

It is strongly recommended that students selecting the Medieval studies concentration choose a foreign language option for the Triad requirement (Options 1 or 2). Latin is the most appropriate language for students and is essential for those who plan to continue their studies in graduate school. In addition, students planning to go on to graduate school are strongly advised to supplement their Medieval studies concentration with extensive work in one of the traditional disciplines.

2010 Medieval Civilization (4) Introduction to basic themes in medieval experience, approached from interdisciplinary points of view and including philosophy and religion, art and architecture, language and literature, social and political history.

4010 Seminar in Medieval Studies (4) Interdisciplinary treatment of selected topics.

Upper-division courses for the concentration in Medieval studies may be chosen from the list of courses below.

Category #1
History, Philosophy, Political Science and Religious Studies.

History 3061 History of Western Religious Thought and Institutions (4)

History 3411 Renaissance (3)

History 3710 History of Germany (3)

History 3780 History of Middle East (3)

History 4011 European History Colloquium (3) (when subject is part of medieval culture and society)

History 4500 History of Medieval England (3)

History 4710-20-30 Medieval History (3, 3, 3)

Philosophy 4430 Medieval Philosophy (4)

Political Science 3802 Studies in Political Thought (4)

Religious Studies 3061 History of Western Religious Thought and Institutions (4)

Religious Studies 3411 Renaissance and Reformation (4)

Religious Studies 3713 Religion in the Middle Ages

Religious Studies 4610 Topics in Western Religious Thought and Institutions (4) (when subject is part of medieval culture and society)

Category #2 Language and Literature

Classics 4310 Selected Reading from Latin Literature (3) (readings in Latin)

Comparative Literature 4012-22-32 Special Topics in Comparative Literature (3, 3, 3) (when subject is part of Medieval Studies Coordinating Committee)

Comparative Literature 4050-60-70 Dante and Medieval Culture (3, 3, 3)

English 4410 Introduction to Study of English Language (3) (no language requirement)

English 4420 History of English Language (3) (no prerequisites)

English 4910-20 Chaucer (3, 3) (readings in Middle English)

French 3210 French Literature in English Translation (3)

French 4350-60-70 Medieval French Literature (3, 3, 3) (readings in French)

French 4410 French Civilization (3) (readings in French)

German 3210 German Literature in English Translation (3-4)

German 3240 Old Norse Literature in English Translation (3)

German 4310 History of German Language (3) (readings in German)

Italian 4010 Italian Drama in English Translation (3) (or in Italian)

Italian 4050-60-70 Dante and Medieval Culture (3, 3, 3) (readings in English or Italian)

Italian 4330 History of Italian Language (3) (readings in Italian)

Spanish 4050-60-70 Hispano-Arabic Literature and Culture (3, 3, 3) (in English translation)

Category #3 The Arts

Architecture 4130 Seminar in Medieval Architecture (4)

Art 3704 History of Medieval Art (4)

Art 3705 Northern European Painting, 1350-1600 (4)

Art 3715 Early Italian Renaissance Art, 1300-1500 (4)

Music 4200 Independent Study in Music History and Literature (1-3) (when subject is part of medieval culture and society)

Music 4280 The Mass to 1600 (3)

Music 4290 Gregorian Chant (3)

Theatre 3252 History of the Theatre (4)

Russian and East European Studies (887)

There are two approaches for the student to take in designing a program with a concentration in Russian and East European Studies:

Track I is designed for students whose interest is in a career in the academic world or in some branch of government service. Prerequisites to this track are Russian 2510-20 and 2640-50. The track consists of Economics 4000; Geography 3880; six hours from History 3470-80-90, 4470, 4480, and 4490; Political Science 4815 and four hours from Political Science 3631-32, 3715; Russian 3510-20 and 3 hours from 3610-20-30, and six hours from Russian 3210-20-21-30, 3240, 3250, 3260.

Track II is designed for students whose interest is in a career in the world of international business and/or finance specifically oriented toward trade with the Soviet Union and Eastern Europe. Prerequisites to this track are Russian 2510-20 and 2640-50. The track consists of Economics 3210, 4000, and 4230; three hours from History 3470-80-90 and three hours from History 4480, 4490, or Geography 3880; Political Science 4815 and four hours from 3631-32, 3715; Russian 3510-20 and 3 hours from 3610-20-30; Marketing 4230; and Finance 4420.

For further information, consult the chairman of the Russian and East European Studies Committee, Dr. Donald Fiene.

4010 Selected Topics in Russian and East European Studies (3) An interdisciplinary seminar on a selected topic using a comparative approach.

Urban Studies (985)

A concentration in urban studies consists of 40 quarter hours, including Urban Studies 2500 and 3000, at least 4 hours of Urban Studies 4000, and 28 hours from the urban studies curriculum provided below. The urban studies minor consists of 24 quarter hours, including Urban Studies 2500 and 3000 plus 16 hours from the urban studies curriculum provided below. For further information consult the chairperson of the Urban Studies Committee, Dr. Samuel Wallace.

2500 Interdisciplinary Urban Studies (4) Fundamental perspectives of various disciplines toward the city, urbanism as a way of life and urbanization as an ongoing process. Stresses the multidisciplinary nature of urban studies.

3000 Selected Topics in Urban Studies (4) May be repeated with consent of the committee. Maximum 15 hours credit.

4000 Directed Field Work (1-16) Participant observation and other directed field research in selected sites and organizations. May be done in a concentrated manner, such as a summer, or over the course of an academic year. Minimum of four credits required for a concentration in urban studies. May be repeated. Maximum 16 hrs credit.

Urban Studies Curriculum:

For the concentration and minor, courses may be selected to fill the respective requirements from the following:

Anthropology:
3450 Community Studies in Complex Culture (3)
4440 Urban Anthropology (3)

Architecture:
2000 Man-Environment Systems (4)
3930 Behavioral Approaches to Environmental Design (6)
4900 Aspects of Urban Environment (4)

Geography:
3000 Man, Location, and Behavior (4)
3430 Urban Geography (4)

History:
4670 Cities and Urbanization in American History (4)
4740 The City in Europe (3)

Planning:
4100 Introduction to Planning (3)

Political Science:
3750 The Urban Polity (4)
3760 Urban Policy Process (4)

Real Estate and Urban Development:
3810 Principles of Real Estate and Urban Development (3)
4120 Urban Growth and Land Use (3)
4130 Problems of Urban Development (3)

Sociology:
3410 Urban Environment (4)
3420 Urban Problems (4)
4330 Urban Ecology (4)
4530 Community Organization (4)

Women’s Studies (944)

Minor: Consists of Women’s Studies 2010-20 and 16 hours of appropriate
courses numbered 3000 or above. Supporting courses are drawn from several departments and colleges on the UTK campus. A list of available courses will be published annually by the Women’s Studies Committee. For further information consult the chairperson of Women’s Studies, Dr. Suzanne Kurth.

2010-20 Women’s Studies (4, 4) Explores basic knowledge and sources necessary to understand current and past societal experiences of women. 2010 utilizes perspective of humanities; 2020 employs that of social sciences.

4000 Topics in Women’s Studies (4)

Cultural Studies (270)

4000 Selected Interdisciplinary Cultural Topics (1-12) Acceptable for credit in any cultural studies concentration or minor with the consent of the director of cultural studies and the respective chairperson. May be repeated for credit up to a maximum of 12 hrs.

4101 Foreign Study (1-16) Acceptable for credit in any cultural studies concentration or minor except Black studies. Registration by consent of the director of cultural studies and the respective chairperson. See page 199.

4102 Off-Campus Study (1-16) Acceptable for credit in any cultural studies concentration or minor except Black studies. Registration by consent of director of cultural studies and respective chairperson. See page 199.

4103 Independent Study (1-16) Acceptable for credit in any cultural studies concentration or minor except Black studies. Registration by consent of director of cultural studies and respective chairperson. See page 199.

GRADUATE

5101 Foreign Study (1-12)

5102 Off-Campus Study (1-12)

5103 Independent Study (1-12)

Ecology (278)

J. Frank McCormick, Director.

Basic Faculty:

The graduate program in ecology offers Master of Science and the Doctor of Philosophy degrees. This interdepartmental program provides advanced courses in contemporary ecology for students from undergraduate programs in basic and applied biology, social sciences, mathematics and engineering. Research opportunities in both fundamental and applied ecology are intended to prepare students for academic careers, as well as professional positions in industry or government. The Environmental Sciences Division of the Oak Ridge National Laboratory and the Tennessee Valley Authority provide advisors and research facilities. The Great Smoky Mountains, Cumberland Plateau, valley and ridge topography, TVA lakes and wild rivers provide locally a spectrum of natural habitats and consequent biological diversity which is truly unique. In addition, faculty research programs provide opportunities for student research elsewhere on this continent and abroad.

ADMISSION

Requirements for admission to this program are: (1) admission to the Graduate School of The University of Tennessee; (2) at least 12 quarter hours of college chemistry, 9 quarter hours of college mathematics, and 4 quarter hours of ecology at the upper-division level. Candidates for the doctoral degrees are expected to take the Graduate Record Examination.

Application forms for admission should be obtained from the Graduate School. Inquiries concerning the admission requirements should be addressed to the Director, Graduate Program in Ecology, 400 10th Street, University of Tennessee, Knoxville, Tennessee 37916.

COURSES ACCEPTABLE IN PROGRAM

Agricultural Biology

4010 Biology of Soil Microorganisms (4)

Agricultural Economics

4330 Land Economics (3)

5420 Advanced Land Economics (3)

Anthropology

4360 Field Work in Physical Anthropology (3-9)

4640 Zooarchaeology (3)

4960 Primate Paleontology (3)

4970 Human Paleontology (4)

5970 Emergence and Early Evolution of Man (3)

Botany

4310 Plant Ecology (4)

5340 Plant Geography (4)

5350 Analysis of Plant Communities (4)

5510-20-30 Systems Ecology (3, 3, 3)

5830 Field Methods in Plant Ecology (4)

6320 Ecosystems of the World (3)

Ecology

5000 Thesis

5100 Special Problems in Ecology (1-3)

5210-20-30 Principles of Ecology (2, 2, 2)

5310 Ecology for Planners and Engineers (3)

5320 Implementation of Environmental Policy (3)

5330 Marine Ecology (4)

5610 Environmental Toxicology (3)

5640 Techniques in Environmental Toxicology (2)

6000 Doctoral Research and Dissertation

6100 Special Topics in Ecology (3)

6110 Seminar in Animal Behavior (2)

6120 Seminar in Aquatic Ecology (2)

6130 Seminar in Physiological Ecology (2)

6140 Seminar in Community Ecology (2)

6150 Seminar in Radiation Ecology (2)

6160 Seminar in Systems Ecology (2)

Economics

4260 Economics of Resources and Environmental Policy (3)

Environmental Engineering

4530 Sanitary Engineering Laboratory (3)

4600 Solid Waste Management (3)

4700 Air Pollution-Air Resources Management (3)

5593 Advanced Sanitary Engineering Laboratory (3)

5700 Planning and Air Pollution Control (3)

5710 Air Pollution Control Engineering (3)

Forestry

5220 Seminar in Forest Tree Biology (3)

5240 Seminar in Forest Genetics (3)

Geography

4720 Data Mapping (4)

4740 Remote Sensing: Types and Applications (4)

5550 Topics in Geography of Land-Surface System (3)

5610 Topics in Climatology (4)

5740 Advanced Topics in Remote Sensing (3)

Geology

4230 Paleocology (4)

4240 Paleobotany (4)

4510 Principles of Geomorphology (4)

5290 Quaternary Problems (4)

5915 Regional Geomorphology (4)

Microbiology

5829 Experimental Microbial Ecology (3)

Nuclear Engineering

5210 System Dynamics (3)

Philosophy

4710 Philosophy of Natural Science (4)

5550-60 Philosophy of Science (4, 4)

6550 Seminar in Philosophy of Science (4)

Plant and Soil Science

4320 Soil Formation, Morphology, and Classification (4)

5240 Soil Productivity and Management (3)

5250 Pedology (4)

5810 Crop Climatology (4)

5820 Advanced Crop Physiology and Ecology (4)

Psychology

4900 Aspects of Urban Environment (4)

5750 Ethological Psychology (3)

Sociology

4110 Population Problems (4)
Economics (283)

See faculty list, page 90.

UNDERGRADUATE

The program in economics combines a broad liberal education with the rigorous study of current issues of the day such as employment, inflation, poverty, wealth and the benefits and costs of economic growth.

Courses offered in the Department of Economics of the College of Business Administration provide opportunity for a major or minor in economics in the College of Liberal Arts. See page 90 for description of the courses available.

Requirements for a major in economics consist of: (1) Economics 2110, 2120, and 2130 or equivalent honors courses, and (2) a minimum of 33 additional hours in upper-division economics courses. Economics 3110 (or the sequence 3111 and 3112) plus 3120 are required as part of the upper-division work and should be taken as early in the upper division program as possible. A minor consists of (1) Economics 2110, 2120, 2130 and (2) 15 additional hours in economics at the upper-division level. Minors are encouraged to include Economics 3110 and 3120.

In addition, certification to teach economics in secondary schools is available. Students with such an interest should consult the Certification Clerk, Room 212, Claxton Education Building as early in their program as possible to determine the appropriate requirements.

GRADUATE

See pages 89 and 90 in the College of Business Administration. The department offers the following degrees: M.A., MACT, M.S. and Ph.D. Also, the MBA degree with a concentration in economics is offered.

(1) English 3042; (2) at least three courses in major figures or periods before 1800; (3) at least two courses concerned with approaches other than literary history, such as literary forms or modes, theories of criticism, or other unifying approaches or ideas; (4) a total of three courses in writing or the English language may be counted toward the literature concentration but may not be substituted for requirements 1, 2, or 3 above.

Concentration in Creative Writing:

Twelve English courses at the 3000-4000 level including:

(1) one of the 3000-level creative writing courses followed by the corresponding 4000-level course in the same genre;
(2) four other courses in creative writing at either the 3000 or 4000 level;
(3) two courses in non-fiction writing, film, or English language;
(4) four courses in literature.

Concentration in the English Language:

Twelve English courses at the 3000-4000 level including:

(1) English 3330; (2) five courses in linguistics and the English language selected from among those offered by the English department and, with English adviser approval, from Psychology 3800, Anthropology 4650, or Linguistics 4030; (3) two additional courses in language, literature, or writing; (4) four courses in literature.

Individualized Program: The Director of Undergraduate Studies is empowered to approve individualized programs developed by students in consultation with their English advisers. These programs need not necessarily fulfill all of the requirements listed above.

Honors Programs: For students who qualify for this program, the English department offers individualized study in the senior year culminating in a senior thesis and a comprehensive examination. If the thesis and examination both receive grades of B or better, the student will be graduated with high honors. Interested students should consult their advisers or the Director of Undergraduate Studies.

Minor: An English minor consists of 24 hours at 2000 level or above, including at least 18 at the 3000-4000 level.

Certification for Teaching: Students planning to teach English in the public schools should consult the Certification Clerk, Room 212, Claxton Education Building.

Departmental Course Information: In the English Office, 316 McClung Tower, students can obtain a booklet describing current English courses in detail and listing the courses to be offered each quarter throughout the academic year. The booklet is available in advance of University timetables.

1010 English Composition (3) Expository writing with emphasis on invention, organization, style, and revision; intensive study of essays for meaning and ways of expressing meaning; conferences on individual writing problems. Coreq: English 1019 for designated students. A, B, C, I, NC, W grading.

*Alumnus Distinguished Service Professor.
1019 Writing Workshop (1) Required concurrently with 1010 of students selected on the basis of either their placement scores and high school records, or English 1010. Specific criteria of selection for 1019 will be published by the English department prior to fall quarter of each academic year. The course is designed for individual and group instruction in grammar, mechanics, sentence patterns, reading comprehension, writing essentials, and principles of English writing development. Graduated S/N/C; a student taking 1019 concurrently with 1010 must pass 1010 to receive credit for 1019.

1020 English Composition (3) Analytical writing based on study of great themes in literature; practice in documentiation; individual conferences. Prereq: 1010. Students receiving an A in 1020 may elect to do work in English composition with any 2000- or 3000-level writing course. A, B, C, I, NC, W grading.

1031-1033 English Composition (3, 3, 3) Application of written skills to areas of special interest. Study and practice of research writing; individual conferences. Prereq: 1010-20; any 1030-level course may replace a year's work in English composition; no more than one may be taken for credit. 1031—Writing about modern literature; 20th-century literature, with emphasis on poetry. 1032—Writing and Language; how we are influenced by verbal manipulation in education, politics, business and technical writing. A, B, C, I, NC, W grading.

1018-288 Honors: English Composition (3, 3, 3) Open only to those selected on the basis of their high school records. Grading scale and work load the same as regular sequence. 1018—Expository writing based on study of modern literature. 1019—Introduction to research writing. 1038—Analytical and research writing based on study of great literature. Students receiving an A in 1018 or 1019 will complete a year's work in English composition by taking 1020 and one course on the 1030 level; students receiving a grade of A or B also receive credit and a grade of no less than B for 1028 and may continue into 1038; all students with A's and those with B's in both English and consent of department have additional option of completing a year's work in English composition with any 2000- or 3000-level writing course. A, B, C, I, NC, W grading.

1211 Written and Oral English for Foreign Students (6) Rapid review of English structures and pronunciation with intensive oral, aural, and written drill. Required during the first quarter of residence of all foreign students (graduating undergraduates and transfer students) who are not excused from it on the basis of the English Proficiency Examination. Credit obtained for the full sequence of freshman composition with a grade of C or better at a college or university in the United States will be accredited by a regional association. A, B, C, I, NC, W grading.

1211 Written and Oral English for Foreign Students (6) Emphasis on the more advanced structures of English grammar and on written and oral language. Prereq. During the first quarter of residence of foreign students who on the English Proficiency Examination demonstrate need for work in English structure, but not at the intensive level of English 1211. Required also of foreign students who complete 1211. A, B, C, I, NC, W grading.

1261 English Pronunciation for Foreign Students (3) Sounds and intonation patterns of American English. Emphasis on speech patterns. Prereq. Consent of instructor. This course is designed to improve student's ability to speak and understand English. May be repeated. Maximum 6 hrs credit. (See Audiology and Speech Pathology 1261.)

1421 English Composition for Foreign Students (3) Composition and reading for students whose native language is not English. Emphasis on mechanics, grammar and composition organization with attention to grammar and mechanics. English 1421 replaces English 1010 for undergraduate foreign students. Prereq: 1221 or recommendation based on English Proficiency Examination. A, B, C, I, NC, W grading.

1441 English Composition for Foreign Students (3) For students whose native language is not English, writing based on reading and discussion with attention to use of library and to basic skills of documentation. Practice with typical writing assignments encountered by college students. English 1441 replaces English 1010 for undergraduate foreign students. Prereq: 1441. A, B, C, I, NC, W grading.


2510-20 English Masterpieces (4, 4, 4) 2510—To the mid-eighteenth century. 2520—Since the mid-eighteenth century. 2530 American Masterpieces (4)

2540 The Literature of Black America (4) Poetry, fiction, drama. Emphasis on twentieth century.

2560-2600 Literature of the Western World (4, 4, 4) 2560—Ancient and medieval. 2570—Renaissance through the eighteenth century. 2580—Nineteenth and twentieth centuries.

2640-2650 English Culture (4, 4, 4) Beginnings to the late eighteenth century. 2650—From the late eighteenth century to the present.

2680 Introduction to Drama (4) Study of selected plays to provide critical techniques necessary for understanding of drama.

2690 Introduction to Poetry (4) Study of selected poems to provide critical techniques necessary for reading of different types of poetry.

2880 Introduction to the Novel (4) Study of selected novels to provide critical tools necessary for judging longer works of fiction.

3020-3030 American Literature (3, 3, 3) 3020—John Smith through Poe. 3030—Emerson through Mark Twain. 3030—Henry James to present.

3042 Colloquium in Literature (3) Introduction to methods and objectives of literary study; conferences to plan student program in major.

3045 Introduction to Literary Criticism (3)

3070 Modern British Poetry (3) From Housman to Thomas and more recent poets.

3080 Modern American Poetry (3) From Robinson Stevens and more recent poets.


3135 Tennyson and His Successors (3) Includes such poets as by Pre-Raphaelites, humorists, and Decadents.

3136 Browning, Arnold, and Hopkins (3)

3150 Melville (3)

3160 The Short Story (3) British and Continental European, with emphasis on twentieth century.

3170 The American Short Story (3) From nineteenth-century beginnings to present, emphasis on twentieth century.

3210-20 English Literature and Culture of the Nineteenth Century (3, 3) Survey of literature dealing with leading movements in politics, science, religion, and the arts. 3210—1800 to 1835. 3220—1835 to 1900.

3230-31 Literature and Other Fields (3, 3) Content varies. Focus on religious, philosophical, psychological, historical, or other pertinent aspects of literature, with paper. Consent of department. Maximum credit 6 hrs each.

3323-34 Forms of Popular Literature and Culture (3, 3) Content varies. Detective fiction, science fiction, film, or other topics. May be repeated with consent of department. Maximum credit 6 hrs each. (Same as American Studies 3233-34.)

3326-37 Special Themes in Literature (3, 3) Content varies. The city, the frontier, the sea, the American past. Other topics. May be repeated with consent of department. Maximum credit 6 hrs each. (Same as Comparative Literature 3326-37.)

3310 Women Writers in England and America (3) Emphasis upon the literary consciousness of women in the nineteenth and twentieth centuries.

3330 Introduction to Study of English Language (4)

3331 Cultural History of the English Language (3) Emphasizes influence of social and political forces in development of English pronunciation, vocabulary, and syntax.

3332 Modern English Grammar (3) Traditional, prescriptive approaches to English grammar, followed by intensive study of descriptive approaches of American structuralism and introduction to generative- transformational theory.

3360 Old and Middle English Literature in Translation (3) Major texts and genres of English literature from beginnings to 1500.

3411-12-20 Modern Drama (3, 3, 3) 3411—Contemporary American drama. 3420—British, 3430—American. (Graduate credit normally limited to students in Speech and Theatre.

3440 Literature and Film (4) Aesthetic relationships, emphasis upon media comparison.

3450 Writing Fiction (3) Introduction to writing novels and short stories.

3470 Writing Poetry (3) Introduction to writing poetry.

3480 Writing Drama (3) Introduction to writing both one-act and full-length plays.

3510 Sixteenth-Century Prose and Poetry (3) More and Wyatt to Spenser.

3520 Elizabethan Drama (3) Marlowe, Jonson, and others.

3530 Jacobean Drama (3) Beaumont and Fletcher to Massinger and Shirley.

3610 Restoration and Eighteenth-Century Poetry (3) Emphasis upon Dryden and Pope.

3620 Restoration and Eighteenth Century Drama (3) Dryden through Sheridan.

3630 Restoration and Eighteenth Century Prose (3) Defoe, Addison, Steele, Swift, and others.

3670 Age of Johnson (3)

3710 Literature of English Bible (3) Types of Old Testament literature, excluding Wisdom literature. (Same as Religious Studies 3710)

3711 Literature of the English Bible (3) Old Testament literature and types of New Testament literature. (Same as Religious Studies 3711).

3721 Introduction to Folklore (3) Essential terms and concepts in modern folklore-folk life studies. Emphasis on North American materials: folklore, fable, fable, myth, legend, proverbs, riddles, superstitions, dances, games, and architecture.

3840-50 Writing of Non-Fiction Prose (3, 3) Strategies of writing on personal and academic subjects. Discussion of student and professional writing. Conferences on individual student's goals and problems. Open to sophomores with instructor's consent. 3840—How to find, develop, and present an idea. 3850—How to convert a reader through logical and emotional appeals.

3860 Special Topics in Writing (3) Original writing inspired by reading, usually taught by professional author. Topics vary. May be repeated. Maximum 9 hrs credit.
4640 Special Topics in English Linguistics (3) May be repeated for credit with consent of department.
4471-81 English as a Second or Foreign Language (3, 3) 4471—Applied linguistics in teaching and learning of English as second or foreign language. Phonological and grammatical structure of present-day English. Analysis of differences (phonological, grammatical, and lexical) between English and another language. Prereq: Second year of a foreign language. 4481—Materials and methods of language teaching, with emphasis on preparation of materials and structured teaching situations. Theory of testing language competence and performance, with emphasis on construction of tests. Team teaching with an experienced member of the staff. Prereq: 4471. (Same as Linguistics 4471-81.)
4610-20-30 Black Literature (3, 3, 3) Trends and developments.
4651 Southern Literature through the Nineteenth Century (3) Southern writing from colonial period to end of nineteenth century, including frontier humorists and local color writers.
4652 Southern Literature in the Twentieth Century (3) Modern Southern literary renaissance, Fugitives and Agrarians, Faulkner, and more recent writers such as Welty, O'Connor, and Porter.
4660 Emerson and Thoreau (3)
4680 American Humor through Mark Twain (3)
4850 Milton (3) Emphasis on major poems.
4860 Seventeenth-Century Prose and Poetry (3) Bacon and Donne to Marvell.
4910-20 Chaucer (3, 3) 4910—Chaucer: Troilus and Criseyde, and early poems. 4920—The Canterbury Tales.
GRADUATE
5000 Thesis
5002 Non-Thesis Graduation Completion (3-15)
5101 Foreign Study (1-12)
5102 Off-Campus Study (1-12)
5103 Independent Study (1-12)
5110 Teaching Expository Writing (1)
5120 Teaching Writing about Literature (1)
5130 Teaching Business and Technical Writing (1)
5150 Old English Prose (3)
5170-80 History of the English Language (3, 3)
5210-20-30 Readings in American Literature from Colonial Period to Present (3, 3, 3)
5240 Reading in Black American Literature (3)
5310 Rhetoric and Composition: Theory and Practice (3)
5410-20 Readings in Modern English Literature (3, 3)
5510-20 Readings in Literary Criticism from Plato and Aristotle to Present (3)
5610-20-30 Readings in English Literature of Nineteenth Century (3, 3, 3)
5710-20-30 Readings in English Literature of Eighteenth Century (3, 3, 3)
5810-20-30 Readings in English Literature of Renaisssance (3, 3, 3)
5860 Introduction to Literary Research (3)
recommended.

