College of Liberal Arts

Robert G. Landen, Dean
Charles C. Jackson, Associate Dean
Paul Huray, Associate Dean for Research and Resource Development
Harry C. Jacobson, Associate Dean for Student Academic Affairs

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 the student whose interests and talent lead into various curricula in the health sciences (medicine, dentistry, pharmacy, or medical technology). The student proceeds directly to specialized professional study in lieu of a major pre-professional curricula which prepare the student for graduate study and professional positions in the arts. The degree is offered with a major in studio art. Recommended course requirements for the B.A. degree.

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 wellsprings of human thought are sources of the programs of study offered in the College of Liberal Arts.

Association with the College

(See page 28.)

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 pre-professional 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 the broad area requirements in the Triad plus intensive study in one or more of the specified departmental or interdepartmental 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 ceramics, graphic design/illustration, drawing, painting, fiber-fabrics, inter-area, 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, composition, music history and literature, piano literature, and applied music (voice; organ; strings; woodwind; brass; and percussion instruments; multiple woodwind instruments; organ and church music; piano; studio music and jazz; Suzuki string pedagogy).
(4) BACHELOR OF SCIENCE IN CHEMISTRY

The Bachelor of Science in Chemistry is a professional degree designed in accordance with standards set by the American Chemical Society to train students to go directly into positions in the chemical industry or into graduate study leading to positions in research and college teaching. Students may elect either the four-year resident program or a five-year cooperative program in which they alternate a quarter of study with a quarter of work in a chemical industry, thus gaining seven quarters of on-the-job experience while earning the degree.

Program Planning

Each student's academic program is highly individualistic, reflecting that person's special interests, goals, and aspirations. Usually it will reveal a growing intellectual sophistication and the development of particular motivations. On occasion, it may be capriciously; or it may be a carefully selected curriculum which the student brought together in a way which represented for that individual the most appropriate and effective way of attaining educational goals.

The importance of program planning can hardly be overstressed. A few students enter the college with firm goals, educational objectives in mind and their programs develop quite readily around these predetermined goals. Many, however, do not reach that stage of certainty until their academic careers are relatively far advanced. For these persons the exploration of possible directions and programs, in consultation with faculty advisers, is an important part of the educational process. It is essential for these students to develop their programs carefully and creatively in order that maximum flexibility in their ultimate decision may be maintained.

A basic decision, of course, is the degree to be sought. If it is one of the three professional degrees (Bachelor of Fine Arts, Bachelor of Music, or Bachelor of Science in Chemistry), the student's program will be somewhat circumscribed, for these degrees are necessarily more prescriptive than the general liberal arts degree. If the student chooses to work for the Bachelor of Arts degree, the three elements which make up the curricula leading to that degree will need to be kept in balance: the broad requirements in the Triad, the major area, and the elective courses which support and supplement the work in the first two categories. Most students find it desirable to lay a broad foundation by taking courses which will satisfy Triad requirements in the first two years, thus reserving most of the final years for in-depth study in the area of 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 program 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.

Note: Students are advised to consult the University's degree requirements as stated in the front section of this catalog as well as the requirements for the college or department.

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 to which the courses 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 minimum grade of C 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 these additional majors and Triad requirements. Students desiring 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 by 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.

A business minor is available to students who successfully complete 21 hours of the following required courses: Accounting 2110-20-30, Economics 2110-20-30, and Statistics 2100. Also, 15 hours of upper-division hours in business electives must be taken at UTK. Not more than six upper-division hours of accounting, economics, or statistics may be used for this minor. Students are responsible for meeting prerequisites listed for any upper-division courses taken in a particular concentration.

I. Basic Program

A. THE TRIAD:

1. 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 sensual 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 the Triad. In addition to exposure to cultures that are foreign, distant, and strange, to know what one is not 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 wider 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 beings build on their experience, a clear understanding of the present requires a historical perspective. Such perspective may be developed by a number of courses, including the traditional survey of western civilization or 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 may choose courses useful in acquiring that familiarity. Only by such knowledge can people of good will hope to maintain humane values in a world where industrialization, urbanization, and other dimensions of technological change challenge traditional patterns of individual and collective behavior.

Study of science and mathematics develops in the student an inquiring attitude toward the natural environment and confidence in the ability to understand scientific explanations of phenomena well. These ends may be realized through an understanding of the empirical and the rational in scientific methods of inquiry and an awareness of the limitations of science and technology in solving problems. The student should attain a
knowledge of the way in which the development of science and technology has affected beliefs, philosophies, and the development of civilization.

Specific Requirements in the Triad

(1) Language, Literature, and the Arts

(a) Writing Proficiency.

Each student is required to demonstrate ability to use the English language effectively and coherently in one of the following four ways:

(i) By completing nine credits in English writing courses in one of the following series: (1) English 1010 or 1011, 1020, and three additional credits drawn from 1031, 1032, or 1033. Students who complete 1020 with the grade of A have the additional option to satisfy the remaining three credits in any 2000- or 3000-level writing course offered by the department; (2) English 1018, 1028, 1038. Students who obtain the grade of A or B in 1028 have the additional option, with permission, to satisfy the remaining three credits in any 2000- or 3000-level writing course offered by the department; (3) English 1431, 1441, 1442.

(ii) By earning a score of 4 or 5 on the College Board Advanced Placement Test in English; or, with special permission, by earning a score of 3 on that examination and completing one 2000-level course in English at The University of Tennessee, Knoxville, with a grade of B or better.

(iii) By passing (normally after completing one credit on freshman English at UTK) a proficiency examination in writing, administered by the Department of English in cooperation with the Committee on Writing Standards.

(iv) By completing three hours of freshman English followed by a minimum of six hours in courses which require substantial emphasis courses are identified by the Committee on Writing Standards, a list of those approved may be obtained in the office of the Department of English or the Liberal Arts Advising Center.

Note: Students should normally take English in the first quarter of their registration and continue to take English or a writing-emphasis course in each succeeding quarter until this requirement is met.

(b) Literature, Foreign Language, and the Arts

The student may select any one of the following three options to satisfy this requirement:

(i) Eight hours of literature in foreign language in the 2000-level or above. Prerequisite to this option is intermediate-level competence in the language, demonstrated by diagnostic (noncredit) proficiency examination or by completion of the 2000-level sequence in that language.

(ii) Intermediate-level competence in a foreign language demonstrated by diagnostic (noncredit) 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 English or in translation) drawn from the list of courses published by the Committee of Language, Literature, and the Arts, available in the Liberal Arts Advising Center.

(iii) 24 hours in an integrated program in literature, philosophy, and/or the arts, focusing either on (1) a particular nation or area other than the United States, or (2) a comparative study of literary and artistic modes, genres, or movements. Suggested programs published by the Committee on Language, Literature, and the Arts and available in the Liberal Arts Advising Center; students may also propose individual programs to the committee for consideration.

Note: In options (i) and (ii), those who take the diagnostic examination will not receive credit toward graduation but will be exempted from the portion of the requirement satisfied by the examination. Those who take the proficiency examination may earn up to 16 hours of credit toward graduation for previous study of the language, in addition to the credit they earn for course work undertaken in the college. Normally two years of high school language study is regarded as equivalent to one year of college study. Students who have had four years of one or more study of the same language should be able to satisfy the requirement for intermediate-level competence in either option by examination and those who have had less than four years of study may be able to satisfy a portion of the requirement in this way, thus reducing the time required to satisfy this requirement. Full credit toward graduation is given for any language study undertaken successfully in the college regardless of the amount of previous study of that language.

Students who have had less than two years of study of the same language in high school are admitted with an entrance deficiency. Satisfactory completion of the final quarter of the first year sequence of college level foreign language study, normally in the freshman year, is necessary to remove this deficiency.

(2) History and Society

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

(a) One eight-hour sequence from the several survey courses offered by the Department of History or in a comprehensive interdisciplinary sequence having a substantial emphasis on history;

(b) Eight hours in courses with emphasis on man and society which are not primarily historical in nature;

(c) The remaining hours may be taken in either (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 eight-hour sequence in biological science; or

(ii) An eight-hour sequence in physical science.

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

(iii) the history, 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 fields 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 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 advisors in each major department or area.

Requirements for the specific 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 is consistent with the objective of a total program balanced 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.

Majors available in the Basic Program:

Anthropology
Art
Art History
Audiology
Biochemistry
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
Greek
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 begun 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 and 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:
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 satisfy the broad requirements of the Triad, just as do those in the Basic Program. 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 composed. 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; an undirected scattering of courses will not be approved. For further information contact the Liberal Arts Advising Center.

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 enter this distinguished program. Selection is based on previous academic record, test scores, recommendations, a written essay, and a personal interview. Admission is provisional for two quarters; continuation and a personal interview are required for admission. Admission is approved. For further information contact the Liberal Arts Advising Center.

IV. Preparation for the Health Professions

Pro-Dental
Pro-Dental Hygiene
Pro-Medical
Pro-Medical Record Administration
Pro-Medical Technology
Pro-Nursing
Pro-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 the 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 those required 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 third year of study at UTCCHS. Other pre-health professional programs—dental hygiene, medical technology, cytotechnology, nursing, pharmacy, and physical therapy—are offered for those students who are planning to pursue professional training in health professional areas which do not lead to an undergraduate degree from UTCCHS but not to a degree from UTK.*

*Admission to any program at UTCCHS or Knoxville is at the discretion of that program’s admissions committee. Admission to The University of Tennessee and completion of a pre-health professional program in the College of Liberal Arts does not assure admission to any professional training program.

Because the preparation 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 (218 Ayres Hall) for more information about the programs outlined below. Bulletins describing the various pre-health professional programs, including a detailed statement on requirements, may be obtained from the Health Professions Office, 218 Ayres Hall.

PRE-DENTAL 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 dentistry. Both programs are based upon the curriculum outlined below. 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 last 45 hours of study at 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 requirement for a major is waived for those completing 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 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

<table>
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<tr>
<td>English 1010-11; 1020; 1031 or 1032</td>
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<tr>
<td>Chemistry 1110-20-30</td>
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<td>Math (1540) 1550-60 or 1640-50</td>
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<tr>
<td>English 11 (Language, Literature &amp; the Arts)</td>
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<tr>
<td>History</td>
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Sophomore

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<th>Hours</th>
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<tbody>
<tr>
<td>Biology 1210-20-30 or Zoology 1118-28-38</td>
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<tr>
<td>Chemistry 3211-21-31 and 3218-29-39</td>
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</tr>
<tr>
<td>English</td>
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Junior

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<tr>
<td>Speech 2311</td>
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<tr>
<td>Biology and/or zoology</td>
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<tr>
<td>English</td>
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<tr>
<td>Elective</td>
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Senior

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<th>Hours</th>
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<td>Elective</td>
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<tr>
<td>TOTAL: 135 hours</td>
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*Recommended courses in biology and zoology are genetics, Greek and Latin etymology, embryology, histology, microbiology, analytical chemistry, and bio-chemistry (Courses printed in italic are strongly recommended.)

1Recommended courses in biochemistry and comparative vertebrate anatomy.

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 six quarters of study at UTCCHS. Students interested in the pre-dental hygiene program are encouraged to consult with a health professional 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 study at UTCHS. 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 UTCHS. Students in either the three- or four-year program must complete the last 45 hours of credit in residence at UTCHS before entering UTCHS. 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.

### Freshman

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<tr>
<th>Course</th>
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<tr>
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<td>Triad II (History &amp; Society)</td>
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<td>Biology 2210-20-30 or Zoology 1118-28-38</td>
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<td>Chemistry 3211-21-31 &amp; 3219-29-39</td>
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<td>Triad II</td>
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<td>Elective</td>
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<tr>
<td>Triad I</td>
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<td>Triad II</td>
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### Senior

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<td><strong>Total</strong></td>
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### Pre-Medical Technology Program

The course offers two programs leading to the study of medical technology:

1. **The Science-Medical Technology Curriculum**

   Curriculum leading to the 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 UTCHS.

### Science-Medical Technology Curriculum

- **Freshman**

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### Pre-Nursing Program

The minimum requirements for admission to the College of Nursing at UTCHS are 90 hours of prescribed courses in the College of Liberal Arts. The program in Memphis, which leads to the Bachelor of Science in Nursing from UTCHS, is two years in length. Registered nurses who wish to work for a degree of Bachelor of Science in Nursing must complete 54 hours of prescribed courses to qualify for admission with advanced standing.

Students interested in the pre-nursing program are encouraged to consult with a health professions adviser in the Liberal Arts Advising Center or the Coordinator of the Health Professions Office, 218 Ayres Hall. Bulletins describing the pre-nursing program in the Health Professions Office, 218 Ayres Hall.

### Pre-Pharmacy Programs

The college offers three programs preparing students for the study of pharmacy at UTCHS. The Bachelor of Science in Pharmacy degree is conferred by UTCHS upon completion of nine years of professional study at Memphis following any of the three programs.

The two-year program prepares students to be admitted to the College of Pharmacy upon completion of 90 hours of a prescribed course of study in the College of Liberal Arts. Further information may be obtained from the Health Professions Office, 218 Ayres Hall.

The three-year and four-year programs, which lead to a Bachelor of Science degree from The University of Tennessee, Knoxville, as well as to the professional degree in pharmacy from UTCHS, 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 the last 45 more hours in addition to the courses outlined below. The requirement for a major is waived for those taking their fourth year at UTCHS. 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.

### Pre-Pharmacy Programs

Students planning to take admission to the medical technology course of study at UTCHS must complete 90 credit hours of prescribed courses while enrolled in the College of Library Arts. The program in Memphis is 7 quarters in length and leads to the degree of Bachelor of Science in Medical Technology from UTCHS. Classes are admitted in September and application must be made one year in advance.

Students interested in the pre-medical technology program of study at UTCHS are encouraged to consult with a health professions adviser in the Liberal Arts Advising Center or the Coordinator of the Health Professions Office, 218 Ayres Hall.
Veterinary Medicine is at the discretion of the degree while preparing for the study of students who wish to pursue a Liberal Arts English Liberal Arts successful completion of the first year (three departmental major is not required. Upon 45 hours in residence at UTK before enrolling satisfy the Triad, and must complete the last enrolled in the College of Liberal Arts, must therapy program in detail may be obtained Arts Advising Center or the Coordinator of the therapy program are encouraged to consult College of Liberal Arts. The program in recommended electives include Classics and courses in business administration, particularly accounting, economics, and marketing.

PRE-PHYSICAL THERAPY PROGRAM Admission to the physical therapy program at UTCHS, leading to the degree of Bachelor of Science in physical therapy from UTCHS, requires completion of 127 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. A. Art Core

B. Art History

C. Studio

1. Art Fundamentals
2. Art History
3. Elective art history
4. A minimum of 12 hours selected from:
   a. Art 2105, 2205 (or 2305), 2405 (or 2407 or 2408) 12
   b. A minimum of 12 hours selected from:
      a. Art 2250, 2255, 2450, 2505, 2506, 2530 12

Subtotal: 64 hours

II. Art Concentration (A or B) A. Recommended courses of study in ceramics, graphic/design illustration, drawing, fabric-fibers, painting, printmaking, sculpture, and watercolor are available in the Art Office. B. Inter-Area: A combination of courses from the various formal areas (listed in I.A) above to be approved by the department.

Subtotal: 36 hours

III. General Curriculum A. Studio
1. English Composition
2. History-Society
3. Science-Mathematics
4. Philosophy
5. Non-art electives

Subtotal: 49 hours

IV. Electives Option I: Additional art or non-art electives Option II: Career preparation electives

Subtotal: 40 hours

TOTAL: 189 hours

COLLEGE ARTISTS PROGRAM A program of 180 hours is 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 is open in the College Artists Program will be noted on the student's transcript. Students may apply for the program upon completion of 45 credit hours, but will normally be considered after the completion of 90 hours. Admission of the College Artists 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 concentrations during the academic year. 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 major.
B. Portfolio of class and/or outside work reviewed.
C. Recommendation of the studio faculty, and/or approval of the instructor.
D. 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 Bachelor of Music degree with concentrations in music theory, composition, music history and literature, and applied music (vocal, piano, organ; organ and church music; strings; woodwind; brass; and percussion instruments), multiple woodwind instruments; studio music and jazz; Suzuki string pedagogy). 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

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<th>Hours Credit</th>
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<tbody>
<tr>
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<tr>
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<td>Music 1113-23-33</td>
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<td>Applied music</td>
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<td>Ensemble</td>
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Sophomore

| English 1010 or 1011; 1020; 1031 or 32 or 33 | 9 |
| Music 2111-21-31 | 3 |
| Music 2113-23-33 | 3 |
| Music 2300 | 3 |
| Applied music | 3 |
| Ensemble | 3 |
| Art 1815-25 | 3 |
| Foreign language (French or German) | 6 |
| Music 2000 | 0 |

Junior

| English 1010 or 1011; 1020; 1031 or 32 or 33 | 9 |
| Music 2340 | 3 |
| Music 3112-22 | 3 |
| Music 3113-23 | 3 |
| Music 4261 | 3 |
| Music history/literature (3000 level and above) | 12 |
| Ensemble | 3 |
| Music theory (3000 level and above) | 3 |
| Applied music | 3 |
| Philosophy elective | 4 |
| Music 2000 | 0 |

Comparative literature or religious studies | 3 |

Electives | 12 |

MUSIC HISTORY AND LITERATURE

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Sophomore

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| Music 2113-23-33 | 3 |
| Music 2310-20-30 | 9 |
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| Liberal arts elective (not in music) | 3 |
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TOTAL: 180 hours

PIANO HISTORY AND LITERATURE

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Sophomore

| English 1010 or 1011; 1020; 1031 or 32 or 33 | 9 |
| Music 2111-21-31 | 3 |
| Music 2113-23-33 | 3 |
| Music 2310-20-30 | 9 |
| Applied music | 3 |
| Ensemble | 3 |
| Liberal arts elective (not in music) | 3 |
| Music 2000 | 0 |

Total: 180 hours
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**MULTIPLE WOODWIND INSTRUMENTS**

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**STUDIO MUSIC AND JAZZ**

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<th>Major</th>
<th>Electives</th>
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<td>Music 1010-20-30</td>
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<td>Ensemble</td>
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<td>Senior applicable study</td>
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<td>Liberal arts electives (not in music)</td>
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<td>Electives</td>
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<td>Music 2000</td>
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**TOTAL: 180 hours**
### Bachelor of Science in Chemistry

Students who desire to major in chemistry may select either the curriculum leading to the Bachelor of Arts or that leading to the degree of Bachelor of Science in Chemistry. This latter program is approved by the American Chemical Society and is designed to train students to go directly into positions in the chemical industry or to enter graduate study leading to positions in research and college teaching. A minimum average of C must be made on all chemistry courses applied toward the Bachelor of Science in Chemistry degree.

#### COOPERATIVE PROGRAM IN CHEMISTRY

A cooperative program is available to students in the B.S. in Chemistry curriculum. After the freshman year the student alternates a quarter in school with a quarter in a job in a chemical industry. The program normally requires five years and involves a total of seven work quarters and twelve school quarters. Students are required to have at least a 2.5 average to enter and remain in the program. Some opportunity exists for students to enter the program later than the end of the freshman year. Students interested should consult with the Director of the Social Work Program during the first academic year. Those who elect to enter the College of Social Work should confer with the Director of the Social Work Program before completing the first academic year. Those who desire to major in social work should have at least a 2.5 average to enter and remain in the program. Students are required to have at least a 2.5 average to enter and remain in the program. Some opportunity exists for students to enter the program later than the end of the freshman year. Students interested should consult with the Director of the Social Work Program during the first academic year. Those who elect to enter the College of Social Work should confer with the Director of the Social Work Program before completing the first academic year.

### Bachelor of Science in Social Work

The degree of Bachelor of Science in Social Work is in harmony with the goal of general and liberal learning of the College of Liberal Arts. Social work majors are required to meet the same general education requirements as Bachelor of Arts majors (English Composition; Language, Literature and Arts; History and Society; Science and Mathematics). This aggregation of foundation Liberal Arts knowledge is considered essential to an adequate appreciation of the professional, career oriented thrust of the Social Work major.

Students interested in pursuing the Bachelor of Science in Social Work should confer with the Director of the Social Work Program during the first academic year. Those completing this course of study will be prepared to engage in beginning professional social work practice and enter many graduate schools of social work with advanced standings. This degree is designed in accordance with current standards set by the Council on Social Work Education.
Preparation for Other Professions

Law
Students who plan to study law should consult the statement regarding admission to the College of Law (page 171) 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 professional librarianship. For further information, see page 55 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 56. 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 public administration, augmented by service courses from Sociology and Social Work.

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 56. Detailed information about courses and curricula, as well as 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 30 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 C & I 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 1981-82 academic year must apply by January 1, 1981.

For additional information contact Teacher Certification Office, Room 212 Claxton Education Building.

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

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 28.

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 Associate 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. Below a C, a course is recorded as S/NC 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.

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. (Exemption from the change from S/NC to 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 credit 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 that 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 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 involvements, 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 member and the departments concerned prior to enrolling 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’s 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 prior 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 relating 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.

Office of African and Afro-American Studies
The Office of African and Afro-American Studies, 802 Volunteer Blvd., Suite 416, cooperates with 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 extracurricular programs of the institutions, supplies information on financial assistance for Black students, and serves as the focal point for the coordination and development of an improved and expanded African and Afro-American Studies Program at the University.

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.

Psychological Sciences
The Psychological Sciences is provided for film productions, and, in a separate Studio Building, 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, political science, religious studies, sociology, and speech and theatre), the Music Building (music), and the Hearing and Speech Center (audiology and speech pathology) are housed in South Stadium, and art utilizes several small buildings for its studios.

Liberal Arts Advising Center
The College Administrative Office is in 226 Ayres Hall. 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

Ancient Mediterranean Civilizations

Anthropology (122)

Professors:

W. M. Bass (Head), Ph.D. Pennsylvania; C. H. Faulkner, Ph.D. Indiana; A. K. Guthrie, Ph.D. Michigan; R. L. Jarnitz, Ph.D. Texas & M.

Associate Professors:


Assistant Professors:

W. E. Klippel, Ph.D. Missouri; B. J. Howell, Ph.D. Kentucky.

Research Assistant Professor:

J. Chapman, Ph.D. North Carolina

Instructor:

M. A. Bass, Ph.D. Kansas State (part-time).

3 Alumni Distinguished Service Professor.

UNDERGRADUATE
A major in anthropology shall consist of 42 hours, 12 of which are to be in the introductory 2000-level courses. Of the remaining 30 hours, 3333, 4480 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, 3530, 3540, 3700, 3800, 4111, 4200, 4240, 4240, 4250,
prereq: 2530.

3610 Archaeology of United States and Canada I (3) Survey of prehistoric peoples north of Mexico from first occupation to European contact. 2520 recommended.

3611 Archaeology of United States and Canada II (3) Historic archaeology of Euro-American, Afro-Amer- ican, and Asian cultures in the United States and Canada. 2520 recommended.

3620 European Prehistory I (3) Cultural developments during Paleolithic, Mesolithic, and Neolithic peri- ods. 2520 recommended.

3630 European Prehistory II (3) Cultural developments during Metal Ages. From close of Neolithic through Iron Age. 2520 recommended. 2630 and 2630 should be taken in sequence.

3660 Prehistory of Tennessee (3) History of archaeological research in Tennessee and survey of prehistoric American Indian cultures identified through research.

3670 Principles of Archaeology (3) Research strategies in archaeological excavation, interpretation, and explanation. Prereq: 2520 or consent of instructor.

3700 Forms of Folklore (4) Introduction to anthropo- logical study of folklore.

3800 Language and Culture (3) Relationship between linguistic categories and patterns of culture. Prereq: 2540 or consent of instructor. Recommended: 2550.

3811 Introduction to Museology (3) (Same as Art 3811.)

3900 Human Osteology (4) Intensive examination of the human skeleton. Prereq: 2510 or consent of instructor. 3 hrs and 1 lab.

3920 Principles of Physical Anthropology (3) Survey of materials and methods in physical anthropolo- gy. 2510 recommended.

3930 The Biology of Races of Man (3) Processes of racial differentiation; criteria of significant differences among existing stocks; influence of biology and culture in race formation; analysis of studies concerning blood groups, race mixture, constitution, growth, and nutri- tion. 2510 recommended.

3950 Human Identification (3) Introduction to tech- niques in identification of human skeletal material in forensic medicine.

4010 Off-Campus Study (1-16) See page 185.

4102 Off-Campus Study (1-16) See page 185.

4300 Independent Study (1-9) Intensive read- ing, problem oriented. For anthropology majors with permission of instructor. May be repeated to a maximum of 9 credit hours.

4340 Field Work in Archaeology (3-9) Practicum work surveying, excavating, processing, and analyzing data; intensive reading. Prereq: 2510-2520 and consent of instructor. May be repeated to a maximum of 9 credit hrs.

4360 Field Work in Physical Anthropology (3-9) Practicum in the collection and analysis of human biological and behavioral data. May be repeated to a maximum of 9 credit hours.

4610 African Prehistory (3) Survey of cultural history and archaeology in Africa, south of the Sahara, from earliest evidence of human activity to time of European contact. Prereq: 2520 or consent of instructor.

4620 Prehistory of Northwest North America (3) Intensive study of prehistoric American Indian. 2520 or consent of instructor. Recommended: 3510 and 3630, or 3410, or consent of instructor.

4660 Prehistory of Northwest North America (3) Historic archaeology of Euro-American, Afro-Amer-ican, and Asian cultures in the United States and Canada. 2520 recommended.