Minor: Eight hours in courses numbered at the 1000 or 2000 levels are required, in addition to the minor which consists of 24 hours selected from courses at the 3000 and 4000 levels.

Students wishing to major or minor in geography are strongly urged to consult with a departmental undergraduate adviser. Through choices available within the structure of the major and by appropriate selection of electives outside the department, each student may develop a coherent program in accordance with specific interests and needs. Such programs might emphasize particular aspects of geography itself or might develop interdisciplinary themes such as natural environment and resources, urban and regional planning or the culture, history or economy of a particular area. A useful technical or vocational specialty program is also available which emphasizes cartography and remote sensing.

Asian Studies. See Cultural Studies.

Latin American Studies. See Cultural Studies.

Russian and East European Studies. See Cultural Studies.

1610-20 Introduction to Geography (4, 4) Selected problems or situations of contemporary interest are introduced and illustrated by treating geographical points of view and techniques. Need not be taken in sequence. Not open to students who have taken 1110 and 1125, respectively.

1810-20 Geography of the Natural Environment (4, 4) Characteristics of the outer world—the earth's surface and lower atmosphere; their interaction to produce world pattern of distinctive environments significant to man. Must be taken in sequence. Not open to students who have taken 1710.

2110-20-30 Economic Geography (4, 4, 4) The significance of location, pattern, and environment in economic activities. Emphasizes: 2110—agriculture; 2120—energy, minerals and manufacturing; 2130—transportation and trade. Need not be taken in sequence.

3000 Man, Location, and Behavior (4) Types of human spatial behavior, such as shopping patterns, commuting, residential mobility, trade, and regional consciousness, as they relate to distance, natural environment, and culture. Order and regularity in patterns of human use of earth's surface.


3430 Urban Geography (4) Concepts and theories concerning development and significance of systems of cities and internal morphology of cities. Not open to students who have taken 4660.

3450 Rural Geography (4) Geographical appraisal of rural areas of the United States, including small towns and urban fringes. Problems and potentials of rural America.

3490 Geography of Resources (4) Study of factors related to variations in resource availability from time to time and from place to place, with particular emphasis upon hydrological and metallic resources.

3510 Meteorology (4) Introduction to dynamic atmosphere and resulting weather events. Nature of individual weather elements, their measurement and analysis over time and space.

3520 The Atmospheric System and Man (4) Overview of computerized and mathematical introduction to the atmosphere and its influence on human systems leading to world pattern of climates. Role of climate in agriculture, architecture, human comfort, and economic activity.

3530 The Land-Surface System and Man (4) Nature and regional variations in relationships among surface environment, man, and natural resources. Man as evaluator and agent of change.

3600 Geography of Population (4) World population pattern; regional socio-economic characteristics and demographic trends; relationship to resource base.

3610 Political Geography (4) Importance of geographic factors for understanding political relations within and between nations; spatial implications of political decision-making process; geography of administrative units.

3660 Cultural Geography (4) Basic concepts of culture; methods and background of cultural geography; world patterns of cultural phenomena.

3790 Geography of Middle America (4) Covers Mexico, Central America, and the West Indies. Not open to students who have taken 3740, 3770, or 3780.

3800 Geography of South America (4) Not open to students who have taken 3730, 3750, or 3780.

3810 Geography of Europe (4)

3840 Geography of Australia and Oceania (4) Survey of major geographical characteristics of the countries of Australia, New Zealand, and of impact of western civilization on selected island groups of Southeast Pacific.

3870 Geography of Asia (4) A survey of the physical, cultural, and economic characteristics of the countries of Asia, excluding the Soviet Union. Not open to students who have taken 3820, 3890 or 3890.

3880 Geography of the Soviet Union (4)

3910 Regional Geography of United States and Canada (4) Major physical, economic, and social distributions as they interrelate to give distinctive character to regions of United States and Canada, and to students who have taken 3710 or 3720.

3920 Geography of the American South (4) Geographical appraisal of southeastern United States, including physical environment and human resources. Origin and development of contemporary economic and cultural traits of the area.

3930 Geography of Tennessee (4)

3940 Geography of Appalachia (4) Interrelation of physical, economic, and social patterns to give distinctive character to the region and its parts, especially southern Appalachian. Appalachia in perspective in the current American scene.

4075 Geography of Transportation (4) Geographic examination of transportation systems, emphasizing transport of people on highways and by public facilities. Relation of these systems to changing geography of cities and urban hinterlands.

4100 Quantitative Methods in Geography (4) Geographic applications of statistical techniques, point pattern analysis and analysis of areal units. Prereq: Mathematics 3000 or consent of instructor.

4101 Foreign Study (1-16) See page 187.

4102 Off-Campus Study (1-16) See page 187.

4103 Independent Study (1-16) See page 187.

4210 Problems in Geographic Method (4) Examples of problems and approach in geographic analysis and synthesis. Emphasis on character of geographic data, and sample, generalization, classification, regionalization, and questions of scale.

4240 Historical Geography of the United States (4) Survey of changing human geography of United States during four centuries of settlement and development. Emphasis upon changing population patterns, development of agricultural regions and patterns of urban development. Not open to students who have taken 4250-60.

4510 Principles of Geomorphology (4) (Same as Geology 4510)

4550 Geography of Soils (4) Soils as physical systems and their relationship to environments. Investigation of specific cases of soil development and management of environmental systems.

4610 Industrial Geography (4) Factors affecting location of manufacturing activities, with emphasis on the United States. Prereq: 3410 or consent of instructor.

4630 Geography of Agriculture (4)

4710 Cartography (4) Map construction, map reproduction, and practice in map drawing.

4720 Data Mapping (4) Methods of representing spatial distributions by maps and graphs. Mappable data may include phenomena as diverse as birth rates, voting patterns, and air pollution levels. Prereq: Junior standing or consent of instructor.

4740 Remote Sensing: Types and Applications (4) Basic principles and uses of aerial photography and other remote sensing techniques. Emphasis upon value of various types of imagery for geographic interpretation and simple mapping. Prereq: Consent of instructor.

4750 Interactive Computer Graphics (3) (Same as Computer Science 4750 and Electrical Engineering 4750)

4990 Proseminar in Geography (4) Overview of major themes in geography, especially trends over past 20 years. Designed for undergraduate majors and minors; not open to graduate students. Prereq: Completion of at least 12 hrs of major or minor requirements for geography.

GRADUATE

The general requirements for the master's and doctoral degrees are given in the Graduate Catalog.

4000 Thesis

5100 Colloquium in Geography (1)

5101 Foreign Study (1-12)

5102 Off-Campus Study (1-12)

5150 Introduction to Geographical Research (3)

5160 Research Design and Field Problems (4-6)

170 Geographic Concept and Method (3)

2000 Special Problems in Geography (2-6)

2500 Topics in Historical Geography (3)

2600 Advanced Cultural Geography (3)

3100 Topics in Regional Geography of United States (3)

3300 Topics in the Geography of the American South

3410 Advanced Topics in Economic Geography (3)

3520 Advanced Urban Geography (3, 3)

3550 Topics in Geography of Land-Surface System (3)

3610 Topics in Climatology (3)

3710 Seminar in Geography (3)

3720 Topics in Quantitative Geography (3)

3740 Advanced Topics in Remote Sensing (3)

3915 Regional Geomorphology (4)

4000 Doctoral Research and Dissertation

4110-20 Seminar in Economic Geography (3, 3)

4220-30 Seminar in Urban Geography (3, 3)

4240-50 Seminar in Historical Geography (3, 3)

4260-70 Seminar in Cultural Geography (3, 3)

4310-20 Seminar in Rural Geography (3, 3)

4410-20 Seminar in Regional Geography of United States (3, 3)
Geological Sciences

1410-20 General Geology I, II (4, 4) 1410—Introduction to study of the earth, its composition, structure, and processes that change it. 1420—Emphasis on life and physical events through Mesozoic Era. Must be taken in sequence. 3 hrs and one 2-hr lab or field period.

1430 General Geology II (3) Continuation of 1410-20 sequence emphasizing the advent of human life and its interaction with geological processes and events. Prereq: 1420. 3 hrs and one 2-hr lab or field period.

2130 Geological History of the Earth (4) Origin and evolution of continents, atmosphere, oceans and earth's inhabitants with emphasis on physical history of North America. Prereq: 1420. 3 hrs and 1 lab or field period.

2210 History of Life on Earth (4) Chronological account of life, its evolution, living and fossil, and societal patterns. Not intended for geology majors. 3 hrs and 1 lab or field period.


2610 Introductory Geology for Engineers (3) Materials and structures of rock. For College of Engineering students only. 2 lectures and 1 lab or field period.

2710 Introductory Oceanography (4) Introduction to studies of oceans including origin and development of ocean basins and physical and biological processes within ocean basins and their contained water and sediment masses. 1410 recommended.

3160 Introduction to Earth Materials (4) Study of minerals, rocks and soils, both hand specimen and analytical methods of identification. Not available for credit to majors. Prereq: 1410. 2 lectures and 2 labs.

3180 Mineralogy (4) Introduction to crystallography and study of minerals. Laboratory includes hand specimen, chemical and X-ray methods of identification. Prereq: 1410. Chemistry 1110-20 or equivalent. 3 lectures and 1 lab.

3210-20 Invertebrate Paleontology (4, 4) Systematic review of important invertebrate fossil groups. 3210—Protista to Brachiopoda, including sponges, coelenterates, and mollusks. 3220—Brachiopoda to Hemichordata, including annelids, molluscs, arthropods and echinoderms. May be taken separately or in any order. Prereq: 3260. Biology 1210-20 or consent of instructor. 3 hrs and 1 lab or field period.

3250 Micropaleontology (4) Microscopic remains of animals and plants with special emphasis on stratigraphically important groups. Prereq: 3210 or consent of instructor. 3 hrs and 1 lab.

3260 Paleobiology (4) Introduction to principles and materials of paleontology as applied to interpretation of evolutionary processes. Prereq: 1420. 3 lectures and 1 lab or field period.

3270 Geological History of Land Organisms (4) Geological history and development of terrestrial biota and ecosystem with special emphasis on fossil record. Prereq: 3260 or consent of instructor. Prereq: Biology 1210-20 or consent of instructor. 3 lectures and 1 lab or field period.

4310 Introductory Petrology (4) Introduction to classification and properties of igneous and metamorphic rocks, processes which produce them, and tectonic environments in which they form. Laboratory emphasizes both hand specimen and microscopic study of important rock types. Prereq: 3180. 3 lectures and 1 lab.

3320 Geology of East Tennessee (4) Lectures and field excursions. Prereq: 12 quarter hrs of geology and consent of instructor.

3360 Stratigraphy—Sedimentation (4) Introductory study of stratigraphic principles and practices and of sedimentary processes and their interpretation of depositional environments. Prereq: 1420 and 3180. 3 hrs and 1 lab or field period.

3370 Structural Geology (4) Introductory discussion of structures such as folds, faults, joints, cleavage, and primary structures. Laboratory work includes depth and thickness problems. Structure sections, structure contour maps, etc. Prereq: 1420. Mathematics 1840-50 or equivalent. 3 hrs and 1 lab.

3410 Principles of Ground Water Geology (3) Geomaterials and processes affecting the occurrence and behavior of water. Not open to geology majors. 2 lectures and 1 lab. (Same as Water Resources Development 3410.)

3510 Introductory Environmental Geology (4) Geologic problems involving water, sediment, energy, and geologic parameters associated with their control and misuse. Prereq: 1420 or consent of instructor. 2 lectures and 2 lab or field periods.

3610 Quaternary Geology for Engineers (3) Erosional and depositional processes, landforms, groundwaters. 2 lectures and 1 lab or field period. Prereq: 2810 or equivalent.

3710 Origin and Evolution of the Continents and Ocean Basins (4) Introductory study of origins and changes that have occurred in earth's crust with emphasis on modern concepts of continental drift and plate tectonics. Prereq: 1420.

4110 Principles of Economic Geology (4) Forma- tion of mineral deposits. Prereq: 3180, 3370 or equivalent.

4115 Elementary Applied Geophysics (4) Basic principles of electrical, seismic, gravity and magnetic surveying. Recommended: 1420, Physics 2220 or 3220. 3 lectures and 1 lab.

4130 Sedimentology (4) Introduction to physical processes of sedimentation: transport of sediments and formation of sedimentary structures, river flow, waves, tides, and ocean circulation. Prereq: 3310. 3 lectures and 1 lab.

4230 Paleoclimatology (4) Principles of environmental analysis as applied to paleoclimatology and associated lithologies. Prereq: 3280 or consent of instructor. 3 hrs and 1 lab.

4240 Paleoecology (4) Survey of fossil record of plants with particular emphasis on (1) comparative morphology and evolutionary trends in major plant groups and (2) chronologic succession and geographic distribution of fossil plants. Prereq: 1420 or 2210; Botany 3010-20 or consent of instructor. 3 hrs and 1 lab or field period. (Same as Botany 4240.)

4310 Geologic Mapping (4) Interpretation of maps and methods of field work. 3 lectures and 1 lab or field period. Prereq: 12 quarter hrs of geology.

4370 Tectonic Styles (4) Elements, habitats, and geologic causes of tectonic style. Prereq: 3260 or consent of instructor. Prereq: 3270 or consent of instructor.

4440 Field Geology (4) Five weeks' field course, first term summer quarter. Advanced undergraduates or first-year graduate students. Emphasis on entire time of students. A report is required, to be submitted no later than end of fall quarter. Prereq: 12 quarter hrs of geology and consent of instructor.
4460 Geologic Photography and Photogrammetry (4) Principles of terrestrial and aerial geologic photography, including photographic principles and practice, geometry of terrestrial and aerial photography, and image interpretation. Prereq: 3370 or consent of instructor. 3 lectures and 1 lab.

4510 Principles of Geomorphology (4) Gradational processes acting at earth's surface and landforms produced. Prereq: 1410 or consent of instructor. 3 hrs and 1 lab.

4550 Optical Mineralogy (4) Identification of non-opaque substances by immersion methods, using petrographic microscope.

4610 Principles of Geochemistry (4) Application of chemical principles to geologic problems. Emphasis on crystal chemistry and relation between basic atomic structure and distribution and behavior of elements in the earth's crust. Prereq: Chemistry 1110-20 or equivalent required. Recommend 3310.

4650 Mineral Phase Equilibria (3) Principles of phase chemistry and application of phase equilibria studies in rock-forming mineral systems as aid to understanding conditions of formation and modification of rocks. Prereq: 4610 or consent of instructor.

4710 Petrophysics (3) Fluid, heat, electric current and ionic flow through rock masses in a potential field. Stress-strain behavior of rock as a function of temperature, pressure, and anisotropy. 3 hrs lecture and 3 experiments. Prereq: 3310, Mathematics 1830, Physics 1330. Recommended: Mathematics 2610 and 2620.

4810 Special Problems in Geology (1-4) Prereq: Consent of instructor. May be repeated to a maximum of 4 hrs credit.

GRADUATE

The general requirements for master's and doctoral degrees are given in the Graduate Catalog.

5000 Thesis

5050 Geochemistry of Ore Mineral Deposits (3)

5069 Experimental Geochemistry Laboratory (1-3)

5120 Geophysics—Gravity and Magnetic Methods (4)

5130 Geophysics—Seismic Exploration Methods (4)

5210-20-30 Special Problems in Geology (1, 1, 1)

5290 Quaternary Problems (4)

5310 Advanced Stratigraphy and Sedimentation (4)

5340 Seminar in Local Stratigraphy (1)

5350 Selected Topics in Geology (1)

5370 Mesofabric Analysis (4)

5460 Photogeologic Interpretation (4)

5470 Plate Tectonics and Orogeny (4)

5520 Igneous Petrology (4)

5530 Metamorphic Petrology (4)

5540 Terrigenous Clastic Sedimentary Petrology (4)

5550 Carbonate Sedimentology (4)

5620 Electron Microprobe and X-Ray Spectrographic Analysis: Theory and Application (4)

5630 X-Ray Diffraction: Theory and Application (4)

5640 Clay Mineralogy (4)

5650 Thermodynamics for Geologists (3)

5670 Geochemical Prospecting (3)

5710 Advanced Paleontology (4)

5750 Petrophysics (3)

5810 Geology of Fuels (4)

5820-30 Mineral Deposits (4, 4)

5840 Ore Microscopy (4)

5850 Regional Studies in Economic Geology (3)

5915 Regional Geomorphology (4)

6000 Doctoral Research and Dissertation

6110 Seminar in Stratigraphic Geology (3)

6210 Seminar in Paleontology (3)

6310 Seminar in Structural Geology (3)

6410 Seminar in Mineralogy (3)

6510 Seminar in Petrology (3)

6610 Seminar in Economic Geology (3)

6710 Seminar in Geochemistry (3)

6810 Seminar in Geomorphology (3)

Germanic and Slavic Languages

Professors:
H. Krautz (Head), Ph.D., Ohio State; J. E. Falen, Ph.D., Pennsylvania; W. I. Fuller, Ph.D., Wisconsin; E. T. Hankamer (Emeritus), Ph.D., Bonn (Germany); R. L. Hiller, Ph.D., Cornell; R. L. Nordseth (Emeritus), Ph.D., Ohio State; J. C. Osborne, Ph.D., Northwestern.

Associate Professors:
N. A. Lauckner, Ph.D., Wisconsin; D. E. Lee, Ph.D., Stanford; M. P. Rios, Ph.D., Vanderbilt.

Assistant Professors:
J. S. Elliott, Ph.D., Michigan; D. M. Fline, Ph.D., Indiana; C. J. Mellor, Ph.D., Chicago; U. C. Ritzhoff, Ph.D., Connecticut.

Instructors:
M. H. Harris, M.A., Illinois; J. M. Rasmussen, Diploma, City College, Tallinn, Estonia.

UNDERGRADUATE

Placement Examination: Students who have had previous work in German or Russian either in high school or in another college should register for the course in which they would normally be placed. During the first week of the quarter a placement test will be given, and students will be advised if a change in registration is indicated.

Proficiency Examinations: Students who have acquired a knowledge of German or Russian through private study, tutoring, residence in foreign countries, or the like, should request a proficiency test. A student earning a grade of C or better on such a test will receive credit for a limited number of courses. Superior students are encouraged to proceed as rapidly as their achievement permits. Students who omit any course in a sequence may receive credit for it by passing a proficiency examination.

Foreign Study: Students are encouraged to study abroad. The department is prepared to recommend summer study programs and junior year abroad programs for students who are interested in foreign study. Credits from recognized foreign study programs can readily be transferred to UTK. For qualified students, the department also offers a German Study in Foreign Study and Russian 4101 Foreign Study. See page 187. Students should consult the department before registering for the foreign study course.

German

Major: Majors or minors in German should carefully prepare their programs in consultation with a departmental faculty adviser. German 2110-20-30 or the equivalent is a prerequisite to the major. The major shall consist of at least 36 hours of German in courses numbered above 3000, usually including German 3110-20-30 (or 3410-20-30), 3810-20-30, 9 hours of German literature in courses numbered above 3000, excluding 3010-20-30 and courses in English translation. It is recommended that German majors also take History 1510-20 or 3710-20 and 18 hours of sophomore English. Majors are also strongly urged to consider a minor in some other area of the humanities.

German 2110-20-30 or its equivalent is a prerequisite to the minor. The minor shall consist of at least 24 hours of German courses numbered above 3000, which will normally include German 3110-20-30 (or 3410-20-30), and 15 additional hours of courses numbered above 3000, excluding 3010-20-30 and courses in English translation.

Russian

Major: Russian majors should carefully prepare their programs in consultation with the departmental faculty adviser. Russian 2510-20 or its equivalent is a prerequisite to the major. Russian 2640-50 is a corequisite to the major. The major itself consists of 36 hours of Russian courses, including Russian 3510-20, 3810-20-30, 9 hours from Russian 3210-20-21-30-40-50-60, and 9 hours of courses numbered above 4000. Students are recommended that majors also take History 3470-80-90 and 9 hours of sophomore English. Majors are urged to consider a minor in some other area of the humanities.

Minor: Russian 2510-20 or its equivalent is a prerequisite to the minor. The minor itself consists of 27 hours of Russian courses, including 9 hours from Russian 2640-50 and/or 3210-20-21-30-40-50-60 and 18 hours to be taken from Russian 3510-20, 3610-20-30 and courses numbered above 4000.

Russian and East European Studies. See Cultural Studies.

Certification for Teaching German and Russian in Tennessee

Consult Certification Clerk, Room 212, Claxton Education Building.

German (433)

1110-20-30 Elementary German (3, 3, 3) Must be taken in sequence.

1510-20 Elementary German (4, 4) Must be taken in sequence.

1518-2518-28 Honors: Elementary and Intermediate German (5, 5, 5) Honors course for students of superior ability. Freshmen are admitted on the basis of high school average and performance on the American College Testing Program. Upperclassmen must have a B average. A grade of C or above must be achieved in 1518 in order to continue with 2518. A student obtaining a grade of D or better in 1518 may continue with German 2520. This sequence is equivalent to 1510-20 or 1110-20-30 and 2110-20-30 and its completion allows the student to enter all 3000-level German courses.
1530 Elementary German through Individualized Instruction (1-4) Same material as in German 1510-20, but student may proceed at own pace, with a minimum of one credit hr per quarter. With completion of four hrs student has option of transferring to 1520. May be repeated. Maximum credit 8 hrs.
2110-20-30 Intermediate German (3, 3, 3) Must be taken in sequence.
3010-20-30 Elements of German for Upper-Division and Graduate Students (3, 3, 3) Elements of language, written and oral. Prereq: Elementary German and advanced reading skills. Open to graduate students preparing for language examinations, and upper-division students desiring reading knowledge of the language. Undergraduate credit only. No credit for students having completed 3110-20-30 or 3110-20-30.
3040 Elementary Dutch (3) Prereq: Reading knowledge of German. Primarily for graduate students in German. No graduate credit allowed.
3110-20-30 Introduction to German Literature (3, 3, 3) Prereq: 2130 or equivalent.
3810-20-30 Conversation and Composition (3, 3, 3) Prereq: 2130 or equivalent.
ADVANCED UNDERGRADUATE AND GRADUATE
4101 Foreign Study (1-16) See page 187.
4102 Off-Campus Study (1-16) See page 187.
4103 Independent Study (1-16) See page 187.
4110-20-30 Studies in Classical and Modern Writers (3, 3, 3) Content varies. May be repeated for credit with consent of department. Prereq: 9 hrs of 3000 courses (exclusive of 3010-20-30, or courses in English translation) or equivalent.
4140-50 Selected Topics in German Literature from 1750 to the Present (3, 3) Prereq: 9 hrs of 3000 courses (exclusive of 3010-20-30, or courses in English translation) or equivalent.
4160 Studies in German Authors (3) Life and works of a single outstanding German literary figure. Content varies. May be repeated for credit. Prereq: 9 hrs of 3000 courses (exclusive of 3010-20-30, or courses in English translation) or equivalent.
4170 Theatrical German (1-3) Performance in one or more German plays. May be repeated for credit with consent of department. Prereq: 2130 or equivalent or consent of instructor.
4210-20-30 Studies in German Literary Types (3, 3, 3) Content varies. May be repeated for credit, with approval of the department. Prereq: 9 hrs of 3000 courses (exclusive of 3010-20-30, 3210-20-30, 3310) or equivalent.
4250 Introduction to Descriptive Linguistics (3) (Same as Russian, French and Spanish 4250.)
4260 Introduction to Historical and Comparative Linguistics (3, 3) Content varies. May be repeated for credit, with approval of the department. Prereq: 9 hrs of upper-division English, or 9 hrs of upper-division courses in a modern or ancient language (exclusive of German and French 3010-30-30, courses in literature in translation, and general courses in Latin and Greek requiring no knowledge of these languages), or consent of department. (Same as Russian, French and Spanish 4260.)
4310-20 History of German Language (3, 3)
4810-20-30 German Civilization (3, 3, 3) Prereq: 2130 or equivalent.
4818-28-38 Honors: Senior German (3, 3, 3) Intended to give student of special aptitude greater opportunity to do independent study than is possible in ordinary courses. Prereq: Senior standing, with approval in half of German courses taken as prerequisite to the 4000 courses, average of B in remainder, and consent of department.
4810-20-30 Advanced Conversation and Composition (3, 3, 3) Prereq: 3810-20-30 or equivalent or consent of department.
GENERAL COURSES
2610-20-30 Culture of German-Speaking Peoples (3-4, 3-4, 3-4) Studies in culture and life style of German-speaking countries from the Middle Ages to the present. Students with Romans to the present. Readings are in English. Students opting for 4 hrs credit will be expected to present an appropriate amount of extra work above that required for 3 hrs.
3210-20-30 German Literature in English Translation (3-4, 3-4, 3-4) No foreign language credit. No change in credit hours after add deadline. Students opting for 4 hrs credit will be expected to present an appropriate amount of extra work above that required for 3 hrs.
3240 Old Norse Literature in English Translation (3-4) Prose readings of sagas of Norwegian kings, great Icelandic family sagas, and Vinland sagas, narrating discovery of America around the year 1000. Mythological and heroic poems of the Epic. (3, 3, 3, 3, 3, 3)
3260 German Drama in English Translation (3) From Lessing to present. No foreign language credit.
3270 Modern German Novel in English Translation (3) From 1800 to present. Remarque, Hesse, Mann, Kafka, Frisch, Boll, Grass. No foreign language credit.
3280 Goethe's Faust in English Translation (3) Intensive study of Faust I and II and survey of criticism and interpretations of the work. No foreign language credit.
3310 Dramas of Bertolt Brecht (3-4) Chronological survey of Brecht's dramatic works and theoretical writings in English translation. No foreign language credit.
3320 Novels of Hermann Hesse (3-4) Study and analysis of Hesse's major novels in English translation. No foreign language credit.
3330 Dramas of Ibsen and Strindberg (3-4) Study of two principal forerunners of twentieth-century drama. Works are read in English translation. No foreign language credit.
3340 Special Topics in German Literature in English Translation (1-4) Topics and credit hours vary and are announced in advance. Student suggestions for topics are welcome. No foreign language credit. May be repeated for credit.
GRADUATE
The Department of Germanic and Slavic Languages offers three advanced degrees. They are Master of Arts (M.A.) in German, Master of Arts in College Teaching (M.A.C.T.) in German, and Doctor of Philosophy (Ph.D.) in German Language and Literature. The requirements for these degrees are set forth in the Graduate Catalog.
5000 Thesis
5101 Foreign Study (1-12)
5102 Off-Campus Study (1-12)
5103 Independent Study (1-12)
5160 Introduction to German Semantics (3)
5200 Proseminar (3)
5210-20-30 College Teaching of German (1, 1, 1)
5410-20-30 Medieval German Language and Literature (3, 3, 3)
5500 Studies in German Literature (3)
5510 German Humanism and Reformation (3)
5520 German Baroque Literature (3)
5530 The Enlightenment and the Rococo (3)
5540 German Classicism (3)
5550 Goethe's Faust (3)
5560 German Romanticism (3)
5570 German Realism and Naturalism (3)
5580 Modern German Literature (1889-1945) (3)
5590 Modern German Literature (1945-Present) (3)
5600 German Literary Theory and Criticism (3)
5610-20-30-40-50-60 Directed Readings in German Language and Literature (3, 3, 3, 3, 3, 3)
5710 Introduction to Old Norse (3)
5720 Readings in Old Norse Prose (3)
5730 Readings in Old Norse Poetry (3)
6000 Doctoral Research and Dissertation
6100 Gothic (3)
6120-30 Old High German (3, 3)
6140 Old Saxon (3)
6210-20-30-40-50-60 Seminar in German Literature (3, 3, 3, 3, 3, 3)
6310-20-30 Seminar in German and Germanic Philology (3, 3, 3)
Russian (886)
1510-20 Elementary Russian (4, 4) Must be taken in sequence.
1610-20 Elementary Serbo-Croatian (4, 4) Must be taken in sequence.
1710-20 Elementary Czech (4, 4) Must be taken in sequence.
2510-20 Intermediate Russian (4, 4) Must be taken in sequence.
2670-80 Intermediate Serbo-Croatian (4, 4) Must be taken in sequence.
2710-20 Intermediate Czech (4, 4) Must be taken in sequence.
3010-30-30-30 Elements of Russian for Graduate Students and Seniors (3, 3, 3) For graduate students preparing for language examinations and seniors desiring reading knowledge of a second foreign language. Prereq: 2 yrs of some foreign language in college or consent of department. Undergraduate credit only. No credit for students having completed 1510-20 or equivalent.
3510-20 Russian Composition and Conversation (4, 4) Practice in writing and speaking; grammar review and vocabulary building.
3610-20-30 Introduction to Russian Literature (3, 3, 3) 3610: Russian Poetry. 3620: Russian Short Stories. 3630: Russian Short Novels. Prereq: Completion of Russian 3510-20 or equivalent.
ADVANCED UNDERGRADUATE AND GRADUATE
4101 Selected Topics in Russian and East European Studies (3) Interdisciplinary seminar on selected topic using one foreign language approach.
4101 Foreign Study (1-16) See page 187.
4102 Off-Campus Study (1-16) See page 187.
4103 Independent Study (1-16) See page 187.
4110-20-30 Studies in Major Russian Writers (3, 3, 3) Content varies. Pushkin, Lermontov, Gogol, Turgenev, Tolstoy, Dostoevsky, Chekhov and others. Prereq: 9 hrs of 3000 courses (exclusive of 3010-20-30, 3010-20-30-40-50-60-70, 3310) or equivalent. May be repeated for credit.
History (462)

Professors:
L.P. Graf (Head), Ph.D. Harvard;
E.V. Chmielewski, Ph.D. Harvard; J.C. Daniel, Ph.D. Maryland; R.E. Duncan, Ph.D. California (Berkeley); H.S. Fink (Emeritus), Ph.D. Princeton; Y.-P. Hao, Ph.D. Harvard; A.G. Haas, Ph.D. Chicago; E. Halkias, Ph.D. California (Berkeley); C.O. Jackson (Associate Dean, Liberal Arts College), Ph.D. Emory; H.M. Klein, Ph.D. Columbia (Dean, Liberal Arts College), Ph.D. Princeton.

Associate Professors:

Assistant Professors:
S.D. Becker, Ph.D. Case-Western Reserve; N.L. Brann, Ph.D. Stanford; S.J. Kleinberg, Ph.D. Pittsburgh; R.B. Rice, Ph.D. Harvard.

*Distinquished Professor.

+Alumni Distiquished Service Professor.

UNDERGRADUATE

Major: History 1510-20 (or honors equivalent), or 1610-20, is prerequisite to a major which consists of 36 hours, including 8 hours of History 2510-20 and 28 hours of upper division courses chosen so that the student presents a minimum of 8 upper-division hours in two of the three following groups: (a) European; (b) United States; (c) Other areas, e.g., Latin American, Asian, etc. Students may use only two of the three History colloquia (4010, General; 4011, European; 4012, American) toward the 36 hours of the major. Honors in History—Consists of prerequisites to the general major plus 45 hours of courses, including group requirements in the general major and History 4018-28 plus 2008, 3038, 3048.

(a) EUROPEAN: 3060-70-80; 3140-60-80; 3411-12-13; 3421-22-23; 3431-32-33; 3445-46; 3470-80-90; 3710-20-30; 3740-70-80; 4011; 4250-60; 4280; 4380; 4410-20-30; 4470; 4500-50-60; 4560-70; 4570; 4580; 4710-20-30; 4770-80; History 4015 when subject matter is appropriate.

(b) UNITED STATES: 3311-21; 3610-20; 3630-40-50; 3670; 3680; 3911-21-31; 4012; 4290; 4310-20-30; 4360; 4370; 4610-20-30; 4640-50-60; 4670; 4910-20-30; 4950-60; History 4015 when subject matter is appropriate.

(c) OTHER: 3751-52; 3780-90; 3795; 3800; 3810-20-30; 3870-80-90; 4010; 4120-30; 4590; 4791; 4792; 4811-21; 4840; 4850; 4870-80-90; History 4015 when subject matter is appropriate.

Minor in History 1510-20 (or honors equivalent) is prerequisite to a minor which consists of 24 hours of courses numbered above the 2000 level of at least 8 hours must be in United States history.

American Studies. See Cultural Studies.

Asian Studies. See Cultural Studies.

Latin American Studies. See Cultural Studies.

Russian and East European Studies. See Cultural Studies.

Greek
See Classics.

Hebrew
See Religious Studies.
students invited on the basis of test scores, high school averages, and where appropriate, on University performance. Participation in the 2000-, 3000-, and 4000-level courses is based on cumulative averages. At present students with an average of 3.25 or greater are eligible.

Honors (509)

1118-28-38 Honors: First Year—Inquiry and Modes of Thought (2, 2-4, 2-4) 1118—The Humanities; 1128—The Natural Sciences; 1138—The Social Sciences. May be repeated.

2118-28-38 Honors: Sophomore—Special Problems Seminar (2, 2-4, 2-4) 2118—The Humanities; 2128—The Natural Sciences; 2138—The Social Sciences. These seminars focus on selected problems in the respective disciplines. The specific topics will vary from year to year. May be repeated.

3118-28-38 Honors: Junior—Colloquium (2-4, 2-4, 2-4) Small group studies of selected topics. May be repeated.

4101 Honors: Foreign Study (1-16) See page 187 and Director of Special Programs. Primarily for College Scholar Students.

4102 Honors: Off-Campus Study (1-16) See page 187 and Director of Special Programs. Primarily for College Scholar Students.

4103 Honors: Independent Study (1-16) See page 187 and Director of Special Programs. Primarily for College Scholar Students.

4118-28-38 Honors: Senior—Colloquium (2-4, 2-4, 2-4) Small group studies of selected topics. May be repeated.

4998 Honors: College Scholars Studies (2-16) Designed for College Scholars working on their senior thesis, project, or performance. May be repeated for a total of 16 credit hrs.

Human Services (532)

Associate Professors:
R.F. Kronick (Director), Ph.D. Tennessee; C.T. Cuthbert, D.S.W. Tulane.

Assistant Professors:
J.D. McLean, Ph.D. Chicago; F.J. Spicuzza, M.S.W. Tennessee; N. Wright, M.S.W. Pittsburgh.

Instructor:
W.R. Woodruff, M.S.W. California (Berkeley).

Major: 48-52 hours
Requirements: Human Services 2690, 3100, 3300, 4220, 4229, 4400.
In addition, four courses from the following alternative areas (one course from each of the four areas):

I. Culture and Personality
American Studies 3010; Anthropology 3410, 3800, 3930, 4420, 4430, 4740; Audiology & Speech Pathology 4250, 4650; Child and Family Studies 3210, 3220, 4810; Educational Psychology 4110, 4800; Geography 3610; Psychology 3120, 3550, 3650, 4510; Sociology 3130, 4820; Speech 3021, 3030.

II. Complex Organizations
Geography 3610; Political Science 3565, 3566, 4665, 4686; Psychology 4520; Religious Studies/Sociology 4940; Sociology 3610, 3820, 4030, 4560.

III. Research and Statistics
Computer Science 3010; Philosophy 3720, 4720; Psychology 3150; Sociology 3910, 3920.

IV. Community and Society
Economics 3220, 3410; Anthropology 3070, 3450; Child and Family Studies 3515, 3520, 4610; Geography 3000, 3430; Home Economics 3110; Human Services 4900; Philosophy 3320, 3440, 3611; Political Science 3710, 3720, 3730, 3760, 4580, 4590; Public Health 3330; Religious Studies 3550, 3600, 3610; Rural Sociology 3420; Sociology 3160, 3220, 3330, 3350, 3420, 3510, 3690, 4330, 4530, 4540, 4930; Special Education 5490, 5620.

Total Hours Credit ........... 48-52

2690 Introduction to Human Services (4) General field of human services with focus on related societal values; contemporary issues in human services.

3100 Social Welfare as a Social Institution (4) Specific social welfare institutions examined in depth in relation to human needs, structure, program, and service approaches. 2690 recommended.
3200 Peoples and Problems of Appalachia (4)
Course designed to provide better understanding of Appalachian peoples, by exploring their life style and institutions in contemporary human services point of view. Special emphasis placed on political and economic structures of region. Recommended: Anthropology 4740.

3300 Thinking about People (4)
Intended to facilitate development of such skills as informed, and empathic attitudes toward human beings—those providing service as well as those receiving service.

4100 Deviant Behavior as a Product of Labeling (4)
Course is designed to show human services workers the role they play in maintaining the deviant or non-deviant role of client or clients being served. Settings considered will include crime, delinquency, health, and blindness.

4101 Foreign Study (1-16) See page 187.

4102 Off-Campus Study (1-16) See page 187.

4103 Independent Study (1-16) See page 187.

4220 Human Services Methodologies (4)
Introduction to some specific helping techniques essential to administration and delivery of human services.

4229 Special Topics in Human Services (4)
Examination of specific issues, methods, values, and trends which have implications for helping practitioners, e.g., art therapy, behavior modification, counseling skills, self awareness training. Content varies, topic to be determined by instructor; may be repeated up to 12 credit hrs.

4400 Human Services Field Work (8 or 16) Practical field experiences in appropriately organized and directed human services settings. Designed to offer the student the opportunity to learn and develop specific helping skills and to become exposed and involved in the roles and functions of social services; to provide some direct services in a supervised learning situation. For majors only. May be repeated. 16 hrs required. S/N/C: Prereq: Consent of instructor.

4900 Aspects of Urban Environment (4) (Same as Architecture 4900, Real Estate 4900, Psychology 4900.)

Italian
See Romance Languages.

Japanese
See Cultural Studies (Asian Studies).

Latin
See Classics.

Latin American Studies
See Cultural Studies.

Linguistics
See Cultural Studies.

Mathematics (641)
Professors:
L. K. Barrett (Head), Ph.D. Pennsylvania; G. E. Albert (Emeritus), Ph.D. Wisconsin; J. S. Bradley, Ph.D. Iowa; J. H. Carruth, Ph.D. Louisiana State; R. E. Cline, Ph.D. Purdue; R. J. Daverman, Ph.D. Wisconsin; D. D. Duren, Ph.D. Maryland; E. D. Eaves (Emeritus), Ph.D. Texas; H. Fransen, Ph.D. Illinois; R. T. Gregory, Ph.D. Illinois; T. G. Hallam, Ph.D. Missouri; B. D. Hinton, Ph.D. Tennessee; A. S. Householder (Emeritus), Ph.D. Chicago; L. S. Huskey (Ph.D. Florida State); H. T. Matthews, Ph.D. Tulane; R. M. McConnell, Ph.D. Duke; D. D. Miller (Emeritus), Ph.D. Michigan; R. B. Reynolds, J. C. Reddy, Ph.D. Indian Institute of Technology;

P. W. Schaeber, Ph.D. Maryland; F. W. Stallman, Ph.D. Giessen (Germany); W. R. Wade, Ph.D. California (Riverside);

Associate Professors:
C. E. Clark, Ph.D. Louisiana State; D. E. Dobbs, Ph.D. Cornell; T. S. Dunlinger, Ph.D. New York; G. S. Jordan, Ph.D. Wisconsin;

J. F. Kimble (Emeritus), Ph.D. Ohio State; G. A. Klaassen, Ph.D. Nebraska; Y. Kuo, Ph.D. Cincinnati; B. S. Rajput, Ph.D. Illinois; W. H. Row, Jr., Ph.D. Wisconsin; R. B. Schafman, Ph.D. Oregon; J. Smith, Ph.D. California (Berkeley); J. Soni, Ph.D. Oregon State;


Assistant Professors:
A. A. Alexides, Ph.D. Delaware; D. F. Anderson, Ph.D. Chicago; W. Brandt I, Ph.D. Northwestern; R. J. Chapman, Ph.D. Virginia; W. E. Douglas, Ph.D. Harvard; R. H. Hanks, Ph.D. Minnesota; K. Prevol, Ph.D. M.I.T.; R. D. Shelton, Ph.D. Rice; H. Simpson, Ph.D. California Institute of Technology; J. Spector, Ph.D. Carnegie Mellon; K. R. Stephenson, Ph.D. Wisconsin; J. J. Walsh, Ph.D. SUNY (Binghamton);

A. T. M. Wang, Ph.D. Minnesota.

Instructors:
C. G. Doss, M.A. Tennessee; M. S. McLean, M.S. Purdue; D. P. Nash, M.A. Colorado.

*Space Institute, Tultahama.

UNDERGRADUATE
Placement Information for Freshman Courses:
Students who need more than one year of mathematics should plan to take 1840-50-40 or 1842-50-60. The prerequisites for 1840 (and 1842) are two years of high school algebra, one year of geometry and one semester of trigonometry or equivalent. Students who present an ACT score below 28 in mathematics may be placed in 1700 with a grade of C or better before taking 1840 (or 1842). Students who have had high school trigonometry should take 1010 before (or concurrently with) 1840 (or 1842). Students who present an ACT score of at least 32 in mathematics and a high school average of at least 3.00 are eligible for the honors course 1848. Prospective mathematics majors who meet these requirements are particularly encouraged to enroll in 1848. (Exceptions to the eligibility criteria for 1848 are possible. Interested students should see the department head in Ayres Hall, Room 124.)

The prerequisites for 1540 are two years of high school algebra or one year of algebra and one year of geometry. Students who present an ACT score below 18 in mathematics may take 1540 but are advised to take Algebra Refresher, Part I, in the Workshops and Non-Credit Programs (or equivalent elsewhere) and, at level B, or to make a passing grade in Algebra Refresher, Parts I and II, in the Workshops and Non-Credit Programs (or equivalent elsewhere). Students who have taken 2 years of high school algebra and 1 year of high school geometry and who present an ACT score of at least 26 (or those who earned at least a grade of B in high school algebra and geometry, and present an ACT score in mathematics of at least 24) are encouraged to omit 1540 and begin with 1550.

Students who have a deficiency in algebra or geometry must remove the deficiency by taking the appropriate refresher course(s) in the Workshops and Non-Credit Programs (or equivalent elsewhere).

A student may receive credit for only one of the following courses: 1500, 1540, 1700. The last one of these courses taken is the one which will count as credit.

Honors Courses: The current practice of the department is to offer honors versions (1848-50-68 and 2848-58-68) of 1840-50-60 in sequence, fall-winter-spring, each year. In addition to these regularly offered honors courses, an honors version of any course in the department whose number has zero as the last digit may be offered in any quarter. In this case, the last digit will be changed to eight and the title will be preceded by the word "Honors," both in the Timetable and on the student's transcript. These honors courses may be offered upon the initiative of interested faculty, students, or the department head (in all cases subject to the approval of the department head).

Proficiency Examinations: Students who have taken calculus in high school are encouraged to inquire at the Mathematics Office, Ayres 121 about the possibility of taking a proficiency examination for credit. There are courses from the calculus sequence 1840-50-60. If a satisfactory grade is made on the examination(s), credit will be awarded for the appropriate course(s).

Major: To major in mathematics, a student must complete the Basic Requirements and Advanced Requirements listed below:

1. Basic Requirements:
   a. 2840-50-60; or 2848-58-68; or 2540-50-60, 2610, and 2860.
   b. 3810, preferably taken during the sophomore year. Students who take 2848-58-68 may substitute any 3 or 4 hour mathematics course numbered 3050 or above for 3810.

2. Advanced Requirements:
   a. 21 additional hours in mathematics courses numbered 3050 or above, including a senior seminar (4910 or 4920) and at least two of the following sequences: 3780-90, 3920-30, 4060-4245, 4060-70, 4120-50, 4120-4810, 4150-60, 4225-35, 4225-45, 4235-45, 4510-20, 4550-4260, 4710-4550, 4610-30, 4610-4235, 4650-60, 4710-4250, 4750-60.
   b. 9 additional hours in courses from the following list: mathematics courses numbered 3050 or above; Computer Science 3715, 4710, 3510, 4510; Curriculum and Instruction 3751, 3752, 3521, 3522; Physics 3210, 3220, 3410, 4410, 4420, 4430, 4210, 4220, 4250; Statistics 3450.

Honors Program:
An Honors Program in mathematics will consist of at least 27 hours of mathematics courses numbered 4000 or above, including at least 2 of the following honors courses (those whose number ends in 8). Students who satisfy the major requirements (categories 1 and 2 above) and complete the Honors Program with a grade point average of at least 3.4, 3.6, or 3.8 will be graduated with Honors, High Honors, or Highest Honors in mathematics, respectively.
In exceptional cases, other courses of similar level may be accepted in place of the six hours of honors courses. A student who wishes to be considered under the Honors Program will apply the quarter before he or she expects to graduate (but in the spring, if graduation is to be in December). The application will list the 27 hours to be offered, including the honors courses or their proposed substitutes. Students taking more than 27 hours of qualifying courses may select those to be listed. A note of successful completion will be added to the student’s transcript.

Students interested in planning an Honors Program should consult their advisers as early as possible.

Minor: Consists of 2848-50-60 (or 2848-58-68) or 2850-60-60, 2860 and 2860) and at least 12 hours in courses numbered 3050 or above.

Program Planning for Majors:
Mathematics majors have considerable freedom in determining how they will meet the advanced requirements of the major. In order to offer some guidance in program planning, the mathematics department has designed several sample programs which majors may wish to follow. A brief description of these programs appears below; more detailed information about these or any additional programs which the department may design in the future is available in Ayres 121. Completion of the courses suggested in any of the following programs will meet (and, in some cases exceed) the advanced requirements for a major in mathematics. All students who intend to pursue graduate studies in the mathematical sciences are strongly urged to study French, German, or Russian for at least two years.

Program 1. This program is designed for students who have a general interest in mathematics and do not plan to become professional mathematicians. Supplemented by appropriate non-mathematical electives, such a program might be followed, for example, by pre-medical or pre-law students, by students planning to teach secondary school mathematics, or by those who plan to enter business after graduation. Suggested courses: Mathematics 3150, 3050-60, 3780-90, 3330, 4510-20, 4120, senior seminar, 6 hours of math electives.

Program 2. This program emphasizes pure mathematics and is designed to prepare students for graduate work in any of the mathematical sciences. Suggested courses: Mathematics 3150, 3200-30, 4510-20-30, 4120, 4510-60, 4250, senior seminar, 3 hours of math electives. The honors courses 4518-29-38 and 4518-68 are especially recommended. Since 4158-68 begins only in the fall quarter, students who wish to enroll in this sequence should take 4120 during their sophomore or junior years.

Program 3-A. This program emphasizes numerical mathematics and is designed to prepare the student for employment in industry. Suggested courses: Mathematics 3150, 4225-35, 4610, 4060-70, 4250,

Computer Science 3510, Mathematics 4990 or Computer Science 4330, senior seminar, 6 hours of math electives selected from 4540, 4550, 4620, 4640, 4710.

Program 3-B. This program emphasizes numerical mathematics and is designed to prepare the student for graduate work in numerical mathematics. Suggested courses: Mathematics 3150, 4225-35, 4610, 4060-70, 4510-20-30, 4250, Computer Science 3510, Mathematics 4990 or Computer Science 4330, senior seminar.

Program 4-A. This program emphasizes operations research, probability, and mathematical statistics, and is designed to prepare the student for employment in business or industry. Suggested courses: Mathematics 3150, 4540, 4060-70, 4650-60-70, 4750-60-70, Statistics 3450, Industrial Engineering 3510-20-30, senior seminar, 3 hours of math electives.

Program 4-B. This program emphasizes operations research, probability, and mathematical statistics, and is designed to prepare the student for graduate work in one or more of these areas. Suggested courses: Mathematics 3150, 4060-70, 4650-60-70, 4510-20-30, 4750-60-70, 4750-60-70, Statistics 3450, Industrial Engineering 3510-20-30, senior seminar.

Program 4-C. Double Major: Mathematics and Statistics. Students completing the following program will graduate with a double major in mathematics and statistics. Supplemented by a minor in an applied business or scientific field, this program provides preparation for graduate programs in business or applied statistics or for independent employment. Suggested courses: Math 3150* or 3155*, 3760*, 3790*, 4120, 4710, 4690*, 4660, 4690, 4250, senior seminar, Statistics 3450*, 3460*, 4310, 4415, 4410, 4750 and 4250, Computer Science 4310. (* Course counts toward both mathematics and statistics major requirements.)

Program 5. This program emphasizes actuarial science and is designed to prepare students for employment or graduate work in actuarial sciences. Suggested courses: Math 3155, 4225-35, 4120, 3780-90, 4650-60-70, senior seminar and two courses from 4750-60-70, 4060-70, Computer Science 3510, 3520, 4550.

Students following this program should supplement their mathematical training by selecting electives such as Economics 2110-20-30 or 2112-28-38, Accounting 2110-30, Insurance 3220, 4710-20, Marketing 3110, Statistics 3450, Industrial Engineering 3510-20-30, Computer Science 3520, 4210, 4215. Students in this program should also plan to join the Society of Actuaries Examinations I and II.

0150 Trigonometry (0) Plane trigonometry with emphasis on identities and other analytic aspects used in calculus. For students who enter with deficiency in high school trigonometry. 3 hrs per week. No college credit.

1020 Mathematics: A Philosophical Approach (4) Mathematics as a science, art and "language game"; nature of mathematical truth; strengths and limitations of the axiomatic method; the infinite and the infinitesimal; mathematical creativity; ethical problems facing the mathematician-scientist.