4740 Southern Appalachian Folk Culture (3) A sur- vey of the settlement history and economic develop-
ment of southern Appalachia in relation to its tradition-
aculture: technology and economics, social organiza-
tion, beliefs and values, oral traditions, and customs.
Consent of instructor.
4741 Research in Southern Appalachian Folk Cul-
ture (3) Research-oriented course dealing with a
wide range of traditional culture in southern Appalachia:
settlement patterns, folk housing, economy, clothing,
beliefs, speech, art, song, dance, and oral traditions
and customs. Prereq: 4740. May be repeated. Maxi-
mum 6 hrs.
4760 Italian Folklore (3) (Same as Romance Lan-
guage 4760)
4870 Cherokee Language (3) Linguistic survey of
structure of the Cherokee language.
4930 Physical Growth and Constitution (3) Compara-
tive growth patterns throughout the life cycle of man;
skeletal and dental maturation; sex differences in
growth; human constitutional types. Prereq: 2810 or
consent of instructor. Biology 2110 strongly recom-
manded.
4940 Biology of Native Americans (3) American
Indian origins and evolution from standpoint of skeletal
remains and morphology and genetics of living popula-
tions. Emphasis on North American Indians. Prereq:
2510 or consent of instructor.
4950 Primate Studies (3) Survey of field and labora-
ory investigations of comparative anatomy and non-
human primate behavior. Prereq: 2510 or consent of
instructor.
4950 Primate Paleontology (3) Survey of fossil pri-
mate forms; origin and evolution of major primate
lineages, emphasizing the earliest Hominid and related
4970 Human Paleontology (4) Survey of the human
fossil record from Australopithecines to appearance of
forms; origin and evolution of major primate
lineages; human constitutional types. Prereq: 2810 or
consent of instructor. Biology 2110 strongly recom-
manded.
4940 Biology of Native Americans (3) American
Indian origins and evolution from standpoint of skeletal
remains and morphology and genetics of living popula-
tions. Emphasis on North American Indians. Prereq:
2510 or consent of instructor.
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ory investigations of comparative anatomy and non-
human primate behavior. Prereq: 2510 or consent of
instructor.
4950 Primate Paleontology (3) Survey of fossil pri-
mate forms; origin and evolution of major primate
lineages, emphasizing the earliest Hominid and related
4970 Human Paleontology (4) Survey of the human
fossil record from Australopithecines to appearance of
forms; origin and evolution of major primate
lineages; human constitutional types. Prereq: 2810 or
consent of instructor. Biology 2110 strongly recom-
manded.
4940 Biology of Native Americans (3) American
Indian origins and evolution from standpoint of skeletal
remains and morphology and genetics of living popula-
tions. Emphasis on North American Indians. Prereq:
2510 or consent of instructor.
4950 Primate Studies (3) Survey of field and labora-
ory investigations of comparative anatomy and non-
human primate behavior. Prereq: 2510 or consent of
instructor.
4950 Primate Paleontology (3) Survey of fossil pri-
mate forms; origin and evolution of major primate
lineages, emphasizing the earliest Hominid and related
4970 Human Paleontology (4) Survey of the human
fossil record from Australopithecines to appearance of
forms; origin and evolution of major primate
lineages; human constitutional types. Prereq: 2810 or
consent of instructor. Biology 2110 strongly recom-
manded.
4940 Biology of Native Americans (3) American
Indian origins and evolution from standpoint of skeletal
remains and morphology and genetics of living popula-
tions. Emphasis on North American Indians. Prereq:
2510 or consent of instructor.
4950 Primate Studies (3) Survey of field and labora-
ory investigations of comparative anatomy and non-
human primate behavior. Prereq: 2510 or consent of
instructor.
4950 Primate Paleontology (3) Survey of fossil pri-
mate forms; origin and evolution of major primate
lineages, emphasizing the earliest Hominid and related
4970 Human Paleontology (4) Survey of the human
fossil record from Australopithecines to appearance of
forms; origin and evolution of major primate
lineages; human constitutional types. Prereq: 2810 or
consent of instructor. Biology 2110 strongly recom-
manded.
4940 Biology of Native Americans (3) American
Indian origins and evolution from standpoint of skeletal
remains and morphology and genetics of living popula-
tions. Emphasis on North American Indians. Prereq:
2510 or consent of instructor.
4950 Primate Studies (3) Survey of field and labora-
ory investigations of comparative anatomy and non-
human primate behavior. Prereq: 2510 or consent of
instructor.
4950 Primate Paleontology (3) Survey of fossil pri-
mate forms; origin and evolution of major primate
lineages, emphasizing the earliest Hominid and related
4970 Human Paleontology (4) Survey of the human
fossil record from Australopithecines to appearance of
forms; origin and evolution of major primate
lineages; human constitutional types. Prereq: 2810 or
consent of instructor. Biology 2110 strongly recom-
manded.
4940 Biology of Native Americans (3) American
Indian origins and evolution from standpoint of skeletal
remains and morphology and genetics of living popula-
tions. Emphasis on North American Indians. Prereq:
2510 or consent of instructor.
4950 Primate Studies (3) Survey of field and labora-
ory investigations of comparative anatomy and non-
human primate behavior. Prereq: 2510 or consent of
instructor.
4950 Primate Paleontology (3) Survey of fossil pri-
mate forms; origin and evolution of major primate
lineages, emphasizing the earliest Hominid and related
4970 Human Paleontology (4) Survey of the human
fossil record from Australopithecines to appearance of
forms; origin and evolution of major primate
lineages; human constitutional types. Prereq: 2810 or
consent of instructor. Biology 2110 strongly recom-
manded.
4940 Biology of Native Americans (3) American
Indian origins and evolution from standpoint of skeletal
remains and morphology and genetics of living popula-
tions. Emphasis on North American Indians. Prereq:
2510 or consent of instructor.
4950 Primate Studies (3) Survey of field and labora-
ory investigations of comparative anatomy and non-
human primate behavior. Prereq: 2510 or consent of
instructor.
4950 Primate Paleontology (3) Survey of fossil pri-
mate forms; origin and evolution of major primate
lineages, emphasizing the earliest Hominid and related
4970 Human Paleontology (4) Survey of the human
fossil record from Australopithecines to appearance of
forms; origin and evolution of major primate
lineages; human constitutional types. Prereq: 2810 or
consent of instructor. Biology 2110 strongly recom-
manded.
4940 Biology of Native Americans (3) American
Indian origins and evolution from standpoint of skeletal
remains and morphology and genetics of living popula-
tions. Emphasis on North American Indians. Prereq:
2510 or consent of instructor.
4950 Primate Studies (3) Survey of field and labora-
ory investigations of comparative anatomy and non-
human primate behavior. Prereq: 2510 or consent of
instructor.
4950 Primate Paleontology (3) Survey of fossil pri-
mate forms; origin and evolution of major primate
lineages, emphasizing the earliest Hominid and related
1150 Introduction to Crafts (4) Presence of art in immediate environment; design used in daily living by cultures different from our's, emphasis on awareness of design. 2 hrs., 2 labs.

1705 Experiencing Art (4) Form and meaning in visual arts. Lecture discussion. Especially for non-majors.

1815 World Art I (4) Art from ancient, classic and imperial civilizations; art in service of Buddhism, Christianity, and Islam; art as observation of natural world. Course content is drawn from art of Europe, Asia, and America in periods from prehistory to 1400.

1825 World Art II (4) Study through slides and lectures of works of great artists from Leonardo da Vinci and Michelangelo to Matisse and Picasso.

2004 Special Topics (1-4) Student or instructor initiated course offered at convenience of Department. May be repeated. Maximum credit 18 hours.

2006 Special Topics (2-4) Student or instructor initiated course offered at convenience of department. Prereq: Determined by department. May be repeated. Maximum credit 16 hours.

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

2105 Survey of Drawing (4) Further exploration and refinement of drawing with emphasis on composition and technique. 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 18 hours.

2115 Life Drawing (4) Further development of drawing and observational skills with special emphasis on structure and dynamics of human figure and of the figure in environment. Prereq: 2105. May be repeated. Maximum credit 8 hours.


2205 Introduction to Painting (4) Capacities of oil and acrylic. Prereq: 1115, 1125, 1135 for art majors; none for non-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 18 hours.

2215 Painting II (4) Techniques of expression of oil and acrylic. May be repeated. Maximum credit 8 hours. Prereq: 2205 for art majors, none for non-art majors.


2256 Special Topics in Fiber and Fabrics (4) Student or instructor initiated course offered at convenience of department. Prereq: Determined by department. May be repeated. Maximum credit 16 hours.


2265 Fiber Design II: Non-Woven (4) Application of interlocking, coiling, and twining in contemporary fiber constructions. Prereq: 2255. May be repeated. Maximum credit 8 hours.

2270 Fabric Design II: Screen Printing (4) Utilization of paper, resist, cut-film, and photo stencils in design-
3315 Watercolor III (4) Individual expression with varied water-based media on paper. May be repeated. Maximum credit 12 hours. Prereq: 8 hours in 3315 for art majors; 5 hours for non-art majors.

3415 Advanced Sculpture III (4) Individual projects through discussion with instructor, designed to widen previous experience. Prereq: Permission of instructor. May be repeated. Maximum 12 hours.

3416 Sculpture: Advanced Life Modelling (4) Advanced study of clay and wax, working from figure. Prereq: 2416 or consent of instructor. May be repeated. Maximum 8 hours.


3516 Typography (4) Theories and techniques of typesetting and printing as fine art medium. Creative problems are solved using type and printing presses. May be repeated. Maximum credit 12 hours.

3517 Airbrush (4) Techniques of airbrush. Emphasis on skill and creative applications. May be repeated once for credit. For art majors only.

3525 Visual Communications Concepts (4) Advanced pictorial perception; a broad range of concepts, materials and techniques for designer/illustrator. Prereq: 2525.

3535 Package Design (4) Study of contemporary concepts and techniques applied to all types of package design and production. Prereq: 3515, 3525.

3615 Intaglio III (4) Color intaglio printing from zinc or cardboard plates. Extra techniques—mezzotint, sandpaper, etc. May be repeated. Maximum credit 12 hours.

3616 Lithography III (4) Color lithography from stone or plates. Extra techniques—stone engraving, acid lifting, reverse. May be repeated. Maximum credit 12 hours.

3617 Screen Printing (4) Stencils; making of handmade negatives on transparent film. May be repeated. Maximum credit 12 hours.

3665 Metal Design III: Individual Class Projects (4) Prereq: 2665 or 2675 or consent of instructor. May be repeated. Maximum credit 12 hours.

3704 Medieval Art (4) Byzantine and western art of Middle Ages: manuscript illumination, mosaic, Romanesque pilgrimage church, Gothic cathedral.

3705 Northern European Painting: 1350-1600 (4) From the Early and late Middle Ages to Northern Renaissance. Jan van Eyck, Roger van der Weyden, Bosch, and Durer; early printmakers.


3725 Art of Southern Europe and New World, 1500-1830 (4) Titian, El Greco, Caravaggio, Zurbaran, Velazquez, Berini, and Goya. Artistic relations between Iberia and Latin America.

3726 The Art of Northern Europe, 1500-1675 (4) Concentrated study of Frans Hals, Rubens, Rembrandt, Georges de La Tour, Vermeer, Poussin, and Hals.

3735 History of Nineteenth-Century Painting in Europe and America (4) Emphasis on French: Neo-Impressionism, Symbolism, Cubism, Fauvism, and Dada; American Impressionism and Realism, American Impressionism, Abstract Expressionism in the U.S.A. and parallels in Europe; Pop, Op, Minimal, and Concept art.

3745 History of Modern Architecture in Europe and America (4) Survey of 19th-century styles, Sullivan and skyscraper. 20th century: Viennese leaders, the Bauhaus, Gropius, Van der Rohe, Le Corbusier, and Wright. Aalto to Kahn, Tange and Metabolism, Archigram, Soderi, and Venturi.

3746 History of Modern Sculpture in Europe and America (4) From 1900 to 1900: Neoclassicism to Rodin. From 1900 to 1900: Cubism, Constructivism, Expressionism, Assemblage, Pop, Primary Forms, Environments, and Earthworks.


3760 Studies in Afro-American Art (4) Study of the social, historic, and literary forces behind the development of Black Art trends in the U.S., with emphasis on the 20th century. Prereq: 9 hours from 1815, 1925, or 2725.

3763 Crafts in America (4) Craft movement; factors that contribute to growth and development. Educational, social, economic, and aesthetic values of crafts. Role of designer in society as producer and teacher.

3765 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.

3777 Nineteenth-Century American Painting (4) From West and Copley to emergence of "The Eight".

3777 Art of Indian Asia (4) History of Indian art with consideration of art of Central Asia and Southeast Asia.

3776 Chinese Art (4)

3777 Japanese Art (4)

3811 Introduction to Museology (3) Concepts, practices, and historical development of museums of art, archaeology, anthropology, and science. (Same as Anthropology 3611.)

3905 Intermediate Photography (4) Individual expression in the photographic medium. May be repeated. Maximum credit 12 hours. Prereq: 2905 or consent of instructor.

3935 Film Design (4) Theory and practice of filmmaking. Prereq: 2935.

3950 Glazes (4) Prereq: 2970.

3960 Ceramics III: Individual Class Projects (4) Prereq: 3950 or consent of instructor. May be repeated. Maximum credit 8 hours.

4004 Special Topics (1-4) Student or instructor initiated course offered at convenience of Department. May be repeated.

4005 Special Topics (2-4) Student or instructor initiated course offered at convenience of Department. Prereq: Determined by department. May be repeated. Maximum credit 12 hours.

4006 Honors: Advanced Art (4) Intensified study for the exceptional student. May be repeated for a maximum of 24 credit hours.

4015 Individual Problems (4) May be repeated for a maximum credit of 12 hours. Prereq: Consent of instructor.

4101 Foreign Study (1-16) See page 185.

4102 Off-Campus Study (1-16) See page 185.

4103 Independent Study (1-16) See page 185.

4115 Drawing IV (4) Individualized pursuit of personal drawing techniques and concepts, supplemented by individual and group critiques as well as weekly life drawing sessions. Prereq: 4114. Maximum credit 12 hours. Prereq: 12 hours of 3115.

4119 Advanced Design Studio (4) Experience planned to explore strengths, structural variability, and form potential of design. Emphasis on searching for aesthetic potential in depth. Prereq: Senior or graduate standing or consent of instructor.

4150 Craft Media (4) Possibilities and limitations of various craft media; designing and executing craft projects using inexpensive materials and tools. For art majors only.

4206 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 hours.

4215 Painting IV (4) Individual concepts on personal expression with varied media on canvas. May be repeated. Maximum credit 12 hours. Prereq: 12 hours in 3215 for art majors, consent of instructor for non-art majors.

4256 Special Topics in Fiber and Fabrics (4) Student or instructor initiated course to be offered at convenience of instructor. Prereq: Determined by department. May be repeated. Maximum credit 16 hours.


4315 Watercolor IV (4) Individual concepts in personal expression with varied water-based media on paper. May be repeated. Maximum credit 12 hours. Prereq: 12 hours in 3315 for art majors, consent of instructor for non-art majors.

4406 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 hours.

4415 Advanced Sculpture IV (4) Individual development of sculptural problems and techniques. May be repeated. Maximum credit 12 hours. Prereq: Permission of instructor.

4470 Advanced Wood Sculpture (4) Application of laminating, carving, and jointing techniques in designing and constructing of contemporary forms. Prereq: 2450 or consent of instructor. May be repeated. Maximum credit 12 hours.

4506 Special Topics in Graphic Design/Illustration (4) Student or instructor initiated course offered at convenience of department. Prereq: Determined by department. May be repeated. Maximum credit 16 hours.

4515 Corporate Design (4) Concepts of corporate graphics. Problems include all areas of graphic design and illustrating. Prereq: 3535. May be repeated. Maximum credit 12 hours.

4516 Portfolio and Exhibition Techniques (4) Application of design principles and their relation to promotion, construction, display, and evaluation for two- and three-dimensional artists. Prereq: Senior or graduate standing or consent of instructor.

4535 Senior Thesis (4) Visual and written presentation of major graphic design project. Preparation of a professional portfolio. Prereq: 4515.

4545 Visual Communications Seminar (2) Political, social, economic, and ethical problems of contemporary designer. Sessions with outside guest speakers and field trips are employed. Prereq: 4515.

4606 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 hours.

4615 Intaglio IV (4) Photographic, collage techniques; combine printing with other print media. May be repeated. Maximum credit 12 hours.
be repeated.

2404 Sculpture (1-4) Beginning to intermediate. May be repeated.

2304 Watercolor (1-4) Beginning to intermediate. May be repeated.

2284 Fabric Construction (1-4) Beginning to intermediate. May be repeated.

2274 Fabric Surface Design (1-4) Intermediate to advanced. May be repeated.

2284 Fabric Construction (1-4) Intermediate to advanced. May be repeated.

4304 Watercolor (1-4) Intermediate to advanced. May be repeated.

4404 Sculpture (1-4) Intermediate to advanced. May be repeated.

4504 Communication Design (1-4) Intermediate to advanced. May be repeated.

4604 Printmaking (1-4) Intermediate to advanced. May be repeated.

4684 Metal Design (1-4) Intermediate to advanced. May be repeated.

4684 Enameling (1-4) Intermediate to advanced. May be repeated.

4904 Photography (1-4) Intermediate to advanced. May be repeated.

4954 Ceramics (1-4) Intermediate to advanced. May be repeated.

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)

5125 Graduate Drawing II (2-6)

5215 Graduate Painting I (2-6)

5225 Graduate Painting II (2-6)

5255 Graduate Fiber and Fabrics I (2-6)

5275 Graduate Fiber and Fabrics II (2-6)

5315 Graduate Watercolor I (2-6)

5325 Graduate Watercolor II (2-6)

5415 Graduate Sculpture I (2-6)

5425 Graduate Sculpture II (2-6)

5515 Graduate Graphic Design/Illustration I (2-6)

5525 Graduate Graphic Design/Illustration II (2-6)

5615 Graduate Printmaking—Lithography I (2-6)

5616 Graduate Printmaking—Intaglio I (2-6)

5617 Graduate Printmaking—Screen Printing I (2-6)

5625 Graduate Printmaking—Lithography II (2-6)

5626 Graduate Printmaking—Intaglio II (2-6)

5627 Graduate Printmaking—Screen Printing II (2-6)

5715 Reading and Research in Art History (2)
are required: Chemistry 2140-49, 3211-21-31, 3219-29-39, and Biochemistry 4110-20 and 4119. Additional credits from Biochemistry 4210-20 and/or 4500 and/or 5010 are desirable.

311C: Introduction to Biochemistry (4) Biochemical principles underlying physiological events in animal tissues. Metabolism of carbohydrate, lipid, protein, and nucleic acids. Biochemistry of body fluids. Action of drugs and hormones. Prereq: Chemistry 1110-20-30 or 1516-20-30 and least 2 quarters of introductory biological sciences. Not available for credit if credit has been previously received for 4110 or 4120.

4110-20 Cellular and Comparative Biochemistry (4,4) Electrophoretic behavior; chemistry and structure of proteins; enzyme behavior and biological function; catalysis and energy capture; synthetic metabolism; nucleic acid function, protein synthesis, and biochemistry. Qualitative genetics; regulation of biological processes. Must be taken in sequence. Prereq: Chemistry 3211-21-31, 3219-29-39, and one course from Biology 1210-20-30 or Botany 1110-20. Three lectures and discussion.

4110 Cellular and Comparative Biochemistry Laboratory (2) Basic biochemical procedures of general application in biochemistry and molecular biology. Prereq or coreq: 4110.

4220-20 Introduction to Physical Biochemistry (3,3) 4220—Introduction to thermodynamics; phase stability and phase change; chemical potential; osmotic pressure; activity and the Debye-Hückel model; electrochemistry; membrane permeability. 4221—Elements of statistical mechanics, diffusion, collision theory; chemical kinetics; and translation state theory; higher-order kinetics; specialized kinetics of enzymatic processes; some biopolymer considerations. Prereq: Mathematics 1840-50-59, Chemistry 2111-21-31 and 2139-39, and an introductory course in biology.

4230 Introduction to Physical Biochemistry (3) Physical characterization of macromolecules; polarized light, absorption and fluorescence, sedimentation and transport hydrodynamics, electrophoretic mobilities, light scattering, and structural x-ray crystallography of proteins and nucleic acids. Prereq: Biochemistry 2020 or Chemistry 3430, or equivalent.

4500 Independent Research in Biochemistry (1-6) Special experimental problems under direction of staff member. Limited to undergraduates and by consent only. May be repeated for credit. Prereq or coreq: 4110-20, 4119.

GRADUATE

Master's and doctoral degree requirements are found in the Graduate Catalog. Master's degree candidates usually should offer an undergraduate major in biochemistry, biology or chemistry. Doctoral degree candidates must present an undergraduate major in biochemistry, biology or chemistry.

5000 Thesis
5010 Biochemical Techniques (2) 5110 The Metabolism of Nitrogen Containing Compounds (3) 5120 Biochemistry of Mitochondria and Selected Organelles (3) 5130 Protein Structure and Enzyme Function (3) 5210 Structure and Function of Biological Membranes (1) 5220 Structure and Functions of the Nucleic Acids (3) 5230 Protein Synthesis and Its Role in Metabolic Regulation (3) 5300 Graduate Research Participation (3-9) 5310-20-30 Experimental Techniques (2,2,3) 5450 Special Topics (1-3) 5510 Properties of Biomolecules Related to Function (3) 5520 Molecular Basis of Metabolism and its Regulation (3) 5530 Biosynthesis and Regulatory Functions of Informational Molecules (3) 5560 Environmental Toxicology (3) 5560 Techniques in Environmental Toxicology (3) 6000 Doctoral Research and Dissertation 6010 Advanced Biochemistry Seminar (1) 6410 Current Topics in Biochemistry (1) 6420 Current Topics in Biological Membrane Research (1) 6431 Current Topics in Environmental Toxicology (1) 6450 Advanced Special Topics (1-3)

Biology (190)

Coordinator: K. J. Monty

A major in biology may be obtained by completing one of the three following concentrations:

A. Concentration in Cell Biology. Consists of Biology 3110-20-30, Chemistry 3211-21-31, 3219-29-39, Biochemistry 4110-20, and 12 hours of upper-division courses from: Biochemistry 4119-4500; Botany, any 3000 or 4000-level courses (except 3050, 3070, 3090); Microbiology 3200, 3700, 3519, 4110-19, 4140-49, 4270-79, 4420, 4909; Zoology 3050, 3060, 3080, 3150, 3320, 4010, 4050, 4110-20, 4250, 4280, 4389, 4390, 4450. In meeting upper-division minimum requirement, not more than 8 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 concentration are Biology 1210-20-30 or Botany 1110-20, or 1118-28 or Zoology 1118-28 and Chemistry 1110-20-30. Corequisites are Math 1841-51; a year sequence in physics (except 1410-20; and Chemistry 2140-49.

B. Concentration in Organismal and Systems Biology. Consists of Biology 3110, 3120, 3190, Chemistry 3211-21-31, 3219-29-39, and 18 hours of upper-division courses from: Biochemistry 3110, 4110-20, 4119, 4500; 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 Botany 1110-20 or 1118-28 or Zoology 1118-28 and Chemistry 1110-20-30. Corequisites are Math 1841-51 or 1550-60 (Math 1841-51 is recommended choice); a year sequence in physics (except 1410-20-30) or Geology 1410-20-30.

C. Concentration in Ecology Consists of Biology 3110-20-30, Chemistry 3211-21-31, and 3219-29-39, Environmental Engineering 4000, either Geography 3520 or Geography 3530, and 17 hours of upper-division courses from: Botany 3030, 3210, 4030, 4310; Forestry 3020, 3550, 3730, 4020; Geography 3520-30; Microbiology 4110, 4150; Wildlife 3200, 4450, 4460, 4510; Zoology 3080, 4240, 4680, 4720-29. In meeting the upper division
minimum requirement, at least 8 hours must be
chosen from the group Botany, Microbiology, and Zoology. Prerequisites to this concentration are Botany 1210-20 or Botany 1110-20 or 1118-26 or Zoology 1118-28 and Chemistry 1110-20-30. Corequisites are Math 1841-51 or 1550-60 (Math 1841-51 is recommended choice); Physics 1210-20 or 2210-30.

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 1210-20-30 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 (page 223).

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 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 1118-26 or Zoology 1118-28) and 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 the cell; chemical basis of life, cell structure and function, energy metabolism and photosynthesis, DNA, RNA, and protein synthesis, monera, protista, and fungi. 1220—Biological and animal sciences; 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. 1250—Genetics, evolution, populations and ecology. May be taken in any sequence. Students who receive credit for 1210-20-30 may not receive credit for Botany 1110-20, 1118-28 or Zoology 1118-28-39.

3110 General Genetics (4) Classical and modern principles of heredity. Prereq: 1210-20-30 or Botany 1110-20 or equivalent. 3 hrs and 1 additional class meeting. May be taken in any sequence or combination with 3120 and 3150.

3120 Cell Biology (4) Organization and function of the cell. Prereq: Same as 3110. 3 hrs and 1 additional class meeting. May be taken in any sequence or combination with 3110 and 3130.

3130 General Ecology (4) Relations between organisms and their environment, including human environmental problems. 3 hrs and 1 additional class meeting. Prereq: Same as 3110. May be taken in any sequence or combination with 3110 and 3120.

4510 Scientific Illustration (3) Introduction to design and production of graphs, charts, for scientific illustration; photography; computer illustrations and displays. No artistic talent assumed. Prereq: Advanced standing in a science curriculum; consent of instructor.

Black Studies
See Cultural Studies.

Botany (198)

Professors:
R. W. Holton (Head), Ph.D. Michigan; E.E.C.
B. O. McDonald, Ph.D., D. R. DeSmidt, Ph.D. Ohio State; A. M. Evans, Ph.D. Michigan; W. R. Hemond (Vice Chancellor for Academic Affairs), Ph.D.

3Students with two years of high school biology and satisfactory ACT scores may, with the consent of the Department, enroll in the freshman year sequence and enter Botany 1110-20-30 directly (see course listings under Biology).

Vanderbilt; L. W. Jones, Ph.D. Texas; J. P. McCormick (Director of Ecology Program), Ph.D. Emory; T. H. Norris (Emeritus), Ph.D. Ohio State; R. H. Petersen, Ph.D. (Columbia); A. J. Sharp (Emeritus), Ph.D. Ohio State; H. H. Shugart, Ph.D. Georgia (part-time); F. L. Walls, Ph.D. Texas.

Associate Professors:

Assistant Professors:

Instructor:
K. D. McFarland, M.S. Ohio University.

UNDERGRADUATE

Major: Consists of Biology 3110-20-30; 23 hours of upper-division courses from a related biological science (zoology, microbiology, biochemistry, entomology and plant pathology, 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 Biology 1210-20-30 or 1118-28 or Biology 1210-20-30 or 1118-28 or Chemistry 1110-20-30. Corequisites are Math 1841-51 or Math 1550-60; Physics 1210-20-30 or Physics 2210-20-30 or Chemistry 2111-21-31, 3219-29-39, or Geology 1410-20 plus 4 additional hours of Geology.

Minor: Consists of Biology 3110-20-30 and 15 upper-division hours in botany. Not more than 3 hours from 3050, 3070, 3090 are allowed for minor credit. Prerequisites to this minor are Botany 1110-20, 1140 or 1118-28, or Biology 1210-20-30. Corequisites are 4 hours of upper-division courses in a related biological science (zoology, microbiology, biochemistry, agricultural botany, 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-hour discussions and approximately 3 hours audio-tutorial laboratory per week. Students may not receive credit for both Botany 1110-20 and Biology 1210-20.

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 natural 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 faculty. Students receiving C or D in 1118 must transfer to 1120. Three 2-hour lecture-tutorial-discussion periods. Must be taken in sequence. Students may not receive credit for both Botany 1118-28 and Biology 1210-20.

1210-20 Biology Laboratory in Plant Physiology (4,0) Laboratory study under guidance of selected staff. By application only. (Same as Anthropology 3070.)

3110 Introductory Plant Pathology (4) (Same as Entomology and Plant Pathology 3130.)

3120 Introductory Plant Physiology (4) Organismal physiology of plants, with emphasis on respiration, 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 major 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 hypoxic regions (oxygen minimum zones). Prereq: Chemistry 1110-20 or Botany 1110-20 or Geology 2710.

4000 Tutorial in Botany (1-3) Individual, independent study under guidance of selected staff. By application only. May be repeated with consent of department. Maximum credit 6 hours.

4017 Field Mycology (3) Field experience on identification of higher fungi. Frequent field trips emphasizing field recognition of species and habitats. Laboratory sessions for discussion and practice with techniques and literature for accurate identification. Prereq: 6 hours of botany. Recommended: Botany 3010-20.

4021 Field Bryology (3) Field experience on identification of bryophytes and lichens. Frequent field trips emphasizing field recognition of species and habitats. Laboratory sessions for discussion and practice with techniques and literature for accurate identification. Prereq: 6 hours of botany. Recommended: Botany 3010-20.

4022 Field Lichenology (3) Field experience on identification of lichens. Frequent field trips emphasizing field recognition of species and habitats. Laboratory sessions for discussion and practice with techniques and literature for accurate identification. Prereq: 6 hours of botany. Recommended: Botany 3010-20.

4023 Field Agrostology (3) Field experience on identification of grasses. Frequent field trips emphasizing field recognition of species and habitats. Laboratory sessions for discussion and practice with techniques and literature for accurate identification. Prereq: 6 hours of botany. Recommended: Botany 3010-20.

4030 Mechanisms of Plant Speciation (3) Processes of plant speciation emphasizing hybridization, polyploidy, drift, hybridization, variation in populations, establishment of population barriers, and other aspects of plant speciation. Prereq: 3010-20 and Biology 3110.

4045 Aquatic Vascular Plants (3) Field experience on identification of aquatic vascular plants. Frequent field trips emphasizing field recognition of species and habitats. Laboratory sessions for discussion and prac-
5061 Phylogeny (4)
5065 Phytoplankton Ecology (4)
5070 Principles of Biological Illustration (3)
5080 Pteridology (4)
5090 Morphology and Evolution of Basidiomycetes (4)
5120 Agrostology (4)
5153 Advanced Morphology of Flowering Plants (4)
5160 Biosystematics (4)
5210 Advanced Plant Physiology I (3)
5220 Advanced Plant Physiology II (3)
5215 Advanced Plant Physiology III (3)
5230 Quaternary Problems (4)
5310-20-30 Special Problems in Botany (1-4,1-4,1-6)
5410 Analysis of Plant Communities (4)
5360 Marine Ecology (3)
5410-20-30 Seminar in Teaching of College Botany (1,1,1)
5440 Seminar in Botany (1)
1510-20-30 Systems Ecology (3,3,3)
5780 Plant Cytology (4)
5810 Cytogenetics (4)
5820-21-22-23-24 Methods and Instruction in Laboratory Investigations (1,1,1,1,1)
5830 The Field Research Problem (4)
5850-51-52-53-54 Methods and Instruction 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)
6120 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:
G. Mamantov (Head), Ph.D., Louisiana State, J. E. Bloor, Ph.D. Manchester (England); N. S. Bowman, Ph.D. Princeton; C. A. Buehler (Emeritus), Ph.D., Ohio State; W. E. Bull, Ph.D. Illinois; J. O. Chambers, Ph.D. Kansas; J. A. Dean (Emeritus), Ph.D. Michigan; J. F. Eastham, Ph.D. California (Berkeley); W. H. Fitcher, Ph.D., Minnesota; G. W. Kabalka, Ph.D. Purdue; C. W. Keenan, Ph.D. Texas; D. C. Kleinfelter, Ph.D. Purdue; T. F. Williams, Ph.D. London (England); J. H. Wood (Emeritus), Ph.D. North Carolina.

Associate Professors:
F. A. Grimm, Ph.D., Colorado; F. J. Ansari, Ph.D. Arizona; A. C. Lane, Ph.D. California (Berkeley); L. J. Magid, Ph.D. Tennessee; F. M. Schell, Ph.D. Indiana.

Assistant Professors:
J. L. Adcock, Ph.D. Texas; S. D. Alexandratos, Ph.D. California (Berkeley); J. D. Kovac, Ph.D. Yale; M. J. Sepaniak, Ph.D. Iowa State; C. Woods, 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 183.

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 provide 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 (page 183), but with more opportunity for selection of electives outside the department and outside of science. Unlike the Bachelor of Science in Chemistry degree, the B.A. degree using Concentration A is not approved by the Board of Regents.

Concentration B is designed for students who have career objectives in fields other than chemistry, but in 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 1840-50-60, 2840-50, Physics 2510, 2310-20. The concentration consists of Chemistry 2140, 2149, 3211-21-31, 3219-29-39, 4140-30, 3429 plus at least 10 hours of additional upper-division work in chemistry, including one of the following courses: Chemistry 4110, 4210, 4220, 4310, 4420, 4510, 4560. (Up to six hours of biochemistry 4000 level and above or geology 4610 may be applied to the 10-hour requirement. While not required, Math 2860 is highly recommended as an elective for majors in this concentration.

Concentration B is designed for students who have career objectives in fields other than chemistry, but in 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 1210-20-30; (d) Biology 3110-20 and Microbiology 3700, 5150; (e) Botany 1110-20. The concentration consists of Chemistry 2140, 2149, 3211-21-31, 3219-29-39, 4910-20-30, 4925, plus at least 10 hours of additional upper-division work in chemistry, including at
least one of the following courses: Chemistry 4110, 4210, 4220, 4310, 4420, 4510, 4550 (Up to six hours of biochemistry 4000 level and above or Geology 4610 may be applied to the 110 hour requirement). A minor in chemistry shall consist of the successful completion of 24 hours of chemistry courses numbered 2000 and above including 3420-49 (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 3430-49.

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 3610. 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 1110 series after having completed 1510 may substitute 1510 for 1110 with approval of the chemistry department. Students may take 1120 followed by 1130. However, no single quarter of the 1500 or 1600 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 1118-28-38 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 is based on ACT scores, 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 1118 will complete the year's 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 1150 to get the full 12 hours of credit.

Beginning students who have had high school chemistry and who have had additional experience (e.g. summer institute study, special needs programs, etc.) 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 descriptive chemistry, 1110—Modern atomic theory, chemical bonding, stoichiometry, and quantitative treatment of gas laws. 1120—Applications of concepts developed in 1110 to topics related to living systems. 1150—Bonding and molecular structure, gases, liquids and solid state, solutions, colloids. 1520—Acids and bases, oxides, hydroxides, and related compounds. Introduction to organic chemistry, alkanes, unsaturated and aromatic hydrocarbons. 1530—Structures and reactions of various organic functional groups. Introductory biochemistry—amino acids and proteins, carbohydrates, and nucleic acids. Must be taken in sequence. 3 hours and 1 lab.

1510-20-30 General Chemistry (4,4,4) Introductory course with emphasis on topics related to living systems. 1510—Bonding and molecular structure, gases, liquids and solid state, solutions, colloids. 1520—Acids and bases, oxides, hydroxides, and related compounds. Introduction to organic chemistry, alkanes, unsaturated and aromatic hydrocarbons. 1530—Structures and reactions of various organic functional groups. Introductory biochemistry—amino acids and proteins, carbohydrates, and nucleic acids. Must be taken in sequence. 3 hours and 1 lab.

1610-20 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 substances, their structure, and chemical changes. 1520—Impact and utilization of chemical principles in modern society with selected topics in physical chemistry and chemical instrumentation. Chiometry, and quantitative treatment of gas laws. Must be taken in sequence. 3 hours and 1 lab.

2140 Analytical Chemistry (3) Principles and practice of quantitative measurements in chemical systems. Acid-base equilibria, oxidation reduction systems, complexometric titrimation, elementary spectrophotometry, potentiometric methods, application 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 or chemistry majors or students planning careers in physical or biological chemistry. Credit may not be received for both Chemistry 2230 and 3211, toward graduation or otherwise.

3211-21-31 Organic Chemistry (3,3,3) Compounds and their reactions, reaction mechanisms, spectroscopic and other physical properties. Must be taken in sequence. Prereq: 1110-20-30. Corresponding laboratory (3219-29-39) is coreq for students not having credit for the laboratory.

3219-29-39 Organic Chemistry Laboratory (1,1,1) Experiments on topics discussed in 3211-21-31. Corresponding lecture (3211-21-31) is coreq for students not having credit for the lecture.

3310 Molecular Basis of Polymers (3) Molecular features of polymers as opposed to small molecules, polymerization reactions, polymer structures, and molecular characterization of polymers. Not for credit by chemistry majors or minors. Prereq: 3229-29.

3410-20-30 Physical Chemistry (3,3,3) 3410—Behavior of one and two law systems; the chemical thermodynamics. Introduction to chemical equilibrium. 3420—Chemical equilibria, phase equilibria, and properties of simple systems. Kinetic theory of gases. 3430—Kinetics of chemical reactions. Introduction to quantum mechanics, application to simple systems. Molecular spectroscopy and structure. Prereq: One year of 2000-level physics and Math 1800, 2840-50, or equivalent; coreq: 4119; recommended for advanced chemistry majors.

3429-39 Physical Chemistry Laboratory (1,1) Gases, liquids, chemical equilibria, solutions, phase equilibria, reaction kinetics, and electrochemistry. Prereq or coreq: Corresponding courses (3420 and 3430). 1 lab.

3511-21-31 Principles of Organic Chemistry (3,3) Structure and reactivity of aliphatic and aromatic compounds emphasizing reactions of synthetic utility. Use of spectroscopic and physical techniques to elucidate reaction mechanisms. Recommended for chemistry majors and students planning careers in physical or biological sciences. Must be taken in sequence. Prereq: 1110-20-30. Corresponding laboratory: 3519-29-39 or 3529, 3529-39 is a coreq; latter is recommended.

3529-39 Organic Chemistry Laboratory (1,1) Experiments on topics discussed in 3528-29-39 except designed for students who need for operating knowledge of various spectroscopic and chromatographic techniques. Corresponding lecture 3529-39 is coreq for students not having credit for the lecture.

3531-32-21 or 3531-32-21 is coreq for students not having credit for the lecture.

4160-70 Intermediate Physical Chemistry (3,3) Designed for entering graduate students who have had one year of physical chemistry.) 4160—The laws of thermodynamics, phase equilibria and solutions, and chemical equilibria. 4170—Gases and kinetic theory. 4180—Introduction to inorganic chemistry. Prereq: 2140-49.

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

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.

4310 Introductory Polymer Chemistry (3) Fundamental principles, stressing the role of chemistry in the interdisciplinary field of polymer science, relations of molecular structure to bulk properties of polymers. Prereq: 3231; Prereq or Coreq: 4320 or 3420.

4420 Physical Inorganic Chemistry (3) Theoretical chemistry of inorganic compounds; quantum theory of the atom, principles of molecular structure, and elementary nuclear chemistry. Prereq: 4119-20-30, 4110.

4430 Intermediate Inorganic Chemistry (3) Application of theoretical knowledge to inorganic chemistry. Prereq: 4110, 4119-20-30, their chemical states, and their reactions. Prereq: 4420.

4510 Organic Qualitative Analysis (3) Identification of pure organic compounds and mixtures. Prereq: 3211-21-31, 3219-29-39 or 3219, 3229-39, 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 of special significance. Prereq: 3231-39 or 3231-3539, 3430-39, 4420. Students who receive credit for 4610 may not also receive credit for 4510.

4640 Chemical Instrumentation (4) Principles of chemical instrumentation; practice in the design and construction of chemical instruments. 2 hrs and 2 labs. Prereq: 2140-49.

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 credit 6 hours.

4910-20-30 Biophysical Chemistry (3,3) Physical chemical principles with applications to biologi-
GRADUATE

Students majoring in chemistry for the M.S. or Ph.D. degree are required to present 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 minorin 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, energy, environmental, inorganic, organic, physical, theoretical, chemical physics, and polymer science.

5000 Thesis
5110-20-30-35 Advanced Organic Chemistry (3,3,3)
5129 Advanced Organic Chemistry Laboratory (3)
5139 Spectroscopic Characterization of Organic Compounds (2)
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 Chemical Instrumentation (4)
5250-60-70 Advanced Analytical Chemistry (3,3,3)
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. Rurtle (Head), Ph.D. Ohio State; A. Rapp (Emeritus), Ph.D. Illinois.

Associate Professors: G. C. Gesell, Ph.D. North Carolina (Chapel Hill); J. E. Shelton, Ph.D. Vanderbilt.

Assistant Professors: C. P. Craig, Ph.D. North Carolina (Chapel Hill); S. D. Martin, Ph.D. Michigan; D. W. Tandy, Ph.D. Yale.

Greek

UNDERGRADUATE

A major in Greek 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.

2111-21 Intermediate Latin (4,4) 2511—Readings from the age of Cicero. 2521—Vergil's Aeneid. Open to those who have had at least two years of high school Latin, or equivalent.

2340 Ovid (3) Prereq: 3 or 4 years of high school Latin or 2521.

2350 Plautus and Terence (3) Prereq: 3 or 4 years of high school Latin or 2521.

2360 Catullus (3) Prereq: 3 or 4 years of high school Latin or 2521.

3450 Livy (3)

3460 Pliny and Martial (3)

3460 Elegiac 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

5410-50-30 The Latin Epic. Lucretius, Virgil, Lucan (3,3,3)
5510-30-30 Roman Comedy. Plautus, Terence (3,3,3)

GENERAL COURSES

2710 Scientific and General Vocabulary from Greek (3) Study of word roots and words in English language derived from Greek. Designed to build general vocabulary with special emphasis on scientific and technical terminology.

2720 Scientific and General Vocabulary from Latin (3) Study of word roots and words in English language derived from Latin. Designed to build general vocabulary with special emphasis on scientific and technical terminology.

2730 Medical Terminology (3) Prepares the student to make sense of, and so more easily remember, the thousands of complex medical words through a knowledge of the simple classical roots which combine to form most medical vocabulary.

2740 Word Power: Basic Vocabulary from Greek and Latin (3) Vocabulary building from Greek and Latin bases, classical, non-technical vocabulary. Exercises in English etymology.

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.

2810 Early Greek Mythology (3) Comprehensive study of Greek myths through readings, lectures, and discussion with emphasis on significance for Greek thought and religion. Slides and tapes illustrate influence of Greek myths on art, music, and literature of ancient Greek and later cultures. (Same as Religious Studies 2510.)

2820 Greek Mythology in the Classical Period (3) Use of myth in literature, history, religion, philosophy, and art of Classical Age of Greece, 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 2520.)

2830 Roman Mythology (3) Myths created by Romans, as well as those the Romans borrowed from Greeks, with reference to Roman attitude toward history, religion, and society. Readings, lectures, slides, and discussion. (Same as Religious Studies 2530.)

3110 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, Tiryns, and Pylos, their fall, the following Dark Age, and rebirth of Greek civilization. Illustrated lectures.

3320 Art and Archaeology of Archais and Classical Greece (3) Survey of development of Greek architecture, sculpture, and painting from 650 B.C. to death of Alexander. Illustrated lectures.

3330 Art and Archaeology of Hellenistic Greece and Rome (3) Hellenistic Greece, 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 300 B.C. to 500 A.D. with emphasis on development of city planning and quality of life. Such cities as Mycenae, Athens, Priene, Alexandria, Rome, and Lepcis Magna will be studied.

3500 Shires 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, Cumae, Praeneste, and Baalbek will be considered. Readings in selected classical authors aid to understanding of place of great shrines and sanctuaries in Greek and Roman life.

3510 Early Greek Literature in English Translation (3) Epic and lyric poetry, including Homer and Sappho, and Herodotus' History of Persian Wars.

3520 Classical Greek Literature in English Translation (3) History, philosophy, and drama of Golden Age from its brilliant rise to its tragic decline in Peloponnesian War.

3530 Roman Literature in English Translation (3) Poetry and prose of major Latin authors, with attention to Greek background. Selections made from early comedy through literature of Augustan Age and of later Empire.

4010 Greek Drama in English Translation (3) Survey of dramatic masterpieces of Greek literature.

4101 Foreign Study (1-16) See page 185.

4120 Teaching of Latin (3) Carries no language credit. (Same as Educ. C 8 0565.)

4220 Seminar in Classical Studies (3) Special problems in ancient languages and literatures, literature and culture, literature in translation. Not 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. May be repeated for credit with consent of department.

4510 Selected Readings in Latin Literature in Translation (3) Content varies; may be repeated for credit with consent of department.

4610 Studies in Classical Archaeology (3) Variable content course offering subject matter not taught in an existing course, or concentrating on one aspect of the existing survey. May be repeated for credit to a maximum of 9 hours. Prerequisites according to topic.

GRADUATE

5520 Problems in Old World Archaeology (3)

Comparative Literature

See Cultural Studies.

Computer Science (266)

Professors:
F. W. Donaldson; Ph.D. Texas (UTSI), T. Feagin
(Technical Illustration); Ph.D. Texas; R. T. Gregory; Ph.D. Illinois; G. R. Sherman; Ph.D. Purdue; M. G. Thomas; Ph.D. Duke.

Associate Professors:

Assistant Professors:
J. L. Cockett, Ph.D. Leeds; UK; R. W. Heller, Ph.D. Southern Methodist; D. L. Matuszek, Ph.D. Texas; M. R. O'Kennon, Ph.D. Clarkson; D. L. Perry, Ph.D. Ohio State; D. W. Straight, Ph.D. Texas.

Instructors:
J. W. Mayo, M.S. Tennessee; K. Y. Bowder, M.S. Tennessee;
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 departmental office, 8 Ayres Hall, or from the Liberal Arts Advising Center, 220 Ayres Hall.

Major: Computer Science 1610 and 1620 are prerequisites to a major in computer science which consists of 2215, 2610, 2710, 3155, 3920, 4510, 4550, and an additional 15 hours of intermediate and advanced courses. Also required are Math 2840-50-60 and Statistics 3450.

Minor: A minor in computer science consists of 2610, 2710, and an additional 18 hours of upper division computer science courses.

Acceptance and Progression: Acceptance to the major or minor in computer science is competitive and is based on the resources available in the department. Factors considered in the decision are both subjective and objective. Included is consideration of overall grade point average, grades earned in computer science courses required in the lower division curriculum of the major or minor, the seriousness of purpose and interest in departmental programs as exemplified by regular and orderly progress through the prescribed curriculum without abuse of withdrawal and course repeat privileges. The standards applied may be adjusted from time to time to balance overall demand with available departmental resources.

A student enrolled in lower-division courses in the department may progress to the major or minor program only after completing the lower-division courses, or with the consent of the department. Students who have completed the required lower-division computer science courses with a minimum GPA of 3.0 and wish to progress to the major or minor program must apply to the departmental office. This must be done as soon as the stated requirements are met so that a decision can be reached prior to the Advanced Registration date for the next quarter. Those who are not accepted into the C.S. Degree program will be counseled and advised of educational alternatives.

For computer science majors who have taken at least three computer science courses at UTK, grades in all computer science courses from UTK will be averaged. If a course is repeated, all grades received for the course will be counted. If a course in which a student has received an A or B is later retaken, only the first A or B is counted; no subsequent grades will be counted.

If a student's computer science average as described above falls below 2.5, the student will be given a warning. If after one more quarter's grades have been received the student's computer science average has not risen to 2.5, the student will not be allowed to graduate with a major in computer science.

A student who desires to be readmitted to the major after being withdrawn as described above must attain an average in computer science courses (computed as described above) of at least 2.7.

The policy applies to all computer science courses taken during or after Winter Quarter, 1983. This policy will be enforced by the Department of Computer Science. This policy will not change the present method of recording grades and grade point averages on the student's permanent academic record maintained in the records office.

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.
puter science majors. Students may not receive credit for both 1410 and 1510. Intended primarily for students in College of Business Administration.

1510 Introduction to Programming—FORTAN (4) Programming as a tool of varied uses in modern world; emphasis on basic programming in FORTAN. Problem-solving process; organization and characteristics of design of applications; use of computers in various disciplines. Students may not receive credit for both 1410 and 1510.


2215 Discrete Structures (3) Introduction to discrete structures useful in computer science. Sets, set logic, relations, functions. Proof techniques, induction, logic. Graphical representations and algorithms. Prereq: 1620 and Math 1580. (Same as Math 2215.)

2610 Programming Techniques in FORTAN (3) Problem formulation and solution. External devices and direct access input and output. For students who have completed two semesters of college algebra or higher level language. Prereq: 1510 or 1610 or 1510 or consent of instructor.

2710 Machine Organization (3) Elementary computer architecture, machine organization, assembly language programming, representation of data, microprogramming. Prereq: one course in computer programming.

3010 Computers and Society (3) History of computing and its impact on various disciplines of a computer; applications in artificial intelligence, humanities, social sciences, sciences and engineering; computing in foreign languages; current trends; 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 FORTAN. 3150 and 3155 may not both be taken for credit; students with a knowledge of FORTRAN should take 3155. Prereq or coreq: Math 2860. (Same as Math 3150.)

3180 Logic Design of Digital Systems (3) Introduction to Boolean algebra and design of combinational circuits. Presents gate and flip-flop characteristics. Describes sequential behavior of combinational and sequential circuits and other systems containing memory. Introduction to microcomputer architecture and system components to include basic structures: arithmetic, storage, input/output, control and systems. Instruction set capabilities and machine language programming. Prereq: 2510 or 2710 or Elec. Eng. 3010. 3 hrs including biweekly lab. (Same as Elec. Eng. 3180.)

3410 Computer Programming—COBOL (3) Computer programming in business-oriented language. Prereq: one course in computer science programming.

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

4130 Statistical Data Processing (3) FORTAN language for organization and analysis of scientific data. BPS package, randomization and statistical analyses such as frequency distributions, percentiles, data reduction correlation and regression, analysis of variance, regression and correlation, credit for computer science majors. Prereq: Statistics 2100 or equivalent.

4330 Independent Study in Computer Science (1-3) Special project in area of student's primary interest. To be directed by computer science faculty, perhaps jointly with student's faculty adviser. Prereq: Consent of instructor. May be repeated. Maximum credit 9 hrs.

4340 Interactive Statistical Data Processing (3) Statistical data processing using interactive computer terminal. Dimensions of data analysis, data entry routines, optimization and statistics program. Terminal resources, such as StatPack, editors, and FORTAN. Not for credit for computer science majors. Prereq: Statistics 2100 or equivalent and Computer Science 4310 or knowledge of a procedure-oriented language such as FORTAN.

Intermediate and Advanced Courses

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 no knowledge of FORTAN should take 3150. Prereq: 1510 or 1610 or consent of instructor. Prereq or coreq: Math 2860. (Same as Math 3155.)


3725 Advanced Discrete Structures (3) Advanced topics in discrete structures useful in computer science. Emphasis on developing good programming techniques. Problem solving and algorithm development. Organization and characteristics of modern digital computers.


4210 Introduction to Artificial Intelligence (3) Introduction to artificial intelligence and its role in programming languages. Prereq: 3155 or equivalent. Prereq: Math 2860. (Same as Math 4235.)

4235 Numerical Methods for Ordinary Differential Equations (3) Same as Math 4235. Prereq: 4510. (Same as Electrical Engineering 4310.)

4245 Numerical Linear Algebra (3) (Same as Math 4235.) Prereq: 4510. (Same as Electrical Engineering 4310.)


4275 Computer Implementation of AI Problem Solving (3) Problem solving and search, game playing, automated deductive reasoning, natural language understanding, computer visualization and learning. Computer implementation of AI problem solving. Prereq: 4510. (Same as Electrical Engineering 4310.)

4290 Special Topics In Computer Science (1-4) Maximum credit 9 hrs. with consent of department. Prereq: recommendation of Comp. Sci. staff.

4980 Special Topics In Computer Science (1-4) Maximum credit 9 hrs. with consent of department. Prereq: recommendation of Comp. Sci. staff.
4103 combined can be applied to a minor. In major and a maximum of 4 hours in 4102 and program director. A maximum of 8 hours of nature of which should be negotiated with the Black Studies 4102, 4103, and 4310, the must include some individualized work under

consists of 36 hours from the Black studies prerequisites to the concentration which must include some individualized work under the black studies which is defined by the student and the instructor. Prereq: 2010 (or 2020) and consent of instructor.

3330 Prejudice and Racism in the United States (4) (Same as Sociology 3330.)

3340 Sociology of Poverty and Inequality (4) (Same as Sociology 3340.)

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

3550 Religion and Racism in America (4) (Same as Religious Studies 3550.)

3560 Black Religion in America (4) (Same as Religious Studies 3560.)

3630 History and Philosophy of Afro-American Education (4) from Slavery to 1964.


4101 Foreign Study (1-16) See page 185.

4102 Off-Campus Study (1-16) See page 185.

4103 Independent Study (1-16) See page 185.

4200 Senior Seminar on Pan-Africanism (4) Explores concepts and philosophers of Pan-Africanism and implications of the ideology for various societal institutions.

4310 Research in Afro-American Studies (4) Deals with Black experience and research process.

4500 Current Issues and Topics in Afro-American Studies (3-4) Problems, topics, and issues in area of Black Studies. Consent and credit determined by instructor. May be repeated. Maximum credit 12 hours.

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


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)

**Cultural Studies**

**Director:** Dr. Charles O. Jackson

**Basic Faculty:**
- B. K. Dumas, Ph.D. English; Donald M. Faire, Ph.D. Russian; C. Fleming, Ph.D. Special Programs; E. J. Gangloff, Ph.D. Special Programs; R. W. Gwynne, Ph.D. Special Programs; T. J. A. Hefferman, Ph.D. English; Ferdinand A. Hilenski, Ph.D. Special Programs; J. O. Hodges, Ph.D. Religious Studies; C. O. Jackson, Ph.D. History; I. Leki, Ph.D. Special Programs; D. M. Morrow, M.A. Special Programs; M. L. Osborne, Ph.D. Philosophy; M. E. Peck, M.A. Special Programs; H. C. Rutledge, Ph.D. Classics; S. E. Wallace, Ph.D. Sociology.

The ideal curriculum encourages not only proficiency in a given field of knowledge but also the comprehension of similarity and complementarity between areas of intellectual endeavor. One answer to the need for fusion and integration of knowledge is the interdisciplinary program. The college has joined the resources of several departments to offer a cultural studies major with concentrations in American studies, Ancient Mediterranean Civilizations, Asian studies, Black studies, comparative literature, Latin American studies, linguistics, Medieval studies, Russian and East European studies, and urban studies. Minors are provided in Asian studies, Black studies, comparative literature, Latin American studies, linguistics, Medieval studies, urban studies, and women's studies.

**Afro-American Studies (022)**

The concentration and minor in Afro-American studies offers 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 of 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 chairperson of the Afro-American Studies Committee, Mr. Marvin Peek.

**Afro-American Studies (022)**

1510-20 Elementary Swahili (4,4) Taped language program. Must be taken in sequence.

2010-20 Introduction to Afro-American Studies (4,4)

3140-50-60 Directed Readings in Afro-American Studies (1,1,1) Designed for students who are interested in doing intensive reading in some area of Black studies which is defined by the student and the instructor. Prereq: 2010 (or 2020) and consent of instructor.

3330 Prejudice and Racism in the United States (4) (Same as Sociology 3330.)

3340 Sociology of Poverty and Inequality (4) (Same as Sociology 3340.)

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

3550 Religion and Racism in America (4) (Same as Religious Studies 3550.)

3560 Black Religion in America (4) (Same as Religious Studies 3560.)

3630 History and Philosophy of Afro-American Education (4) from Slavery to 1964.


4101 Foreign Study (1-16) See page 185.

4102 Off-Campus Study (1-16) See page 185.

4103 Independent Study (1-16) See page 185.

4200 Senior Seminar on Pan-Africanism (4) Explores concepts and philosophers of Pan-Africanism and implication of the ideology for various societal institutions.

4310 Research in Afro-American Studies (4) Deals with Black experience and research process.

4500 Current Issues and Topics in Afro-American Studies (3-4) Problems, topics, and issues in area of Black Studies. Consent and credit determined by instructor. May be repeated. Maximum credit 12 hours.

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


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 4510-20-30 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 4950-60 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 (4)**

**Religious Studies 3560 Black Religion in America (4)**

**Religious Studies 3330 Race, Class, and Power (4)**

**Sociology 3340 Sociology of Poverty and Inequality (4)**

**Sociology 4820 American Minority Ethnic Groups (4)**

**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 2010-20-30, 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.
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 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 8 additional upper-division hours in acceptable courses for the 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 8 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. Walter Neale.

1431-32 Spoken Arabic I, II (4,4) Must be taken in sequence. Credit will vary depending on instructor. Class meetings and two laboratory periods. May be repeated once for credit.

2431-32-33 Elementary Modern Standard Arabic I, II, III (4,4,4) Must be taken in sequence. Three class meetings and two laboratory periods.

2510-20 Asian Civilization (4,4) An 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.

2531-32-33 Elementary Chinese (4,4,4) Taped language program. Must be taken in sequence.

2631-32-33 Elementary Japanese (4,4,4) Must be taken in sequence.