1540 College Algebra (4) Sets, real and complex number systems, exponents and radicals, fundamental algebraic operations, theory of equations, polynomials, graphs. NOTE: Students may not receive credit for both 1540 and 1700. If both are taken, the last one taken counts. Prereq: 1540 or equivalent. 1550-60 Introductory Calculus—General Mathematics (4, 4) 1550—Equations of straight lines, conics, derivatives, functions, applications of derivatives, maxima and minima, related rates, antiderivatives, integration of algebraic functions, applications. Prereq: 1540 or equivalent. 1560—Determinants, matrices, systems of linear equations and inequalities, Cramer's Rule, linear programming, trigonometric functions, applications, arithmetic and geometric series, simple and compound interest, annuities, exponential and logarithmic functions, law of growth, applications. Prereq: 1550 or equivalent.

Note: Students with an adequate high school background in algebra are advised to begin the 1540-50-60 sequence with 1550.

1700 Precalculus Mathematics (4) Function concept and use of functions. Properties of functions and their graphs. Polynomial, exponential, logarithmic, and trigonometric functions. NCTM standards. Prereq: 1540 or equivalent for both 1540 and 1700. If both are taken, the last one taken counts. Prereq: Two years of high school algebra, and the equivalent of two quarters of NCTM standards. Prereq: Mathematics 0150 or taking Mathematics 0150 concurrently.

1840-50-60 Single Variable Calculus (4, 4, 4) Functions, graphs, slope of a curve, definition of a derivative, limits, derivatives of algebraic functions, implicit differentiation, chain rule, differentials, continuity, applications of derivatives, maxima and minima, indefinite integral, area definition of definite integral. Fundamental Theorem of Calculus, application of the definite integral, logarithmic, exponential, and trigonometric functions and their derivatives. Techniques of integration, plane analytic geometry, polar coordinates. Must be taken in sequence. Prereq: Two years of high school algebra, one year geometry, and one semester of trigonometry or equivalent.

1841-51 Calculus for Biological Sciences (4, 4, 4) Course for students whose intended major is in an area of the life sciences. Differentiation and integration of logarithmic, exponential, trigonometric, and algebraic functions; partial differentiation, elementary differential equations, infinite series, probability. Emphasis upon applications of calculus problems. Must be taken in sequence. Prereq: Two years of high school algebra, one year geometry, and one semester of trigonometry or equivalent.

1842-52-62 Single Variable Calculus with Computer Support (5, 5, 5) Same coverage of calculus as 1840-50-60 supplemented with computer. Ele- ments of programming applied to problems from following areas: computer evaluation of functions; limit operation; application of limits to definition of derivative; approximation via differentials; approximate solution of equations by bisection, secant methods and Newton's method; rectangular, polar, and parametric graphing for numerical integration; Euler's method for initial value problems. Prereq: Two years high school algebra, one year geometry, and one semester of trigonometry or equivalent.

1848-58-68 Honors: Single Variable Calculus (4, 4, 4) Honors course for students who have had trigonometry, selected on basis of placement test scores and high school record. Students receiving a grade below B in 1848 will complete the year's work in 1848 and 1850-60. Special rules section of 1858 will be made available for students who perform well in 1840. Must be taken in sequence.

1900 Selected Topics (4) Applications of definite integral; approximation integration; simultaneous linear equations; matrix inversion; elementary linear programming; infinite series; descriptive
2412-22 Finite Mathematics (4, 4, 4) Logic and sets, combinatorial methods, vectors, and matrices, elementary optimization and game theory, applications to simple problems in the behavioral and/or managerial sciences. Prereq: Two years of high school algebra or one year of algebra and one year geometry.

2512 Calculus Refresher (4) Functions, graphs, limits, derivatives, mean value theorem, integration and properties of the integral. For students who have had some previous experience to difference of the calculus. Prereq: 1560 or equivalent and consent of instructor.

2540-50-60 Calculus (4, 4, 4) Calculus sequence for students who have completed 1560 or students who have had a significant introduction to calculus in high school. Definition of a derivative; derivatives of algebraic functions, the chain rule, differentials, continuity; applications of derivatives; Rolle’s Theorem, the Mean Value Theorem, maxima and minima; indefinite integrals and applications, the definite integral and applications, Fundamental Theorem of Calculus. Integrals of polynomials, logarithms, trigonometric functions. Derivatives and integrals of transcendental functions, methods of integration, parametric equations, vectors, rectangular coordinates of vectors, scalar and vector products, equations of lines and planes, surfaces, vectors, directional derivatives, the chain rule, the total differential, maxima and minima, line integrals, exact differentials, multiple integrals with applications, cylindrical and spherical coordinates, series, tests for convergence, power series, Taylor’s series. Must be taken in sequence. Prereq: Math 1560 or at least one semester of high school calculus.

3220 History of Mathematics (3) Survey of developments of various branches of mathematics, from ancient to modern times. Not acceptable for satisfying requirements for a major or minor in mathematics. Prereq: Math 1880 or 2850 or equivalent.

3310 Advanced Euclidean Geometry (3) Triangles and circles, coordinate geometry, transformation concepts. Prereq: 1 year of college mathematics.

3320-33 Non-Euclidean Geometry (3) Foundations of geometry. Elliptic and hyperbolic plane geometry. Prereq: 1 year of college mathematics.

3330 Transformational Geometry (3) Fundamental transformational geometry concepts, classification of isometries and similarities; symmetry of a polygon; inversion. Prereq: 1 year of college mathematics.

3510 Intermediate Analysis (3) Primarily for students in secondary mathematics education. Course is a study of calculus from advanced viewpoint based on proofs of basic concepts. Topics covered include limits of sequences and functions, continuous functions, derivatives, definite integral, and fundamental theorem of integral calculus. Prereq: 1560 or 1880.

3715 Discrete Structures (3) (Same as Computer Science 3715.)


3725 Advanced Discrete Structures (3) (Same as Computer Science 3725.)

3780-90 Introduction to Combinatorial Theory (3, 3) Introduction to problems of arrangement and selection within discrete systems. Enumeration by recurrence relations and generating functions, graph theory, finite geometries and finite fields, partitions, block designs. Prereq: Math 2860 or consent of instructor.

3810 How to Prove It (3) A course is designed to improve understanding of the methodology of mathematical proof by means of practice and participation in a seminar and a reading course. It will include pertinent and useful axioms and definitions, and will include certain standard topics such as elementary set theory, relations and functions, and mathematical induction. Coreq: 2850 or 2560.

3820-30 Topology of Euclidean Spaces (3, 3) Topology will include the topology of the plane, separation properties, compactness, connectedness, completeness, continuous functions, homeomorphisms, compactness, and connectedness. Prereq: Math 2860 or consent of instructor.

3900 Studies in Mathematics (1-4) Credit determined at registration. Prereq: Credit with consent of department; maximum 9 hrs credit. Prereq: Consent of instructor.

4050 Matrix Algebra and Applications (3) Matrices, elementary operations, systems of linear equations, vector spaces, determinants, eigenvalues and eigenvectors. A student cannot receive credit for both 2860 and 4050. Prereq: 2850 or 2560 or consent of instructor.

4060-70 Matrix Algebra and Applications (3, 3) Eigenvalues and eigenvectors, singular values and singular vectors, unitary and similarity transformations, quadratic forms, orthogonal diagonalization, Jordan canonical form, and related topics. Prereqs: 2860 and 4050.

4102 Off-Campus Study (1-16) See page 187.

4120 Linear Algebra (3) Abstract vector spaces, linear transformations, and their matrices, systems of linear equations and determinants, inner products, and diagonalization of symmetric matrices. Prereq: 2860 or 4050.

4150-60 Abstract Algebra (3, 3) Equivalence relations and partitions, properties of integers, elementary theory of groups, integral domains, divisibility, unique factorization domains, fields. Must be taken in sequence. Prereq: 2860 or 4050.

4225 Numerical Solution to Equations and Numerical Approximations (3) Numerical solution to equations and numerical approximations. Introduction to root finding and error analysis. Solution of a single nonlinear equation; introduction to iterative methods for linear and nonlinear systems. Polynomial and trigonometric interpolation and inverse power methods for eigenvalues. Approximation by polynomials, piecewise polynomial, and spline functions. Prereqs: 3150 or 3155. (Same as Computer Science 4225.)

Stability, consistency, and convergence. Current algorithms, variable step and order; stiff systems. Boundary value problems. Prereq: 3150 or 3155 and 4610 or 4225. (Same as Computer Science 425.)


4250 Elementary Complex Variables (3) Complex numbers, Cauchy-Riemann equations, elementary functions, Cauchy's theorem and formula, Taylor and Laurent series, residues, and their applications. Prereq: 2860; one 4000-level mathematics course recommended.

4510-20-30 Introduction to Analysis (3, 3, 3) Real number system, functions, sequences, limits, continuity, uniform continuity, differentiation, integration. Functions of several variables, implicit function theory. Multiple integrals, infinite series, sequences and series of functions, uniform convergence, Taylor series. Should be taken in sequence. Prereq: 2860.

4540 Infinite Series and Functions of Several Variables (3) General series, power series and Taylor's formula, uniform convergence. Partial differentiation and maxima and minima for functions of several variables. Lagrange multipliers. Prereq: 2860.

4550 Partial Differential Equations (3) Fourier series; Fourier integral; orthogonal functions; the vibrating string; solution by series; heat flow, Bessel functions. Prereq: 2860, 4610 or 4710 recommended.

4610-20-30 Ordinary Differential Equations (3, 3, 3) 4610—Linear first and second order equations. Power series solutions and Legendre polynomials. Regular singular points, Frobenius method, and Bessel equations. Systems of linear differential equations and the matrix exponential. 4620—Numerical methods for ordinary differential equations including one-step methods (Euler, Runge-Kutta) for initial value problems, multistep methods. A-stability, and two point boundary value problems. 4630—Special topics which may include existence and uniqueness, oscillation theory, Liapunov stability, singular perturbations, and asymptotic solutions. Prereq: 4610: 2860 or 4660; 4620: 4500 or 2860; and 3160 or 3155; 4630: 4610 or consent of instructor.

4640 Calculus of Finite Differences (3) Real difference equations; application to problems in engineering and applied science. Prereq or coreq: 4610.

4650-60-70 Introduction to Mathematical Statistics (3, 3, 3) Introduction to probability; discrete and continuous distributions; correlation, regression, and statistical independence; foundations of statistical polling theory; significance tests. Must be taken in sequence. Prereq: 2860.

4710 Vector Analysis (3) Fundamental operations, base vectors, dot and cross products, directional derivatives, divergence and curl of vector fields, line and surface integrals, divergence theorem of Gauss, and Stokes theorem. Prereq: 2860.

4750-60-70 Introductory Probability Theory (3, 3, 3) 4750—Elementary combinatorial analysis, probabilities in discrete sample spaces, conditional probability and stochastic independence, binomial, Poisson, hypergeometric and normal distributions. 4760—Expectation, conditional expectation and characteristic function of random variables, independence, sequences of random variables, the weak and strong laws of large numbers, and the central limit theorem. 4770—Markov chains; limiting fng probabilities; steady-state and stationary distributions; stochastic processes; Poison, birth and death processes; Kolmogorov equations. Prereq: Math 2840-50-60.

4810 Elementary Number Theory (3) Divisibility; congruences; theorems of Fermat and Wilson, primitive roots; indices, quadratic reciprocity. Prereq: 2860 or consent of instructor.

4910 Senior Seminar (1-2) Credit determined at registration. May be repeated for credit with consent of department; student may offer a maximum of 4 hrs credit from 4910 and 4920 combined. Prereq: Senior standing.

4920 Senior Seminar (1-2) Credit determined at registration. May be repeated for credit with consent of department; student may offer a maximum of 4 hrs credit from 4910 and 4920 combined. Prereq: Senior standing.

4980 Readings in Mathematics (1-3) Open to superior students with consent of department head. Independent study with faculty guidance. May be repeated. Maximum 9 hrs credit.

4990 Studies in Mathematics (1-4) Credit determined at registration. May be repeated for credit with consent of department; maximum 9 hrs credit. Prereq: 1150 or 2150 or consent of mathematics professorial staff and consent of department.

GRADUATE

The Department of Mathematics offers four advanced degrees. In order to become a candidate for any one of these the student must first be admitted to the Graduate School. The Master of Arts and Master of Science degree programs presuppose a bachelor's degree with a major in mathematics. The Master of Mathematics degree is intended primarily for teachers of high school mathematics. Applicants for admission to this program must take the Graduate Record Examination and must have either (a) certification for teaching secondary mathematics, or (b) successful elementary or secondary school teaching experience. The Doctor of Philosophy degree program presupposes a bachelor's or master's degree with a strong major in mathematics. This program is intended to train professional mathematicians for a career of teacher or scholarly work in colleges and universities or work in industry. Further details on all of these programs are in the Graduate Catalog.

5000 Thesis

5002 Non-Thesis Graduation Completion (3-15)

5011 Elementary Functions from an Advanced Standpoint for Teachers (3-4)

5012 Differential Geometry for Teachers (3-4)

5013 Geometry for Teachers (3-4)

5014 Analysis for Teachers (3-4)

5015 Probability and Statistical Inference for Teachers (3-4)

5050-60-70 Mathematical Logic (3, 3, 3)

5110-20-30 Theory of Functions of Complex Variables (3, 3, 3)

5150-60-70 Foundations of Analysis (3, 3, 3)

5210-20-30 Theory of Functions of a Real Variable (3, 3, 3)

5240-50-60 Linear Algebra (3, 3, 3)

5270 Stability Theory and Liapunov's Direct Method (3)

5310-20-30 Introduction to Higher Geometry (3, 3, 3)

5430 Integral Equations (3)

5440 Calculus of Variations (3)

5450-60-70 Introduction to Partial Differential Equations (3, 3, 3)

5455 Finite Difference Methods for Partial Differential Equations (3)

5465 Finite Element Methods (3)

5475 Advanced Topics in Numerical Partial Differential Equations (3)

5480-90 Mathematical Programming (3, 3)

5510-20-30 Introduction to Higher Algebra (3, 3, 3)

5540 Galois Theory (3)

5560-70-80 Theory of Matrices in Numerical Analysis (3, 3, 3)

5590 Theory of Rings (3)

5610-20-30 Mathematical Methods in Physics (3, 3, 3)

5640 Numerical Methods in Physics (3)

5655-60-75 Numerical Mathematics (3, 3, 3)

5710-20-30 Tensor Analysis (3, 3, 3)

5750-60-70 Advanced Mathematical Statistics (3, 3, 3)

5810-20-30 Number Theory (3, 3, 3)

5840-50-60 Mathematical Ecology (3, 3, 3)

5870-80-90 Introduction to Ordinary Differential Equations (3, 3, 3)

5910-20-30 Elementary Topology (3, 3, 3)

5970-80 Mathematical Systems Theory (3, 3)

5990 Graduate Reading in Mathematics (1-3)

6000 Seminar Analysis (1-3)

6001 Seminar Topology (1-3)

6003 Seminar Algebra (1-3)

6094 Seminar Foundations (1-3)

6095 Seminar Applied Mathematics (1-3)

6099 Doctoral Research and Dissertation

6120-20-30 Linear Analysis (3, 3, 3)

6450-60-70 Partial Differential Equations (3, 3, 3)

6510-20-30 Modem Algebra (3, 3, 3)

6540-50-60 Theory of Semigroups (3, 3, 3)

6570 Theory of Groups (3)

6610-20-30 Advanced Ordinary Differential Equations (3, 3, 3)

6750-60-70 Probability Theory (3, 3, 3)

6810-20-30 Topological Algebra (3, 3, 3)

6910-20-30 Modem Topology (3, 3, 3)

6940-50-60 Introduction to Algebraic Topology (3, 3, 3)

6941 Seminar Analysis (1-3)

6990 Seminar Topology (1-3)

6993 Seminar Algebra (1-3)

6994 Seminar Foundations (1-3)

6995 Seminar Applied Mathematics (1-3)

Medieval Studies

See Cultural Studies.

Microbiology

4101 Foreign Study (1-16) See page 187. No more than 3 hrs may be applied toward a major or minor in microbiology. May be repeated to a total of 16 hrs.

4102 Off-Campus Study (1-16) See page 187. No more than 3 hrs may be applied toward a major or minor in microbiology. May be repeated to a total of 16 hrs.

4103 Independent Study (1-16) See page 187. No more than 3 hrs may be applied toward a major or minor in microbiology. May be repeated to a total of 16 hrs.

4110 Physiology of Bacteria (2) Modern concepts of bacterial physiology and metabolism including cell structure and function. Prereq: 3510 and 12 hrs of organic chemistry.

4119 Bacterial Physiology Laboratory (2) Prereq: 3519; coreq: 4110.

4130 Taxonomy of Bacteria (3) Bacterial classification. Prereq: 3510-19. 3 hrs.

4140 Molecular Genetics of Prokaryotes (2) Transmission and expression of genetic information at the molecular level. Emphasis is on bacterial and viral systems, but unique features of eukaryotic genetic systems are included. Prereq: 3510 or consent of instructor.

4150 Microbial Ecology (3) Application of ecological principles to study of microbial community structures. Emphasis on functional role of microorganisms in natural environments. Prereq: 3510, one year of organic chemistry, Biology 3130, or consent of instructor.

4270 Advanced Immunology (2) Chemistry of antigens and haptenes, theories of antibody formation, cell cooperation in immune mechanisms, transplantation, abnormalities of the immune system, and autoimmune diseases. Prereq: 3520 or consent of instructor. (Same as Zoology 4270.)

4279 Advanced Immunology Laboratory (2) Laboratory exercises designed to accompany 4270. Prereq or coreq: 4270.

4288 Serological Methods (2) Practical procedures in serology and clinical immunology. Prereq or coreq: 4270.

4320 Pathogenic Bacteriology (2) Disease-producing microorganisms including bacteria, rickettsia, and chlamydia. Prereq: 3530.

4329 Pathogenic Bacteriology Laboratory (2) Techniques for isolation, cultivation, and identification of pathogenic bacteria. Prereq: 3539; coreq: 4320.

4330 Medical Mycology (2) Disease causing fungi; cytology, physiology, pathogenesis and immunity; emphasis on methodology of isolation and identification. Prereq: 3530 and 3820.

4339 Medical Mycology Laboratory (2) Prereq: 3539; coreq: 4330.

4420 Molecular Virology (2) Molecular aspects of the replication, assembly, and expression of viruses, with emphasis on bacteriophage. Prereq: 3510.

4430 Medical Virology (2) General virology with emphasis on medical aspects. Prereq: 3530.

4439 Medical Virology Laboratory (2) Laboratory procedures for isolation, handling and culturing of animal viruses. Prereq: 3539; coreq: 4430.

4909 Laboratory Problems in Microbiology (2-4) Involvement in research program of a faculty member through independent study projects. Consent of individual faculty member required. Not more than 3 hrs may be used towards a major in microbiology. May be repeated. Maximum 12 hrs credit.

4910 Seminar in Microbiology (1) May not be applied toward a major in microbiology. Prereq: Senior standing, consent of instructor. S/NC.

GRADUATE

5000 Thesis

5002 Non-Thesis Graduation Completion (3-15)

5011-12-13-14-15-16 Mini-course in Microbiology (1, 1, 1, 1, 1, 1)

5130 Topics in Taxonomy (3)

5310 Selected Topics in Microbiological Research (3)

5360 Topics in Immunology and Immun chemotherapy (4)

5441-42-43-44-45-46-46 Clinical Microbiology (6, 6, 6, 6, 6, 6)

5510-20-30 Research Problems (3, 3, 3)

5720 Microbial Physiology (3)

5730 Pathogenesis of Infectious Disease (3)

5750 The Onco genic Viruses (3)

5760 The Bacterial Viruses (3)

5819 Molecular Genetics Laboratory (3)

5820 Microbiology of Foods (3)

5829 Experimental Microbial Ecology (3)

5850 Seminar in History of Microbiology (1)

5910-20-30 General Seminar (1, 1, 1)

6000 Doctoral Research and Dissertation

6310 Seminar in Immunology (1)

6320 Seminar in Microbial Pathogenesis (1)

6330 Seminar in Microbial Physiology (1)

6340 Seminar in Microbial Genetics (1)

6350 Seminar in Virology (1)

6360 Seminar in the Filamentous Fungi (1)

6370 Current Topics in Environmental Microbiology (2)

6410 Concepts of Immunity (3)

6720 Advanced Topics in Microbial Physiology (3)

6730 Advanced Topics in Microbial Pathogenesis (3)

6740 Advances in Virology (3)

6760 Advanced Topics in Microbial Genetics (3)

6810-20-30 Problem Seminar (1, 1, 1)

Medical Technology (669)

Courses in this major are open only to qualified students who have completed the first three years of the College of Medical Technology Curriculum, described on page 181, and who have been approved by the Pre-Medical Advisory Committee.

4011-12 Microbiology (6, 6) Laboratory work in bacteriology, mycology, and parasitology. Emphasis on pathogenic bacteria and fungi, their sources, methods of culture, techniques of identification, and evaluation of antibiotic sensitivity. Gross and qualitative chemical examination of feces and methods of identification of protozoa and helminth parasites of man.

4021-22 Clinical Chemistry (6, 6) Clinical aspects of biochemistry, including overview of principles and instrumentation with emphasis on practical laboratory applications of analytical procedures, specimen collection and handling, significance of results, and quality assurance. Includes blood gas analysis, including radioimmunoassay, and analysis of blood and other body fluids for enzymes, hormones, and other constituents of clinical interest, utilizing both automated and manual techniques.

4031-32 Hematology and Clinical Microscopy (6, 6) Principles, theories, and instrumentation related to the qualitative and quantitative evaluation of cellular elements of blood and other body fluids;
3041-42 Immunohematology (4, 4) Theory and practice in blood bank operation. Erythrocyte antigens and their normal and abnormal immunology. Standard techniques used in evaluating blood typing, cross-matching, and antibody detection, and preparation of blood components for transfusion. Basic laboratory methods standard to an efficient blood bank are important part of course material.

4043 Clinical Serology and Immunology (2) Preparation of students for graduate study and for professional positions, and the Bachelor of Arts degree with a major and minor in music, designed for those students whose interests are strong but essentially non-professional. The major and minor requirements for the B.M. degree may be found on page 183. The requirements for a major and minor are as follows:

Major:
(a) Concentration in Applied Music—consists of Music 2000, 2111-21-31, 2113-23-33, 2310-20-30-40, 27 hours in applied music at the 2000-3000-4000 levels (9 hours each), and junior and senior recitals. Prerequisites are Music 1111-21-31, 1113-23-33, and 3 quarters of study in applied music at the 1000 level.
(b) Concentration in Music History and Literature—consists of Music 2111-21-31, 2113-23-33, 2310-20-30-40, and 27 upper-division hours in music history and literature. Prerequisites are Music 1111-21-31, 1113-23-33, and 1340.

Minor:
(a) Concentration in Applied Music—consists of Music 2000, 2111-21-31, 2310-20-30-40 and 18 upper-division hours in music history and literature. Prerequisites are the same as those for the major.
(b) Concentration in Music History and Literature—consists of Music 2111-21-31, 2310-20-30-40 and 18 upper-division hours in music history and literature. Prerequisites are the same as those for the major.

The Bachelor of Science in Music Education, designed for preparation for institutional teaching, is administered by the Department of Music Education. See page 108 for requirements.