2731-32-33 Elementary Persian (4,4,4) Taped language program. Must be taken in sequence.

2831-32-33 Elementary Modern Hebrew (4,4,4) Taped language program. Must be taken in sequence.

3310 Indian Culture (4)
3320 Chinese Culture (4)
3330 Japanese Culture (4)
3340 Islamic Culture (4)
3431-32-33 Intermediate Modern Standard Arabic I, II, III (4,4,4)
3531-32-33 Intermediate Chinese (4,4,4) Taped language program. Prereq: 2531-32-33 or equivalent or consent of instructor. Must be taken in sequence.

3610 The Literatures of India in English Translation (4) A survey of some of the major genres and masterpieces of Indian literature—epic poetry, drama, court poetry, modern novel. Major concentration is on the ancient and classical periods of Indian literary history.

3631-32-33 Intermediate Japanese (4,4,4) Prereq: 2531-32-33 or equivalent or consent of instructor. Must be taken in sequence.


3670 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. Available for graduate credit.

3731-32-33 Intermediate Persian (4,4,4) Taped language program. Prereq: 2731-32-33 or equivalent or consent of instructor. Must be taken in sequence.

3831-32-33 Intermediate Modern Hebrew (4,4,4) Taped language program. Prereq: 2831-32-33 or equivalent or consent of instructor. Must be taken in sequence.

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

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

4531-32-33-34 Advanced Chinese I, II, III, IV (4,4,4,4) Taped language program. Prereq: 3531-32-33 or equivalent or consent of instructor.

4631-32-33 Advanced Japanese (4,4,4) Class will include conversation, drill, and composition practice with native speaker. Must be taken in sequence. Prereq: 3631-32-33 or equivalent.

4740-60-60 Elementary Sanskrit (4,4,4) (Same as Religious Studies 4740-50-60.)

4770-90-90 Intermediate Sanskrit (4,4,4) (Same as Religious Studies 4770-80-90.)

Asian Language and Literature

ARABIC (127)

1431-32 Spoken Arabic I, II (4,4)

2431-32-33 Elementary Modern Standard Arabic (4,4,4)

3531-32-33 Intermediate Modern Standard Arabic (4,4,4)

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 (249)

Asian Studies 2531-32-33 Elementary Chinese I, II, III (4,4,4) Taped language program. Must be taken in sequence.

Asian Studies 2531-32-33 Intermediate Chinese I, II, III (4,4,4) Taped language program. Prereq: 2531-32-33 or equivalent or consent of instructor. Must be taken in sequence.

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

HEBREW (458)

Asian Studies 2631-32-33 Elementary Modern Hebrew I, II, III (4,4,4) Taped language program. Must be taken in sequence.

Asian Studies 3631-32-33 Intermediate Modern Hebrew I, II, III (4,4,4) Taped language program. Prereq: 2631-32-33 or equivalent or consent of instructor. Must be taken in sequence.

JAPANESE (589)

Asian Studies 2631-32-33 Elementary Japanese I, II, III (4,4,4) Must be taken in sequence.

Asian Studies 3631-32-33 Intermediate Japanese I, II, III (4,4,4) Prereq: 2631-32-33 or equivalent or consent of instructor. Must be taken in sequence.

Asian Studies 4631-32-33 Advanced Japanese I, II, III (4,4,4) Class will include conversation, drill, and composition practice with native speaker. Must be taken in sequence. Prereq: Asian Studies 3631-32-33 or equivalent.

PERSIAN (744)

Asian Studies 2731-32-33 Elementary Persian I, II, III (4,4,4) Taped language program. Must be taken in sequence.

Asian Studies 3731-32-33 Intermediate Persian I, II, III (4,4,4) Taped language program. Prereq: 2731-32-33 or equivalent or consent of instructor. Must be taken in sequence.

SANSKRIT (895)

4740-50-60 Elementary Sanskrit (4,4,4) (Same as Religious Studies 4940-50-60.)

4770-60-90 Intermediate Sanskrit (4,4,4) (Same as Religious Studies 4770-80-90.)

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)

Asian Studies 3610 The Literature of India in English Translation (4)

Asian Studies 3650-60 Japanese Literature in English Translation (4,4)

Asian Studies 3670 Islamic Literature in English Translation (4,4)
Asian Studies 4010-20-30 Readings in Asian Literature (4,4,4)
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 3780-90 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 3850 Philosophy and Religion in India (4)
Religious Studies 3860 Buddhist Philosophy and Religion (4)
Religious Studies 3871 Religion and Philosophy in China (4)
Religious Studies 3872 Religion and Society in Japan (4)
Religious Studies 3880 Islam (4)
Religious Studies 3760 Eastern Religions and Western Thought (3)
Religious Studies 3770 Zen Buddhism (3)
Religious Studies 4070 Topics in Eastern Religions (4)
Religious Studies 4960 Tradition, Change and Modernity in Asia (4)
Sociology 3672 Religion and Society in Japan (4)
Sociology 4060 Tradition, Change and Modernity in Asia (4)

Cinema Studies
Minor: Consists of English 2690 and Art 2935 plus sixteen additional hours of approved area courses. It is strongly recommended that English 2690 and Art 2935 be taken before selection of electives provided for in the minor.
For further information consult the chairman of the Cinema Studies Committee, Dr. Ferdinand A. Hilenski.

Approved Area Courses
Art 3935 Film Design (4)
Broadcasting 3670 TV Film News (3)
Broadcasting 4030-40 Television Production (3,3)
Comparative Literature 4032 Topics in Film and Literature (3)
English 3233 Film and American Culture (3)
English 3340 Literature and Film (3)
English 4900 Topics in Film Study (3)
Italian 3340 'The Italian Cinema' (3)

Comparative Literature (280)
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 12 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 9 hours of 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 chairperson 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.

3010 Computer Techniques for Literary Study (3)
Introduces students to the growing field of computer research in literary study. Students will learn to write programs in BASIC which have literary research applications. Students will study the specific kinds of literary study for which a computer is a useful tool. Projects include the following: indexing and bibliography, concordances, syntactic analysis, content analysis, authorship attribution, text editing, and stylistic analysis. No previous computer knowledge or background is assumed or required.

3236-37 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 completion 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) (Same as English 4012-32)

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)
Ancient Mediterranean Civilizations

The concentration in Ancient Mediterranean Civilizations consists of Classics 2810, Classics 2820, 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 3220, 3330, 3340, 4220 (where applicable), 4230 (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 3310-20-30 or Portuguese 3510-20, History 3870-80-90, Political Science 3625-26, and Geography 3860 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, Portuguese, or a practical working knowledge acquired independently are a prerequisite.

Minor: Consist of 24 quarter hours selected from Geography 3860 or 3790; History 3870-80-90; Political Science 3625-26; Spanish 3510-20-30 or Portuguese 3510-20, and the Latin American studies sequence 2510-20 or Independent Research 4010.

For further information, consult the chairperson of the Latin American Studies Committee.

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.

4910 Independent Research in Latin American Studies (1-6) Directed research in any topic fully related to Latin American Studies to be undertaken by a student off-campus, normally in a Latin American country. The research must be approved and evaluated by the Latin American Studies Committee and directed by a faculty member involved in the study of the Latin American area. Credit to vary 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 the 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:

Russian 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, 3332, 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 Curriculum and Instruction 3562-63; Special Education and Rehabilitation 5220, 5510-20-30; 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 4650; Psychology 6050, 6060-70; French 4210-20-30, 5110-20-30; Spanish 4210-20-30, 5110-20-30.

(c) Other hours may be substituted in (b) by approval 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 3332; French, German, Russian, 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 or 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. Bethany Dumas.

2000 Language, Linguistics and Society (3) Introduction to linguistics with focus on language development and use of language by individuals and groups.

3330 Introduction to Study of English Language (4) (Same as English 3330.)

3331 Cultural History of the English Language (3) (Same as English 3331.)

3332 Modern English Grammar (3) (Same as English 3332.)

4000 Topics in Linguistics (3) Content varies. May be repeated. Maximum credit 9 hours.

4020-30 Historical Linguistics, NeoGrammaringian School, and Growth of Structuralism (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 Course and growing impact of anthropology and behaviorism on linguistic studies.

4250 Introduction to Descriptive Linguistics (3) (Same as French, German, Russian, and Spanish 4250)

4260 Introduction to Historical and Comparative Linguistics (3) (Same as French, German, Russian, and Spanish 4260)

4270 Introduction to Romance Linguistics (3) (Same as French and Spanish 4270)

4271 Introduction to Slavic Linguistics (3) (Same as Russian 4271)

4440 Sociolinguistics (3) (Same as English 4440)

4450 Dialectology (3) (Same as English 4450)

4460 Special Topics in English Linguistics (3) (Same as English 4460)

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 16th 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 4010 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) the arts—history of art, architecture, music, and speech and theatre. Courses should not be selected at random but should either form a related pattern (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, chairman, Dr. Thomas J. Heffner.

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 3060 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 Medieval History (3,3)

Philosophy 3121 Medieval Philosophy (4)

Political Science 3802 Studies in Political Thought (4)

Religious Studies 3070 History of Western Religious Thought and Institutions (4)

Religious Studies 3411 Renaissance and Reformation (4)

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)

Classics 4370 Readings in Medieval Latin (3) (Same as Classics 4370)

Comparative Literature 4012-22-32 Special Topics in Comparative Literature (3,3,3) (when subject is part of medieval culture and society)

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

English 3331 Cultural History of the English Language (3) (Same as English 3331)

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

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 (687)

Prerequisites to the major are the completion of Russian 2110-20-30 and Russian 2640-50. (It is suggested that students planning to major in Russian and East European Studies satisfy Option 2 of the Language, Literature, and Arts section of the Triad. Russian 2110-20-30 can be used to satisfy part of that Option. Russian 2640-50 can be used to satisfy Part A of the History and Society section of the Triad.) The major consists of 42 hours distributed as follows: Geography 3880; six hours from History 3470-80-90; Philosophy 3550; Political Science 3831 and four additional hours from Political Science 2362, 1376, 4915, 5370, and 5380; Russian 3110-20-30; Russian 4010 (Selected Topics in Russian and East European Studies); and any eight additional hours in courses numbered 3000 or above from the list "Approved Area Courses" which can be obtained from the chairman of the Russian and East European Studies Committee, Dr. Donald Flens.

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

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

English 4930-40 Chaucer (3,3) 4930—The Canterbury Tales, 4940—Trostil and Crisseyde and early poems. (Same as English 4930-40)

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 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)

College of Liberal Arts 203
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 multidimensional nature of urban studies.

3000 Selected Topics in Urban Studies (4) May be repeated with consent of the committee. Maximum credit 12 hours.

3750 The Urban Polity (4) (Same as Political Science 3750).

4000 Directed Field Work (1-16) Participant observation and other directed field research in selected sites and organizations. May be done in a concerted 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 credit 16 hours.

4100 Survey of Planning (3) (Same as Planning 4100).

4330 Urban Ecology (4) (Same as Sociology 4330).

4440 Urban Anthropology (3) (Same as Anthropology 4440).

4670 Cities and Urbanization in American History (4) (Same as History 4670).

4900 Aspects of Urban Environment (4) (Same as Architecture 4900).

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 I (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)
3790 Urban Policy Process (4)

Real Estate and Urban Development:

3610 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. Courses approved for the Women's Studies minor are listed below. Students may petition the Women's Studies Committee for approval of courses other than those listed. For further information consult the chairperson of Women's Studies, Dr. Martha Lee Osborne, at the Women's Studies offices, 206 Alumni Hall, 974-2408, or in the Philosophy Department, 807 McClung Tower, 974-3196 or 974-3255.

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

4000 Topics in Women's Studies (4)

Supporting courses from several departments and colleges on the UTK campus include:

Black Studies

4630 Black Women in American Society (4)

Child and Family Studies

2120 Sex Roles and Marriages (3)

English

3310 Women Writers in England and America (3)

French

3340 Women in French Culture (4)

History

4280 Women in European History (4)

History

4290 Women in American History (4)

History

5310 Topics in Women's History (3) (graduate course; variable content).

Music

3095 Women in Music (3)

Philosophy

3430 The Concept of Woman (4)

Philosophy

3435 Philosophy of Feminism (4)

Public Health

4430 Women's Health (3)

Psychology

4870 Contemporary Research in the Behavior of Women (4)

Sociology

3150 Gender in Society (4)

Speech and Theatre

4560 Rhetoric of the Women's Rights Movement (4)

Educational and Counselling Psychology

4110 Psychology of Sex Role Development (3)

Educational and Counselling Psychology

5110 Psychology of Communication (3)

Cultural Studies (270)

1000 Selected Topics (2-4) May be repeated. Maximum credit 8 hours.

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

4101 Foreign 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 the respective chairperson. See pages 185 and 198.

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 the respective chairperson. See pages 184 and 199.

4103 Independent Study (1-18) Acceptable for credit in any cultural studies concentration or minor except Black studies. Registration by consent of director of cultural studies and the respective chairperson. See pages 185 and 199.

GRADUATE

5101 Foreign Study (1-12)

5102 Off-Campus Study (1-12)

5103 Independent Study (1-12)

Ecology (278)

Dewey L. Bunting, Chairman

Basic Faculty:


The graduate program in ecology offers Master of Science and Doctor of Philosophy degrees. This interdepartmental program provides advanced courses in contemporary ecology for students from undergraduate programs in basic and applied biology, agriculture, 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, the Tennessee Valley Authority, and the National Park Service provide advisers and research facilities. The Great Smoky Mountains, Cumberland Plateau, valley and ridge topography, TVA lakes, and wild rivers provide a 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, 4 quarter hours of ecology at the upper-division level, and the Graduate Record Examination. Application forms for admission should be obtained from the Graduate School. Inquiries concerning the admission and degree requirements should be addressed to the Chairman, Graduate Program in Ecology, University of Tennessee, Knoxville, Tennessee 37916.

5000 Thesis (1-15)
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)
5410 Environmental Toxicology (3)
5640 Techniques in Environmental Toxicology (3)
6000 Doctoral Research and Dissertation (3-15)
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)
6431 Current Topics in Environmental Toxicology (1)

Economics (283)
See faculty list, page 89.

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 88-89 in the College of Business Administration. The department offers the following degrees:

M.A., M.A.C.T., M.S., and Ph.D. Also, the MBA degree with a concentration in economics is offered.

English (339)

Associate Professors: J. M. Armstrong, Ph.D. Duke; L. S. Burghardt, Ph.D. Chicago; D. A. Capper, Ph.D. North Carolina; D. R. Cox, Ph.D. Missouri; B. K. Dumas, Ph.D. Arkansas; J. G. Gill, Ph.D. North Carolina; D. F. Gooze, Ph.D. Yale; N. M. Gooze, Ph.D. Yale; T. J. A. Hefeman, Ph.D. Cambridge; M. A. Lofaro, Ph.D. Maryland; C. J. Melander, Ph.D. Michigan; D. L. Phye, Ph.D. California, (Santa Cruz); M. P. Richards, Ph.D. Wisconsin; F. K. Robinson, Ph.D. Texas.


*Young Professor
John C. Hodges Professor

UNDERGRADUATE
General Prerequisites and Corequisites: English 1010 or 1011, 1020 or 1031 or 33 or 34 or the equivalents are prerequisites to all sophomore and upper-division courses in English. Two courses in English at the 2000 level are prerequisite to any of the three English concentrations. The equivalent of the second year (2000 level) of a foreign language is a corequisite for any of the three English concentrations.

English for Non-Majors: The department welcomes non-majors both in its sophomore introductions to literature (2510-2680) and also in its 3000-4000 level courses in language, literature, and creative writing. Of particular interest to students in other fields are Special Themes in Literature (3236-37), Forms of Popular Literature (3233-34), Language and Other Fields (3230-31), and Technical Writing (4140-50). For prerequisites and other advice, consult specific course descriptions below and departmental advisers.

Majors: A minimum of 36 quarter hours is required in 3000-4000 level courses as indicated for the concentration below.

Concentration in Literature: Twelve English courses at the 3000-4000 level including:
(1) English 3042;
(2) at least three courses in major figures of 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 other than ideas;
(4) a total of three courses in writing or the English language may be counted towards 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 4660, Anthropology 3800, or Linguistics 4020;
(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 may be recommended for Honors in English. 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 and contact the departmental adviser to be offered each quarter throughout the academic year. The booklet is available in advance of University timetables.

1010 English Composition (3) Expository writing recommended for students with ACT English scores of or above cutoff point (currently 13) set by the English Department. Emphasis on invention, organization, style, and revision; intensive study of essays for meaning and ways of expressing meaning; conferences on individual writing problems. A, B, C, D, W grading. Students may not receive credit for both 1010 and 1011.

1011 English Composition (4) Expository writing recommended for students who lack the ACT English
foreign language is not English. Emphasis on paragraph and composition organization with attention to grammar, mechanics, sentence patterns, reading comprehension, summary writing, and paragraph development. A, B, C, I, NC, W grading. Students must not receive credit for both 1010 and 1011.

1019 Writing Workshop (1) Self-paced laboratory course only for students remediated at the beginning of the quarter by their English Composition teacher. Individual instruction in grammar, mechanics, sentence patterns, and paragraph development. To complete the course, students must spend at least two hours per week and must also pass the composition class in which he/she is currently enrolled. May be repeated once; credit may not be taken for credit concurrently with 1011. S/NC grading.

120 English Composition (3) Analytical writing based on study of great themes in literature; practice in documentation; individual conferences. Prereq: 1010. Students receiving a A in 1020 may elect to complete a year's work in English composition with any 3000-level writing course. A, B, C, I, NC, W grading.

103-32-33 English Composition (3,3,3) Application of writing and reading of literary works. Study and practice of research writing; individual conferences. Prereq: 1010-20; any 1030-level course completes a year's work in English composition; no more than one may be taken for credit. 1031—Writing about modern literature, 英国 literature, stories, plays, and poetry. 1032—Writing and language; how we are influenced by verbal manipulation in education, politics, and media. A, B, C, I, NC, W grading.

101B-26-38 Honors: English Composition (3,3,3) Open only to those students selected on the basis of placement scores and high school record. Students, school, and work load the same as regular 101B—Expository writing based on study of non-fiction prose. Introduction to research writing, 1038—Analytical and research writing based on study of great literature. Students receiving a grade below B in 101B 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 1020 and may continue into 1028; all students with A's and those with B's and consent of department have additional option of completing a year's work in English composition with any 3000-level writing course. A, B, C, I, NC, W grading.

121 Written and Oral English for Foreign Students (3) Rapid review of English grammar structures and pronunciation with intensive oral, aural, and written drill. Required during the first quarter of residence of all foreign students. Writing instruction in grammar, mechanics, sentence patterns, and paragraph development (undergraduate foreign transfer students) who are not excused from it on the basis of the English Proficiency Examination or credit obtained in a course taken prior to entering the university in one's native language. A, B, C, I, NC, W grading. Students registered for this course are permitted to register for only two other courses.

122 Written and Oral English for Foreign Students (3) Emphasis on the more advanced structures of English grammar and on paragraph writing. Required during the first quarter of residence of foreign students who are not excused from it on the basis of the English Proficiency Examination or credit obtained in a course taken prior to entering the university in one's native language. A, B, C, I, NC, W grading. Students registered for this course are permitted to register for only two other courses.

126 English Pronunciation for Foreign Students (3) Overview of phonetic patterns and their implications. Designed to improve student's ability to speak and understand English. May be repeated. Maximum credit 6 hours. S/NC. (Same as Audiology and Speech Pathology 1201.)

143 English Composition for Foreign Students (3) Composition and reading for students whose
sophomores with instructor's consent. 3840—How to
find a topic, and present an idea. 3900—How to
convince a reader through logical and emotional ap-
peals.
3860 Special Topics in Writing (3) Original writing
integrated with reading, usually taught by professional
authors. Topics vary. May be repeated. Maximum credit
9 hours.
3870 Writing the Screenplay and the Television
Play (3) Advanced, specialized course in dramatist
writing. Completion of English 3450-60-70 is desirable,
but students with active interest in the medium are
invited to seek consent to enroll.
3910-20-30 Comparative Literature (3,3,3) 3910—
Ancient. 3920—Medieval and Renaissance. 3930—
Modern.
3940 Novel of the Contemporary Western World
(3) Proust, Joyce, Mann, and others.
4010-20 Shakespeare (3,3) 4010—Early plays, c.
1596-1610, including I. Henry IV. Twelfth Night, and
Hamlet. 4020—Later plays, 1601-1613, with emphasis
upon tragedies and dramatic romances.
4042-43 Topics in Mode and Genre (3,3) Content
varies. Special topics in principal forms and modes of
British and American literature, e.g., comedy, tragedy,
epic, lyric, satire, etc. May be repeated with consent
of department. Maximum credit 6 hours each.
4045-46 Topics in Literary Theory and Criticism
(3,3) Content varies. Special topics in theoretical
and practical approaches to British and American litera-
ture. May be repeated with consent of department.
Maximum credit 6 hours each.
4050-60-70 American Novel (3,3,3) 4050—From
earliest sentimental novels through Brown, Cooper,
and Kennedy, and major figures to 1875. 4060—Henry
James and Mark Twain through early works of
Poe and Hemingway. 4070—Early three to present.
4090 Topics in Film Study (3) Content varies. In-
depth study of particular director, film genre, national
cinema movements, or other topics. May be repeated
with consent of department. Maximum credit 6 hours.
4101 Foreign Study (1-16) See page 185.
4102 Off-Campus Study (3-12) See page 185.
4103 Independent Study (1-12) See page 185.
4118-28-38 Honors: Senior (0,0,9) Admission by con-
sent of department. 4118-28 graded S.
4101-20-30 Comparative Literature (3,3,3) 4110—
Ancient. 3920—Medieval and Renaissance. 3930—
Modern.
4250 Advanced Fiction-Writing (3) Further develop-
ment of skills acquired in basic writing fiction course.
Prereq: 3450 and consent of instructor.
4254 Writing the Detective and Mystery Story (3)
Instruction and writing cover entire crime field—sus-
pense, police procedural, private eye, spy, and adven-
ture fiction. Prereq: 3450-50-70 or consent of instruc-
tor.
4256 Writing Science Fiction and Fantasy (3) Sur-
veys general development and basic texts of science
fiction, speculative fiction, and fantasy. Exercises in
writing in genres, in accordance with techniques learn-
ed in basic fiction writing course.
4270 Advanced Poetry Writing (3) Further develop-
ment of skills acquired in basic poetry writing course.
Prereq: English 3470 or consent of instructor.
4310-20-30-40 The British Novel (3,3,3,3) 4310—
Defoe to Jane Austen. 4320—Scott to Thackeray.
4330—Tennyson to George Eliot to Galsworthy. 4340—James
Joyce to present.
4440 Sociolinguistics (3) Exploration of language
patterns in terms of correlations between them and
their social context. Examination of effects of language
upon culture, and vice versa. Prereq: English 3500 or
consent of instructor. (Same as Linguistics 4440.)
4450 Dialectology (3) Theories and methodologies of
dialect research, fieldwork, and analysis. Prereq: 3540
or consent of instructor. (Same as Linguistics 4450.)
4455 Varieties of English (3) Theories, methodolo-
gies, and findings of English and American dialectolo-
gy with emphasis on implications for cultural pluralism.
Prereq: English 3530 or consent of instructor.
4460 Special Topics in English Linguistics (3) May
be repeated for credit with consent of department.
(Same as Linguistics 4460.)
4471-81 English as a Second or Foreign Language
(3,3) 4471—Applied linguistics in teaching and learn-
ing 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.
4461—Materials and methods of language teaching,
with emphasis on preparation of materials and struc-
tured teaching situations. Theory of testing language
competence and performance, with emphasis on con-
struction of tests. Team teaching with an experienced
member of the staff. Prereq: 4471. (Same as Linguis-
tics 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 19th 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)
4660 American Humor through Mark Twain (3)
4721-31-41 Ballad and Folktales (3,3,3) 4721—Study
of traditional English and Scottish popular ballads and
their North American variants: 4731-Study of Native
American ballad and folktale; 4741—The folk narra-
tive: functions, categories, and patterns of storytelling.
4850 Milton (3) Emphasis on major poeins.
4860 Seventeenth-Century Prose and Poetry (3)
Bacon and Donne to Marvell.
4930-40 Chaucer (3,3) 4930—The
Canterbury Tales. 4940—Trollos and Criseyde and early poeins.
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)
5140 Teaching Freshman Composition (3)
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 Readings in Black American Literature (3)
5250 Fiction Writing (3)
5255 Writing of Advanced Non-Fiction Prose: The
Genres (5)
5270 Poetry Writing (3)
5280 Special Topics in Writing (1-3)
5290 Analysis of Technical Writing (3)
5310 Rhetoric and Composition: History and Theo-
ry (3)
5410-20 Readings in Middle 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 Nine-
teenth Century (3,3,3)
5710-20-30 Readings in English Literature of Eight-
teenth Century (3,3,3)
5810-20-30 Readings in English Literature of Ren-
aisance (3,3,3)
5860 Introduction to Literary Research (3)
5910-20-30 Readings in English and American Lit-
erature of Twentieth Century (3,3,3)
6000 Doctoral Research and Dissertation
6110-20-30 Studies in Elizabethan Literature (3,3,3)
6140 Studies in Old English Language and Litera-
ture (3)
6150 Old English Poetry (3)
6160 Beowulf (3)
6170 Studies in Middle English (3)
6181-82-83 Studies in the English Language (3,3,3)
6210-20-30 Studies in American Literature (3,3,3)
6241 Studies in Colonial American Literature (3)
6242 Studies in Colonial American Literature (3)
6270-80 Studies in American Fiction (3,3)
6310-20-30 Studies in Victorian Literature (3,3,3)
6410-20-30 Studies in Chaucer (3,3,3)
6510-20-30 Studies in Spencer and Milton (3,3,3)
6550 Studies in Mode and Genre (3)
6590 Special Topics (3)
6610-20-30 Studies in English Romanticism (3,3,3)
6710-20-30 Studies in Eighteenth-Century Litera-
ture (3,3,3)
6810-20-30 Studies in Drama and Theatre (3,3,3)
6860 Textual Bibliography and Criticism (3)
6910-20-30 Studies in Twentieth-Century Litera-
ture (3,3,3)

French

See Romance Languages.

Geography (415)

Professors: S. R. Juniper (Head), Ph.D. Tennessee; C. S. Alken,
Ph.D. Georgia; E. H. Hammond, Ph.D. California (Berkeley); R. G. Long (Emeritus), Ph.D.
Northwestern; C. W. Minkel (Dean for Graduate Studies), Ph.D. Syracuse; T. H. Schmudde, Ph.D.
Wisconsin.

Associate Professors: T. L. Bell (Assistant Dean for Research), Ph.D. Iowa; L. W. Brinkman, Jr., Ph.D.
Wisconsin; J. R. Carter, Ph.D. Georgia; C. T. Paludan, Ph.D. Colorado; B. A. Ralston, Ph.D. Northwestern; J. B. Rehder, Ph.D.
Louisiana State.

Assistant Professors: T. J. Blasing (Adjunct), Ph.D. Wisconsin; R. A. Foeresta, Ph.D. Rutgers; L. M. Pulipker, Ph.D.
Southern Illinois.

UNDERGRADUATE

Major: Eight hours in courses numbered at
the 1000 or 2000 level are recommended as
an introduction to a major which consists of

College of Liberal Arts 207
Geography 3700, 4100, and 4990, and an additional 28 hours selected from courses at the 3000 and 4000 levels. At least one course must be selected from each of groups A, B, C, and D below.

A. Physical Geography: 3510, 3520, 3530, 4550
B. Economic Geography: 3410, 3430, 3490, 4690, 4653
C. Cultural Geography: 3450, 3600, 3610, 3680, 4240
D. Regional Geography: 3790, 3800, 3810, 3820, 3830, 3840, 3850, 3880, 3930, 3940, 3990

For those pursuing a program leading to professional employment or graduate study in geography, 4210 and/or a senior project under 4190 are/is strongly recommended.

Minor: Eight hours in courses numbered at the 1000 or 2000 levels are recommended as an introduction 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 advisor at the time of entrance. Through available 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 available which emphasizes cartography and remote sensing.

1610-20 Introduction to Geography (4,4) Selected problems or situations of contemporary interest are studied in depth, illustrating geographical points of view and techniques. Not need be taken in sequence. Not open to students who have taken 1110 and 1120, respectively.

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

1910 Introductory Cultural Geography (4) Basic concepts of culture. Patterns and distributions of cultural phenomena including geography of languages, religions, belief systems, population, settlement, and forms of economy.


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


3430 Urban Geography (4) Concepts and theories concerning development and significance of systems of cities and urban 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 energy and metallic resources.

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

3520 Climatology (4) Overview of general circulation systems leading to world pattern of climates. Climatic change and modification, and interrelationship of climate and human activity.

3530 The Land-Surface System and Man (4) Nature and regional variations in relationships among surface form, water, vegetation, and surface materials. Man as evaluator and agent of change.

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

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

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

3700 Maps and Aerial Photographs (4) Introduction to scales, sources, uses, design, and production of maps, aerial photos, and other forms of spatial images.

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)

3830 Geography of Africa (4) Survey of major physical, cultural, and economic characteristics of Africa with particular emphasis on the area to the south of the Sahara.

3840 Geography of Australia and Oceania (4) Survey of major physical, economic, and social characteristics of Australia, New Zealand, and of impact of western civilization on selected island groups of the Southwest 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 3900.

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. Not open to students who have taken 3710 or 3720.

3920 Geography of the American South (4) Geographical appraisal of southeastern United States, including natural 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 processes to give distinctive character to the region and its parts, especially southern Appalachia. Appalachia in perspective in the current American scene.

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

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

4101 Foreign Study (1-16) Prereq: Written consent of instructor required prior to registration. See page 165.

4102 Off-Campus Study (1-16) Prereq: Written consent of instructor required prior to registration. See page 185.

4103 Independent Study (1-16) Prereq: Written consent of instructor required prior to registration. See page 185.

4210 Problems in Geographical Method (4) Examples of problems and approach in geographical analysis and synthesis. Emphasis on character of geographic data, area sampling, 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) Soil systems and their relationship to environments. Investigation of specific cases of role of soil in 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.

4620 Geography of Agriculture (4)

4710 Cartographic Design and Production (4) Introduction to principles and practice of design, construction, and reproduction of maps, 3700 recommended. 2 hours and 2 labs.

4720 Data Mapping (4) Automated techniques of representing surfaces, using geographic information systems. 3700 and knowledge of a computer language recommended.

4730 Advanced Cartographic (4) Map production from design through color proofs. Prereq: 3700, 4710, and 4720 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 4785)

4799 Practicum in Cartography/Remote Sensing (2-6) Supervised practice in design and reproduction of maps and other graphic materials in Department of Geography's Cartographic Services Laboratory or a similar organization. Prereq: Written consent of instructor prior to registration.

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

GRADUATE

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

5000 Thesis

5002 Non-thesis Graduation Completion (3-15)

5100 Colloquium in Geography (1)

5101 Foreign Study (1-12)

5102 Off-Campus Study (1-12)
Geological Sciences

Professor: K. R. Walker (Head), Ph.D., Yale; H. J. Klesper (Emeritus), Ph.D., Ohio State; O. C. Kopp, Ph.D., Columbia; K. C. Misra, Ph.D., Western Ontario; R. E. McLaughlin, Ph.D., Tennessee; L. A. Taylor, Ph.D., Lehigh; J. G. Walls (Emeritus), Ph.D., North Carolina.

Associate Professor: D. W. Byerly, Ph.D., Tennessee; M. Clark, Ph.D., Pennsylvania State; H. Y. McSween, Ph.D., Harvard.

Assistant Professors: R. W. Anseth, Ph.D., Northwestern; T. W. Broadhead, Ph.D., Iowa; P. A. Dales, Ph.D., Minnesota; S. G. Driese, Ph.D., Wisconsin; T. C. Leblanc, Ph.D., Caltech; N. J. Woodward, Ph.D., Johns Hopkins.

The Department of Geological Sciences provides training for (1) those who plan careers as professional geologists in industry, federal and state surveys, education, or other fields which utilize earth scientists; and (2) those who seek a general knowledge of geology and its relationship to other sciences, engineering, business, law, and other disciplines.

The requirements set forth below are designed to provide geology majors with a broad base from which, after qualified students may proceed into advanced study in one or more of the branches of geology or related minor fields. Because a wide range of elective courses is available, it is essential that each student be advised by a departmental adviser. A list of advisers is available in the departmental office.

UNDERGRADUATE

Major: Geology 1410, 1420, 1430 are prerequisite to a major which consists of Geology 3180, 3190, 3260, 3310, 3360, 3370, and at least 24 hours additionally in upper-division courses in geology chosen to include at least 12 hours from among the following courses: Geology 3510, 4110, 4115, 4230, 4510, and 4610. Geology 4310 and/or 4440 (or equivalent) are strongly recommended for students planning to become professional geologists. A minimum of 2 quarter enrollment for undergraduate credit in Geology 5550, the departmental seminar, is required during the senior year.

Because of the interdisciplinary nature of geology and the prerequisites for advanced study, students who major in geology are required to take the following allied science and mathematics courses: Biology 1210-20, Chemistry 1110-20, Mathematics 1940-50, Physics 2210-20 or 2510, and 2310-20. It is recommended that students take additional courses beyond the elementary level in at least one of the above allied fields.

Minor: Geology 1410, 1420, 1430 are prerequisite to a minor which consists of at least 24 hours in courses numbered 2000 or above.

Geology (424)

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

1430 General Geology II (3) Continuation of 1410-20. Emphasis on modern concepts of continental drift and plate tectonics. Prereq: 1420. 3 hours and one 2-hour lab or field period.

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

2310 Resources Crises—Minerals and Energy (4) Evaluation and estimate of reserves and resources. Distinctive features, present status, and future trends of minerals industry. Appraisal of conventional and alternate energy resources. Resource crisis and possible solutions. National policies on minerals and energy. Not for geology majors. May be taken by geology majors, but credits will not count toward major requirements.


1Math 1840-50 has prerequisites of 2 years high school algebra and one semester of trigonometry or equivalent. Students who are deficient in these subjects may need to take Math 0150 and/or 1500 prior to enrolling in Math 1840-50. Consult mathematics section of this catalog or the Department of Mathematics for details.

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

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

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.

3190 Introduction to the Petrographic Microscope (4) Introduction to the petrographic microscope and optical methods for minerals identification in thin section. To be taken concurrently with 3310, 1 lab per week, S/N grading only.

3210-20 Invertebrate Paleontology (4,4) Systematic study of important metazoan invertebrate fossil groups. 3210—Porifera to Annelida, including cnidaria, echiropods, brachiopods, and conodonts. 3220—Molluscs through lesser Chordata, including arthropods and echinoderms. May be taken separately or in sequence. Prereq: 3260, Biology 1210-20, or consent of instructor. 3 lectures and 1 lab or field period.

3260 Paleobiology (4) Introduction to principles and materials of paleontology as applied to interpretation of earth history. 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 of land plants and vertebrates. Prereq: Biology 1210-20 or consent of instructor. 3 lectures and 1 lab or field period.

3310 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. Coreq: 3180, 3190. 3 lectures and 1 lab.

3330 Geology of East Tennessee (4) Lectures and field excursions. Prereq: 12 hours of geology and consent of instructor.

3360 Stratigraphy-Sedimentation (4) Introductory study of stratigraphic principles and practices and of sedimentary processes and interpretation of depositional environments. Prereq: 1420 and 3180, 3 hours and 1 lab.

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

3510 Introductory Environmental Geology (4) Geologic problems involving earth environments and resources, 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, groundwater. 2 lectures and 1 lab or field period. Prereq: 2610 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.

3810 Regional Geology of the United States (3) Survey of geologic histories of various geologic provinces of the United States, emphasizing integration of their stratigraphic and tectonic frameworks. Prereq: Geology 1420 or equivalent.

4110 Principles of Economic Geology (4) Formation of mineral deposits, physical characteristics, and origin of different types of mineral deposits, metal-
4150 Elementary Applied Geophysics (4) Basic principles of electromagnetic, gravimetric, seismological and geodetic methods of surveying. Recommended: 4140, Physics 2220 or 3230. 2 lectures and 1 lab.

4130 Sedimentology (4) Introduction to physical processes of sedimentation: transport of sediments and formation of sedimentary structures, river, wind, wave, glacial, and ocean circulation. Prereq: 3510. 3 lectures and 1 lab.

4230 Paleobotany (3) Survey of fossil record of plants and particular emphasis on (1) comparative morphology and evolutionary trends in major plant groups, and (2) chronological succession and geographic distribution of past floras on earth. Prereq: 4220 or 2210; Botany 3010-20 or consent of instructor. 3 hours and 1 lab or field period. (Same as Botany 4240.)

4250 Evolution of Higher Taxa (4) Discussion of current evolutionary theory in context of palaeontology; patterns of evolution in fossil organisms at family level or higher. Prereq: 3260. 3210-20 also recommended. 2 lectures, one 2-hour seminar.

4260 Biostratigraphy (3) Principles of application of palaeontological data to stratigraphic study, codification of stratigraphic nomenclature, and recommended practice. Prereq: 3260 and 3360. 1 lecture plus one 2-hour seminar.

4270 Micropaleontology (4) A survey of geologically stratigraphically important microfossils and their biological association if known. Special emphasis is given fossil foraminifers, planktonic and pelagic microfossils. Prereq: 3260 or consent of instructor.


4308 Electron Microprobe and X-Ray Fluorescence Analysis (3) Application of electron microprobe and X-Ray fluorescence techniques as analytical tools for the determination of the chemistries of solid particles as minerals and rocks. Prereq. or coreq. 4307 or consent of instructor.

4309 X-Ray Diffraction Methods (3) Application of X-Ray in identifying crystalline substances, including powder camera, Gandolfi camera and diffractometer. Prereq. or coreq. 4307 or consent of instructor. 2 hours lectures.

4310 Geologic Mapping (4) Interpretation of maps and methods of geographic mapping. 3 lectures and 1 lab or field period. Prereq. 12 hours of geology.

4320 Palaeoecology (4) Studies of sedimentary rock structures and associated lithologies. Prereq: 3200 or consent of instructor. 3 hours and 1 lab.

4323 Quaternary Geology of North America (4) Geology of Quaternary geologic processes, stratigraphy, sedimentology, and geomorphology of glaciated and unglaciated North America and oceans. Prereq: 1410 or consent of instructor. 2 lecture periods.

4324 Quaternary Palaeoecology (4) Study of pollen and plant-macrofossils of vegetation and climate change during Quaternary. Prereq: 12 hours of geology. Prereq. or coreq. 4320 or consent of instructor. 3 hours and 1 lab or field period.

4400 Field Geology (8) Five weeks' field course, first term summer quarter. Advanced undergraduates or first-year graduate students in geology. Emphasizes entire time of students. A report is required, to be submitted no later than end of fall quarter. Prereq. 12 hours of geology and consent of instructor.

4450 Geologic Photography, Photogrammetry and Remote Sensing (4) Principles of terrestrial, airborne, and satellite geologic remote sensing, including photographic principles and practice, geometric of terrestrial and aerial photography, and principles of nonphotographic remote sensing systems.

4510 Principles of Geomorphology (4) Gradational processes acting at earth's surface and landforms produced. Prereq: 1410-20, 3 hours and 1 lab.

4520 Process Geomorphology (4) Gradational processes operating on and near the earth's surface, applied geomorphology and field work in geomorphology. Prereq: 1430 and 4510. 3 hrs and 1 lab or field period.

4550 Optical Mineralogy (4) Identification of minerals and determination of crystal-chemical parameters 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.

4630 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 and pressure. 3 lectures per week. Prereq: Math 1830, Physics 1330. Recommended: Math 2610 and 2820.

4770 Evolution of Oceans and Continents (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: 1430.

4780 World Geology of Petroleum (4) Geologic habitat of petroleum deposits, methods of exploration and reserve assessment, geology and global distribution of known and potential reserves. Prereq: 1410 or equivalent and 3160 or equivalent.

4790 Uranium Deposits (4) Distribution, characteristics, and origin of different types of uranium deposits. Prospecting and evaluation of uranium deposits, with special regard to domestic potential resources. Prereq: 4110 or consent of instructor. 3 hours and 1 lab/field/semester period.

4810 Special Problems in Geology (1-4) Prereq: Consent of instructor. May be repeated. Maximum credit 4 hours.

GRADUATE

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

5000 Thesis

5050 Geochronometry of Ore Mineral Deposits (3)

5069 Experimental Geochemistry Laboratory (1-3)

5210 Special Problems in Geology (1-4)

5290 Quaternary Problems (4)

5310 Depositional Environments and Models for Exploration (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)

5590 Carbonate Sedimentology (4)

5635 X-Ray Diffraction: Single Crystal Techniques (4)

5640 Clay Mineralogy (4)

5650 Thermodynamics for Geologists (3)

5690 Cathodoluminescence Petrography (2)

5710 Advanced Paleontology (4)

5720 Palaeontological Nomenclature and Techniques (4)

5820 Braasta-bound and Strataform Sulfide Deposits (4)

5830 Magmatic Mineral Deposits (4)

5840 Ore Petrology (4)

5850 Regional Studies in Geology (3)

5860 Coal Depositional Environments (4)

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: J. Krabbe (Head), Ph.D. Ohio State; J. E. Feiler, Ph.D. Pennsylvania; H. W. Fuller (Emeritus), Ph.D. Wisconsin; R. L. Miller (Emeritus), Ph.D. Cornell; J. C. Osborne, Ph.D. Northwestern; M. P. Rice, Ph.D. Vanderbilt.

Associate Professors: J. S. Elliott, Ph.D. Michigan; D. M. Fieno, Ph.D. Indiana; N. A. Lauchner, Ph.D. Wisconsin; D. E. Lee, Ph.D. Stanford; C. J. Millor, Ph.D. Chicago.

Assistant Professors: J. Hodges, Ph.D. Chicago; U. C. Rittenhof, Ph.D. Connecticut.

Instructor: M. H. Harris, M.A. Illinois.

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 test.

**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 German 4101 Foreign Study and Russian 4101 Foreign Study. See page 185. 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. 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), 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 3710-20-30 and 8 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 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 2110-20-30 is prerequisite to the major. Russian 2640-50 is a corequisite to the major. The major consists of 36 hours of Russian courses, including 3110-20-30, 3610-20-30, 9 hours from Russian 3210-20-21-30-40-5060, and 9 hours of courses numbered 4000 and above. It is recommended that majors also take History 3470-60-90 and 9 hours of sophomore English. Majors are urged to consider a minor in some other area of the humanities. Russian 2110-20-30 is 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 3110-20-30, 3610-20-30, and courses numbered 4000 and above.

**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.

1518-2518-2680: Honors: Elementary and Intermediate German (6,6,6) Honors course for students of superior ability. Freshmen are admitted on the basis of high school average and performance on the American College Testing, or university-level courses in English covering the knowledge of the language. Undergraduate credit only. No credit for students having completed 1510-20 or 1110-20-30.

3040 Elementary Dutch (3) Prerequisite: Reading knowledge of German. Primarily for graduate students in German. No graduate credit allowed.

3110-20-30 Introduction to German Literature (3,3,3) Prerequisite: 2130 or equivalent.

3810-20-30 Conversation and Composition (3,3,3) Prerequisite: 2130 or equivalent.

**ADVANCED UNDERGRADUATE AND GRADUATE**

4101 Foreign Study (1-18) See page 185.

4102 Off-Campus Study (1-18) See page 185.

4103 Independent Study (1-18) See page 185.

4110-20-30 Studies in Classical and Modern Writers (3,3,3) Content varies. May be repeated for credit with consent of department. Prerequisite: 9 hours of 3000 courses (exclusive of 3010-20-30, or courses in English translation) or equivalent.

4140-50 Selected Topics in German Literature from 1700 to the Present (3,3,3) Prerequisite: 9 hours 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. Prerequisite: 9 hours of 3000 courses (exclusive of 3010-20-30, or courses in English translation).

4170 Theatrical German (1-3) Performance in one or more German plays. May be repeated for credit with consent of department. Prerequisite: 2130 or equivalent or consent of instructor.

4210-30 Studies in German Literary Types (3,3,3) 4210—Lyric poetry. 4220—Drama. 4230—Novels. (3,3,3) Prerequisite: 9 hours of upper-division courses in a modern or ancient language (exclusive of German and French 3010-20-30, courses in literature in translation, and general courses in Latin and Greek) requiring knowledge of these languages, or consent of department. (Same as Russian, French, Spanish, and Linguistics 4260.)

4270 Introduction to Germanic Linguistics (3) The phonetics and phonemics of German. Grammar and morphology of the German vocabulary from a descriptive point of view. The dialects of German. An introduction to the study of the other Germanic languages.

4310-20 History of German Language (3,3,3) Prerequisite: 2130 or equivalent.

4610-20-30 German Civilization (3,3,3) Prerequisite: 2130 or equivalent.

4618-28-38 Honors: Senior German (3,3,3) intended to give students of special aptitude greater opportunity to do independent study than is possible in ordinary courses. Prerequisite: Senior standing, with a record of A 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) Prerequisite: 3810-20-30 or equivalent or consent of department.

4850 Business German (3) Survey of German used in fields of business and economics, intended primarily for students wanting to major in minor in business or economics. Prerequisite: 3110-20-30.

**GENERAL COURSES**

2610-20 Culture of German-Speaking Peoples (3,3,3) Suitable as a first course for students of German-speaking peoples from their first contact with Romans to the present. Readings in English. Students opting for 4 hours credit will be expected to present an appropriate amount of extra work above that required for 3 hours.

2840 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 Edda. No foreign language credit.

2850 German Drama in English Translation (3) From Lessing to present. No foreign language credit.

2870 Modern German Novel in English Translation (3) From 1900 to present; Remarque, Hesse, Mann, Kafka, Frisch, Blek, Grass. No foreign language credit.

2890 Goethe's Faust in English Translation (3-4) Intensive study of Faust I and II and survey of criticism and interpretations of the work. No foreign language credit.

3120 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 20th-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.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.
4101 Foreign Study (1-16) See page 185.
4102 Off-Campus Study (1-16) See page 184.
4103 Independent Study (1-16) See page 184.
4110-20-30 Studies in Major Russian Writers (3,3,3) Content varies. Puskin, Lermontov, Gogol, Turgenev, Tolstoy, Dostoevsky, Chekhov, and others. Prereq: 9 hours of 3000 courses (exclusive of 3010-20-30, 3210-20-30-40-50-60-70, 3310) or equivalent. May be repeated for credit.
4250 Introduction to Descriptive Linguistics (3) (Same as German, French, Spanish, and Linguistics 4260.)
4260 Introduction to Historical and Comparative Linguistics (3) (Same as Linguistics 4271)
4310-20-30-40-50-60 Directed Readings in Russian Language and Literature (3,3,3,3,3,3) Maximum credit 9 hours each.
4410-20-30 Directed Readings in Russian (3,3,3) Intended primarily for students participating in program in Russian and East European Area Studies. course will involve individual study relating to student's major field. Prereq: 9 hours of 3000-level courses in Russian (exclusive of 3010-2030, 3210-20-30-40-50-60-70, 3310 or equivalent).
GENERAL COURSES
2640-50 Background and Main Currents of Russian Culture (4,4) A broad interdisciplinary approach to the appreciation of the language, religion, literature, art, music, history, geography, and social problems of Russia. No knowledge of Russian required. May not be taken for foreign language credit.
3210 Nineteenth-Century Russian Literature in English Translation (3-4) Realism and the novel; selection from works of Puskin, etc. 3220 Works of Leo Tolstoy in English Translation (3-4) War and Peace, Anna Karenina, and other works. 3221 Works of F. M. Dostoevsky in English Translation (3-4) Crime and Punishment, Brothers Karamazov and other works.
3320 Twentieth Century Russian Literature in English Translation (3-4) Russian modernism and literature under the Soviets.
3540 The Russian Drama in English Translation (3-4) Selections from works of VonEv, Griboedov, Pushkin, Gogol, Ostrovsky, Turgenev, Chekhov, and others.
3550 The Works of Ivan Turgenev and Anton Chekhov in English Translation (3-4)
3620 Russian Folklore in English Translation (3-4)
3720 Russian Philosophical and Theological Thought (4) A selection of foundational philosophical and theological thought in Russia from the Middle Ages to the Revolution. Special emphasis on the expression of this thought in Russian literature and literary criticism. No knowledge of Russian required. Same as Philosophy 3270 and Religious Studies 3270.)
3820 Special Topics in Russian Literature in English Translation (4) Topics vary and are announced in advance. Student suggestions for topics are welcome. No foreign language credit. May be repeated.
3821 Contemporary Slavic Literature in English Translation (3-4) Survey of Polish, Czech, Yugoslav, and Russian fiction since 1960, with emphasis on first three.
Greek
See Classics.
Hebrew
See Religious Studies.
History (462)
Professors: P. H. Bergeron, Ph.D; Vanderbilt; E. V. Chmielewski, Ph.D; Harvard; R. E. Duncan, Ph.D; California (Berkeley); P. G. Brett, Ph.D; Harvard; Y. P. Hao, Ph.D; Harvard; A. G. Haas, Ph.D; Chicago; R. W. Hawkins (Emeritus), Ph.D; California (Berkeley); C. O. Jackson (Associate Dean, Liberal Arts College), Ph.D; Emory; M. D. Klein, Ph.D; Columbia, R. G. Landen (Dean, Liberal Arts College), Ph.D; Princeton.
Associate Professors: S. D. Bledsoe, Ph.D; Case Western Reserve; J. D. Bing, Ph.D; Indiana; S. R. Blasnaii (Head), Ph.D; Bryn Mawr; J. R. Finger, Ph.D; Washington; C. W. Johnstone, Ph.D; Michigan; P. A. Mann, Ph.D; Harvard; M. J. McDonald, Ph.D; Pennsylvania; J. H. Mohr!, Ph.D; Pennsylvania; J. Mulcowyn (Assoc. Head), Ph.D; Yale; P. J. Pinckney, Ph.D; Vanderbilt; E. H. Trainer, Ph.D; Emory; J. G. Uflrey, Ph.D; Illinois; W. B. Wheeler, Ph.D; Virginia.
Assistant Professors: T. W. Barnett-Robisheaux, Ph.D; Virginia, J. Bohstedt, Ph.D; Harvard; W. W. Farris, Ph.D; Harvard.
Instructor: D. B. Morrow, M.A. UTU.
1Berwood Distinguished Professor. 2Alumni Distinguished Service Professor. 3Lindsay Young Professor.
UNDERGRADUATE
History is a rewarding subject for students seeking a general education. History majors traditionally have done well in a number of careers, such as law, business, journalism, public service, teaching and research, library and archival fields, and ministry. Many students majoring in other subjects take history courses: to develop their skills in thinking, writing, reading, and speaking; to assist them in their search for personal identity; and to help them in their lifelong effort to understand change, continuity, and the links between past, present, and future.
Major: Majors in history should prepare their programs in consultation with a department faculty advisor. History 1510-20 (or their honors equivalents), or 1610-20, are prerequisites to a major which consists of 41 hours, including: (1) 8 hours of History 2510-20 (or their honors equivalents); (2) 3 hours of a thematic course, History 2515; and (3) 30 upper-division hours. The distribution of the upper-division courses shall be in such a way that they include at least: (1) one course dealing predominantly with a period prior to 1750, and (2) two courses in each of the following areas: 1) United States, 2) Europe and Latin America, and 3) Asia-Africa. It is highly recommended that majors take History 4010, and History Colloquium.
Minor: History 1510-20 (or honors equivalent) is prerequisite to a minor which consists of 24 hours of courses numbered 2000 or above, including at least: (1) 8 hours...
in United States history; and (2) 12 upper-
division hours.

History for Non-Majors: The department welcomes non-majors in its courses. Few
history courses have formal prerequisites.

Honors Program: The Department of History offers honors sections of the Western
Civilization and United States history survey course. Some entering freshmen are invited to participate, if interested students may apply. These survey courses are open to non-
majors. An honors major requires successful completion of three special courses at the junior level (28) and a senior thesis (4018-4028). The honors major consists of 50 hours, including 41 hours as outlined above, plus 3008-38-48. All rising juniors who are declared history majors with an overall GPA of at least 3.0 are invited to join the
Junior-Senior Honors Program. Students interested in honors work should consult the
department's honors coordinator.

Departmental Course Information: Students can obtain additional information about the
content and availability of history courses in the departmental office, 1101 McClung Tower, or from the history department. The department also prepares a
course description brochure for each quarter.

American Studies. See Cultural Studies.

Asian Studies: See Comparative Studies.

Latin American Studies. See Cultural Studies.

Russian and East European Studies. See Cultural Studies.

1510-20 Development of Western Civilization (4,4)
1910-19 World War I, 1917-1918 to present.
1518-28 Honors: Development of Western Civilization
(4,4) Consent of department required.

1610-20 A History of World Civilization since 1450
(4,4) Interaction of Western World and non-Western
peoples since the 15th century. 1610-ca. 1450-1820.
1620-1820 to present.

1950-60 Afro-American History: An Introduction
(4,4) 1950—Survey of the Afro-American experience to
1860. Traditional African societies from which Afro-
Americans emerged; slavery; the institution of slavery; free Negroes; Civil War and Reconstruction. 1950—The Afro-Amer-
ican experience from slavery to 1860. Afro-American strug-
gle for political, civil, and social equality; leaders of the
Civil War and Reconstruction. 1960—The Afro-Ameri-
can in America; the institution of slavery; free Negroes;
1890. Traditional African societies from which Afro-
Americans emerged; evolution of prejudice and racism
considered such topics as the barbarian migrations, feudalism, state-making in England and France, the social and
spiritual power of the church, the rise of cities, the Black Death and early Renaissance.

1960-70 Rise of West European Civilization (3,3) 1970-
The medieval period; the Renaissance, Reformation, Religious wars, and spread of Islamic civilization to the 16th century.

3122 Medieval Europe, 500-1450 (3) The emergence of a distinctive Western European civilization from classical, Christian, and Germanic roots. Considers such topics as the barbarian migrations, feudalism, state-making in England and France, the social and
spiritual power of the church, the rise of cities, the Black Death and early Renaissance.

3123 Early Modern Europe, 1450-1750 (3) The tran-
sition from medieval to modern society. Considers such topics as the Renaissance, Reformation, religious wars, and spread of European contacts with the non-European world. Focus on economic growth, the rise of modern states, the Scientific Revolu-
tion, witchcraft.

3124 Modern Europe, 1750, 1900 (3) The political, industrial and technological changes of the 19th century. Considers such topics as the arms race, depression, economic growth, modernization of European states, the Scientific Revolution, and the rise of the middle classes and the masses, nationalism, rationalism, and Romanticism in thought and politics.

3125 Contemporary Europe, 1900—Present (3) The transformation from industrial to post-industrial society and the decline of the European nation-state. Considers such topics as war and depression and consequent political and social instability; the Russian Revolution, Nazism, decolonization, the impact of Freud and Einstein, welfare states; European reunifi-
cation.