GENERAL

1000 Fundamentals of Music Theory (3) Theory and practice of basic elements of music. 3 hrs.
1010-20-30-40-50-60 Class Piano (1, 1, 1, 1, 1, 1, 1) For music and music education majors only. Must be taken in consecutive years. May be waived by successful completion of Piano Competency Examination. Waived courses must be substituted with an equivalent number of quarters of study in Music 1580 or above.
1015 Class Voice (1) For music and music education majors only. May be repeated for credit.
2000 Solo Class (0)
2010 Introduction to Musical Theatre Technology (3) Stage technology unique to lyric stage. 3 hrs.
2055-65-75 Diction for Singers (2, 2, 2) Sounds by phonetic symbols. Opera and art songs used for examples. Performance practice. 4 hrs.
2071-81-91 Church Service Playing I (1, 1, 1) Practical skills applicable to the use of the organ in church services, including keyboard harmony, improvisation, hymn planning, and accompanying on the organ. Prereq: 1131 and 6 hrs in organ.
2810-20 Jazz Piano (1, 1) Harmonic language of jazz: interpretation of chord symbols, formula for voicing chords, chord progressions, and fundamental melodic-playing and improvisation for right hand. Must be taken in sequence. Prereq: 1010-20.
3000 Junior Recital (0)
3012-22-32 Song Literature (2, 2, 2) Study of literature from 1750 to present with emphasis on par-
formance practices. 1002—Classical and Romantic German art song; 3022—French and Russian songs; 3032—Late German and contemporary songs. Prereq: 2075 and consent of instructor.
3014-24 Woodwind Literature (2, 2) Prereq: Consent of instructor.
3015 Percussion Literature (1) Prereq: Consent of instructor.
3016 String Literature (2) May be repeated. Maximum 6 hrs credit. Prereq: Consent of instructor.
3025-26-27 Elementary and Intermediate Piano Pedagogy (2, 2, 2) Piano methods and materials for pre-college level students. Prereq: Consent of instructor.
3030-50-60 Advanced Piano Literature (2, 2, 2) Piano music from pre-classical period to present. Prereq: Consent of instructor.
3041 Keyboard Harmony (2) Melody harmonization, figured bass realization, and improvisation. Prereq: 1131-33, and keyboard proficiency at the 2000 level.
3052-53 Jazz Improvisation (2, 2) Study and application of principles of improvisation, including nomenclature, chord progressions, chord-scales, patterns, melodic development, and free form devices. Prereq: Consent of instructor. 2 hrs and 1 lab.
3044-54 Brass Literature (2, 2) Prereq: Consent of instructor.
3070 Opera Production (1-3) Supervised work on opera productions. May be repeated for credit. Prereq: Consent of instructor.
3071-81-91 Church Service Playing II, III, (1, 1, 1) Continuation of Music 2071-81-91, which is a prerequisite. 3 hrs.
4000 Senior Recital (0)
4010-30-30 Piano Techniques (1, 1, 1) Problems of piano playing; development of piano technique; style and interpretation; program building. Prereq: Consent of instructor.
4021-22-32 Principles of Vocal Pedagogy (1, 1, 1) Examination and evaluation of concepts and approaches to teaching singing (past and present) and research in phonetics and the physical laboratory experiences accompany the study. Prereq: Consent of instructor.
4041 Styles in Opera Acting (3) Study and practice of styles in opera acting based on historical and national characteristics. Prereq: 3015 or consent of instructor.
4045 Projects in Opera Theatre (1-3) May be repeated for credit. Prereq: Consent of instructor.
4050 Advanced Instrumental Conducting (3) Development of knowledge and skills in instrumental conducting; study of various periods and composers and relationships of different styles to the conductor's art; musical analysis and practice in conducting. Prereq: Music Ed. 4430 or equivalent.
4060 Choral Conducting (3) Development of knowledge and skills in choral conducting; study of various periods and composers and relationships of different styles to the conductor's art; musical analysis and practice in conducting. Prereq: Music Ed. 4430 or equivalent.
4074-84 Church Music Seminar (3, 3) History and philosophy of church music; liturgies and liturgical music; church music administration. Prereq: Consent of instructor.
4400 Jazz Directing (1) Rehearsal techniques for jazz ensembles: special conducting techniques, repertoire, library systems, program planning, and supervised laboratory experience in rehearsing unified jazz ensembles. Prereq: Enrollment in applied music with jazz emphasis or consent of instructor.

4840 Jazz Pedagogy (1) Methods and materials relating to teaching of jazz and administering of jazz program. Prereq: Enrollment in applied music with jazz emphasis or consent of instructor.

4860 Advanced improvisation (2) Emphasis on further development of individual skills and solving individual problems in jazz improvisation. Prereq: Music 3052-53.

MUSIC THEORY AND COMPOSITION


1113-23-33 Sight Singing and Ear Training (1, 1, 1) Should be taken concurrently with 1111-21-31 or 1118-28-38. Must be taken in sequence. 2 hrs per week.

1118-28-38 Honors: Theory I (4, 4, 4) Materials of music with emphasis on literature of Baroque, Classic, and Romantic periods. Exercises in writing and analysis. Designed for music majors with no background in theory or composition. Other students may be admitted subject to placement examination. Grade of C or better must be achieved to continue the course sequence.

1199 Fundamentals of Music Composition (2) Melodic invention in simple forms. May be repeated. Maximum 4 hrs credit. Prereq: Music 1111 or equivalent.

1400 Analysis of Jazz Styles (2) Individual improvisatory styles through analysis of their transcribed solos. Training and function of ear in music. Transcription of solos from recordings and preparation of analyses. Prereq: Consent of instructor.

2111-21-31 Theory II (3, 3, 3) Materials of music with emphasis on literature of Romantic and contemporary periods. Exercises in writing and analysis. Must be taken in sequence. Prereq: 1131 or 1138 or consent of instructor.

2113-23-33 Advanced Ear Training (1, 1, 1) Should be taken concurrently with 2111-21-31 or 2118-28-38. Must be taken in sequence. 2 hrs per week.

2118-28-38 Honors: Theory II (4, 4, 4) Materials of music with emphasis on literature of Romantic and contemporary periods. Exercises in writing and analysis. Prereq: 1138 or placement examination.

3111-21-31 Tonal Counterpoint (3, 3, 3) Contra-puntal techniques of eighteenth century, with emphasis on works of J.S. Bach. Must be taken in sequence. Prereq: 2131 or 2138.

3112 Instrumentation (3) Basic techniques in scoring for voices; brass, woodwind, and string choirs; and percussion. Prereq: 2131 or 2138.

3113 Analysis I (3) Study and practice in analysis of structures of music from smallest structural units to large compound forms. Emphasis on macro-analytic techniques. Prereq: 2131 or 2138 or equivalent.

3114-24 Choral Arranging (3, 3) Analysis of scores and writing of arrangements for choirs. 3114—male and female chorus. 3124—mixed chorus. Prereq: 2111 or consent of instructor.

3122 Orchestration (3) Advanced techniques in instrumental writing with emphasis on scoring for the concert orchestra. Prereq: 3112 or consent of instructor.

3213 Analysis II (3) Continuation of Analysis I with emphasis on micro and linear analytic techniques. Prereq: 3113.

4100 Independent Study in Music Theory (1-3) May be repeated for credit. Prereq: Consent of department head.

4101 Foreign Study (1-16) See page 187.

4111-21-31-41 Analysis of Music Literature (3, 3, 3, 3) Detailed examination of musical compositions by historical period with emphasis on thematic material, form and structure. Traditional and contemporary techniques. 4111—1600-1750. 4121—1750-1825. 4131—1825-1900. 4141—1900 to present. Prereq: 3123.

4112 Twentieth-Century Compositional Techniques (3) Study and application of compositional devices from Debussy to present. Analysis of scores; idiomatic writing. Prereq: 2131 or equivalent.

4113 Pedagogy of Music Theory (3) Techniques, methods and materials involved in college-level theory programs. Prereq: Consent of instructor.

4114 Stage Band Arranging (3) Analysis of scores and scoring for the stage band. Prereq: 3112 and consent of instructor.

4115 Variation (3) Study and application of variation procedures. Prereq: 3123 or equivalent.

4116 Set Structure in Musical Composition (3) Theory of sets and its application to analysis of music. Prereq: Consent of instructor.

4124 Band Arranging (3) Study and application of techniques employed in scoring for the marching and concert bands. Prereq: 3112 or equivalent.

4134 Band Transcription (3) Technique and application of transcribing keyboard and orchestra music for concert band; editing and transcription. Prereq: 3112 or equivalent.

4150 Survey of Music Theory (3) Theory of music with emphasis on harmonic practice of Baroque, Classic, and Romantic periods. Exercises in writing and analysis. Recommended as review course for graduate students. Prereq: Consent of instructor.

4150 Jazz Composition (3) Prereq: Music 4114 and consent of instructor.

MUSIC HISTORY AND LITERATURE

1210-20 Orientation in Music Appreciation (3, 3) 1210—Developing perceptive listening skills through study of materials of music, musical styles, and musical aesthetics. Illustrative examples selected from fourth through the twentieth centuries. 1220—Introduction to masterworks of music from 1600 to 1800 A.D.; For non-music majors. Prereq: 1210 or 1220 or consent of instructor.

1340 Introduction to Music Literature (3) Accompaniment with basic terms of music and accepted masterworks of music. Technological approach. For music majors and minors only.

3210-20-30-40 History of Music (3, 3, 3, 3) 2310—To 1600. 2320—1600 to 1800. 2330—1800-1900. 2340—1900 to present. Requires musical background. Prereq: Consent of instructor. 3210 or consent of instructor.

3211 Orientation in Music: The Twentieth Century (3) Examination and study of serious, popular, folk, and ethnic music of the twentieth century. Prereq: 1210 or consent of instructor.

3212 Orientation in Music: Music for the Theatre(3) Study of selected, representative music composed for Broadway stage, films, operetta, and opera. Prereq: 1210 or consent of instructor.

3230 The Concerto (3) Survey of literature from seventeenth century to present.

3240 The Symphony (3) Survey of symphonic literature from precursors of classical symphony to present.

3260 Chamber Music (3) Survey of chamber music from 1750 to present.

3271-81 History of Opera (3, 3) Dramatic, vocal and orchestral elements in opera of Italian, French, and German Schools. 3271—1600-1800. 3281—1800-present.

3340 Oratorios (3) Choral works other than those appropriate for use in church.

3350 Introduction to Afro-American Music (3) History of African music, blues, gospel music and jazz with an emphasis on Black artists and their contributions.

3950 Evolution of Jazz (3) Study of origin, development and styles of jazz music and its exponents.

4003-04-05 The Organ and Its Literature (3, 3, 3) The development of the organ and organ literature from the middle Ages to the present; problems of style and interpretation; pedagogical literature and methods; organ design. Prereq or coreqs: 2310-20-30-40 and consent of instructor.

4200 Independent Study in Music History and Literature (1-3) May be repeated for credit. Prereq: Consent of department head.

4205 Survey of Music History (3) History of music with emphasis on genres, style changes, and cultures. Covers the Western European tradition from 400-1900. Recommended as a review course for graduate students. Prereq: Consent of instructor.

4210 Music in the Romantic Period (3) Survey of music from Beethoven through post-Romantic instrumental and vocal styles.

4230 Contemporary Music: 1945 to Present (3) Survey of new and avant-garde music in Europe and America since World War II.

4241 American Music (3) American music from colonial times to present. Emphasis on twentieth century. Includes both folk and cultivated traditions. Prereq: 1210-20 or equivalent.


4290 Gregorian Chant (3) Chants of Latin rite. Masses and Offices examined as functional music as well as by type.

4310 History of Art Song (3) Survey of art song from fifteenth century to 1900.

4315 Wind Chamber Music (3) Study of wind chamber music from 18th through 20th century. Emphasis placed on style interpretation, rehearsal techniques, programming and musical significance, both historical and theoretical.

4340-50 Works of Bach (3, 3) Detailed examination of sonatas, cantatas, keyboard, and orchestral works; cantatas, motets, passions and oratorios. 4340—Instrumental works, 4350—vocal works.

APPLIED MUSIC

Applied study is classified as Principal or Secondary. Students studying their principal (major) instrument register for credit appropriate to their program, 2-4 credit hours; students studying a secondary instrument register for 1 hour credit. Study at the principal level receives one hour of private instruction per week or a one-hour class lesson plus a half-hour private lesson. Determination of the mode of instruction rests with the department. Study at the secondary level receives one-
half hour private instruction per week or its equivalent in class instruction. Applied
music courses do not permit non-credit registration nor may students elect non-
conventional grading.
Non-music students will be accepted at
the secondary level if they meet audition
requirements established by area faculty
(piano, voice, violin, etc.) and instruction
time is available.
Undergraduate students seeking
entrance to applied music courses must be
currently registered for no less than
nine credit hours in academic courses.
Graduate students must be concurrently
registered for no less than six credit hours
in academic courses. Exceptions to these
requirements may be made with the
approval of the department head if applied
music registration is necessary to
completion of degree requirements.
An audition in applied music is
measured by proficiency (Jury)
examination. Students who do not meet
proficiency requirements at any level may
be required to complete study at that level.
Course level and credit hours will be
determined by the applied faculty.
All students studying applied music at
the principal level are required to register
for Music 2000 Solo Class. The
requirements for this course are to attend
scheduled concerts, recitals, master,
repertoire, and solo classes and to
perform at least once each quarter as
partial fulfillment of applied music credit
requirements.
Applied Music Fees: $20 per quarter for
half-hour lesson (1 credit hour)
$40 per quarter for hour lesson (2-4
credit hours).
Computer registration and applied
music fee payment must be verified in the
Department of Music office no later than
the end of the second day of classes of
the fall, winter, and spring quarters and
the first day of the summer terms in order
to be accepted for applied music study.
Applied music fees are not refundable
after lessons have been scheduled.
1500-2500 3500-4500 5500 Flute (1-4)
May be repeated for credit.
1505-2505 3505-4505 5505 Oboe (1-4) May be repeated for credit.
1510-2510 3510-4510 5510 Bassoon (1-4) May be repeated for credit.
1515-2515 3515-4515 5515 Clarinet (1-4) May be repeated for credit.
1520-2520 3520-4520 5520 Saxophone (1-4) May be repeated for credit.
1525-2525 3525-4525 5525 Horn (1-4) May be repeated for credit.
1530-2530 3530-4530 5530 Trumpet (1-4) May be repeated for credit.
1535-2535 3535-4535 5535 Trombone (1-4) May be repeated for credit.
1540-2540 3540-4540 5540 Baritone (1-4) May be repeated for credit.
1545-2545 3545-4545 5545 Tuba (1-4) May be repeated for credit.
1550-2550 3550-4550 5550 Percussion (1-4) May be repeated for credit.
1555-2555 3555-4555 5555 Voice (1-4) May be repeated for credit.

ENSEMBLES
All students studying applied music are
required to perform in a major musical
organization each quarter. String,
woodwind, brass, and percussion students
must be enrolled in an instrumental
organization; voice students in a choral
organization, opera workshop or opera
theatre.
A student's preference for musical
organization will be honored whenever
possible, but factors considered in making
the assignment will include playing ability,
specific needs of various organizations,
and previous performance experience at
the University.
3600-5600 Small Ensemble (1, 1) May be repeated for credit.
3601-5601 Wind Ensemble (1, 1) May be repeated for credit.
3602-5602 Brass Ensemble (1, 1) May be repeated for credit.
3604-5604 Jazz Ensemble (1, 1) May be repeated for credit.
3606-5606 Trombone Ensemble (1, 1) May be repeated for credit.
3607 Tube Ensemble (1) May be repeated for credit.
3610-5610 Percussion Ensemble (1, 1) May be repeated for credit.
3612-5612 Baroque Ensemble (1, 1) May be repeated for credit.
3620-5620 UT Singers (1, 1) May be repeated for credit.
3630-5630 Chamber Singers (1, 1) May be repeated for credit.
3632-5632 Collegium (1, 1) May be repeated for credit.
3634-5634 Saxophone Choir (1, 1) May be repeated for credit.
3640-5640 Opera Workshop (1, 1) May be repeated for credit.
3650-5650 Concert Band (1, 1) May be repeated for credit.
3655-5655 Campus Band (1, 1) May be repeated for credit.
3654-5654 Varsity Band (1, 1) May be repeated for credit.
3655-5655 Laboratory Band (1, 1) May be repeated for credit.
3657-5657 Marching Band (1, 1) May be repeated for credit.
3670-5670 Symphony Orchestra (1, 1) May be repeated for credit.
3680-5680 Concert Choir (1, 1) May be repeated for credit.
3682-5682 University Choir (1, 1) May be repeated for credit.
3686-5686 Men's Glee Club (1, 1) May be repeated for credit.
3687-5687 Women's Chorale (1, 1) May be repeated for credit.
3699-5699 Accompanying (1, 1) May be repeated for credit.
3664-5664 Campus Choir (1) May be repeated for credit.

GRADUATE
The Department of Music offers the
Master of Music degree in performance,
composition, music theory, choral
conducting, and Suzuki string techniques,
and the Master of Arts degree in
musicology and music theory. See the
Graduate Catalog for admission and
degree requirements.
5000 Thesis
5001 Choral Conducting Document (3)
5002 Non-Thesis Graduation Completion (3-15)
5100 Organ Literature Seminar (3)
5102-23-23 Pedagogy of Voice (2, 2, 2)
5020 Piano Literature Seminar (3)
5030 Choral Literature Seminar (3)
5040 Vocal Literature Seminar (3)
5050 Graduate Recital (3)
5051 Opera Performance (3)
5052 Vocal Chamber Music Performance (3)
5053 Choral Conducting Performance (3)
5054 Lecture-Recital (3)
5055-56 Practicum for Instrumental Conductors
5057 Instrumental Conducting Seminar (3)
5060 Seminar in Choral Performance (3)
5070 Opera Production (1-3)
5080 Instrumental Conducting Performance (1)
5090 Special Topics in Performance (1-3)
5100 Independent Study in Music Theory (1-3)
5111 Advanced Harmony (3)
5114 History of Music Theory (3)
5116 Musical Styles (3)
5121 Analytical Techniques (3)
5125 Practicum in Computers and Music Research (3)
5150 Seminar in Music Theory (3)
5200 Independent Study in Music History and Literature (1-3)
5210 Introduction to Music Research (3)
5220 Proseminar (3)
Organizational Psychology Program
See Graduate School.

Philosophy (745)

Professors: J.W. Davis (Head), Ph.D. Emory; R.B. Edwards, Ph.D. Emory; M.H. Moore (Emeritus), Ph.D. Chicago; D. Van de Vate, Ph.D. Yale

Associate Professors: D.J. Aquila, Ph.D. Northwestern; G.G. Bronkert, Ph.D. Michigan; L.B. Cebik, Ph.D. Nebraska; G.C. Graber, Ph.D. Michigan; B.C. Postow, Ph.D. Yale

Assistant Professors: J.O. Bennett, Ph.D. Tulane; S.M. Cohen, Ph.D. Northwestern; K.A. Emmett, Ph.D. Ohio State; H.P. Hamlin, Ph.D. Georgia; J.R. Hargreaves, Ph.D. Texas; E.R. Jones III, Ph.D. Chicago; J.E. Nolte, M.A. Ohio State; D.E. Ost, Ph.D. Texas; S.J. Reaven, Ph.D. California (Berkeley)

Instructor: M.L. Osborne, M.A. Bryn Mawr

Philosophy seeks to understand humans, the world, their relations. It involves (1) use of logical and scientific methods, (2) appreciation of all values, (3) history of ideas, (4) philosophical systems. Philosophy is an appropriate major for students wishing a broad education, and those preparing for careers as writers (whether journalistic or literary), lawyers, ministers, teachers, in various types of political and government service, and in non-technical positions in business and industry. A major in philosophy implies a balanced program in the humanities, natural and social sciences. Graduate students should read French or German, preferably both; other ancient or modern languages are useful and necessary for some advanced work.

UNDERGRADUATE
Major: 36 hours in courses numbered 2000 and above. Majors should discuss their program with a member of the philosophy faculty.
Minor: 24 hours in courses numbered 2000 and above. It is suggested that minors discuss their programs with a member of the philosophy faculty.

American Studies. See Cultural Studies.

Russian and East European Studies. See Cultural Studies.

1510 Introduction to Philosophy: Human Nature and Values (4)

1520 Introduction to Philosophy: Consciousness and Reality (4) May be taken before 1510.

1600 Topics in Philosophy (4) May be repeated once for credit.

2310 Elementary Ethics (4) Theories of ethical values.

2410 Art and Experience (4) Introduction to various understandings of art.

2510-20 Elementary Logic (4, 4) 2510—Traditional or modern deductive logic, informal fallacies, uses of language, definitions. (3810 is recommended as introductory for students with mathematical aptitude). 2520—Inductive reasoning, elements of scientific method and statistical inference.

3111 Ancient Western Philosophy (4)

3121 Medieval Philosophy (4)

3131 Seventeenth- and Eighteenth-Century Philosophy (4)

3141 Nineteenth- and Early Twentieth-Century Philosophy (4)

3151 Contemporary Philosophy (4) Survey of recent movements in philosophy.

3270 Russian Philosophical and Theological Thought (4) Same as Russian 3270 and Religious Studies 3270.

3311-12 American Philosophy (4, 4) 3311—Colonial to late nineteenth century; 3312—Late nineteenth century to present.

3320 Philosophy of Law (4) Nature, sources, function of law.

3330 Philosophy of History (4) Speculative and critical aspects of philosophy of history.

3410 Philosophical Ideas in Literature (4) Philosophical assumptions and implications in major literary works.

3420 Philosophy of Literature (4) Study of the nature, functions, value and epistemological principles of literary arts.

3430 Concepts of Woman (4) Examination of some of theoretical foundations of feminism and anti-feminism.

3440 Social Ethics (4) Ethical theory as related to politics, economics, education, law, religion and the family.

3510 Existentialism (4)

3550 Marxism as Philosophy (4)

3570 Social and Political Philosophy (4) Philosophical problems relating to nature and justification of social policies and institutions.

3611 Religious and Philosophical Issues in Medical Ethics (4) Same as Religious Studies 3611.

3650 Philosophy and Religion in India (4) Same as Religious Studies 3650.

3660 Buddhist Philosophy and Religion (4) Same as Religious Studies 3660.

3671 Religion and Philosophy in China (4) Same as Religious Studies 3671.

3690 Philosophy of Religion (4) Analysis of basic issues of religion. (Same as Religious Studies 3690).


3740-50 Conceptual History of Science (4, 4) 3740—The Scientific Revolution: historical evolution of thought in astronomy, mechanics, and philosophy of nature up to Newton. 3750—The development and decline of Newtonian science: historical evolution of thought on the nature of matter and of light, and its impact on eight hrs of physical science or consent of instructor.

3770 Introduction to Philosophy of Science (4) Standard topics in philosophy of science: scientific method, nature of laws and theories, problem of induction, explanation, measurement. No background in logic is presupposed.

3810 Introductory Symbolic Logic (4) Techniques for formal analysis of deductive reasoning (propositional logic and quantification theory).

3910 Contemporary Aesthetics (4) Philosophical discussion of contemporary art.

4000 Special Topics (4) A student-instructor-initiated course to be offered at convenience of department. Subject matter to be determined by mutual consent of students and instructor with approval of department. Prerequisites to be determined by department. May be repeated for credit.

4101 Foreign Study (1-16) See page 187.

4102 Off-Campus Study (1-16) See page 187.

4103 Independent Study (1-16) See page 187.

4111-21 Modern Religious Philosophies (4, 4) (Same as Religious Studies 4111-21).

4310 Intermediate Ethics (4) Topics in meta-ethics or ethics.

4370-71 Theoretical Issues in Medical Ethics (4, 4) 4370—Prereq: 2310 or 3611 or consent of instructor. 4371—Prereq: 3670 or consent of instructor. (Same as Religious Studies 4370-71.)

4410 Plato (4) Prereq: Eight hrs of philosophy or consent of instructor.

4420 Aristotle (4) Prereq: Eight hrs of philosophy or consent of instructor.

4450 Continental Rationalism (4) Prereq: Eight hrs of philosophy or consent of instructor.

4480 British Empiricism (4) Prereq: Eight hrs of philosophy or consent of instructor.

4470 Kant (4) Prereq: Eight hrs of philosophy or consent of instructor.

4480 Advanced Topics in Existentialism and Phenomenology (4) Prereq: Eight hrs of philosophy or consent of instructor.


4511 Advanced Topics in Logic (4) Prereq: Consent of instructor. May be repeated for credit.

4610 Philosophical Analysis (4) Prereq: Eight hrs of philosophy or consent of instructor.

4620 Philosophy of Mind (4) Problems of mind and body in relation to consciousness and personal identity. Prereq: 8 hrs of philosophy or consent of instructor.

4630 Philosophy of Language (4) Prereq: Eight hrs of philosophy or consent of instructor.

4710 Philosophy of Natural Science (4) Consideration of standard topics pertinent to natural science including reduction of theories and tete-à-tete explanation. Familiarity with symbolic logic is recommended. Prereq: 3770 or two years of natural science.

4720 Philosophy of Social Science (4) Examination of methods of inquiry and modes of explanation in social sciences. Prereq: 3770 or two years of social science.

4810 Metaphysics (4) Prereq: 8 hrs of philosophy or consent of instructor.

GRADUATE

5000 Thesis

5050 Symbolic Logic (4)

5080 Philosophy of Logic (4)

5110-20-30-40-50-60 Studies in History of European Philosophy (4, 4, 4, 4, 4, 4)
Engineering 1310-20-30 may be substituted for Physics 1318-28-38 and Physics 2310-20-30 may be substituted for Physics 2318-28-38 as a graduation requirement. Transfer students from the schools or departments may substitute 2510 and 1330 for 1310-20-30 or 1318-28-38.

A major in physics with a concentration in health physics includes Physics 2310-20 or 2318-28, 3310-20-30, 4210-20, 4710-20-30, and Mathematics 2840-50-60. It is suggested that students also take Chemistry 1110-20-30, 3211-21-31, 3219-29-39, and 12 hours of an approved biological science.

Minor: A minor in physics shall consist of Physics 2310-20 or 2318-28 and 15 hours from physics and astronomy courses numbered 1300 and above. See minors provisions in the major statement also apply to the minor.

An Engineering Physics Curriculum is also offered. The program is described on page 131 and listed in tabular form on page 131.

1210-20-30 Introductory Physics (4, 4, 4) General course for students whose major falls outside the physical sciences. Concepts of physics developed by observation, and the logic rather than that of mathematics analysis. Specific areas covered in the first quarter are mechanics, heat and energy. In the second quarter wave motion, sound, electricity and magnetism, and light are discussed. In the third quarter the main emphasis is on modern physics. It is recommended that the courses be taken in sequence. 1210-20-30 represents a survey of classical physics and are recommended as an introduction to the discipline for liberal arts non-science majors.


1410-20-30 Nature of the Physical World (4, 4, 4) Introduces the concepts and principles of physical sciences which enable a student to establish a unified picture of the physical universe. In the first two principles of mechanics, electricity, and wave motion are developed and applied to such varied fields as solar systems, atomic and molecular behavior, and changes in the atmosphere and in the earth's crust and to stellar and galactic phenomena. In the third term these principles are applied in more specific topics such as nuclear energy, atomic and molecular physics, and the interaction of light and matter. May be taken out of sequence only with consent of instructor. 4 hrs including demonstration lab.

1450 Physics of Athletic Activity (4) Principles of physics, particularly of mechanics and heat, are introduced. Discussion of these ideas will emphasize their role in physical activities, particularly sports-related. Core course includes statics, equilibrium, linear and angular motion, momentum, force, work, and energy. 4 hrs lecture-demonstration.

1810 Physics of Music (4) Production, transmission, and reception of sound waves. Frequency, intensity, timbre, basic acoustics of instruments and voice. 4 hrs lecture and demonstration.

2210-20-30 Elements of Physics (4, 4, 4) 2210-30-30 Elements of Physics, particularly of fluids, heat, electricity and magnetism, sound waves. 2230—Optics, atomic and nuclear physics, radiation
**College of Liberal Arts**


1400 Elementary Nuclear Physics (3) General properties of nuclei, two-nucleon systems, nuclear forces, nuclear models, nuclear reactions, nuclear disintegrations and beta-decay, nuclear spin and magnetism. Prereq: 3730 or 4120.

160 Physical Acoustics (4) Considerations fundamental to detailed investigation of any branch of acoustics; propagation of acoustic waves in the insonic, the audible, the ultrasonic, and the hypersonic ranges of frequencies. 3 hrs and 1 lab. Prereq: 3210-20-30.

210-20-50 Electricity and Magnetism (3, 3, 3) Intermediates level electrostatics, steady and alternating currents; laws of electromagnetism; Maxwell's equations; radiation of electromagnetic waves; reflection and refraction; electromagnetic fields of moving charges. Must be taken in sequence. Prereq: 2320 or 2220 and Math 2830.

2420-40 Modern Optics (4, 4) Geometrical Optics: Reflection and transmission of light at a dielectric interface; paraxial theory of interfaces, lenses, and mirrors; thick lenses, lens systems, ray tracing; polarization; imagery; laser light. 4240—Physical Optics: Mathematics of wave motion, superposition of waves; interference; Fraunhofer and Fresnel diffraction. Fourier optics; holography. Prereq: 4210 or consent of instructor. 3 hrs lecture and 3 hrs lab.

4510-20-30 Atomic Physics Laboratory (3, 3, 3) Experiments in fundamental particle properties, photoelectricity, conduction of electricity through gases, atomic and molecular spectroscopy, X-ray. Prereq or coreq: 3710-20-30. 3 labs.

4540-50 Experimental Nuclear and Radiation Physics (4, 4) Interaction of charged particles and electromagnetic radiation with matter; theory and characteristics of various detectors; statistics of counting, nuclear properties. Experiments illustrate recent techniques for investigating the nucleus and nuclear radiation. 1 hr lecture, 6 hrs lab. Prereq: 2330.

4560 Principles of Non-Destructive Testing (3) Detection and characterization of discontinuities in materials by non-destructive physical measurements. Ultrasonic, electromagnetic, holographic, and penetrating radiation techniques are discussed. Prereq: 2310-20-30 or consent of instructor. (Same as Engineering Science and Mechanics 4560.)


4710-20-30 Introduction to Health Physics (3, 3, 3) Radioactivity, interaction of electromagnetic radiation with matter, radiation quantities and units, biological and environmental effects, X-rays and gamma rays, neutron activation, interaction of charged particles with matter, stopping power, range-energy relations, counting statistics, shielding, dosimetry, waste disposal, criticality prevention, radiation biology and ecology. Prereq: 3720.

4918-29-38-48-58-68-78 989-99: Research and Independent Study (1 hr each) Designed for excellent undergraduate majors. Provides opportunity for research and independent study with faculty guidance. Special consent of department is required. Maximum credit 9 hrs.

4990 Senior Seminar (1-3) Topic of current interest. May be repeated for credit with consent of department.

**GRADUATE**

General requirements for the master's degree and doctoral program are found in the Graduate Catalog.

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1 Or equivalent honors courses.
United States Government and Politics/Public Administration

2510-20 United States Government and Politics (4, 4) 2510—Foundations: the Constitution, federalism, separation of powers, campaigns and elections, parties, interest groups, the media, public opinion. 2520—Institutions: Executive, legislative, judiciary, and bureaucracy at national, state, and local levels.

2518-28 Honors: United States Government and Politics (4, 4) Honors course designed for students of superior ability and interest. Entrance into 2518 requires an average. Selection of entering freshmen will be accepted on the basis of placement scores and high school record. A grade of B in 2518 is necessary for entrance into 2528.

2530 Tennessee Government and Politics (4)

3545 United States Constitutional Law: Sources of Power and Restraint (4) Analysis of judicial review, constitutional powers of President and Congress, federalism, sources of regulatory authority, and constitutional protection of political rights. 2510-20 desirable as preceding courses.


3555 Minority Group Politics in the United States (4) Content varies from quarter to quarter. May be repeated up to a maximum of 8 hrs credit with consent of department.

3565 Introduction to Public Administration Organization and Management (4) Organization and decision-making theory, line and staff services, policies of organization, leadership, personnel and fiscal management, administrative responsibility. 2510-20 desirable as preceding courses. (Same as Water Resources Development 3565.)

3566 Public Administration and the Policy-Making Process (4) Public bureaucratic and the policy-making process, their political environments, administrative problems associated with policy making. 2510-20 are desirable as preceding courses.

3710 State Politics (4) Focus on formal and informal setting of state government: governors, courts, legislators, and state administrators. Attention will be paid to state government’s role in formulating, enacting, and implementing state policy.

3720 State Government and Policy Making (4) Nature and functions of the institutions of state government: governors, courts, legislatures, and state administrators. Attention will be paid to state government’s role in formulating, enacting, and implementing state policy.

3750 The Urban Polity (4) Analysis of political institutions and processes in metropolitan areas.

3780 Urban Policy Process (4) Analysis of urban problems and policies in metropolitan areas.

3880 American Political Thought (4) Examination of role of political ideas, doctrines, and themes in America, emphasizing their development and relationships to diverse political interests.

4410 Law and the Administrative Process (4) Power of, procedures of, controls over administrators.

4535-36 Political Attitudes, Opinions and Communication (4, 4) Nature, development, formation, and distribution of political attitudes and opinions; role of leadership, persuasion, and communication in opinion-policy process.

4540-50 Presidency, Congress and Public Policy (4, 4) The Presidency and Congress within framework of policy-making process.

5454-46 The Judicial Process (4, 4) The study of courts as components of political systems, and public policy formulation through judicial decision making. 2510-20 desirable as preceding courses.

4575 Special Topics in United States Government and Politics (4) May be repeated up to a maximum of 8 hrs credit with consent of department.

4610 Budgetary Process (4) Fiscal planning, budget and expenditure processes in government, their structure and administrative implications.

4620 Public Personnel Administration (3) Development of the merit system in government, career systems, public personnel management functions, organization for personnel management.

4746-50 Special Topics (3, 3) 4746-50—Structure and function of party system; nominations and campaigns. 4760—Voting behavior of the electorate.

4940 Politics and the Environment (4) Examination of formulation and implementation of public policies relating to physical environment with emphasis upon water and air pollution control.

Comparative Government and Politics

3605 Political Change in Developing Areas (4) Characteristics and problems of political changes with primary focus on developing areas.

3615-16 Dynamics of Black African Politics (4, 4)

3621-22 Politics of Asian States (4, 4)

3625-26 Latin American Government and Politics (4, 4)

3631-32 Government and Politics of the Soviet Union (4, 4)

3635-36 Politics in Western Democracies (4, 4) Political culture, patterns, and institutions of Western democratic systems.

3641 Government and Politics of Middle East and North Africa (4)

3795 Contemporary Middle East (4) (Same as History 3795.)

4665-66 Policy Making in Democracies (4, 4) Comparative approach to theory and process of making public policies.

4675 Special Topics in Comparative Government and Politics (4) May be repeated up to a maximum of 8 hrs credit with consent of department.

International Relations

3701-02 Introduction to International Relations (4, 4) 3701—Methodology and background. 3702—International processes and institutions including war, diplomacy, law and organization.

3712-22 U.S. Foreign Policy Process (4, 4) Processes whereby U.S. foreign policies are made and implemented, focusing on interaction within federal bureaucracy and between the President, Congress, the press, and public opinion.

3790 Contemporary Diplomatic and Military Problems (4) Analysis of current international events.

3796 Contemporary Problems of Soviet Foreign Policy (4)


4711 International Law (4)

4727 Politics of Inter-American Relations (4) Analysis of selected theoretical and policy issues concerning international relations in the Americas with emphasis upon imperialism, intervention, and the Cuban revolution, nationalism, foreign assistance, trade and economic integration.

Political Theory and Methodology

3601 Studies in Ancient Political Thought (4) Classical Greek and Roman political thought.
3802 Studies in Medieval Political Thought (4) From Augustinian philosophy to Arius on problems and theories of religion and politics.
3803 Studies in Early Modern Political Thought (4) Machiavelli through the Enlightenment.
3804 Studies in 19th- and 20th-Century Political Thought (4) Political theories of industrial and technological societies; 19th and 20th century.
4815 Contemporary Soviet Marxism-Leninism (4) Soviet applications of Marxist-Leninist theory.
4831-32,33 The Systematic Study of Politics (4, 4, 4) Scope, methods and procedures of analysis in political science; intended primarily for seniors intending to pursue graduate work and entering graduate students who have not had such a course.
4875 Special Topics in Political Thought (4) May be repeated up to a maximum of 8 hrs credit with consent of department.

Other
4101 Foreign Study (1-16) See page 187.
4102 Off-Campus Study (1-16) See page 187.
4103 Independent Study (1-16) See page 187.
4975 Proseminar in Political Science (4) Selected readings for seniors; primarily for majors. May be repeated up to a maximum of 8 hrs with consent of department.
Graduate
General requirements for the master's degree and doctoral degree are found in the Graduate Catalog.
5000 Thesis
5002 Non-Thesis Graduation Completion (3-15)
5101 Foreign Study (1-12)
5102 Off-Campus Study (1-12)
5103 Independent Study (1-12)
5110-20 Seminar in World Political Theory (3, 3)
5140 Politics, Administration and Community in Non-metropolitan Areas (3)
5150 Internship in Political Science (3-9)
5210-20-30 Seminar in World Politics (3, 3, 3)
5211 Directed Readings in Political Science (3)
5250 Seminar in African Politics (3)
5270 Seminar in Politics of Development (3)
5310-20 Seminar in Comparative Government (3, 3)
5340-50 Seminar in Latin American Government (3, 3)
5370-80 Seminar in Soviet Politics and Government (3, 3)
5410-20 Seminar in Public Law (3, 3)
5440-50 Theory and Analysis of U.S. Foreign Policy Processes (4, 4)
5510 Seminar in International Organization (3, 3)
5540 Seminar in Comparative Public Administration (3)
5550 Seminar in Administration in Developing Countries (3)
5600 Public Administration (3)
5605 Research and Methodology in Public Administration (3)
5610-20 Seminar in Organization Theory (3, 3)
5611-21 Seminar in State-Local Administration (3, 3, 3)
5630 Seminar in Technology and Public Policy (3)
5635-45 Operations Research for Public Administrators (3, 3)
5640-50-60 Seminar in Metropolitan Areas (3, 3, 3)
5641 Seminar in Contemporary Public Policies (3)
5670-80 Seminar in Policy Analysis (3, 3)
5710 Seminar in Politics of Administration (3)
5740 Seminar in Organizational Analysis (3)
5750 Seminar in Public Management (3)
5755 Seminar in Public Management (3)
5760 Seminar in TVA Public Personnel Management Practices (3)
5765-75 Law and the Administrative Process (3, 3)
5770 Practicum in Public Administration (3)
5780 Seminar in Fiscal Management (3)
5785-95 Seminar in Staff Functions (3, 3)
5810 The American Political Process (4)
5820 The American Political Process (4)
5850 Seminar in Comparative State Politics (3)
5910-20-30 Methodology and Bibliography (3, 3, 3)
6000 Doctoral Research and Dissertation
6210 Advanced Studies in International Politics (3)
6310 Advanced Studies in Political Theory (4)
6410 Advanced Studies in International Organization (3)
6440 Advanced Studies in Comparative Politics (3)
6510-20 Advanced Studies in American Constitutional Law (3, 3)
6610-20 Advanced Studies in Public Administration (3, 3)
6710 Directed Research in Political Science (3)
6810-20 Advanced Studies in the Political Process (3, 3)

Psychology (830)
Professors:
W.H. Calhoun (Head), Ph.D. California (Berkely); G.M. Burghardt, Ph.D. Chicago; J.F. Byrne, Ph.D. Columbia; G.E. Corentin (Emeritus), Ph.D. Columbia; H.J. Fine, Ph.D. Michigan; S.J. Johnson, Ph.D. Johns Hopkins; L. Handler, Ph.D. Michigan State; J.F. Lubar, Ph.D. Chicago; E.O. Miller (Director, Learning Research Center), Ph.D. Michigan; K.R. Newton, Ph.D. Tennessee; H.R. Pollio, Ph.D. Michigan; N.L. Raskin, Ph.D. Pennsylvania; F. Samejima, Ph.D. California; P.D. Kejo (Japan); R.R. Shadish, Ph.D. Tennessee; W.S. Verplanck, Ph.D. Brown; R.G. Wahler, Ph.D. Washington; J.A. Wibeller, Ph.D. Syracuse.
Associate Professors:
C.P. Cohen, Ph.D. Kansas; L.F. Droppleman, Ph.D. Catholic; H.R. Friedman, Ph.D. Tennessee; C. Johnson, Ph.D. Johns Hopkins; J. Kandlak, Ph.D. Tennessee; J.W. Lounsby, Ph.D. Michigan State; A. McIntyre, Ph.D. Yale; J.C. Malone, Ph.D. Duke; W.G. Morgan, Ph.D. Tennessee; M.J. O'Connell, Ph.D. Tennessee; W.M. Simmons, M.S.W. Tennessee; E.D. Sundstrom, Ph.D. Utah; C.L. Travis, Ph.D. California (Davis).
Assistant Professors:
J.M. Barlow, Ph.D. Tennessee; N.W. Dye, Ph.D. Tennessee; E.J. Fisher, Ph.D. Tennessee; D.S. Freeman, Ph.D. Tennessee; J.A. Jones, Ph.D. Nebraska; W. Kaufman, Ph.D. Rutgers; J.E. Lawler, Ph.D. North Carolina; K.A. Lawler, Ph.D. North Carolina; K.R. Lounsbury, Ph.D. Delaware; R.S. Saudargas, Ph.D. Florida; P.H. Todd, Ph.D. California (Berkely); J.G. Wallace, Ph.D. Tennessee.

Undergraduate
Major: (Concentration in General Psychology) Designed to give students a broad and current background in the science and application of psychological methods and principles. It is particularly suited for students who plan careers in areas such as business, law, advertising, journalism, or who for other reasons desire a liberal education concentrating on psychology. Psychology 2500 and two courses from 2520-30-40 or 2518-28 are prerequisite to a major consisting of Psychology 3150 or 4150, at least 4 hours of laboratory, field, or practicum courses, and 32 or more hours of upper-division psychology courses.
(Concentration in Academic Psychology) Designed to prepare students for advanced work in the scientific, professional, and college level teaching areas of psychology. Prerequisites to the major include Psychology 2500, two courses from 2520-30-40 or 2518-28, Mathematics 1540-50-60 or 1840-50-60, and Biology 1210-20-30. The major consists of Psychology 3150 or 4150, 8 hours of laboratory, field, or practicum courses, and 28 or more hours of upper-division courses, of which at least 12 hours must be in courses at the 4000 level.
Minor: A minor in psychology shall consist of Psychology 2500 and 20 additional hours from 3000- and 4000-level courses.
Honors Program in Psychology. A two-year (Junior-Senior) program leading to the B.A. degree. Objective of the Honors Program is to enable superior students to accelerate development of grasp of science of psychology. Program encourages independent study.
Eligibility: Selection of participants is determined by Undergraduate Honors Committee. The interested student should apply to the psychology department. Successful applicants usually have a G.P.A. of at least 3.0. Requirements: Psychology 2500 or 2518 and one other 2000-level course in psychology, 3150, and one quarter of laboratory or field experience. Honors students will complete Psychology 4948-58-68 and Psychology 4978-88-98.
Completion of the Honors Program is dependent upon submission of an acceptable Honors thesis and passing of a final Honors examination.

2500 General Psychology (4) An introduction to psychology, with emphasis on the development, methods, and contributions of the major movements and ideas which define contemporary psychology.
2518-28 Honors: General Psychology (4, 4) First quarter an enriched survey of general psychology. Second quarter participation is psychological research, either individually or team arranged. Prerequisite for 2518: Minimum ACT Composite 28; GPA 3.2. Prerequisites for 2528: Admission by consent of department.
2520 Biological Foundations of Behavior (4) Survey of theories and research pertaining to the biological foundations of behavior. General psychology required.
2530 Psychology as a Social Science (4) Introduction to individual behavior and experience in a social context. 2500 recommended.
2540 Psychology of the Individual (4) Study of individuals, their behavior, and the progressive changes in behavior that occur in natural envi-
Religious Studies (863)

Professors: R.S. Luby (Head), B.D. Colgate (Rochester); B.L. Dungan, Th.D. Harvard; R.V. Norman, Jr. (Associate Vice-Chancellor for Academic Affairs), Ph.D. Yale.

Associate Professors: B.L. Daniels (Assistant Dean of the College of Liberal Arts), Ph.D. Duke; W.L. Humphreys, Th.D. Union; D.E. Linge, Ph.D. Vanderbilt; C. Reynolds, Ph.D. Harvard.

Assistant Professors: R.R. Earl, Jr., Ph.D. Vanderbilt; J. Kim, Ph.D. Chicago.

Instructor: J.L. Fitzgerald, M.A. Chicago.

UNDERGRADUATE

Major: Two options are available in religious studies. One religious studies 2000-level course is a prerequisite for either option, and Religious Studies 4850 is required in both options.

The basic option consists of 36 hours of courses at the 3000 level or above (including 4850) with a minimum of 12 hours selected from courses listed below under History and Literature of Religions and a minimum of 12 hours selected from courses listed below under Problematic of Religion. Majors are invited to discuss their programs with a member of the religious studies faculty.

The student-initiated option is to be specified in an individual program defined in consultation between each student and the Department of Religious Studies. At least 38 hours of courses at the 3000 level or above (including 4850) are required for this major. Students whose educational goals would best be served by such a major are encouraged to construct their own plans of study as early as possible.

The student-initiated option is recommended for persons who plan to pursue graduate study in religion or a closely related field. Further details are available in the department office, located at 501 McClung Tower, or from any member of the religious studies faculty.

History and Literature of Religion: 3011, 3021, 3061-71, 3110, 3120, 3210-20-30, 3270, 3311-12, 3330, 3430, 3411-12-13, 3440, 3490, 3510-20, 3550, 3560, 3650, 3660, 3671, 3672, 3680, 3710, 3711, 3713, 3770, 4210, 4310, 4450, 4640, 4670, 4810-20-30.

Problematic of Religion: 3600-10, 3611, 3620, 3690, 3715, 3720, 3740, 3750, 3760, 3780, 4101, 4102, 4103, 4111-21, 4370-71, 4410, 4540, 4610, 4810-20-30, 4850, 4940, 4950, 4960.

Minor: Twenty-four hours of courses at the 3000 level and above. It is suggested that students minoring in religious studies discuss their programs with a member of the department faculty.

2610 Introduction to Religions of the World (4) Introduction to the study of religion through selected historical traditions, East and West.

2611 Introduction to Ancient Near Eastern Religions (4) Introduction to study of religion through selected ancient Near Eastern and Mediterraenean traditions.

2612 Issues in Religious Studies (4) Introduction to study of religion through selected religious problems and alternatives.

HISTORY AND LITERATURE OF RELIGIONS

3060-70-80 History of Western Religious Thought and Institutions (3, 3, 3) 3060—First century to fifth century, 3070—sixth century to fifteenth century, 3080—sixteenth century to 1900. (Same as History 3060-70-80.)

3110 Ancient Israel's Historical and Religious Traditions (4) Political, religious and cultural history and traditions of ancient Israel from earliest period to Exile.

3120 The Rise of Judaism (4) Political, religious and cultural history and traditions of exilic and postexilic Israel and early Judaism through 135 A.D. Later literature of Old Testament, Apocrypha, and Dead Sea Scrolls.

3210 Early Greek Mythology (3) (Same as Classics 3210.)

3220 Greek Mythology in the Classical Period (3) (Same as Classics 3220.)

3230 Roman Mythology (3) (Same as Classics 3230.)

3270 Russian Philosophical and Theological Thought (4) (Same as Russian 3270 and Philosophy 3270.)

3311-12 Images of Jesus (4, 4) Introduction to ancient and modern portrayals of Jesus, understood within their cultural milieu. Must be taken in sequence.


3340 Judaism in the Common Era. (3) Survey of literature and traditions of Judaism in the Common Era.
3411-12-13 Renaissance and Reformation (3, 3, 3) (Same as History 3411-12-13.)

3440 Religion of Primitive Peoples (3) (Same as Anthropology 3440.)

3490 African Religions (4) Examination of religions of the indigenous peoples of Africa, including the functions of myths, rites, and symbols and an inquiry into how certain political movements in Africa have been and are informed by religious sensibilities. (Same as Anthropology 3490 and Black Studies 3490.)

3510-20 Religion in America (4, 4) Not a survey but a representative profile of religion in America, past and present, organized each quarter around theme or problem. May be taken independently.

3550 Religion and Racism in America (4) Histori- cal and critical survey of role played by religion in supporting and criticizing American racial injustice. (Same as Black Studies 3550.)

3560 Black Religion in America (4) Historical and critical examination of formation and development of black religious thought and institutions in America. (Same as Black Studies 3560.)

3650 Philosophy and Religion in India (4) (Same as Philosophy 3650.)

3660 Buddhist Philosophy and Religion (4) (Same as Philosophy 3660.)

3671 Religion and Philosophy in China (4) (Same as Philosophy 3671.)

3672 Religion and Society in Japan (4) (Same as Sociology 3672.)

3680 Islam (4) Origin and early history, rapid spread as a world faith, development of Muslim theology and culture, interaction with modern cultures.

3710 Literature of English Bible (3) (Same as English 3710.)

3711 Literature of the English Bible (3) (Same as English 3711.)

3770 Zen Buddhism (3) Examination of historical, philosophical, and mediational materials of Zen. Special emphasis upon Zen theories of emptiness, no-mind, sudden enlightenment, and the Koan.

4210 Topics in Ancient Israelite and Ancient Near Eastern Religions (4) Prereq: 3110-20 or consent of instructor. May be repeated once for credit.

4310 Jesus and Paul Compared (4) Jesus' teaching and activity in context of first-century Palestine and Judaism, with special emphasis on what Apostles Paul made of the tradition of and about Jesus. 2610 or 2611 recommended.

4450 Topics in American Religion (4) Prereq: One of the following: 3510, 3520, 4410, or consent of instructor. May be repeated for credit to a maximum of 12 hrs.

4460 Topics in Early Christianity and Hellenistic Religions (4) Selected figures, issues, and institutions. May be repeated for credit to a maximum of 12 hrs.

4470 Topics in Eastern Religions (4) Selected figures, issues, and institutions. May be repeated for credit to a maximum of 12 hrs.

4510-20-30 Readings and Research in Religious Studies (3-4, 3-4, 3-4)

PROBLEMATIC OF RELIGION

3011 Phenomenology of Religion (4) Examination of recurrent forms, themes and patterns in history of religions such as the high gods, cultural heroes, initiations and ascensions.

3021 Religious Myth, Symbol, and Ritual (4) Study of interrelation of myths, symbols, and rituals among preliterate peoples through a specific motif, such as solar, lunar, and communal.

3600-10 Religious Ethics (4, 4) Historical and critical survey of religious ethics; basic theories and their application in social problems.

3611 Religious and Philosophical Issues in Medical Ethics (4) Assorted problems, such as abortion, euthanasia, human experimentation, fairness in health care delivery and the doctor-patient relationship. (Same as Philosophy 3611.)

3620 Topics in Religious Ethics (4) Examination of particular theoretical issues and social problems from perspectives of religious ethics. May be repeated once for credit.

3690 Philosophy of Religion (4) (Same as Philosophy 3690.)

3715 Religious Thought in the Nineteenth Century (4) Major problems and themes in European and American religious thought between 1800 and the beginning of World War I.

3720 Contemporary Religious Thought (3) Major themes, issues, and thinkers.

3740 Issues in Science and Religion (3) Relation of religion to history, methods, and theories of science.

3750 Theology and Literature (3) Exploration of issues raised for religious inquiry by phenomena of literature. Relation of religious and moral considerations to problems of literary criticism. Relation of literature to certain forms of human expression (symbol, metaphor, myth, image) identified in study of literature.

3760 Eastern Religions and Western Thought (3) Critical consideration of influences of Hindu and Buddhist philosophy on Western thinkers.

3780 The Literature of Dissent (3) Critique of religion in Western thought. Aspects of atheism, rebellion, and revolution in such thinkers as Lucretius, Spinoza, Voltaire, Feuerbach, Marx, Nietzsche, Russell, and Camus.