3140-50 History of England (3,3) 3140—To 1688. 3160—To 1832 through Reform Bill of 1832. Medieval state, church, and society; origins of Anglo-American law, the monarchy and parliamentary government, the Reformation, 17th Century revolutions, commercial, agricultural and in-
dustrial revolution. 3150—To 1688. The Tudor dynasty. The eve of the English Civil War.

3160-1832 to present. Medieval state, church, and society; origins of Anglo-American law, the monarchy and parliamentary government, the Reformation, 17th Century revolutions, commercial, agricultural and in-
dustrial revolution. 3150—To 1688. The Tudor dynasty. The eve of the English Civil War.

3120 History of Sports in United States (3) Analysis of development of sports and their significance in American life from colonial period to present. Empha-
ses on social, cultural, economic, and political impact of both spectator and participatory sports in 20th century.

3240 Law in American History (3) The law and
economic development, law and slavery, law and civil
liberties, the role of law in the Revolution and the Civil
War, and the rise and development of the legal profes-
sion. Not for graduate credit.

3270 History of Human Services and Public Health
in United States (3) Development of human services in modern society, focusing on how and why public health, health, and welfare services emerged in industrial America and providing historical background for understanding contemporary social services, professionalization of those services, and values and attitudes of developers and recipients of them.

3311-21 History of Tennessee (3,3) 3311-18th cen-
tury to Civil War Era, 1821—1865. 3312-18 The Reformation (3,3) 3411—Renaissance, 3412—The Enlightenment, 3413—Revolution and Reform, 3414—Wars of Religion, 1517-1618. (Same as Religious Studies 3411-12).

3421-22 Early Modern Europe (3,3) 3421—17th cen-
tury Europe. 3422-18th century Europe.

3431-32 Nineteenth Century Europe (3,3) 3431—
French and industrial revolution to 1848. The milieu of
ferment for conflicting economic, social and political ideas, culminating in a massive revolutionary upheaval.

3440-45 History of France (4,4) 3445—Emergence of national and democratic identity and social and economic pressures in the acien regne; era of experi-
mentation as revolutionary and traditional France con-
front one another. 3445—18th century. 3440—19th century.

3510-30 The American Colonies and the Revolution
(3,3) Emphasis is on major themes rather than chronological coverage of the years 1607-1789. Changing historical interpretations of European colonization; colonial society, economy, religion, cul-
ture and politics, the causes, character, and conse-
quences of the American Revolution; and the nature of the Federal Constitution of 1787.

3630-40-50 The United States: Formation to Reun-
ion, 1789-1877 I, II, III (3,3,3) 3630—The Early Nation, 1789-1815; 3640—Jacksonian Era, 1815-1852; 3650—Civil War and Reconstruction, 1852-1877.

3680 Indian-White Relations in United States Histo-
ry (4) White man's relationship with the Indian since Colonial times. Emphasis on dilemma of two cultures existing by formal and informal means; emphasis on official Indian policy; undermining of policy by frontier circumstances; Indian wars and campaigns; and pre-
sent-day relationships. Not for graduate credit.

3710-20-30 History of Germany (3,3,3) 3710—Ger-
many to 1700. The Habsburg and the Hohenzollern Empire. The development of the German imperial state from medieval greatness to baroque age weakness, disas-
sumeous dynastic and religious struggles, rise of powerful princes, economic and cultural growth and decline. 3720—Germany 1700-1800: The Quest for Nation-
hood. The Austrian-Prussian rivalry in the times of Frederick the Great, Metternich, and Bismark; the problems of legitimacy and the process of unification.

3730 Ancient Near Eastern Civilization (3) Bronze
Age to the Islamic conquests. Not for graduate credit.

3740 The City in Europe, ca. 1200-1900 (3) Survey of
European urban growth, with comparative analysis of major periods of urbanization of 13th and 19th cen-
turies. Analysis of urban structure and functions; long-term demographic, economic, and social foundations of cities and political and cultural development.

3751 Ancient Near East (3) Bronze and Iron Ages.

3760-70 The Ancient World (3,3) 3760-Greece. 3770—Rome.

3780 History of the Middle East (3,3) 3780—Rise and
spread of Islamic civilization to the 16th century. 3790—The impact on the West of the Middle East from the 16th century to World War I.

3795 Contemporary Middle East (4) Background of
current problems in the area, from World War I to present. (Same as Political Science 3795).

3800 North Africa since 1830 (3) Morocco, Algeria,
Tunisia, and Libya in the 19th and 20th centuries.

3810-20 History of East Asia (3,3) 3810—East Asia:
History and Culture to 1600. Introductory survey. China, Japan, and Korea. 3820—Modern East Asia since 1600. Introductory survey. China, Japan, Korea, and Vietnam. Compari-
tive modernization: Westernization, industrialization, democ-
ratization, communist movement, and Japan's militarism and post-war economic success.

3870-40 History of Latin America (3,3) 3870—Colo-
nialism and Independence, 1500-1825. 3880—Na-
tional Development, 1825 to present.
3911-21-31 United States 1877 to the Present (3,4,3) 3911-Gilded Age and Progressive Era, 1877-1914. 3921-1914-1945. American experience during World War I, the Great Depression, the New Deal, and WWII. Emphasizes domestic history but includes military and foreign policy. Prerequisites: 3911-1945 to the present. Demobilization and Cold War after WWII, followed by wars in Korea and Vietnam. Attempts to find labor peace, national prosperity, and full equality for minorities. From Truman's administration to the present.

4010 History Colloquium (3) Small group, problem-oriented emphasis upon skills rather than content, with special reference to historical writing, including critical analysis of historical documents. Open to juniors, seniors, and non-majors.

4015 Studies in History (3-4) Variable content course affording opportunity to offer subject matter not covered in an existing course. May be repeated for credit.

4018-28 Honors: Senior Paper (9-5) Required of students working for honors in history.

4101 Foreign Study (1-16) See page 185.

4102 Off-Campus Study (1-16) See page 185.

4103 Independent Study (1-16) See page 185.

4250-60-70 European Intellectual and Cultural History (3,3,3) 4250-From Reformation to Scientific Revolution in Europe (16th-17th century). 4260-From Enlightenment to Age of Reason (1700-1870). 4270-From Subjectivism to Relativism (1870-present).

4280 Women In European History (4) Comparative analysis of role and image of women in Medieval, Renaissance, and Victorian periods. Attention given to parallel changes in structure of family as well as relationship between Western culture and women's protest movements.

4290 Women in American History (4) Approaches of 4280 applied to American society.


4360 The American Experience in World War II (4) A team-taught course. Diplomacy and warfare in Europe and Asia and the impact of the war on American society.

4370 U.S. Military History, 1754 to the Present (4) Examination of nation's broad strategic aims and methods used to attain them, shifting strategy, tactics, and weaponry involved in our wars, and relationship between American society and its armed forces.

4380 Civilian-Military Relationships in the Modern Western World (3) Civil-military affairs from about 1945 to present. European, Russian, and American emphasis on Western Europe: e.g., Dreyfus Affair, Army in Nazi Germany, and Truman-MacArthur controversy.

4410-30-50 Europe in the Twentieth Century (3,3,3) 4410-1890 to 1919. 4420-1919 to 1939. 4430-1939 to present.

4470 Poland and its Neighbors (3) A survey of Polish history from its beginnings to present with some emphasis on the role of religion within context of modern international affairs.

4480 Russian Intellectual History (3) Russian intellectual history from 18th century to present, emphasizing the relationship between legal and constitutional developments and the structure of society.

4490 Soviet Foreign Policy (3)

4500 History of Medieval England (3) A survey from the Anglo-Saxons to the coming of the Tudors with emphasis upon the relationship between legal and constitutional developments and the structure of society.

4510-30 Tudor-Stuart England (3,3,3) 4510—Emphasis on such topics as the Renaissance and Reforma-
Human Services

Professor: R. F. Kronick (Head), Ph.D. Tennessee.

Associate Professor: M. W. DeVoe, Ed.D. VPI & SU.

Assistant Professors: M. W. DeVoe, Ed.D. V.P.I. & S.U.

Honors Program

Director: Dr. Harry Jacobson

Non-Departmental

The following courses are restricted to students who have been selected to participate. 1118-25-38 are for first-year 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)

1118-29-38 Honors: First Year—Inquiry and Modes of Thought (2-4,2-4,2-4) 1116—The Humanities; 1129—The Natural Sciences; 1138—The Social Sciences. May be repeated.

2118-29-38 Honors: Sophomore—Special Problems Seminar (2-4,2-4,2-4) 2116—The Humanities; 2129—The Natural Sciences; 2138—The Social Sciences. These seminars focus on selected problems in the respective disciplines. Specific topics vary from year to year. May be repeated.

3018-29-38 College Scholars Seminar (1,1,1) Sequence in any order limited to and required of all College Scholars each year. 3018—humanities, 3028—science and mathematics, 3038—history and society. May be repeated. Maximum 12 hrs. S/N grading only.

3118-29-38 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 185 and Director of Special Programs. Primarily for College Scholar Students.

4102 Honors: Off-Campus Study (1-16) See page 185 and Director of Special Programs. Primarily for College Scholar Students.

4103 Honors: Independent Study (1-16) See page 185 and Director of Special Programs. Primarily for College Scholar Students.

4118-29-38 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 24 credit hours.

Human Services

The Program in Human Services was established in 1971 for the purpose of providing education, training, and experience, at the undergraduate level, for individuals interested in working to enhance and increase the well-being of our society and of the individuals it comprises. The course of study provided by the faculty is also appropriate for individuals who wish primarily to improve their understanding of themselves and of the society in which they live.

Graduates of the program are at work in a wide variety of settings, ranging from nursery schools to nursing homes, and are confronted with the human consequences of problems such as crime, poverty, alcoholism, child abuse, and discrimination. Many of our graduates enter graduate and professional schools, seeking advanced degrees in fields as diverse as guidance counseling, physical therapy, hospital administration, law, medicine, and social work. The Human Services Program is approved by the Council for Standards in Human Service Education (CSHSE).

The curriculum of the program includes required courses, elective courses, advising, and supervised experience in one or more human service agencies or organizations. Students pursuing a major in human services will take 2960, 3100, 3300, 4220, 4229, and 4400—preferably in the order given—and one course from each of the four lists of courses given below; total hours' credit for the major will vary from 48 to 52, due to differences in the number of hours' credit awarded for different courses on these four lists.

1. 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, 4666; Psychology 4520; Religious Studies/Sociology 4940; Sociology 3610, 3620, 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, 3450; Home Economics 3110; Human Services 4920; Philosophy 3350, 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 Credit Hours 48-52

4290 Introduction to Human Services (4) General field of human services with some related social 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 services approaches. 2690 recommended.

3290 Peoples and Problems of Appalachia (4) Course designed to provide better understanding of Appalachian peoples, by exploring their life style and institutions from contemporary human service points of view. Special emphasis placed on political and economic structures of region. Recommended: Anthropology 4740.

3500 Thinking about People (4) Intended to facilitate development of thought, information, and empathic attitudes toward human beings—those providing service as well as those receiving service.

3900 Information Assessment and Interpretation (4) The knowledge and skills of information gathering and assessment for service are examined in depth in relation to human services practice. Emphasis is placed on formulating questions, identifying relevant data, using related resources, interpreting information, and applying this information in a practical setting.

4102 Off-Campus Study (1-16) Off-Campus Study (1-16) Application filed no later than the first week of the quarter prior to the quarter of enrollment. For additional information, see page 185.

4103 Independent Study (1-16) Independent Study (1-16) Application filed no later than the first week of the quarter prior to the quarter of enrollment. For additional information, see page 185.

4220 Human Services Methodologies (4) Introduction to some specific helping skills that are 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 hours.

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 human services; to provide some direct services in a supervised learning situation. Application filed no later than the first week of the quarter prior to the quarter of enrollment. For majors...
**Social Work (906)**

Associate Professor: F. R. Baskind (Director), Ph.D. ACSW, Connecticut

Assistant Professors: F. S. Lenhart, Ph.D. Tennessee V. G. Williams, M.S.W., A.C.S.W., Howard.

**Major:** Social Work 2000 (4), 3400-10 (4,4), 3410-20-30 (4,4,4), 4200 (4), 4500-10 (4,4), 4510-20-30 (4,4,4). The major consists of 52 hours. Preliminary acceptance into the major depends on successful completion of Social Work 2000. Corequisite courses include: Human Services 3200; Psychology 2520, 2540. M.S.W. students must complete the major in 2 years. Students who graduate from this program are prepared for beginning professional practice as a social worker. The program follows Council on Social Work Education Accreditation Standards.

**2000 Introduction to Social Work and Social Welfare (4)** Introduction to the profession of social work and the role of the professional social worker. Designed to assist students to develop an awareness of the knowledge, skills, and values of the social work profession, and to consider their ability for a career in social work.

**3400 Human Behavior and the Social Environment I (4)** Application of knowledge of the impact of such conditions as ethnicity, racism, sexism, and socio-economic status on individual growth and behavior. Specific focus is on the application of this knowledge to social work practice. To be taken in sequence. Prerequisite: Social Work 3400. Corequisite: Social Work 3410, 4110.

**4200-30 Field Practice in Social Work III, IV (6,8)** A sixteen hour per week supervised agency field practicum in which students learn to integrate theory and practice and critically examine use of self as a professional helping person. Weekly faculty directed seminars. Prerequisite: Full acceptance into major. Corequisite: Social Work 4210/30.

**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: J. S. Bradley (Head), Ph.D. Iowa; G. E. Albert (Emeritus), Ph.D. Wisconsin; J. H. Garratt, Ph.D. Louisiana State; C. E. Clark, Ph.D. Louisiana; R. E. Cline, Ph.D. Purdue; R. J. Davenport, Ph.D. Wisconsin; D. J. Dissart, Ph.D. Maryland; D. E. Dobbs, Ph.D. Cornell; E. D. Eaves (Emeritus), Ph.D. Texas; H. Frandsen, Ph.D. Illinois; R. T. Gregory, Ph.D. Illinois; T. G. Hallam, Ph.D. Missouri; D. B. Hinton, Ph.D. Tennessee; A. S. Householder (Emeritus), Ph.D. Chicago; L. S. Husch, Ph.D. Florida State; H. T. Matthews, Ph.D. Tulane; R. W. McConnell, Ph.D. Duke; D. D. Miller (Emeritus), Ph.D. Michigan; B. S. Rajput, Ph.D. Illinois; K. C. Roddy1, Ph.D. Indian Institute of Technology; P. W. Schaefer, Ph.D. Maryland; F. W. Stallmann, Ph.D. Giessen (Germany); W. R. Wade, Ph.D. California (Riverside); C. G. Wegner, Ph.D. Duke.

Associate Professors: D. F. Anderson, Ph.D. Chicago; V. A. Doupalis, Ph.D. Harvard; G. S. Jordan, Ph.D. Wisconsin; K. R. Dobbs, Ph.D. Ohio State; G. A. Klass, Ph.D. Nebraska; Y. Kuo, Ph.D. Cinicinnati; W. H. Row, Jr. Ph.D. Wisconsin; R. J. Rowlett, Ph.D. Virginia; S. M. Serbin, Ph.D. Cornell; J. Smith, Ph.D. California (Berkeley); G. A. Sod1, Ph.D. California (Berkeley); K. Soni, Ph.D. Oregon State; R. F. Soni, Ph.D. Oregon State; K. R. Stephenson, Ph.D. Wisconsin; J. C. Walsh, Ph.D. SUNY (Binghamton).

Assistant Professors: V. Alexiades, Ph.D. Delaware; L. Bales, Ph.D. Cornell; L. Barker, Ph.D. Florida State; J. Cohen, Ph.D. Washington; S. Eliner, Ph.D. Cornell; L. J. Gros, Ph.D. Cornell; O. Karakashian, Ph.D. Harvard; S. Lenzart, Ph.D. Kentucky; M. Miller, Ph.D. Illinois; S. Mulay, Ph.D. Purdue; H. Simpson, Ph.D. California Institute of Technology; C. Sundberg, Ph.D. Wisconsin.

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

1Space Institute, Tahulama.

**UNDERGRADUATE**

**Placement Information for Freshman Courses:** Students who need more than one year of mathematics should plan to take 1010-50-60 (or 1842-52-62 or 1848-58-68). 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 are urged to complete 1700 in a year prior to taking 1840 (or 1842). Students who have not had high school trigonometry should take 0150 before (or concurrently with) 1840 (or 1842). Students who present an ACT score of at least 28 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 prerequisites are strongly 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 Math 0110 in the Evening School (or equivalent elsewhere), and make at least B, or to make a passing grade in Math 0110 and 0150 in the Evening School (or equivalent elsewhere). Students who have taken two years of high school algebra and one year of high school geometry and who present an ACT score in mathematics of at least 24 for those who earned at least a 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 1545.

Students who have a deficiency in algebra or geometry must remove the deficiency by taking the appropriate refresher course(s) in the Evening School (or equivalent elsewhere). No student who has received credit for Mathematics 1840 with a grade of C or better may subsequently receive credit for Math 1540 or 1700. No student who has received a grade of C or better in Mathematics 1550 may subsequently receive credit for Mathematics 1550.

**Hons. Courses:** The current practice of the department is to offer honors versions (1848-58-68 and 2848-58-68) of 1840-50-60 and 2840-50-60 in sequence, fall-winter-spring, each year. In addition to these regularly offered honors courses, credit will be awarded for Mathematics 1700 for 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" and "Honors Time Table" 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 one or more 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).

**Advanced Mathematics Courses:** Include 3090 and all courses numbered 3140 or above except 3200 and 3460-65.

**Major:** To major in mathematics, a student must complete the following four requirements:

1. 2840-50-60 (or 2848-58-68) and 3810.
2. Students who complete 2868.
substitute any 3 hour advanced mathematics course for 3810.

2. One three-quarter sequence (9 hours) from one of the following areas, and one two-quarter sequence (6 hours) selected from a different area:

b. Algorithm: 4050-60, or 4120-50-60, or 4150-60;
c. Numerical mathematics: 4225-35-45, or 4225-35, or 4225-45;
d. Complex analysis: 4250-60;
e. Final analysis: 4510-20-30, or 4610-20;
f. Differential equations: 4610-20-30, or 4610-20;
h. Probability and statistics: 4850-60-70, 4860-50-70, or 4750-60;

3. Fifteen additional hours of advanced mathematics courses as defined under the heading, Advanced Mathematics Courses, above. In satisfying this requirement, a student may substitute not more than 6 hours of courses from the following list, for advanced mathematics courses: Computer Science 4510, 4710; Educational Curriculum and Instruction 3751, 3753, 3755, 3757, 3759, 3810, 3812, 4110-20, 4210-20; Statistics 3460.

4. Senior seminar, 4910 or 4920.

Honors Program:
A student who wishes to be considered for admission to the Honors Program in mathematics will consist of at least 27 hours of mathematics courses numbered 4000 or above, except 4710, including at least 6 hours of honors courses (courses numbered such that the last digit is 8). Students who satisfy the major requirements (categories 1 through 4 above) and complete the Honors Program with an overall 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). Applications for admission in the fall will be considered only in the first two hours of the fall quarter, and 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 2840-50-60 or 2848-58-68 and at least 12 hours of advanced mathematics courses, as defined under the heading, Advanced Mathematics Courses.

Program Planning for Majors:
Mathematics majors have considerable freedom in determining how they will meet the requirements of the major. This is necessary, since mathematics majors may select from a variety of possible careers. In order to meet this diversity of needs, the mathematics faculty has designed a variety of sample programs which majors may wish to follow.

Programs are available to prepare students:

- for employment in business or industry, whether in numerical mathematics and computer science, operations research, probability, statistics, business and applied statistics, or actuarial science;
- for graduate work, in pure mathematics, applied mathematics, computer science, operations research, or statistics;
- for teaching, at the school or college level;
- for careers in business, law, medicine, or any other areas requiring training in mathematics.

These programs, along with other useful information for majors, are published in a Program Planning Guide, which is available on request at the department office, room 121, Ayres Hall. Prospective students are invited to write for copies.

0150 Trigonometry

A Plane Trigonometry with emphasis on identities and other analytic aspects used in calculus. For students who enter with deficiency in high school trigonometry, 3 hours per week. No college credit.

1540 College Algebra

4 Sets, real and complex number systems, exponents and radicals, fundamental algebraic operations, theory of equations, polynomial inequalities, relations, functions, graphs. No student who has received credit for Math 1480 with a grade of C or better may subsequently receive credit for Math 1540 or 1700. Credit for Math 1600 or 1700 as one year of algebra and one year of geometry.

1550-60 Introductory Calculus

General Mathematics (4,4) 1550—Equations of straight lines, conics, derivatives of algebraic functions, applications of derivatives, maxima and minima, related rates, antiderivatives, implicit functions, applications of integration. 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: No student who has received a grade of C or better in Mathematics 1550 may subsequently receive credit for Mathematics 1550.

1700 Precalculus Mathematics (4) Function concept and use of functional notation. Properties of functions and their graphs. Polynomial, exponential, logarithmic, and trigonometric functions. No student who has received credit for Math 1480 with a grade of C or better may subsequently receive credit for Math 1540 or 1700. Prereq: Two years of high school algebra, and the equivalent of one-half year of trigonometry or taking 1850-60 during the junior or senior year.

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, 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. NOTE: No student who has received credit for Math 1480 with a grade of C or better may subsequently receive credit for Math 1540 or 1700. Prereq: Two years of high school algebra, one year of 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. Functions, graphs, differentiation and integration, exponential and logarithmic functions, applications of the derivative and definite integral, growth curves, Taylor polynomials, mean value theorem, applications of integration to problems in the life sciences. Must be taken in sequence.

1842-52-62 Single Variable Calculus with Computer Support (5,5,5) Same coverage of calculus as 1840-50-60 supplemented with computer. Elementary FORTRAN is introduced and applied to problems from following areas: computer models of natural population; application of limits to definition of derivative, approximation via differentials, approximate solution of equations by Newton's method; rectangular, trapezoidal, and Simpson's rules for numerical integration, Euler's method for initial value problems, basic principles of high school algebra, one year geometry, and one semester of trigonometry or equivalent.

1850-58-68 Honors: Single Variable Calculus (4,4,4) Honors course for students interested in taking advanced work in mathematics. Prereq: 1840-60. Students in the calculus sequence, selected on basis of placement test scores and high school record. Special sections of 1850 will be available for students who wish to perform well in 1850. Must be taken in sequence.

1900 Selected Topics (4) Applications of definite integration; approximate integration; simultaneous linear equations; matrix inversion; elementary linear programming; infinite series; descriptive statistics and finite probability. This course is especially recommended for architecture majors. Prereq: 1840-50. A student wishing to continue the study of calculus after taking 1900 should consult the mathematics department.

2012 Basic Concepts of Elementary Mathematics

(4,4) Sets, theory of arithmetical operations, elementary probability and statistics, fundamental concepts of arithmetic, elementary analytic geometry. Applications. May not be taken for credit after or concurrently with 1540, 1550, 1560, 1860, or 1868-70. Must be taken for a grade.

2110-20-30 Structure of the Number System

3,3,3 Set theory, whole numbers, integers. 2120—Inverses, order properties, rational numbers. 2130—Elementary number theory, rational and irrational numbers. Euclidean geometry. Must be taken in sequence. Prereq: 1 year of high school algebra and at least 3 credits of college level mathematics. Prereq: 1848-50.

2215 Discrete Structures (3) Prereq: 1620 and Math 2110. Basic principles of counting, recursion, induction, relations, permutation, combinations, graphs, trees. Emphasis on applications to problems in computer science.

2610 Introduction to Differential Equations

2 Variable separable, homogeneous, exact, and linear first order equations, integrating factors. Second order linear equations with constant coefficients. Prereq: 1840.

2840 Differential Equations and Infinite Series


Prerequisites: If specific courses are listed below as prerequisites, equivalent preparation satisfactory to the instructor will be an acceptable substitute. Graduate standing is prerequisite to enrollment in courses numbered above 2840. Undergraduates working towards a major in mathematics with a view to taking advanced work are strongly advised to include 4510-20-30 and 4510-60 during the junior or senior year.

3000 Elementary Quantitative Methods

4 General course designed to prepare students in social and life sciences for quantitative courses in their department. Treats basic topics in probability and statistics with calculus. Not recommended for students majoring in mathematics, nor is it available for credit to students in College of Business Administration.

3050 Elementary Probability and Statistical Analysis

3 Combinatorial problems; sample spaces, sets,
The Department of Mathematics offers four advanced degrees. In order to become a candidate for any one of these the student should be prepared in one or more of the following areas:

1. **Real Number System (3)**
   - Laws of arithmetic; rational and irrational numbers; fields. Primarily for students in the College of Education. Prereq: 1 year of college mathematics. Does not satisfy the requirements of a major or minor in mathematics.

2. **History of Mathematics (3)**
   - A survey of the major developments in the history of mathematics, from ancient to modern times. Should be taken in sequence. Prereq: Math 2860 or consent of instructor.

3. **Partial Differential Equations (3)**
   - Fourier series; orthogonal functions; the vibrating string equation; separation of variables; solution of Laplace's equation. Function theory; applications. Prereq: Math 2860 or 4050. Must be taken in sequence.

4. **Vector Analysis (3)**
   - Fundamental operations, gradient, divergence, curl, line and surface integrals, divergence theorem of Gauss, Stokes' theorem. Prereq: Math 2860 or 4050. Must be taken in sequence.

5. **Introduction to Combinatorial Theory (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 4050 or consent of instructor.

6. **Topological Spaces and Manifolds (3)**
   - Introduction to topology and its applications. Prereq: Math 2860 or 4050 or consent of instructor.

7. **Matrix Algebra and Applications (3)**
   - Topics to be chosen at the discretion of instructor. Prereq: Math 2860 or 4050 or consent of instructor.

8. **Numerical Analysis (3)**
   - Interpolation by polynomials, piecewise polynomials, quadrature; singlestep and multistep methods for differential equations. Stability, convergence, uniform convergence, Taylor and Laurent series, power and inverse power methods for eigenvalues. Prereq: Math 2860 or 4050 or consent of instructor.

9. **Advanced Euclidean Geometry (3)**
   - Triangles and circles, constructions, modern concepts. Prereq: 1 year of college mathematics. Does not satisfy the requirements of a major or minor in mathematics.

10. **Euclidean Geometry (3)**
    - Triangles and circles, constructions, modern concepts. Prereq: 1 year of college mathematics.

11. **Non-Euclidean Geometry (3)**
    - Foundations of geometries and finite fields, partitions, block designs. Prereq: Math 2860 or consent of instructor.

12. **Introduction to Probability (3)**
    - Discrete and continuous random variables, probability distributions; sampling theory; confidence intervals; continuous functions, connectedness, completeness, continuous functions, homeomorphisms, compactness, and topological invariants. Must be taken in sequence. Prereq: 3901 or 3980 or consent of instructor.

13. **Studies in Mathematics (1-4)**
    - Credit determined at registration. May be repeated for credit with consent of department; maximum credit 9 hours. Prereq: Consent of instructor.

14. **Algebraic Eigenvalue Problem (3)**
    - Introduction to numerical methods for solving the algebraic eigenvalue problem, vector and matrix norms. Jordan canonical forms, evolution of norms, matrix functions, quadratics forms and variational principles, related topics. Must be taken in sequence. Prereq: 3901 or 3980.

15. **Matrix Algebra and Applications (3)**
    - Topics to be chosen at the discretion of instructor. Prereq: Math 2860 or 4050 or consent of instructor.

16. **Algebraic Eigenvalue Problem (3)**
    - Introduction to numerical methods for solving the algebraic eigenvalue problem, vector and matrix norms. Jordan canonical forms, evolution of norms, matrix functions, quadratics forms and variational principles, related topics. Must be taken in sequence. Prereq: 3901 or 3980.

17. **Advanced Euclidean Geometry (3)**
    - Triangles and circles, constructions, modern concepts. Prereq: 1 year of college mathematics.

18. **Euclidean Geometry (3)**
    - Triangles and circles, constructions, modern concepts. Prereq: 1 year of college mathematics.

19. **Non-Euclidean Geometry (3)**
    - Foundations of geometries and finite fields, partitions, block designs. Prereq: Math 2860 or consent of instructor.

20. **Introduction to Probability (3)**
    - Discrete and continuous random variables, probability distributions; sampling theory; confidence intervals; continuous functions, connectedness, completeness, continuous functions, homeomorphisms, compactness, and topological invariants. Must be taken in sequence. Prereq: 3901 or 3980 or consent of instructor.

21. **Studies in Mathematics (1-4)**
    - Credit determined at registration. May be repeated for credit with consent of department; maximum credit 9 hours. Prereq: Consent of instructor.

22. **Algebraic Eigenvalue Problem (3)**
    - Introduction to numerical methods for solving the algebraic eigenvalue problem, vector and matrix norms. Jordan canonical forms, evolution of norms, matrix functions, quadratics forms and variational principles, related topics. Must be taken in sequence. Prereq: 3901 or 3980.

23. **Matrix Algebra and Applications (3)**
    - Topics to be chosen at the discretion of instructor. Prereq: Math 2860 or 4050 or consent of instructor.

24. **Algebraic Eigenvalue Problem (3)**
    - Introduction to numerical methods for solving the algebraic eigenvalue problem, vector and matrix norms. Jordan canonical forms, evolution of norms, matrix functions, quadratics forms and variational principles, related topics. Must be taken in sequence. Prereq: 3901 or 3980.

25. **Advanced Euclidean Geometry (3)**
    - Triangles and circles, constructions, modern concepts. Prereq: 1 year of college mathematics.

26. **Euclidean Geometry (3)**
    - Triangles and circles, constructions, modern concepts. Prereq: 1 year of college mathematics.

27. **Non-Euclidean Geometry (3)**
    - Foundations of geometries and finite fields, partitions, block designs. Prereq: Math 2860 or consent of instructor.

28. **Introduction to Probability (3)**
    - Discrete and continuous random variables, probability distributions; sampling theory; confidence intervals; continuous functions, connectedness, completeness, continuous functions, homeomorphisms, compactness, and topological invariants. Must be taken in sequence. Prereq: 3901 or 3980 or consent of instructor.

29. **Studies in Mathematics (1-4)**
    - Credit determined at registration. May be repeated for credit with consent of department; maximum credit 9 hours. Prereq: Consent of instructor.

30. **Algebraic Eigenvalue Problem (3)**
    - Introduction to numerical methods for solving the algebraic eigenvalue problem, vector and matrix norms. Jordan canonical forms, evolution of norms, matrix functions, quadratics forms and variational principles, related topics. Must be taken in sequence. Prereq: 3901 or 3980.

31. **Matrix Algebra and Applications (3)**
    - Topics to be chosen at the discretion of instructor. Prereq: Math 2860 or 4050 or consent of instructor.

32. **Algebraic Eigenvalue Problem (3)**
    - Introduction to numerical methods for solving the algebraic eigenvalue problem, vector and matrix norms. Jordan canonical forms, evolution of norms, matrix functions, quadratics forms and variational principles, related topics. Must be taken in sequence. Prereq: 3901 or 3980.

33. **Advanced Euclidean Geometry (3)**
    - Triangles and circles, constructions, modern concepts. Prereq: 1 year of college mathematics.

34. **Euclidean Geometry (3)**
    - Triangles and circles, constructions, modern concepts. Prereq: 1 year of college mathematics.

35. **Non-Euclidean Geometry (3)**
    - Foundations of geometries and finite fields, partitions, block designs. Prereq: Math 2860 or consent of instructor.

36. **Introduction to Probability (3)**
    - Discrete and continuous random variables, probability distributions; sampling theory; confidence intervals; continuous functions, connectedness, completeness, continuous functions, homeomorphisms, compactness, and topological invariants. Must be taken in sequence. Prereq: 3901 or 3980 or consent of instructor.

37. **Studies in Mathematics (1-4)**
    - Credit determined at registration. May be repeated for credit with consent of department; maximum credit 9 hours. Prereq: Consent of instructor.

38. **Algebraic Eigenvalue Problem (3)**
    - Introduction to numerical methods for solving the algebraic eigenvalue problem, vector and matrix norms. Jordan canonical forms, evolution of norms, matrix functions, quadratics forms and variational principles, related topics. Must be taken in sequence. Prereq: 3901 or 3980.

The Department of Mathematics offers four advanced degrees. In order to become a candidate for any one of these the student should be prepared in one or more of the following areas:
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 teaching and 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)
5051 Introductory Business Mathematics (3)
5052 Mathematics for Business Decisions (3)
5110-20-30 Theory of Functions of Complex Variables (3,3,3)
5150-60-70 Foundations of Analysis (3,3,3)
5210-30-30 Theory of Functions of a Real Variable (3,3,3)
5250-60 Applied Linear Analysis (3,3)
5270 Stability Theory and Liapunov’s Direct Method (3)
5310-30-30 Introduction to Higher Geometry (3,3,3)
5370-80-90 Mathematical Principles of Fluid Mechanics (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 Modem Topology (3,3,3)
5515 Stability Theory and Liapunov’s Direct Method (3)
5520-30-30 Modern Algebra (3,3,3)
5540-50-60 Theory of Semigroups (3,3,3)
5560-70-80 Theory of Matrices in Numerical Analysis (3,3,3)
5570-80-90 Advanced Ordinary Differential Equations (3,3,3)
5575 Combinatorial Algorithms (3)
5580-90-100 Number Theory (3,3,3)
5590 Theory of Rings (3,3,3)
5610-20-30 Mathematical Methods in Physics (3,3,3)
5620-30-40 Mathematical Methods in Physics II (3,3,3)
5640 Numerical Methods in Physics (3)
5655-65-75 Numerical Mathematics (3,3,3)
5710-20-30 Tensor Analysis (3,3,3)
5750-60-70 Advanced Mathematical Statistics (3,3,3)
5775 Combinatorial Algorithms (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)
5940-50-60 Applied Probability (3,3,3)
5970-80 Mathematical Systems Theory (3,3,3)
5990 Graduate Reading in Mathematics (1-3)
5991 Seminar Analysis (1-3)
5992 Seminar Topology (1-3)
5993 Seminar Algebra (1-3)
5994 Seminar Foundations (1-3)
5995 Seminar Applied Mathematics (1-3)
6000 Doctoral Research and Dissertation
6210-20-30 Functional Analysis (3,3,3)
6310-20-30 Harmonic Analysis (3,3,3)
6450-60-70 Partial Differential Equations (3,3,3)
6510-20-30 Modern Algebra (3,3,3)
6540-50-60 Theory of Semigroups (3,3,3)
6570 Theory of Groups (3,3,3)
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 Modern Topology (3,3,3)
6940-50-60 Introduction to Algebraic Topology (3,3,3)
6991 Seminar Analysis (1-3)
6992 Seminar Topology (1-3)
6993 Seminar Algebra (1-3)
6994 Seminar Foundations (1-3)
6995 Seminar Applied Mathematics (1-3)
6996 Seminar in Numerical Mathematics (1-3)

Medieval Studies
See Cultural Studies.

Microbiology
Professors:
A. Brown (Head), Ph.D. Chicago; R. W. Beck, Ph.D. Wisconsin; J. M. Becker, Ph.D. Cincinnati; R. J. Courney, Ph.D. Syracuse; T. C. Montie, Ph.D. Maryland; J. C. Munt (Emeritus), Ph.D. Michigan State; W. S. Rigby, Ph.D. Yale; B. T. Rouse, Ph.D. Guelph (Canada); B.V.Sc., Bristol (England); J. M. Woodward (Emeritus), Ph.D. Kansas; C. J. Wust, Ph.D. Indiana.

Associate Professors:
D. A. Brian, Ph.D., Ph.D. Michigan State; D. R. Sayler, Ph.D. Idaho.

Assistant Professors:
D. A. Bemis, Ph.D. Cornell; R. N. Moore, Ph.D. Texas-Austin; K. M. Strohlin, Ph.D. Michigan State; H. Stacey, Ph.D. Texas-Austin.

UNDERGRADUATE
Major: Consists of Biology 3110, 3120, Biochemistry 4110, 4120, Microbiology 3200, 3519, 3700, and 8 hours of upper-division courses in microbiology of which 4 hours must be laboratory courses. Prerequisites to the major are Biology 1210-20-30 and Chemistry 1110-20-30. Corequisites are Chemistry 2211-21-31, 3219-29-39, Mathematics 1841-21, and Physics 2210-20-30.

Microbiology (684)
2110 Microbiology for Student Nurses (3-4) Introductory course offered only to student nurses in diploma program of hospitals affiliated with The University of Tennessee. Microbiological principles as they apply to nursing care of the patient, epidemiology of infection, and principles of immunity and allergy. 3 hours and 1 lab.

2910 General Microbiology (3) General properties of bacteria, viruses, and fungi, including study of pathogenesis, immunity, and applied bacteriology. The combination of 2910-2911 or 2910-2919 meets the needs of programs that require a one-quarter course in microbiology. Coreq: 2911 or 2919.

2911 Microbes in Action (1) Discussions, demonstrations, and films relating to the subject matter of 2910. Students do not receive credit for 2911 if 2919 has been taken. Prereq or coreq: 2010.

2919 Laboratory in General Microbiology (2) Laboratory exercises designed to accompany 2910. Open only to students in the College of Nursing, preveterinary medicine, food technology, food sciences, nutrition, or food systems administration. Others by consent of instructor. Students do not receive credit for 2919 if 2911 has been taken. Prereq or coreq: 2910.

3200 Medical Microbiology (3) Disease producing microorganisms including bacteria, viruses, and fungi: basic principles and mechanisms involved in resistance to infectious disease. Prereq: Chemistry 1110-20-30, Biology 3120; coreq: 3519, Biology 3110.

3519 Introductory Microbiology Laboratory (2) Basic techniques for examination, cultivation, and identification of microorganisms. Coreq: 3200 or 3700.


3810 Food Bacteriology (3) Standard methods for examination, cultivation, and identification of bacteria associated with food fermentation and food spoilage. Prereq: 2910 or 3700 and Chemistry 2230 or 3211. 2 hours and 2 labs.

3819 Food Bacteriology Laboratory (2) Laboratory methods for examination, cultivation, and identification of bacteria associated with food fermentation and food spoilage. Prereq: 2919 or 3519; coreq: 3810.

3820 Yeasts and Molds (3) Morphology, taxonomy, and physiology of yeasts, actinomycetes, and fungi of industrial importance. Prereq: 2910 or 3700, or consent of instructor. 2 hours and 2 labs.

3829 Yeasts and Molds Laboratory (2) Laboratory methods for examination and cultivation of yeasts and molds. Prereq: 2919 or 3519; coreq: 3820.

4010 Biology of Soil Microorganisms (4) Same as Entomology and Plant Pathology 4010.

4011 Foreign Study (1-16) See page 185. No more than 3 credits may be applied toward a major or minor in microbiology. May be repeated. Maximum credit 16 hours.

4102 Off-Campus Study (1-16) See page 185. No more than 3 hours may be applied toward a major or minor in microbiology. May be repeated. Maximum credit 16 hours.
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)
5350 Advanced Microbiology for Secondary Education Instructors (4)
5360 Topics in Immunology and Immunobiology (4)
5441-42-43-44-45-46 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 Oncogenic Viruses (3)
5760 The Bacterial Viruses (3)
5819 Molecular Genetics Laboratory (3)
5820 Microbiology of Foods (3)
5829 Experimental Microbiology (3)
5850 Seminar in History of Microbiology (1)
5910-20-30 General Seminar (1,1,1)
6000 Doctoral Research and Dissertation
6310 Seminar in Immunochemistry (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 (5)
6420 Current Topics in Biological Membrane Research (1)
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 Science-Medical Technology Curriculum, described on page 179, 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 antibacterial 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 application of analytical procedures, specimen collection and handling, significance of results, and quality assurance and diagnostic analysis of urine, and renal function studies. Emphasis is placed on microscopic identification of cells and the significance and correlation of laboratory data.

4041-42 Immunohematology (4,4) Theory and practice in blood bank operations, detection and preservation of red cell antigens and their normal and abnormal immunology. Standard technical practices used in evaluating blood typing, crossmatching, antibody detection, and preservation of blood components for transfusion. Safety control methods standard to an efficient blood bank.

4043 Clinical Serology and Immunology (2) Performance and interpretation of broad range of clinical serological and immunological procedures with emphasis on principles and clinical correlation. Formal lecture series included.

4050 Nuclear Medicine (1) Physical characteristics, detection and use of short half-life radioactive materials. Emphasis placed on in vivo diagnostic medical uses and radiation safety.

4060 Histology (1) Overview of techniques of preparation of tissue for histological examination, their function, and clinical application. Practical application of histological techniques in clinical diagnosis.

4071 Orientation and Basic Techniques (1) Designed to facilitate transition of students from campus to hospital community and clinical laboratory. Introduction to medical terminology, ethics, and health team concept. Orientation to basic techniques of methods of study include procedures for collection and handling of specimens, principles of operation of many laboratory instruments, review of laboratory math, and introduction to quality control procedures. Portions of course extend over entire clinical year.

4072 Principles of Supervision and Education in Medical Technology (1) Seminar in basic principles of management, supervision, and education theories and methods. Comprehensive examination covers entire course.

Music (698)


The Department of Music offers curricula leading to the Bachelor of Music degree, which is designed to prepare 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. Information regarding requirements for the B.M. degree may be found on page 181. The requirements for a major and minor are as follows:

**Major:**

(a) Concentration in Applied Music—Consists of 24 hours in courses numbered 2000-3000 and above, distributed as follows: Music 2300, 12 hours in applied music and 9 hours in music electives. Prerequisites are Music 1000 or equivalent and three quarters of applied music study at the 1500-1599 levels.

(b) Concentration in Music History and Literature—Consists of 24 hours in courses numbered 2000 and above, distributed as follows: Music 2300, 12 hours in Music History and Literature courses and 9 hours in music electives. Prerequisites are Music 1000 or equivalent and three quarters of applied music study at the 1500-1599 levels.

**Minor:**

(a) Concentration in Applied Music—Consists of Music 2000, 2111-21-31, 2310-20-30-40, and 15 hours in applied music at the 2000-3000, and 4000 levels (6 hours each). 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 music education, is administered by the Department of Music Education. See page 107 for requirements.

**GENERAL:**

1000 Fundamentals of Music Theory (3) Theory and practice of basic elements of music. 3 hours.

1010-20-30-40-50-60 Class Piano (1,1,1,1,1,1) For music and music education majors only. Must be taken in sequence. Course 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) Development of basic vocal skills. May be repeated for credit.

1085-95 Class Guitar (1,1) Must be taken in sequence. Prereq: Consent of instructor.

2000 Solo Class (O)

2010 Introduction to Musical Theatre Technology (3) Stage technology unique to lyrical stage.


2020 Vocal Techniques in Popular Music (1) Development of performance techniques in Broadway and other contemporary music styles. Prereq: Consent of instructor. May be repeated for credit.

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 playing, and accompanying on the organ. Prereq: 1131 and 6 hours in organ.

2199 Techniques of Sound Recording (3) Theory and applications of tape recording. Topics include room acoustics, microphones, processing, noise reduction, mixing, editing, dubbing, and recorder maintenance.

2200 Introduction to Music Literature (3) Acquaintance with basic tonal and non-tonal concepts and selected works through chronological approach. For music majors and minors only.

2810-20 Jazz Piano (1,1) Harmonic language of jazz—interpretation of chord symbols, formulation for voicing chords, chord progressions, and fundamental melody playing and improvisation for right hand. May be taken in sequence. Prereq: 1010-20.

3000 Junior Recital (0)

3012-22-32 Song Literature (2,2,2) Study of literature of 1750 to present with emphasis on performance practices. 3012—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.

3018 Introduction to Styles in Jazz Drumming (2) Examination and study of major composers and performers who have contributed significantly to creation of principal styles of jazz drumming.

3052-63 Jazz Improvisation (2,2) Study and application of principles of improvisation, including montétech, chord progressions, chord-scales, patterns, melodic development, and free form devices. Prereq: Consent of instructor. 2 hours and 1 lab.

3044-54 Brass Literature (2,3) 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 (1,1,1) Continuation of Music 2071-81-91, which is prereq.


4000 Senior Recital (O)

4002 Suzuki Piano Method (2) Study of the psychological, procedural, and literature of the Suzuki piano method. Prereq: Consent of instructor.

4007-17-27 String Techniques (1,1,1) Problems of string playing, development of string techniques, style and interpretation, program building. Prereq: Consent of instructor.

4009-19-29 Talent Education Program of S. Suzuki (2,2,2) May be repeated. Maximum credit 12 hours. Prereq: Consent of instructor.

4010-20-30 Piano Techniques (1,1,1) Problems of piano playing; development of piano style; style and interpretation; program building. Prereq: Consent of instructor.

4012-22-32 Principles of Vocal Pedagogy (1,1,1) Examination and evaluation of concepts and approaches to teaching singing (past and present) and related teaching materials. Collaborative laboratory experiences accompany the study. Prereq: Consent of instructor.

4036-37-38 Advanced Piano Literature (2,2,2) Piano music from preclassical period to present. 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.

4050 Advanced Instrumental Conducting (3) Development of knowledge and skills in instrumental conducting; study of various periods and composers and relationship of different styles to the conductor's art; musical analysis and practice in conducting. Prereq: Music Ed. 4430 or equivalent.

4055-56-57 Elementary and Intermediate Piano Pedagogy (2,2,2) Examination and study of piano methods and materials designed for teaching precollege level students. Prereq: Consent of instructor.

4060 Choral Techniques (3) Techniques and methods involved in producing total choral program.

4074-44 Church Music Seminar (3,3) History and philosophy of church music; liturgies and liturgical music; church music administration. Prereq: Consent of instructor.

4085 Harpsichord Techniques (1) Technique, literature, performance practice, continuo playing, and basic tuning and maintenance. Requires a thorough keyboard background. May be repeated. Maximum credit 3. Prereq: Consent of instructor.

4091 Special Topics in Performance (1-3) Prereq: Consent of department head. May be repeated. Maximum credit 6 hours.


4200 Jazz Directing (1) Rehearsal techniques of jazz ensembles; special conducting techniques, repertoire, library systems, programming, and supervised laboratory experience in rehearsing university 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 programs. Prereq: 4055 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:**

1111-21-31 Theory (3,3,3) Materials of music with emphasis on literature of Baroque, Classic, and Romantic periods. Exercises in writing and analysis. Must be taken in sequence.

1113-23-33 Sight Singing and Ear Training (1,1,1) Should be taken concurrently with 1111-21-31. Must be taken in sequence. 2 hours per week.

1199 Fundamentals of Music Composition (3) Melodic invention in simple forms. May be repeated. Maximum credit 4 hours. Prereq: Consent of instructor.

1400 Analysis of Jazz Styles (2) Individual improvisation styles through analysis of 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 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 hours per week.

2118-28-38 Honors: Theory II (4,4,4) Materials of music with emphasis on literature of Romantic and contemporary periods. Exercises and projects in writing and analysis. Prereq: 1138 or placement examination.

3063-64-65 Sight Reading at the Piano (1,1,1) Prereq: Consent of instructor.

3111-21-31 Tonal Counterpoint (3,3,3) Contrapuntal techniques of 18th 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 structures. Application of macroanalytic techniques. Prereq: 2131 or 2138 or equivalent.

3122 Orchestration (3) Advanced techniques in instrumental writing with emphasis on scoring for the
3230 The Concerto (3) Survey of literature from 17th sent of instructor.

11 Pedagogy of Music Theory (3) Techniques, methods and materials involved in college-level theory programs. Prereq: Consent of instructor.

4101 Stage Band Arranging (3) Analysis of scores and scoring for the stage band. Prereq: 3112 and consent of instructor.

4117 Choral Arranging (3) Analysis of scores and writing of arrangements for men's, women's and mixed choruses. Prereq: 3112 or consent of instructor.

4124 Marching Band Arranging (3) Study and application of techniques employed in scoring for marching band. Prereq: 3112 or equivalent.

4134 Concert Band Arranging (3) Study and application of techniques employed in scoring for concert band. 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.

4580 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 4th through the 20th centuries. 1220—Introduction to masterworks of music from 1600 to present. For non-music majors. Prereq: 1210 or 1220 or consent of instructor.

1230 History of Rock (3) Study and appreciation of rock, its origins in blues and rock and roll, and its relationship with other popular musics—country, gospel, jazz, and folk.

2300 Introduction to Music Literature (3) Acquaintance with basic terms of music and accepted masterworks through chronological approach. For music majors and minors only.

2310-20-30-40 History of Music (3,3,3,3) Examination of study of serious, popular, folk, and art music from 1600 to 1900. Includes both folk and cultivated traditions. Prereq: Consent of instructor.


4290 Gregorian Chant (3) Chants of Latin rite. Masses and Offices examined as functional music as well as by type.

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 on Bach (3,3) Detailed examination of sonatas, chamber, keyboard, and orchestral 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 of 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 concurrently registered for no less than six 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.

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, repertory, 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.

1560-2560-3560-4560-5560 Violin (1-4) May be repeated for credit.

1565-2565-3565-4565-5565 Viola (1-4) May be repeated for credit.

1570-2570-3570-4570-5570 Cello (1-4) May be repeated for credit.

1575-2575-3575-4575-5575 String Bass (1-4) May be repeated for credit.

1577 Electric Bass (1-4) May be repeated.

1580-2580-3580-4580-5580 Piano (1-4) May be repeated for credit.

1585-2585-3585-4585-5585 Harpsichord (1-4) May be repeated for credit.

1590-2590-3590-4590-5590 Organ (1-4) May be repeated for credit.

1595-2595-3595-4595-5595 Guitar (1-4) May be repeated for credit.

concert orchestra. Prereq: 3112 or consent of instructor.
ENSEMBLES

Ensemble participation during each quarter of residence is required of all students studying applied music: (1) string students must participate in orchestra each quarter; (2) woodwind, brass, and percussion students must acquire a minimum of six credits in any of the following ensembles: marching band; concert band, campus band, symphony orchestra, jazz ensemble; (3) voice students must acquire a minimum of six credits in any of the following ensembles: Concert Choir, Chamber Singers, University Chorus, Women's Chorus.

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 Woodwind Choir (1,1) May be repeated for credit.
3602-5602 Brass Choir (1,1) May be repeated for credit.
3604-5604 Jazz Ensemble (1,1) May be repeated for credit.
3606-5606 Trombone Choir (1,1) May be repeated for credit.
3607 Tubal Ensemble (1) May be repeated for credit.
3610-5610 Percussion Ensemble (1,1) May be repeated for credit.
3611 Marimba Choir (1) May be repeated. (Also 5611)
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 Theatre (1,1) May be repeated for credit.
3642-5642 Opera Workshop (1,1) May be repeated for credit.
3650-5650 Concert Band (1,1) May be repeated for credit.
3652-5652 Campus Band (1,1) May be repeated for credit.
3654-5654 Marching Band (1,1) May be repeated for credit.
3656-5658 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 Chorus (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.

3611 Marimba Choir (1) May be repeated. (Also 5611)
3610-5610 Percussion 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 Theatre (1,1) May be repeated for credit.
3642-5642 Opera Workshop (1,1) May be repeated for credit.
3650-5650 Concert Band (1,1) May be repeated for credit.
3652-5652 Campus Band (1,1) May be repeated for credit.
3654-5654 Marching Band (1,1) May be repeated for credit.
3656-5658 Laboratory Band (1,1) May be repeated for credit.
Astronomy (150)

2110-20-30 Introductory Astronomy (4,4,4) Surveys astronomical data and theories. 2110-20 concentrates on the solar system. 2130 introduces stellar astronomy including binary and variable star clusters and nebulae. It is recommended that the courses be taken in sequence. 4 hours including demonstration lab.

2118-28-38 Honors: Introductory Astronomy (4,4,4) Observation and theories of matter and space in the universe. Planets, stars, and the interstellar medium. Must be taken in sequence. 3 hours lecture-discussion, 2 hours lab per week. Coreq: Math 1840-50-60 or equivalent.

4110-20-30 Astrophysics (3,3,3) Physics of stars and interstellar matter; planets and interplanetary matter; atmospheres, interiors, and evolution; nebulae, quasars, pulsars, etc. Observational data and their determinations. Current developments. Approach will be interdisciplinary. Accepted for major credit in physics. Prereq: Physics 2318-28-38 as a graduation requirement. Transfer students from other 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, 3210-20, 3710-20-30, 4210-20, 4710-20-30, and Math 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 2318-28-38 and 15 hours from physics and astronomy courses numbered 3000 and above. Substitution of provisions in the major statement also apply to the minor.

An Engineering Physics Curriculum is also offered. The program is described on page 159 and listed in tabular form on page 132.

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 of phenomena and logic rather than mathematical formalism. Second quarter is quarter are mechanics, heat, and energy. In second quarter wave motion, sound, electricity and magnetism, and light. In the third term these principles are applied in sequence only with consent of instructor. 4 hours including demonstration lab.

1310-20-30 Fundamentals of Physics: Mechanics and Heat (4,4,4) Introduces the course in concepts and principles of physics. Basic Engineering 1310-20 is equivalent for graduation purposes. Must be taken in sequence. Coreq: Math 1840-50-60. 3 hours of lecture, 2 hours of lab.

1318-28-38 Honors: Fundamentals of Physics: Mechanics and Heat (4,4,4) Honors course designed for physics and liberal arts majors in mathematics and the physical sciences. Basic Engineering 1310-20 is equivalent for graduation purposes. Must be taken in sequence. Coreq: Math 1840-50-60. 3 hours of lecture, 2 hours of lab.

1410-20-30 Nature of the Physical World (4,4,4) Introduces the course in concepts and principles of physical sciences which enables a student to establish a unified picture of the physical universe. In the first two terms the principles of mechanics, electricity, and wave motion are developed and applied to such varied fields as solar systems, atomic and molecular behavior, radiation in the atmosphere and in the earth's crust, and to stellar and galactic phenomena. In the third term these principles are applied in the course to nuclear topics as nuclear energy, cosmic rays, atmospheric and oceanic phenomena, drifting continents, and science and society. May be taken out of sequence only with consent of instructor. 4 hours including demonstration lab.

1450 Physics of Athletic Activity (4) Principles of physics, particularly mechanics and heat, are introduced. Discussion of these ideas will emphasize their role in physical activities, particularly sport-related. Course topics include statics, equilibrium, linear and circular motion, momentum, force, work, and energy. 4 hours lecture and demonstration.

1810 Physics of Music (4) Production, transmission, and reception of sound waves. Frequency, intensity, timbre. Basic acoustics of instruments and voice. 4 hours lecture and demonstration.

2120-20-30 Elements of Physics (4,4,4) 2120—Mechanics, properties of fluids, heat. 2220—Electricity and magnetism, sound waves. 2330—Optics, atomic and nuclear physics, radiation protection. Basic physical principles are developed and applied in premedical, pre-dental, pre-pharmacy, and pre-veterinary programs. Majors must take both Math 2510 and 2520 or Math 1840-50 (or equivalent honors courses). 3 hours of lecture and 3 hours of lab.