4101 Foreign Study (1-16) See page 187.

4102 Off-Campus Study (1-16) See page 187.

4103 Independent Study (1-16) See page 187.

4111-21 Modern Religious Philosophies (4, 4) Examination of the religious implications of major thinkers and movements. 4111—Nicolás of Cusa to Hume. 4121—Kant and the nineteenth century. Prereq: 9 hrs of philosophy other than logic. (Same as Philosophy 4111-21.)

4370-71 Theoretical Issues in Medical Ethics (4, 4) (Same as Philosophy 4370-71.)

4410 American Religious Thought (4) Selected figures, issues, and problems in American religious thought from colonial period to present.

4540 Social and Religious Change (4) (Same as Sociology 4540.)

4610 Topics in Western Religious Thought and Institutions (4) Selected figures, issues, and institutions. Seniors and graduate students only, except by consent of department. Prereq: 3061-71. May be repeated for credit to a maximum of 12 hrs.

4810-20-30 Readings and Research in Religious Studies (3-4, 3-4, 3-4)

4850 Prossemian in Religious Studies (3) For advanced students in religious studies; staff of department will participate. Specific topics, e.g., nature and function of myth in religion, problem of transcendence, integrating various disciplines involved in study of religion. Prereq: Consent of instructor. May be repeated for credit. Maximum 9 hrs.

4940 Sociology of Religion (4) (Same as Sociology 4940.)

4950 Theory of Religion (4) Elements for construction of a theory of religion drawing on resources from fields of psycho-history, social psychology, sociology of religion, cultural anthropology, theology and comparative religion.

4960 Tradition, Change and Modernity in Asia (4) Comparative study of processes of religious and social change seen in historical context in Asian societies. Comparative focus of course will vary each year (e.g., China and Japan, India and South Asia in Hinduism and Buddhism...). May be repeated once for credit. (Same as Sociology 4960.)

GRADUATE

5101 Foreign Study (1-12)

5102 Off-Campus Study (1-12)

5103 Independent Study (1-12)

5310-20 Topics in Religion and Society (4, 4)

5510-20 Topics in the History of Religion (4, 4)

5710-20 Topics in Religious Thought (4, 4)

RELATED LANGUAGE STUDIES

3140-50-60 Elementary Classical Hebrew (3, 3, 3) 3140—Basic elements of Hebrew, phonology, script, morphology and syntax. 3150—Continued grammar study and selected reading and translation. 3160—Continued reading and translation. Introduction to basic elements of text, literary form, historical and traditional criticism. 

3170-80-90 Intermediate Classical Hebrew (4, 4, 4) 3170—Torah and Former Prophets. 3180—Prophets. 3190—Writings and Mishnaic Hebrew. Prereq: 3151 or consent of instructor.

4840 Readings in Selected Language Related to Religious Studies (3-4) Prereq: Consent of instructor. May be repeated. Maximum credit 12 hrs.

Romance Languages

Professors:

H.C. Rutledge (Head), Ph.D. Ohio State; W.R. Avrett (Emeritus), A.M. Texas; P.E. Barrette, Ph.D. California (Berkeley); C.W. Cobb, Ph.D. Tulane; P.J. Cooper, Ph.D. Columbia; T.B. Irving, Ph.D. Princeton; H.E. Lewald, Ph.D. Minnesota; F.D. Maurino, Ph.D. Columbia; J.O. Swain (Emeritus), Ph.D. Illinois; A.M. Vazquez-Bigi, Ph.D. Minnesota; G.E. Wade (Emeritus), Ph.D. Ohio State; A.H. Wallace, Ph.D. North Carolina.

Associate Professors:


Assistant Professors:

D. Arrington, Ph.D. Kentucky; E.J. Campion, Ph.D. Yale; M.H. Handelsman, Ph.D. Florida; K.D. Levy, Ph.D. Kentucky.

Instructors:

C.G. Cox, M.A. Tennessee; M.T. Rabot, Cert. de Lic. Poitiers; P.A. Wilson, M.A. Tufts.

Placement Examination: Students who have had two or more years' work in French, Italian, or Spanish in high school or one year's work in another college should register in French or Spanish 2110 or in French, Italian, or Spanish 21510. During the first week of the quarter a placement test will be given, and students will be advised if a change in registration is indicated.

Proficiency Examinations: Students who have acquired a knowledge of French, Italian, or Spanish through private study, tutoring, residence in foreign countries, or other methods should initiate a request for a proficiency test in the Office of the Dean of Admissions and Records. A student earning a grade of C or better on such a test will receive credit for a limited number of courses. Support students are encouraged to proceed as rapidly as their achievement permits.
Note to Majors and Minors in French, Italian, or Spanish and Minors in Portuguese: Students who have completed nine hours of upper-division courses in French, Italian, or Spanish literature at The University of Tennessee, or who have substantial work at other institutions, must either (1) have a minimum grade point average of 2.0 in French, Italian, or Spanish before being accepted for a major's program, or (2) qualify by demonstrating during the first week of the quarter, not less than a minimum ability equivalent to a grade of middle C on the current examination in French or Spanish 2130 or French, Italian, or Spanish 2520. All majors must take upper-division courses under more than one instructor, and must have an acceptable pronunciation and an adequate reading knowledge of the language.

Latin American Studies. See Cultural Studies.

Certification for Teaching French or Spanish in Tennessee Consult Certification Clerk, Room 212 Claxton Education Building.

Arabic (127)

1510-20 Spoken Arabic (4, 4) Must be taken in sequence. Dictator will vary depending on instructor. Class meetings and 2 laboratory periods.

2110-20-30 Elementary Modern Standard (3, 3, 3) Must be taken in sequence. 3 class meetings and 2 laboratory periods.

3510-20 Intermediate Modern Standard (4, 4)

3610 Islamic Literature in English Translation (4) Survey from origins to modern period of major Islamic literatures, especially Arabic, Persian and Turkish; Readings include The Arabian Nights, The Rubaiyat of Omar Khayyam and Gibran’s The Prophet.

4101 Foreign Study (1-16) See page 187.

GRADUATE

5070-60-90 Hispano-Arabic Literature and Culture (3, 3, 3)

5101 Foreign Study (1-12)

5102 Off-Campus Study (1-12)

5103 Independent Study (1-12)

French (405)

Major: Consists of 36 hours in courses numbered 3110 or above. Students whose primary interest in literature must have the following courses (or their equivalent, with consent of the department): 3110-20-30 or 3810-20-30 (aspects or survey of literature, 9 hours); 3410 or 3420 or 3430 (intermediate composition and conversation, 3 hours); 4210 (phonetics, 3 hours); 4220 or 4230 (intermediate grammar, 3 hours); 6 hours selected from courses 3410-20-30 (intermediate composition and conversation, 2420-30 (advanced grammar, or 4250-60-70 (linguistics); 6 hours of literature at the 4000 level; 6 additional hours selected from courses in literature, language, or civilization. With either of the above options, students may substitute Foreign Study (4101) for certain courses; students with special interests, such as comparative literature, may make certain substitutions with consent of the department.

Minor: Consists of 24 hours in courses numbered 3110 or above, including the following: 3110-20-30 or 3810-20-30 (aspects or survey of literature, 9 hours); 3410 (intermediate composition and conversation, 3 hours); 4210 (phonetics, 3 hours); 9 additional hours selected from courses in literature, language, or civilization. Students pursuing a minor are strongly advised to consult with a departmental adviser.

Courses which are the equivalents of the foreign language, are approved by consent of the department; but courses in French literature in English translation may not be counted toward either a major or a minor.

1110-20-30 Elementary French (3, 3, 3) This sequence strongly recommended for students intending to take upper-division courses in French. Must be taken in sequence. 3 hrs and 2 labs.

1510-20 Elementary French (4, 4) Must be taken in sequence. 4 class meetings and 2 laboratory periods.

1518-28 Honors: Elementary French (4, 4) Honors course for students of superior ability. 1518 not open to students who have taken French in high school. Freshmen are admitted on the basis of a diagnostic test or conference with the instructor, high school average, and performance on the ACT. This class will be held to a maximum of 15 so that each student may receive more attention. This class will cover the normal French program for the first year, but will be enriched whenever possible. Students will be expected to spend only the normal amount of time in preparation. Those who find the course too difficult may easily transfer to a regular class. Potential majors and minors in French are urged to take this course. Students who pass 1510 with a grade of B or higher may take 1528 instead of 1520.

2110-20-30 Intermediate French (3, 3, 3) This sequence strongly recommended for students intending to take upper-division courses in French. Must be taken in sequence. 3 hours and 2 labs.

2510-20 Intermediate French (4, 4) Must be taken in sequence. 4 class meetings and 2 laboratory periods.

2518-28 Honors: Intermediate French (4, 4) Honors course for students of superior ability in French. Incoming freshmen are admitted on the basis of a diagnostic test, high school average, and performance on the ACT. This class will be held to a maximum of 15 so that each student may receive more attention. Students will follow an enriched program with continuing emphasis upon speaking ability with special emphasis on reading, including literary selections. Must be taken in sequence. Students who earn an A or B in 2528 automatically receive credit for French 3000. Prerequisites: French 1110-20-30, 1510-20, 1518-28 or equivalent.

2610-20 Panorama of French Culture (4, 4) 2610: Topics include cultural forces which produced the French nation; art, literature, architecture, music under French 1: civilization; and the culture. 2620: Deals with arts in Age of Reason and trends in French culture dur-
4250 Introduction to Descriptive Linguistics (3) Phonetics and phonemics, morphology and syntax. Types of languages, linguistic groups, dialects and dialect geography. Application of descriptive linguistics—field linguistics, dialect study; its practical use in learning languages and in language teaching. Introduction to transformations grammar. Prereq: 9 hrs of upper-division English or 9 hrs of upper-division courses in a modern or classical language (except knowledge of these languages), or consent of department. (Same as Spanish, German, and Russian 4250)

4260 Introduction to Historical and Comparative Linguistics (3) (Same as Spanish, German and Russian 4260)

4270 Romance Linguistics (3) Development of classical Latin through vulgar Latin into major Romance languages. (Same as Spanish 4270)

4310-20-30 French Literature of Eighteenth Century (3, 3, 3) Prereq: 2130, 2520 or equivalent.

4550-60-70 Medieval French Literature (3, 3, 3) Medieval works in modern French texts. Prereq: 2130, 2520 or equivalent.

4410-20-30 French Civilization (3, 3, 3) Prereq: 2130, 2520 or equivalent.

4510-20-30 French Literature of Nineteenth Century (3, 3, 3) Prereq: 2130, 2520 or equivalent.

4610-20-30 Readings in French Literature (3, 3, 3)

4618-28 Honors: Readings in French Literature (3, 3) For students who have completed 3130 or equivalent and have at least 3.0 on all university work. No credit for grade less than B.

4640-50-60 French Literature of Sixteenth Century (3, 3, 3) Prereq: 2130, 2520 or equivalent.

4710-20-30 French Literature of Twentieth Century (3, 3, 3) Prereq: 2130, 2520 or equivalent.

GRADUATE

General requirements for the master's program are given in the Graduate Catalog.

5000 Thesis

5002 Non-Thesis Graduation Completion (3-15)

5011 Techniques in Literary Analysis (3)

5101 Foreign Study (1-12)

5102 Off-Campus Study (1-12)

5103 Independent Study (1-12)

5110-20-30 Old French (3, 3, 3)

5121 College Teaching of Romance Languages (3)

5151-61-71 Bibliography and Methods of Research (1, 1, 1)

5210-20-30 French Literature of Sixteenth Century (3, 3, 3)

5310-20-30 French Directed Readings (3, 3, 3)

5350-60-70 The Philosophes (18th Century) (3, 3, 3)

5410-20-30 The French Novel (3, 3, 3)

5450-60 Lyric Poetry of Nineteenth Century (3, 3)

5470 Baudelaire and the Symbolists (3)

5610-20-30 Trends in Contemporary French Literature (3, 3, 3)

5650-60 Advanced Syntax and Stylistics (3, 3)

5670 Problems in Romance Linguistics (3)

5710-20-30 Seminar in French Literature (3, 3, 3)

5910 Literary Criticism: Foundations of Romance Criticism (3)

Italian (584)

UNDERGRADUATE

Major: Consists of 36 hours in courses numbered 3110 or above, to include the following (or equivalents, with consent of the department): 3410-20-30 (advanced grammar, composition and conversation, 9 hours); 3110-20-30 or 3510-20 (aspects of Italian literature, at least 8 hours); 9 hours of literature at the 4000 level; 10 additional hours selected from courses in literature, language, or civilization. Students may substitute Foreign Study (4101) for certain courses; students with special interests, such as comparative literature, may make certain substitutions with consent of the department.

Minor: Consists of 24 hours in courses numbered 3110 or above, to include the following: 3410-20-30 (advanced grammar, composition, and conversation, 9 hours); 3110-20-30 or 3510-20 (aspects of Italian literature, at least 8 hours); 7 additional hours selected from courses in literature, language, or civilization.

Courses in Italian literature in English translation may not be counted toward either a major or a minor.

1510-20 Elementary Italian (4, 4) Must be taken in sequence. 4 class meetings and 2 laboratory periods.

2510-20 Intermediate Italian (4, 4) Must be taken in sequence. 4 class meetings and 2 laboratory periods.

2610-20 Panorama of Italian Culture (4, 4) 2610—Survey of Italian culture from Roman era through the 17th century. 2620—Survey of Italian culture in the 18th, 19th, 20th centuries.

3000 Italian Transition (3) Development of linguistic skills necessary for satisfactory work in courses above 3000. Recommended for students who feel they would benefit from additional training beyond 2520 in basic skills of reading, speaking and writing Italian.

3110-20-30 Aspects of Italian Literature (3, 3, 3) Prereq: 2520 or equivalent. Recommended for literature majors.

3510-20-30 Italian Literature in English Translation (3-4, 3-4, 3-4) 3310—Sicilian School, the Fiorentine School, Dante, Petrarch, Boccaccio, Machiavelli, 1500-1700. 3530—From the Baroque through nineteenth century, commedia dell'arte, Vico Leopardi, 1700—Twentieth century. Cardinali, Pirandello, Quasimodo, D'Annunzio, Croce, Moravia. No change in credit hrs after add deadline. Option of 4 hrs credit must present appropriate amount of extra work above that required for 3 hrs.

3410-20-30 Advanced Grammar, Composition, and Conversation (3, 3, 3) Laboratory work, drills, and tapes. Prereq: 2520 or equivalent.

3510-20 Aspects of Italian Literature (4, 4) Prereq: 2520 or equivalent. Recommended for literature majors.

4010-20 Italian Drama in English Translation (3-4, 3-4) 4010—La commedia dell'arte and major works of Machiavelli, Metastasio, Alfieri, Goldoni. 4020—Twentieth-century theatre: expressionism, the Grottesco, Pirandello, De Filippo, Frati. No change in credit hrs after add deadline. Option of 4 hrs credit must present appropriate amount of extra work above that required for 3 hrs.

4050-60-70 Dante and Medieval Culture (3, 3, 3) Readings and lectures in English for students majoring or minorning in other departments. Readings, reprints, and papers in Italian for students majoring or minorning in Italian. (Same as Comparative Literature 4050-60-70.)

4101 Foreign Study (1-16) See page 187.
or 3610-20 (aspects of Spanish American literature, or aspects or survey of Spanish literature, 8 hours); 3410 plus 3420 or 3430 (composition and conversation, 6 hours); 4210 (phonetics, 3 hours); 9 hours of literature at the 4000 level; 3 hours of civilization; sufficient additional hours selected from courses in literature, language, or civilization to fulfill the major requirement. Those with prior interest in language must have a minimum of 8 hours chosen from the following sequences: 3310-20-30, 3510-20, or 3610-20 (aspects of Spanish American literature, or aspects or survey of Spanish literature, 8 hours); 3410 (composition and conversation, 3 hours); 4210 (phonetics, 3 hours); 9 hours selected from courses 3420-30 (composition and conversation), 4220-30 (advanced grammar), or 4250-60-70 (linguistics); 3 hours of literature at the 4000 level; 3 hours of civilization; sufficient additional hours selected from courses in literature, language, or civilization to fulfill the major requirement. With either of the above options, students may substitute Foreign Study (4101) for certain courses; students with special interests in intercultural or comparative literature, may make certain substitutions with consent of the department.

Minor: Consists of 24 hours in courses numbered 3310 or above, including a minimum of 8 hours chosen from the following sequences: 3310-20-30, 3510-20, or 3610-20 (aspects of Spanish American literature, or aspects or survey of Spanish literature, 8 hours); 3410 (composition and conversation, 3 hours); 4210 (phonetics, 3 hours); sufficient additional hours selected from courses in literature, language, or civilization to fulfill the minor requirements. Students pursuing a minor are strongly advised to consult with a departmental advisor.

Courses which are the equivalents of the foregoing may be substituted with consent of the department; but courses in Spanish literature in English translation may not be counted toward either a major or a minor.

1110-20 Elementary Spanish (3, 3) This sequence is recommended for students intending to take upper-division courses in Spanish. Must be taken in sequence. 3 hrs and 2 labs.

1510-20 Elementary Spanish (4, 4) Must be taken in sequence. 4 class meetings and 2 laboratory periods.

1518-28 Honors: Elementary Spanish (4, 4) Honors course for students of superior ability. 1518 not open to students who have taken Spanish in high school. Freshmen are admitted on the basis of a diagnostic test or conference with the instructor, high school averages, and performance on the ACT. This class will be held to a maximum of 15 so that each student may receive more attention. This class will cover the normal Spanish program for the first year, but will be enriched whenever possible. Students will be expected to spend only the normal amount of time in preparation. Those who find the course too difficult may easily transfer to a regular class. Potential majors and minors in Spanish are urged to take this course. Students who pass 1510 with a grade of B or higher may take 1520 instead of 1520.

2110-20-30 Intermediate Spanish (3, 3) This sequence is strongly recommended for students intending to take upper-division courses in Spanish. Must be taken in sequence. 3 hrs and 2 labs.

2510-20 Intermediate Spanish (4, 4) Must be taken in sequence. 4 class meetings and 2 laboratory periods.

2518-28 Honors: Intermediate Spanish (4, 4) Honors course for students of superior ability in Spanish. Incoming freshmen are admitted on the basis of a diagnostic test, high school average, and performance on the ACT. This class will be held to a maximum of 15 so that each student may receive more attention. Students will follow an enriched program with continuing emphasis upon speaking ability and with special emphasis on reading, including literary selections. Must be taken in sequence. Students who earn an A or B in 2520 automatically receive credit for Spanish 3000. Prereq: Spanish 1110-20-30, 1510-20, 1518-28, or equivalent.

2610-20 Panorama of Hispanic Culture (4, 4) 2610—Peninsular Spain from Roman invasion through 19th century, including Colonial period in Latin America. 2620—Highlights of 20th-century culture in both Latin America and Spain.

3000 Spanish Transition (3) Development of linguistic skills necessary for satisfactory work in courses above 3000. Recommended for students who feel they would benefit from additional training beyond 2130 or 2520 in basic skills of reading, speaking, and writing Spanish.

3010-20-30 Spanish and Spanish American Literature in English Translation (3, 3, 3) 310—Masterpieces of Classical Spanish Literature; Cervantes, realism and the picaresque novel, religious mystics, Golden Age Theatre 320—Masterpieces of Twentieth-Century Spanish Literature: Unamuno, Lorca, Baroja, Ortega. 330—Contemporary Spanish American Fiction: Marquez, Borges, Fuentes, Asturias. No change in credit hours after add deadline. Option of 4 hrs credit must present an appropriate amount of extra work above that required for 3 hrs.

3310-20-30 Aspects of Spanish American Literature (3, 3, 3) Study (not usually chronological) of various periods of the literature; emphasis upon the genres (poetry, novel, drama) varies. May be taken in place of 3510-20 or 3610-20. Prereq: 2130, 2520 or equivalent.

3410-30 Intermediate Composition and Conversation (3, 3, 3) Not offered for graduate credit.

3510-20 Aspects of Spanish Literature (4, 4) Study (not usually chronological) of various periods of the literature; emphasis upon the genres (poetry, novel, drama) varies. Prereq: 2130, 2520 or equivalent. Recommended for literature majors. Not offered for graduate credit.

3610-20 Survey of Spanish Literature (4, 4) Chronological study of the various genres (poetry, novel, drama) by periods from the medieval period to the present. May be taken in place of 3310-20-30 or 3510-20. Prereq: 2130, 2520 or equivalent.

4020 Masterpieces of Spanish Literature in English Translation (3) No foreign language credit.

4050-60-70 Hispano-Arabic Literature and Culture (3, 3, 3)

4101 Foreign Study (1-16) See page 187.

4110-20 Spanish Literature of the Golden Age (3, 3) The picaresque novel; Cervantes, the Comicida.

4180-70-80 Advanced Conversation (2, 2, 2) Intensive training in prepared and spontaneous conversations. Subjects range from travel area to current events to literature and aspects of national culture. Prereq: Completion of 9 hrs of courses on 3000 level.

4210 Phonetics (3) Prereq: 2130, 2520 or equivalent.

4220-30 Advanced Grammar (3, 3) Prereq: 2130, 2520, or equivalent.

4250 Introduction to Descriptive Linguistics (3) (Same as French, German and Russian 4250.)

4260 Introduction to Historical and Comparative Linguistics (3) (Same as French, German and Russian 4260.)

4270 Romance Linguistics (3) (Same as French 4270.)

4410 Spanish Civilization (3) Prereq: 2130 or equivalent.

4420-30 Latin American Civilization (3, 3) Prereq: 2130, 2520 or equivalent.

4450-70 Studies in Modern Spanish Style (3, 3) Prereq: 3410-20-30 or consent of instructor.

4510-20-30 Spanish Literature of Nineteenth Century (3, 3, 3) Prereq: 2130, 2520 or equivalent.

4618-38 Honors: Readings in Literature (3, 3) Prereq: 3300, 3520, 3620 or equivalent and at least 3.0 on all university work. No credit for grade less than B.

4710-20-30 Spanish Literature of Twentieth Century (3, 3, 3) 4710—Non-dramatic Prose. 4720—Drama. 4730—Lyric Poetry. Prereq: 2130, 2520 or equivalent.


GRADUATE
The Master's Program
See Graduate Catalog for requirements.

5000 Thesis

5002 Non-Thesis Graduation Completion (3-15)

5011 Techniques in Literary Analysis (3)

5070-80-90 Hispano-American Literature and Culture (3, 3, 3)

5101 Foreign Study (1-12)

5102 Off-Campus Study (1-12)

5103 Independent Study (1-12)

5110-20-30 Old Spanish (3, 3, 3)

5121 College Teaching of Romance Languages (3)

5151-61-71 Bibliography and Methods of Research (1, 1, 1)

5211-21 Don Quijote (3, 3)

5212-22-32 Golden Age Prose (3, 3, 3)

5231 The Exemplary Novels, Persiles y Sigismunda (3)

5250-60 The Generation of '98 (3, 3)

5270 The Contemporary Novel (3)

5310-20 Directed Readings (3, 3)

5311-21 Special Topics in Spanish or Spanish American Literature (3, 3)

5340 Problems in Hispanic Culture (3)

5510-20-30 Spanish Theatre after the Golden Age (3, 3, 3)

5550-60-70 Golden Age Theatre (3, 3, 3)

5610 Spanish American Prose to 1900 (3)

5611-21 Spanish American Lyric Poetry (3, 3)

5620-30 The Modern Novel in Spanish America (3, 3)

5631 Spanish American Essay (3)

5632 The Spanish American Short Story (3)

5633 Twentieth-Century Latin American Theatre and Film (3)

5640 Latin American Women Writers (3)
Russian
See Germanic and Slavic Languages.

Russian and East European Studies
See Cultural Studies.

Sociology (915)

Professors:
D.R. Ploch (Head), Ph.D. North Carolina; J.A. Black, Ph.D. Iowa; D.J. Champion, Ph.D. Purdue; W.E. Cole (Emeritus); Ph.D. Cornell; L. Ebersole (Vice Chancellor for Planning and Administration), Ph.D. Pennsylvania; W.B. Jones (Emeritus), Ph.D. Vanderbilt; J.B. Knox (Emeritus), Ph.D. Harvard; S.E. Wallace, Ph.D. Minnesota.

Associate Professors:

Assistant Professors:

Instructor:
D. Harris, M.A. Tennessee.

UNDERGRADUATE

Major: Consists of 36 upper-division hours in sociology. Eight lower-division hours in sociology are prerequisite to a major. The minor shall consist of 24 upper-division hours. Eight lower-division hours in sociology are a prerequisite to a minor.

Social Work: Students contemplating entrance into the field of professional social work will have an opportunity to plan their upper-division programs to this end. Suggested course offerings for students planning a social work career can be obtained from the Graduate School of Social Work catalog. The address and general information on the School are given on page 53.

Students who contemplate professional training in social work should discuss their upper-division programs with the Knoxville campus representatives of the School of Social Work.

American Studies. See Cultural Studies.

Latin American Studies. See Cultural Studies.

1510 General Sociology (4) Social origins, structures, forces, processes, and products.

1520 Sociology of Social Problems (4)

3010 Collective Behavior (4) Processual analysis of such collective phenomena as crowd behavior, social epidemics, fads, fashions, popular crazes, and mass movements; nature of the public.

3080 Advanced Syntax and Stylistics (3, 3)

5760 Problems in Romance Linguistics (3)

5810-20 Spanish Lyric Poetry (3, 3)

5910 Literary Criticism: Foundations of Romance Criticism (3)

6000 Doctoral Research and Dissertation

6210-20-30 Seminar in Spanish Literature (3, 3, 3)

6310-20-30 Seminar in Latin American Literature (3, 3, 3)

3810 Sociological Theory (4) Survey and analysis of development of sociological theory from time of Comte to present.

3910 Introduction to Social Research (4) Scientific method: introduction to the research process; formulating testing hypotheses; techniques for collecting data; measuring social variables; interpreting research findings. Lectures and laboratory.

3920 Elementary Statistical Methods (4) Statistics used in social research; elementary descriptive techniques; measures of central tendency, dispersion, elementary statistical inference; tests of significance for parametric and non-parametric data.

4000 Special Topics (4) Student-generated course offered at convenience of department upon student initiative. Scope of subject matter determined by students and instructor with consent of department. Elective credit only. Prerequisite determined by department.

4030 Society and Law (4) General treatment of social origins and consequences of law and legal process. Particular emphasis is placed on problems of law and social change, and on structure and functioning of legal sanctions. Some attention is paid to law and law-like phenomena in formal organizations and primitive societies.

4050 Sociology of Sport (4) Social organization and meaning of sport. Topics to be considered are the difference between sport and play and games; social status; social conflict; physical activity as an occupation, place of sport in mass culture, role of sport in subculture, and reciprocal influences of sport and cultural milieu.

4102 Off-Campus Study (1-16) See page 187.

4103 Independent Study (1-16) See page 187.

1101 Population Problems (4) Demographic factors and social structures; trends in fertility, mobility, mortality, population growth, migration, distribution, and composition; population policy.

1420 Topics in Social Psychology (4) (Same as Psychology 4129.)

1430 Sociology of Punishment and Corrections (4) Traces development of correctional movement, develops a critical sociological perspective on contemporary correctional programs, and provides overview of evaluative research in corrections.

3100 Criminology (4)

3300 Urban Ecology (4) Examination of public, private, collective, and individual space. Classic school of ecology, its neoclassical reviewers, social area analysis, and cognitive symbolic ecology emphasized.

4110 Educational Sociology (3) (Same as Education C 14410.)

4530 Community Organization (4) Structure, functions and linkages. Important community studies are reviewed and discussed. Emphasis on sociological analysis, not on implementation of change.

5450 Social and Religious Change (4) Critical review of historical and contemporary theories and methods employed in study of social change. Attention given to both macro and micro group change. (Same as Religious Studies 4540.)

5560 Formal Organization (4) Analysis of bureaucratic process; division of labor, delegation of authority, channeled communication under system of rationality.

4820 American Minority Groups (4) Minority groups and social structure in American society; analysis of intergroup relations with attention given to both past and present manifestations. Relationships of selected groups to broader society.

4930 Social Movements (4) Development, organization, and function of social movements; attention is given to ideology, leadership and organization of political, religious and other types of social movements.
from courses listed in the Dramatic Arts option of the Language, Literature, Arts Triad.

Concentration in General Speech: Designed for students who anticipate teaching in broad-based high school programs or who desire a wide exposure to the whole discipline of speech. Prerequisite is a minimum of two courses selected from Audiology and Speech Pathology 3040, Broadcasting 2750, Communications 1110, Speech 1211, 1221, Speech and Theatre 1441, Theatre 1310. The concentration consists of Speech 2311 (or 3551 by placement); one course selected from Speech 2311, 2331, 2351; 36 additional hours in courses numbered 2000 and above, no more than 20 of which can be in any one department or division (audiology and speech pathology, broadcasting, speech and theatre, or theatre). At least 24 hours must be earned in courses numbered 3000 and above.

Minors: Two minors are offered: speech and theatre. Speech 1211-21 is prerequisite to a minor in speech which consists of 24 hours in speech courses numbered 3000 and above. Theatre 1220-30-40 is prerequisite to a minor in theatre which consists of 24 hours in theatre courses numbered 3000 and above, 8 hours of which must be in history and criticism.

Certification for Teaching Speech or Speech and English. Consult Certification Clerk, Room 212, Claxton Education Building.

GRADUATE

General requirements for the master’s degree are given in the Graduate Catalog.

Speech and Theatre


Assistant Professors: R.S. Ambler, Ph.D. Ohio State; J.E. Buckley, Ph.D. Northwestern; M. Custer, M.F.A. Wisconsin; B.V. Daniels, Ph.D. Cornell; F.D. Julian, Ph.D. Tennessee.


UNDERGRADUATE

Major: The major, speech and theatre, offers three areas of concentration as follows:

Concentration in Speech: Eight hours from Speech 1211-21, Speech and Theatre 1441 are prerequisite to a concentration which consists of two courses from Speech 2021, 2311 (or 3551 by permission), 2331, 2351; 30 additional hours in speech courses numbered 2000 and above, 12 hours of which may be cognate areas approved by the department and 24 of which must be in courses numbered 3000 and above.

Concentration in Theatre: Theatre 1320-30-40 is prerequisite to a concentration which consists of Theatre 2111, 2211-21, 2231, 3252-53-54, 19 additional hours of theatre courses numbered 2000 or above, 12 hours of which may be cognate areas approved by the department. At least one-half of the hours in the concentration must be earned at the 3000 level or above. Coreq: 9 hours

Spanish

See Romance Languages.

5000 Thesis

5040 Methodological Issues in Social Research (3)

5050 Seminar in Political Sociology (3)

5060-07 Special Social Investigation (3, 3)

5200 Seminar in Collective Behavior and Social Movements (3)

5210, 5420-30 Social Theory (3, 3, 3)

5220 Social Control (3)

5230 Seminar in Sociology of Medicine (3)

5240 Theory and Research in Human Migration (3)

5250 Selected Topics in Migration Research (3)

5310 Seminar in Methods of Sociological Research (3)

5320-30 Social Statistics (3, 3)

5520 Crime, Law, and Social Control (3)

5530 Seminar in Community (3)

5550 Seminar on Community Power (3)

5560-70 Field Research in Deviance (3, 3)

5580 Sociology of Mental Disorders (3)

5590 Social Differentiation and Stratification (3)

5610-20-30 Seminar in Occupations (3, 3, 3)

5640 Social Structure and Personality (3)

5670 Social Organization (3)

5720 Small Group Theory and Research (3)

5730 Seminar in Research Problems in Intergroup Relations (3)

5810 Seminar in Race and Culture (3)

5910 Urban and Regional Sociology (3)

5920 Seminar in Social Attitudes (3)

5940 Delinquency and the Social Structure (3)

5950 Seminar in Population Theory (3)

5960 Demographic Techniques (3)

5970 Sociology of Development and Modernization (3)

6000 Doctoral Research and Dissertation

6040 Experimental Research (3)

6050 Seminar on Methods of Social Research (3)

6070 Problems in Field Research (3)

6080 Research Problems in the Study of Social Groups (3)

6090-6100 Survey Design and Analysis (3, 3)

6130 Seminar in Mass Behavior and Related Topics (3)
3012 Persuasion: Projects (2) Material presented in Speech 3011 is applied to on and off-campus projects. Emphasis on analysis of the persuasive situation, application of the relevant communication principles, and understanding and evaluating the results. May be repeated for credit.

3021 Group Communication (4) Communication theory and its application to small groups, especially discussion groups; communication barriers, non-verbal communication, business communication.

3031 Non-verbal Communication (4) Exploration of non-verbal communication from human communication perspective; origins and research, usage and coding of non-verbal behavior, research strategies and theoretical approaches.

3410-20-30 Intercollegiate Forensics (1, 1, 1) Continuation of 2410-20-30. Prereq: Consent of instructor.

3541 Rhetorical Theory and Criticism (4) Survey of Western rhetorical theory; contemporary approaches to criticism of public address. Recommended: 1211.

3551 Persuasive Speaking (4) Speech forms; principles and practice of speech composition.

4222 Advanced Argumentation and Debate (4) Prereq: 2211 or consent of instructor.

4461 Quantitative Research Methods in Speech Communication (4) Designing experiments; planning field studies; using statistical analysis.

4551 Southern Oratory (4) Historical and critical study of public address in the South.

4560 Rhetoric of the Women's Rights Movement (4) Historical and critical study of public address in campaign for women's rights from the 1830s to present.

4571 British Oratory (4) Historical and critical study of British public address.

4582 Public Discussion of Race (4) History and criticism of racial advocacy in America.

4593 Persuasive Uses of Imaginative Literature (4) Topics in social and political uses of novels, plays, and poems.

4811 Advanced Phonetics (4) Phonetic aspects of contemporary dialects of the English language. Prereq: Consent of instructor.

4911-21 History of American Public Address (4, 4) 4911—Colonial period to 1885. 4921—1886 to present.

4999 Colloquium in Speech Communication (1) May be repeated for credit.

GRADUATE

5140 Communications Theory (3)

5210 Topics in Group and Interpersonal Communications (3)

5220 Quantitative Projects in Speech Communications (3)

5430 Studies in Tennessee Oratory (3)

5440 Organizational Communication (3)

5550-60-70 Studies in Persuasion (3, 3, 3)

5750-60-70 Studies in Rhetoric (3, 3, 3)

5911 Directing the Forensic Program (4)

Theatre (976)

1310 Introduction to Theatre (4) Theatre as experience; materials and techniques.

1320-30-40 Fundamentals of Play Production (3, 3, 3) 1320—Play analysis. 1330—Arts of production (acting and directing). 1340—Physical production (technique and design).

2111-21 Acting (4, 4) 2111—Realism: readings, improvisations, and scene study. 2121—Extended Realism: voice and movement for the stage, basic rehearsal techniques. Prereq: Consent of instructor for 2121.

2211-21 Stagecraft (4, 4) 2211—Techniques of scenery construction, 2221—Fundamental methods of stage lighting. Crew assignments on major productions.

2231 Basic Stage Costuming (4) Costume history and its application to the stage; basic techniques in costume construction.

3121-22 Advanced Acting (4, 4) Historical styles of acting 3121—Renaissance, 3122—Seventeenth and eighteenth centuries. Prereq: Consent of instructor.

3151 Theatre Practicum: Performance (1-4) Supervised work in departmental productions. Available for credit only to theatre majors or with consent of department. Prereq: Consent of instructor.

3152 Theatre Practicum: Production (1-4) Supervised work on departmental productions. Available for credit only to theatre majors or with consent of department. Prereq: Consent of instructor.

3153 Outdoor Repertory Productions (4) Supervised work on productions. Available only to members of summer company by consent of instructor.

3214-15 Technical Theatre (4, 4) Special techniques in scenery and property construction, stage management; problems in basic technical theatre practice. Must be taken in sequence. Prereq: 2211-21 or consent of instructor.

3221-22 Introduction to Scene Design (4, 4) 3221—Problems in stage design with reference to space and form, movement, scale, and style; rudiments of rendering and ground-plan preparation. 3222—Play interpretation through scenic means; setting as environment for dramatic action; rudiments of model making. Must be taken in sequence.


3263-6 History of the American Theatre (3, 3) Development of the theatre as social institution in American life. 3262—From its beginnings to 1900. 3263—From 1900 to present.

3321-22 Introduction to Lighting Design (4, 4) Mechanics of stage lighting; elementary theory; problems in basic lighting practice. Must be taken in sequence. Prereq: 2211-21 and consent of instructor.

3451-52 Play Directing (4, 4) Must be taken in sequence. Prereq: 2111.

3511-12 Introduction to Costume Design (4, 4) Costume as expression of character on stage; the application of costume history to specific design projects. Prereq: 2231 or consent of instructor.

4133-34 Special Problems in Acting (3, 3) Advanced exercises in voice and movement; preparation of major role under performance conditions. Prereq: 3121-22 and consent of instructor.

4151 Theatre Practicum: Performance (1-4) Continuation of 3151. Available for credit only to theatre majors. Prereq: Consent of instructor.

4152 Theatre Practicum: Production (1-4) Continuation of 3152. Available for credit only to theatre majors. Prereq: Consent of instructor.

4153 Outdoor Repertory Productions (4) Continuation of 3153. Available only to members of summer company by consent of instructor.

4214-15 Advanced Technical Theatre (4, 4) Advanced technical theatre management; advanced scenery and property execution; special problems in technical theatre.

4241-42 Advanced Scene Design (4, 4) 4241—Descriptive drawing as an approach to three-dimensional design; theatrical graphic standards and preparation of design drawings. 4242—Perspective of surface color; construction of sets and other through-color with reference to rendering, scene painting, and preparation of painter’s elevations. Must be taken in sequence. Prereq: 2211-21, 3211-22 and consent of instructor.

4341-42 Advanced Lighting Design (4, 4) Relationship of light to setting in creating stage environment. Must be taken in sequence. Prereq: 3221-22 and consent of instructor.

4441-42 Advanced Play Directing (4, 4) Problems of play interpretation; directing period plays; preparation of a play for public performance. Must be taken in sequence. Prereq: 3451-52 and consent of instructor.

4541-42 Advanced Theatre Costume Design (4, 4) Advanced problems in costume design and construction; pattern drafting; draping. Prereq: 3511-12.

4751-52 Dramatic Theory and Criticism (3, 3) 4751—Theatre aesthetics. 4752—Dramatic theory.

4951-52 Playwriting (4, 4) Prereq: Consent of instructor.

GRADUATE

5011-12-13 Projects in Lieu of Thesis (3, 3, 3)

5250 Seminar in Playwriting (3)

5310 Studies in European Theatre History (3)

5320 Studies in American Theatre History (3)

5620 Projects in Lighting Design (3)

5630 Projects in Play Directing (3)

5640 Projects in Scene Design (3)

5650 Projects in Costume Design (3)

5660 Projects in Technical Theatre (3)

5670-71-72-73-74-75 Master Class in Acting (5, 5, 5, 5, 5, 5)

5680-81-82 Design and Technical Theatre Seminar (6, 6, 6)

5890 Studies in Theatrical Production (3)

5912 Play Production in Secondary Schools (4)

5950-60-70 Studies in Dramatic Theory and Criticism (3, 3, 3)

Speech and Theatre (945)

1441 Introduction to Cinema (4) Development of motion pictures as a medium; film aesthetics; analysis and criticism of selected films.

2031 Oral Introduction to Oral Interpretation (3) Art of reading aloud; development of interpretive techniques and their application to selected passages of prose, poetry and drama.

3651 Oral Interpretation of Prose Literature (4) Prereq: 2031 or consent of instructor.

3661 Oral Interpretation of Poetry (4) Prereq: 2031 or consent of instructor.

3671 Oral Interpretation of Drama (4) Prereq: 2031 or consent of instructor.

4101 Foreign Study (1-16) See page 187.

4102 Off-Campus Study (1-16) May be repeated for major credit to maximum of 12 hrs. See page 187.

4103 Independent Study (1-16) May be repeated for major credit to maximum of 8 hrs. See page 187.

4170-80-90 Film History and Theory (3, 3, 3) Analysis of cinematic forms and styles. 4170: Narration. 4180: Exposition and persuasion. 4190: Experimental forms; films and other media.
Women's Studies

See Cultural Studies.

Zoology (995)

Professors: J. H. Abel (Head); Ph.D. Brown; R. M. Bagby, Ph.D. Illinois; D. L. Bunting, Ph.D. Oklahoma State; J. G. Carlson (Emeritus); Ph.D. Pennsylvania; A. C. Cole (Emeritus); Ph.D. Ohio State; J. C. Daniel, Jr., Ph.D. Colorado; D. A. Etnier, Ph.D. Minnesota; R. C. Fraser, Ph.D. Minnesota; R. F. Grell, Ph.D. Tennessee; B. Hochman, Ph.D. California (Berkeley); J. C. Howes, Ph.D. Cornell; W. K. Jeon, Ph.D. London (England); A. W. Jones (Emeritus); Ph.D. Virginia; J. R. Kennedy, Ph.D. Iowa; J. N. Liss, Ph.D. Yale; L. E. Rom (Vice Chancellor for Graduate Studies); Ph.D. Chicago; C. A. Shivers, Ph.D. Michigan State; J. T. Tanner, Ph.D. Cornell; S. R. Tipton (Emeritus); Ph.D. Duke; G. L. Whitson, Ph.D. Iowa.

Associate Professors: H. M. Ambrose III, Ph.D. Cornell; K. D. Burnham, Ph.D. Iowa; A. C. Echtenacht, Ph.D. Kansas; A. A. El-Banna, Ph.D. Washington State; D. J. Fox, Ph.D. Johns Hopkins; E. T. Howley, Ph.D. Wisconsin; A. M. Jungris, Ph.D. Minnesota; J. A. MacCaba, Ph.D. California (Davis); M. L. Pan, Ph.D. Pennsylvania; S. E. Flechert, Ph.D. Wisconsin; G. L. Vaughn, Ph.D. Duke; M. C. Whiteside, Ph.D. Indiana.

Assistant Professors: E. C. Frederick, Ph.D. Northern Arizona; K. R. Foreman, Ph.D. Idaho; N. D. Greenberg, Ph.D. Rutgers; M. A. Handel, Ph.D. Kansas State.

*Visiting*

UNDERGRADUATE
Prerequisites for upper-division courses: Biology 1210-20-30 is a prerequisite for all upper-division courses, with the exception of 2640. Additional prerequisites are included with course descriptions. Courses numbered in the 4000 s are no more advanced than those in the 3000 s except as may be indicated by prerequisites.

Major: Consists of Biology 3110, 3120, 3130; 18 hours of upper-division zoology courses (except 3010-20-30), and 3 quarters of chemistry or biochemistry at the 2000 level or above. Of the 18 hours of upper-division zoology courses a minimum of 6 hours must be at the 4000 level, and at least one laboratory or field course. Prerequisites to this major are: Biology 1210-20-30 or Zoology 1118-28 (Zoology 2920-30 may be substituted for Zoology 1118 or Biology 1220), and Chemistry 1110-20-30. Corequisites are Mathematics 1841-51, or 1840-50 or 1550-60 (Mathematics 1841-51 is the recommended choice); and a year sequence in physics (except 1410-20-30).

Note: Students majoring in zoology are advised to exercise care in fulfilling the Science and Mathematics Triad requirements. Mathematics 1840-50 or 1540-50-60 and Chemistry 1110-20-30 or equivalent (20 or 21 hours altogether) must be completed by all zoology majors.

Minor: Consists of 24 hours of zoology, or zoology and biology, courses. (Zoology courses must be at the upper-division level; but 2000-level biology courses may be used, e.g. Biology 2110, 2120, 2130.) Prerequisites to this minor are Biology 1210-20-30 or Zoology 1110-20-30 or 1118-28 and Chemistry 1110-20-30.
cussion of selected dilemmas arising from new knowledge about medicine, behavior, resources, and technology.

3520 Introduction to Microbiology II: Immunology (2) (Same as Microbiology 3520.)

3920 Hormones and Endocrine Function in the Human (4) Basic course in human endocrinology with emphasis on the practical diagnosis of hormone levels for analysis of glandular function and treatment of endocrine abnormalities. 3 lectures and 1 discussion. Prereq: A course in physiology.

4007-4010, 11-12-13-14-15-16-17 Minicourse in Zoology (2, 2, 2, 2, 2, 2, 2) Selected, advanced topics in zoology, concentrated in time and subject matter. Consult departmental listing for actual topics offered. Prereq: As posted. May be repeated for credit.

4050 Developmental Biology (4) Experimental morphogenesis, fertilization, cellular interactions, hormonal effects and related topics with examples drawn primarily from invertebrates and vertebrates. Prereq: 3050. 2 hrs and 2 labs.

4110-40-30 Undergraduate Research Participation (2, 2, 2) Experience in active research projects under supervision of staff members. Prereq: Junior or senior standing and prior consent of instructor.

4140 Practicum in Zoology (1-3) Participation in practical application of zoology in community institutions, government organizations and industry. Approximately 5 hrs involvement per week. Prereq: Biology 3110, 3120, 3130 and senior standing.

4190 Mammalogy (4) Classification, evolution, distribution, reproduction, populations, and behavior. 2 hrs and 2 lab or field periods. (Not open to students with credit for 3190.)

4200 Ichthyology (5) Classification, collection and identification, distribution, life histories, and economic importance of fishes. Prereq: Biology 2130, or consent of instructor, 2 hrs and 2 lab or field periods. (Not open to students with credit for former 3200.)

4210 Cell Physiology (5) Development of modern concept in cell physiology from point of view of information control and which examines kinetics and integration of cellular activities. Prereq: Cell biology or any physiology, and organic chemistry. Biochemistry recommended. 3 lectures and 1 lab.

4240 Animal Ecology (4) Environmental factors determine distribution and numbers of animals; intra-specific relations; problems and methods. Prereq: Biology 3130. 2 hrs and 2 labs.

4250 Comparative Animal Physiology I (3) Environmental factors survey of physiological mechanisms and their relation to ability of animals to survive in diverse physical environments. Prereq: Biology 3120-30, 2 years of chemistry. 3 hrs.

4259 Comparative Animal Physiology Laboratory I (1) Coreq: 4250. 1 hr.

4260 Comparative Animal Physiology II (3) Sensory, effector and integrative physiology. Prereq: 3030.

4269 Comparative Animal Physiology Laboratory II (1) Prereq: 3080 and consent of instructor; coreq: 4260.

4270 Advanced Immunology (2) (Same as Microbiology 4270.)

4280 Comparative Endocrinology (5) Comparative analysis of the endocrine glands in vertebrates and invertebrates. Their role and interaction in maintenance of the organism and species. Prereq: 3080 or 3920. 3 hrs and 1 (3-3) lab.

4290 Herpetology (4) Classification, distribution, life histories, collection and identification of amphibians and reptiles, primarily of local species. Prereq: 3080 or 2 hrs and 2 lab or field periods. (Not open to students with credit for 3210.)

4300 Ornithology (4) Morphology, physiology, behavior, reproduction, populations, evolution, field identification, 2 hrs and 2 labs or field periods. (Not open to students with credit in 2320.)

4310 Nuclear Cytology (4) Chromosome structure and behavior in mitosis and meiosis. 1 hr lecture and 3 labs. Prereq: Biology 3110.

4320 Microtechnique (4) 3320 recommended. 2 hrs and 2 labs.

4330 General Cytology (4) Study of cellular organelles at the light and electron microscope levels and the functioning of these organelles. Prereq: Biology 3120.

4369 General Genetic Laboratory (2) Mainly Drosophila experiments designed to illustrate basic principles of inheritance. Prereq: Biology 3110. 2 hrs and 3 labs.

4380 Organic Evolution (3) Modern concepts of animal evolution. Prereq: Biology 3110.


4410 General Parasitology (4) Morphology, taxonomy, and ecology of parasitic worms and protozoa, with emphasis on host-parasite relationships. 3 hrs lab. Prereq: Biology 3130 or consent of instructor.

4430 Medical Entomology (4) Distinctive morphological features, distribution, life histories, and control of arthropods that parasitize man or serve as vectors of human pathogens. Prereq: Agricultural Biology 3210 or Biology 3130. (Not open to students with credit for 3430.)

4450 Protozoology (4) Morphology, taxonomy, and physiology of protozoa in relation to fundamental biological concepts. Recommended: Biology 3120. 2 hrs and 2 labs.

4610-20 Comparative Animal Pathology (2, 2) Abnormal morphological changes and their causation. 4610—Cell and tissue changes. 4620—Organ, organ system, and organ system changes. Recommended: 3080, 3220, 3060.

4619-29 Comparative Animal Pathology (2, 2) 4619—Cell and tissue changes. 4629—Organ, organ system, and organ system changes. Coreq: 4610-20.

4660-70 Limnology (4, 4) 4660—Effects of origin, age, and location of lakes on their physical and chemical nature. 4670—Lake communities, productivity and pollution. Prereq: Chemistry 1110-20 and Biology 3130. Botany 1110-20-30 and Physics 1210-20-30 recommended. 2 hrs and 2 labs (4660); 3 hrs and 1 lab (4670). Must be taken in sequence, except with consent of instructor. Not open to students with credit in 3650 or 4650.

4700 Arachnology (4) Biology of spiders, mites, scorpions, and relatives. Prereq: 3110 or 3150. 2 hrs and 2 labs.

4720 Comparative Animal Behavior (4) Methods and principles. (Same as Psychology 4720.)

4729 Comparative Animal Behavior Laboratory (4) Laboratory and field studies. Coreq: 4720 (Same as Psychology 4729.)

4810-20-30 Insect Morphology and Taxonomy (4, 4, 4) 4810—Internal morphology of both generalized and specialized forms. 4820—Taxonomy of major orders. 4830—Taxonomy of minor orders and immature forms. Prereq for 4820-30: 3110, or consent of instructor. 2 hrs and 2 labs.

4940 Physiology of Exercise (4) Functions of body in muscular work; physiological aspects of fatigue, training, and physical fitness. Prereq: 2920-30 or 3080. 3 hrs and 1 lab. (Not open to students with credit for 3940.)

GRADUATE

5000 Thesis

5080 Graduate Research Participation (3)

5110-20-30 Special Problems (2, 2, 2)