2240-50-60 Elements of Physics for Architects (4,4,4) Statics, dynamics, properties of fluids; coreq: Math 1840 or 1550. 2250—Heat and thermodynamics, sound and wave motion, optics; coreq: Math 1850 or 1560. 2260—Electricity and magnetism, alternate energy topics. Basic physical principles with applications particularly applied in architecture. Limited to students in School of Architecture. Should be taken in sequence. 3 hours of lecture. 3 hours of lab.

2310-20-30 Fundamentals of Physics: Electricity, Waves and Optics, Modern Physics (3,3,3) Required of all engineering students. 2310—Electricity. 2320—Waves and Optics. 2330—Modern Physics. Must be taken in sequence. Prereq: 1310-20-30 or Basic Engineering 1310-20, or Physics 2510; coreq: Math 1840-50-60. 3 hours of lecture, 2 hours of laboratory and recitation per week.

2318-28-38 Honors: Fundamental Physics: Electricity, Waves and Optics, Modern Physics (4,4,4) Honors course designed for selected students admitted on basis of special aptitude or major research interest in one of the courses and majoring in Engineering 1310-20-30. 2318—Electricity; 2328—Waves and Optics. 2338—Modern Physics, Coreq: Math 2610, 2840-50. 3 hours of lecture-discussion, 2 hours of lab per week.

2510 Mechanics (5) Statics, kinematics, Newton's laws, momentum, energy, rotation. 4 hour of lecture-recitation. 3 hours of recitation, 3 hours of laboratory-problem sessions. Prereq: Math 1840-50-60 or equivalent. 2510 satisfies prerequisite for Physics 2310, although physics major must also take Physics 1330 as a prerequisite to the mechanics sequence.

2512-20-50 Mechanics (3,3,3) 2510—Statics, kinematics and dynamics of a particle; 2520-30 Statics, kinematics, dynamics of systems of particles and rigid bodies; 2530—Lagrangian and Hamiltonian equations of motion. Must be taken in sequence. Prereq: 2320 and Math 2860.

3230 Heat and Thermodynamics (3) Concepts of temperature and heat; laws of thermodynamics; applications to gases to techniques and chemical problems. Prereq: 2320 or 2330 and calculus; 3210-20 or instructor's consent.

3610-20 Electronics (3,3) Electronic components and circuits of interest to physists. Prereq: 2310-20 or 2510-20 and Math 3110 or success in course in 1318-28, 1310-20-30, and Engineering 1310-20. 2318—Electricity; 2328—Waves and Optics; 2338—Modern Physics, Coreq: Math 2610, 2840-50. 3 hours of lecture-discussion, 2 hours of lab per week.

3630 Nuclear Electronics Laboratory (3) Elementary circuits of interest in nuclear instrumentation are designed and built, and their characteristics are tested as a function of various parameters. Prereq: 361102.


3990 Junior Seminar (1-3) Topic of current interest. May be repeated for credit with consent of department.


4114 Elementary Nuclear Physics (3) General properties of nuclei, two-nucleon systems, nuclear forces, nuclear models, nuclear reactions, nuclear deuterations and beta-decay, nuclear spin and magnetism. Prereq: 3730 or 4120.

4160 Physical Acoustics (4) Considerations fundamental to detailed investigation of any branch of acoustics: propagation of acoustic waves in the infrasonic, the audible, the ultrasonic, and the hyper-sonic ranges of frequencies. 3 hours and 1 lab. Prereq: 3210-05.

4210-20-30 Electricity and Magnetism (3,3,3) Intermediate level electrodynamics; steady and alternating currents; laws of electromagnetism; Maxwell's equations; radiation; induced fields due to moving charges. Must be taken in sequence. Prereq: 2320 or 2250 and 2510-20-30.
Experiments in fundamental particle properties, photoelectricity, conduction of electricity through gases, atomic and molecular spectroscopy, X-ray. Prereq or coreq: 3710-20-30 labs.

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. Prereq: 2310-20-30 or consent of instructor. 3 hours of lecture, 6 hours of lab. Prereq: 2330.

410-20-30 Special Problems (3,3,3) Kinetic theory of gases, with emphasis on transport phenomena, Brownian motion and fluctuations. Classical theory of elasticity, X-rays and crystal structure. Theory of ionic lattices. Quantum theory of specific heats. Fourier optics: holography. Prereq: Fourier optics; holography. Prereq: 4210 or consent of instructor. 3 hours of lecture and 3 hours of lab.

450-20-30 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 labs.

4510-20-30 Atomic Physics Laboratory (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 labs.

520-20-30 Advanced Modern Physics (3,3,3) Wave and particle interference; Fraunhofer and Fresnel diffraction; Fourier optics; holography. Prereq: 4210 or consent of instructor. 3 hours of lecture and 3 hours of lab.

540-20-30 Electromagnetic Theory (3,3,3) Maxwell's equations; electromagnetic waves; reflection and transmission at a dielectric interface; paraxial theory of lenses, lenses, and mirrors; thin, thick, lenses, lens systems, ray tracing; polarization; imagery; laser light. 420—Photonic optics: mathematics of wave motion, superposition of wave functions; Fraunhofer and Fresnel diffraction; Fourier optics: holography. Prereq: 4210 or consent of instructor. 3 hours of lecture and 3 hours of lab.

5911-31 Special Problems In Teaching of Physics (3,3) 5990 Seminar (1,3)

6000 Doctoral Research and Dissertation 6110-20-30 Quantum Mechanics (3,3,3) 6210-20-30 Nuclear Structure (3,3,3) 6310 Electromagnetic Theory of Light (3) 6320 Special Relativity (3) 6330 General Relativity (3) 6420 Advanced Topics In Classical Theory (3) 6430 Advanced Topics In Quantum Theory (3) 6500-10 Electrical Conduction in Gases and Plasma Physics (3,3,3) 6610 Interaction of Electrons with Gases (3) 6620 Interaction of Electrons with Solids (3) 6630 Interaction of Radiation with Matter (3) 6710-20-30 Advanced Solid State Physics (3,3,3) 6810 Vibrational Problems in Molecular Spectra (3) 6820 Molecular Vibration-Rotation Theory (3)

Political Science (801)

Professors:

T. D. Ungs (Head), Ph.D. Iowa; R. S. Avery (Emeritus), Ph.D. Northwestern; D. H. Carlisle, Ph.D. North Carolina; L. S. Greene (Emeritus), Ph.D. Wisconsin; V. R. Iredell, Ph.D. Chicago; D. D. Nimmo, Ph.D. Vanderbilt; H. Plass, Ph.D. Utah; N. M. Robinson, Ph.D. Syracuse; T. A. Smith, Ph.D. Ohio State; O. H. Stephens, Jr., Ph.D. Johns Hopkins; D. M. Welborn, Ph.D. Texas.

Associate Professors:


Assistant Professors:


BUREAU OF PUBLIC ADMINISTRATION

Professors:

T. D. Ungs (Director), Ph.D. Iowa.

Associate Professor:

M. R. Fitzgerald, Ph.D. Oklahoma.

Assistant Professors:

P. K. Freeman, Ph.D. Wisconsin; D. F. Olshfski, Ph.D. Temple.

Research Associates:

S. Rechichar, M.P.A. Tennessee.

UNDERGRADUATE

A minor consists of 40 hours that must be distributed as follows:

(1) Eight hours at the 2000 level in political science or in political science courses not used for Triad credit but included on the History and Society list.

(2) Thirty-two hours in political science courses numbered at 3000 and above. Upper-division courses on the Triad list may be included.

To graduate with Honors in Political Science, the student must have a GPA of at least 3.3 in Political Science, and an overall GPA of at least 3.0.

Public Administration. See page 86 and Page 154.


2020 Introduction to Political Science (4) A variety of the basic substantive concepts and concerns of political science.

2510-20 United States Government and Politics (4,4) United States: 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 a B average; selected 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)

2550 Governments in Knox County (4) Analysis of political institutions and processes in Knox County.

United States Government and Politics/Public Administration

3545 United States Constitutional Laws; Sources of Power and Restraint (4) Analysis of judicial review, constitutionalism, separation of powers, federalism, federalism, sources of regulatory authority, and constitutional protection of political rights. 2510-20 desirable as preceding courses.

3655 Minority Group Politics in the United States (4) Content varies from quarter to quarter. May be repeated to a maximum credit of 8 hours with consent of department.

3656 Introduction to Public Administration Organization and Management (4) Organization and decision-making theories and staff services, policies of organization, leadership and personnel management, administrative responsibility. 2510-20 desirable as preceding courses.

3656 Public Administration and the Policy-Making Process (4) Public bureaucracies and the policy-making process, their political environments, administration with respect to policy making. 2510-20 desirable as preceding courses.

3710 State Politics (4) Focus on formal and informal setting of state government. 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. (Same as Urban Studies 3750).

3760 Urban Policy Process (4) Analysis of urban problems and policies in metropolitan areas.

3880 American Political Thought (4) Examination of role of selected political ideas, doctrines, and themes in America, 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 politically relevant attitudes and opinions; role of leadership, persuasion, and communication in opinion-policy process.


4545-46 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.

4550 Congress (4) Nature, functions, and processes of the U.S. Congress.

4575 Special Topics in United States Government and Politics (4) May be repeated for a maximum credit of 8 hours with consent of department.

4610 Budgetary Process (4) Fiscal planning, budget, and expenditure processes in government, their policy 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.

4740 Political Parties and Elections (4) Analysis of party systems and electoral process.

4750 Political Campaigns (4) Coverage includes all aspects of campaign process.

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) Political theory of the continent.

3621 Contemporary China and Japan (4) Analysis of selected states, with emphasis on problems of development.

3622 Contemporary South and Southeast Asian States (4) Analysis of selected states, with emphasis on problems of development.

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)

3785 Contemporary Middle East (4) (Same as History 3785.)

4060 Revolution (4) Examination of characteristics, theories, and consequences of revolution, with particular focus on left-wing revolutions and movements.

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 for a maximum credit of 8 hours with consent of department.

International Relations

3701-02 Introduction to International Relations (4,4) 3701—Basic elements on international politics: major conflicts, problems of peace and security. 3702—Impact of population, resources and economic problems on international politics. International law and organizations particularly the U.N.

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 roles of the President, Congress, the press, and public opinion.

3780 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 on imperialism, intervention, and the Cuban revolution, nationalism, foreign assistance, trade, and economic integration.

Political Theory and Methodology

3800 Introduction to Political Analysis (4) Introduction to nature, character, and functions of research design, data collection, and statistical techniques used in study of politics.

3801 Studies in Ancient Political Thought (4) Classical Greek and Roman political thought.

3802 Studies in Medieval Political Thought (4) From Augustine to Luther: Emphasis 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.

4831-32 The Systematic Study of Politics (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.

Other

3918-28-38 Junior Honors Seminar (4,4,4) Required of honors majors, admission with consent of Department.

4101 Foreign Study (1-16) See page 185.

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4102 Off-Campus Study (1-16) See page 185.

4103 Independent Study (1-16) See page 185.

4116-22-28 Senior Honors Thesis and Seminar (0-12) Required of honors majors; admission with consent of Department. Maximum credit 12 hours.

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)

5011 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)

5510-20 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)

5611-21-31 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)

5730 Seminar: Public Budgeting and Fiscal Management (3)

5735 Seminar: Public Financial Management (3)

5740 Seminar in Organizational Analysis (3)

5750 Seminar in Public Management (3)

5755 Seminar in Public Management (3)

5765-75 Law and the Administrative Process (3,3)

5770 Practicum in Public Administration (3)

5785-95 Seminar in Staff Functions (3,3)
or more hours of upper-division psychology courses. (Concentration in Academic Psychology) Designed to prepare students for advanced work in the professional college-level teaching areas of psychology. Prerequisites to the major include Psychology 2518-28 (or 2500 together with 2 courses from 2520-30, 340, 3616-26, 4103, 4107, 4109, and 4110) 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 (including 3 or more hours of upper-division courses of 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.

Junior-Senior Honors Program in Psychology. A two-year program for juniors leads to the B.A. with Honors in Psychology. It is designed to enable superior students to accelerate their understanding of psychology through intensive course work and individual research.

Eligibility: Students with a GPA of 3.0 and junior standing may apply for admission. (Applications go to the Head, Department of Psychology, 307 Austin Peay Bldg.) Participants in the program are selected by the Psychology Honors Committee from eligible applicants. Participants may begin their programs with advanced approval by the Department Head. Each participant is assigned a faculty mentor.

Prerequisites: Math 1540-50-60 or 1840-50 or equivalent, Biology 1210-20-30 or equivalent, Psychology 2500 plus one from 2520, 2530, 2540, or 2518-28.

Requirements: (1) Coursework in Psychology. Minimum requirements are: 3150, 3519; one from 3129, 3219, 3595, 4109, 4239, 4719, 4729; two from 3120, 3210, 3220, 3550, 3650, 3720; one from 4230, 4710, 4720, one from 4650, 4630, 4650; one from 4510, 4620, 4640. (2) Thesis. During the senior year, each participant enrolls in Psychology 4978-4988 and prepares a honors thesis under the direction of his or her faculty supervisor; a final oral exam is arranged after the thesis is submitted. (3) GRE Exam. Participants take the Psychology section of the GRE exam.

Graduation with Honors: The Psychology Honors Committee certifies a student for a B.A. degree with honors or high honors after the oral exam on the basis of recommendations from faculty supervisor, GPA, and GRE Score. (Students who do not qualify for honors under these criteria graduate as regular psychology majors.)

2500 General Psychology (4) An introduction to psychology, with emphasis on the development, methods, and contributions of the major movements and ideas which characterize the discipline.

2518-28 Honors: General Psychology (4, 4) First quarter an enriched survey of general psychology. Second quarter participation is psychological research, either individually or group arranged. Prereq for 2518: Minimum ACT Composite 26, GPA 3.2. Prereq for 2528: Admission by consent of department.

2520 Biological Foundations of Behavior (4) Survey of theories and research pertinent to the biological foundations of behavior. General psychology recommended.

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 environments; introduction to personality, developmental and abnormal psychology. Recommended: 2500.

3120 Social Psychology (4) General survey of theories, methods, and research findings on individual behavior in a social context. Prereq: 2500.

3129 Social Psychology Laboratory (2) Prereq: 3120; recommended prereq: 3319.

3140 Environmental Psychology (3) Influence of physical surroundings on individual experience, interpersonal relations, and social systems. Includes such topics as noise, temperature, crowding, air pollution, urban settings. Prereq: 2500 or equivalent recommended.

3150 Psychological Statistics (4) Introduction to basic statistical methods used in behavioral sciences. Not open to students with credit in Statistics 2100, Mathematics 3000, Sociology 3920, or equivalent. Prereq: 2 years of high school algebra or one course in college algebra.

3210 Learning and Thinking (4) Study of theoretical and empirical basis of learning and thinking. General psychology recommended.

3219 Laboratory in Learning and Thinking (2) Prereq: 3210, recommended prereq: 3319.

3220 Motivation and Emotion (4) Current theories, approaches, and developments.

3240 Psychology of Music (4) Introduction to psychological study of music and instruments; theories of rhythm, melody, and their relation to the psychology of spoken language. Recommended prereq: 2520.

3319 Introduction to Research in Psychology (3) Basic techniques of research in behavioral science, including experimentation and naturalistic observation.

3550 Child Psychology (4) Origin and principles of behavior in infancy and childhood; physical, intellectual, social, emotional, and language behavior of the normal child. 2540 recommended. (Same as Educ. Psych. 5550.)

3559 Laboratory in Child Psychology (2) Field and laboratory studies of child development. Prereq: 3550 and recommended prereq: 3319.

3618-26 Human Relations (3, 3) Experience and study of human relations in dyad and small and large groups. S/NC.

3650 Abnormal Psychology (4) Constitutional and environmental factors in abnormal behavior: neurotic and psychotic reactions; theoretical discussion of diagnostic and therapeutic methods. 2540 recommended.

3720 Ethology and Sociobiology (3) Basic concepts of the evolutionary approach to behavior with special reference to controversial issues in applications to psychology, the social sciences, and the arts.

4101 Foreign Study (1-16) See page 185.

4102 Off-Campus Study (1-16) See page 185.

Psychology 4103, 4107, 4109, and 4110 are courses of independent study and research taken by consent of instructor only. Course requirements, meeting times, and grading procedures are established by agreement between the student and a member of the psychology faculty. For each credit hour, a student may expect to spend from two to three hours per week for the quarter. No more than 24 credit hours may be earned in courses 4103, 4107, 4109, 4110 combined.

4103 Independent Study (1-16) May be repeated. Maximum credit 16 hours. See page 185.

4107 Experience in Individual Instruction (1-4) Experience as a proctor in individualized instruction. Prereq: Consent of instructor. May be repeated. Maximum 6 hrs.
oratory studies of nervous system and physiological correlates of behavior. Prereq: One year of biology or zoology and Psychology 2520.

4719 Evolution and Ontogeny of Social Behavior (4) Genetic, evolutionary, ecological, and developmental processes as they apply to social organization and dynamics of vertebrates. Prereq: Consent of instructor.

4770 Psychology and the Law (4) Psychological aspects of the legal system. Prereq: Junior Standing.

4780 Psychology and Current Issues (4) Research and theory relevant to selected contemporary issues. 4 class hours per week. Prereq: Consent of instructor. May be repeated. Maximum credit 8 hours.

4830 History and Systems of Psychology (4) Prereq: 9 hours of upper-division psychology.

4850 Learning Theories (4) Historical and theoretical development of learning models. Prereq: 3210.

4860 Programmed Learning (3) (Same as Educ. & I 4860.)

4870 Contemporary Research in Behavior of Women (4) Study of interaction of cultural and biological factors in determining the behavior of women, with emphasis on physiological mechanisms involved.

4880 Afro-American Psychology (4) Review and analysis of psychological literature on Afro-Americans. Prereq: Consent of instructor. (Same as Black Studies 4880.)

4910 Senior Seminar in General Psychology (4) Integrative review of major problems in psychology. Intensive examination of selected topics. Prereq: Consent of instructor.

4978-88-98 Honors Thesis (4,4,4) Honors candidates only.

GRADUATE

5000 Thesis

5002 Non-Thesis Graduation Completion (3-15)

5017 Colloquium in Ethnology (1)

5019 Research Practicum (1-3)

5050 Methods of Research in Applied Psychology (3)

5070 Seminar in College Teaching (2)

5076 Practicum in College Teaching (2)

5100 Developmental Psychology (3)

5105 Developmental Assessment (3)

5110 Clinical Aspects of Human Sexuality (3)

5111 Seminar in Current Issues in School Psychology (3)

5140-50-60 Psychoeducational Assessment (3,3,3)

5148-59-69 Practicum in School Psychology I (2,2,2)

5170-80-90 Proseminar in Organization Psychology (3,3,3)

5200 Topics in Developmental Psychology (3)

5300 Readings and Special Problems in Psychology (1-5)

5319 Field Work in School Psychology: Level I (2)

5325 Behavioral Interventions (3)

5340 Group Dynamics (3)

5350-60-70 Seminar in Psychological Assessment (3,3,3)

5400 Psychophysics and Scaling Methods (3)

5420-30-40 Advanced Psychological Statistics (3,3,3)

5450 Human Problems in Administration (3)

5490 Continuing Education in Mental Health (1-4)

5500 Fundamentals of Psychometrics (4)

5510 Instrumentation for Psychological Research (3)

5520 Theory of Mental Measurement (3)

5530 Issues in Applied Psychological Measurement (3)

5540 Probability Models in Psychology

5550 Advanced Social Psychology (3)

5560 Seminar in Social Psychology (3)

5580 Theories of Personality (3)

5581 Psychodynamic Approach to Clinical Psychology (3)

5582 Behavioral Approach to Clinical Psychology (3)

5583 Phenomenological Approach to Clinical Psychology (3)

5589 Adult Psychological Assessment (3)

5591 Seminar in Object Relations Theory (3)

5592 Descriptive Psychopathology (3)

5601 Dynamics of Psychopathology (3)

5610-20 Psychology of Learning (3,3)

5650 Ethics in Professional Psychology (2)

5670 Forensic Psychology (2)

5680 Neural Basis of Behavior (3)

5690 Psychopharmacology (3)

5702 Community Psychology (3)

5713 Learning Modules for Techniques in Professional Psychology (1-4)

5750 Ethological Psychology (3)

5760 General Vertebrate Neuroanatomy (3)

5769 Advanced Techniques in Physiological Psychology (3)

5790 Seminar in Psycholinguistic Concepts in Speech Pathology (3)

5840 Student Appraisal (3)

5850 Child Psychological Assessment (3)

5860 Interpersonal Assessment (3)

5870 Projective Techniques in Assessment (3)

5889-75 Practicum in Psychological Appraisals (3,3)

5890 Counselling Techniques (3)

5890-60 Theory and Practice of Consultation (3,3,3)

5999-69 Practicum in Psychological Appraisal (3,3,3)

6000 Doctoral Research and Dissertation

6050 Seminar on Methods of Social Research (3)

6089 Internship in Community Psychology (1-6)

6099 Internship in School Psychology (1-6)

6100 Seminar in Community Psychology (3)

6150 Seminar in Program Evaluation (3)

6159 Practicum in Program Evaluation (3)

6210-20-30 History, Systems, and Theories in Psychology (3,3,3)

6250-60-70 Seminar in Organizational Psychology (3,3,3)

6280-90 Factor Analysis (3,3)

6310 Seminar in Motivation and Emotion (3)

6319 Field Work in School Psychology: Level II (2)

6320 Seminar in Research Methods (3)

6330 Seminar in Learning (3)
Religious Studies (863)

Professors:
C. H. Reynolds (Head), Ph.D. Harvard; Felicity Lusby, Ph.D.

Assistant Professors:
J. L. Fitzgerald, Ph.D. Chicago; M. W. Harris, Ph.D.

6340 Seminar in Developmental Psychology (3)
6350 Seminar in Thinking (3)
6360 Seminar in Sensation and Perception (2)
6370 Seminar in Theoretical Psychology (3)
6380 Seminar in Industrial Psychology (3)
6385 Hypnosis and imagery (3)
6390 Seminar in Psychopathology (3)
6410-20-30 Psychotherapy (2,2,2)
6411 Seminar in Group Processes (2)
6412 Seminar in Intercourse in Psychotherapy (2)
6413 Seminar in Techniques of Behavior Modification (2)
6414 Seminar in Marital and Family Therapy (2)
6419-29-39 Psychotherapy Practicum (1-3,1-3,1-3)
6450-60 Advanced Psychometrics (3,3)
6490-61-62 Field Work in Industrial Psychology (1-4)
6491 Off-Campus Placement in Clinical Psychology (1-4)
6492 Psychology Clinic Placement (1-4)
6493 Psychology Clinic Activity (1-4)
6494 Field Experience in Clinical Psychology (1-4)
6500 Seminar in Psychometrics (3)
6520 Experimental Design (3)
6550 Seminar in Advanced Social Psychology (3)
6575 Seminar in Mental Health Administration (3)
6590 Assessment of Human Services Organizations (3)
6600 Organizational Development in Human Service Settings (3)
6690 Practicum in Organizational Development in Human Service Settings (2)
6702 Social Ecology (3)
6710 Seminar in Physiological Psychology (3)
6720 Seminar in Comparative and Ethological Psychology (3)
6730 Methods of Ethological and Naturalistic Research (3)
6780 Advanced Psycholinguistics (3)
6800 Field Work in Industrial Psychology (1-15)

Religious Studies (863) course is a prerequisite for either option, and Religious Studies 4650 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 History and Literature of Religions and a minimum of 12 hours selected from courses listed 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 36 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 in 501 McClung Tower, or from any member of the religious studies faculty.

History and Literature of Religion: 3060-70-80, 3110, 3120, 3210-20-30, 3270, 3311-12, 3350, 3341-42, 3440, 3480, 3510-20, 3550, 3560, 3570, 3690, 3671, 3672, 3680, 3710, 3711, 3713, 3770, 4200, 4310, 4450, 4480, 4670, 4810-20-30.


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.

1010 Introduction to Religions (4) Introduction to living religious traditions in a variety of cultural settings.
1020 Current Themes in Religious Studies (1) Introduction to the study of religion through consideration of selected contemporary themes, problems or controversies. Variable content. May be repeated for a maximum of 3 credit hours.
2610 Introduction to Religion (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 Mediterranean traditions.
2612 Issues in Religious Studies (4) Introduction to study of religion through selected religious problems and alternatives.

HISTORY AND LITERATURE OF RELIGION

3060-70-80 History of Western Religious Thought and Institutions (3,3,3) 3060—First century to 5th century, 3070—6th century to 12th century, 3080-18th 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 post-exilic Israel and early Judaism through 135 B.C.E. Later literature of Old Testament, Apocrypha, and Dead Sea Scrolls.
3121 Religious Traditions of Ancient Egypt (4) Religious and cultural traditions of ancient Egypt from Old Kingdom to Hellenistic period.
3131 Religious Traditions of Ancient Mesopotamia (4) Religious and cultural traditions of ancient Sumerians, Babylonians, and Assyrians.
3140 Early Greek Mythology (3) (Same as Classics 3140.)
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.)
3511-12 Images of Jesus (4,4) Introduction to ancient and modern portrayals of Jesus, understood within their cultural milieu. Must be taken in sequence.
3540 Judaism in the Common Era. (3) Survey of literature and traditions of Judaism in the Common Era.
3411-12 The Reformation (3,3) 3411—Renaissance, 3412—Reformation, Counter Reformation, and Wars of Religion, 1517-1618. (Same as History 3411-12.)
3440 Religion of Primitive Peoples (3) (Same as Anthropology 3440.)
3490 African Religions (4) Examination of religions of the indigenous peoples of Africa, including a study of functions of myth, 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) Historical 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.)
3560 Philosophy and Religion in India (4) (Same as Philosophy 3560.)
3560 Buddhist Philosophy and Religion (4) (Same as Philosophy 3560.)
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 the 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 meditational materials of Zen. Special emphasis upon Zen theories of emptiness, no-mind, sudden enlightenment, and the Koan.
4200 Classical Indian Systems of Philosophy: The Moksha Tradition. Basic writings and philosophical problems of the traditions of Samkhya, Yoga, and Vedanta. Prerequisite Religious Studies/Philosophy 3650 or 3660. (Same as Philosophy 4200.)
4310 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 Palestinian Judea-
is; analysis of what Apostle Paul made of the tradition of and about Jesus, 2510 or 2511 recommended.

4450 Topics in American Religion (4) Prereq: One of the following: 3510, 3520, 4410, or consent of instructor. May be repeated once for credit.

4640 Topics in Early Christianity and Hellenistic Religions (4) Selected figures, issues, and institutions. Seniors and graduate students only, except by consent of department. Prereq: Consent of instructor. May be repeated. Maximum credit 12 hours.

4670 Topics in Eastern Religions (4) Selected figures, issues, and institutions. Seniors and graduate students only, except by consent of department. Prereq: 3560-60-71. May be repeated. Maximum credit 12 hours.

4810-20-30 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 high gods, cultural heroes, initiations, and ascensions.

3021 Religious Myth, Symbol, and Ritual (4) Study of interrelations 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 Medical Ethics (4) (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 phenomenon of literary form and moral considerations to problems of literary criticism. Relation of religious language to certain forms of human expression; (symbol, 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 165.

4102 Off-Campus Study (1-16) See page 165.

4103 Independent Study (1-16) See page 185.

4111-21 Modern Religious Philosophies (4,4) Examination of the religious implications of major thinkers and movements. 4111-4112: Nicolás de Gusa to Hume, 4121—Kant and the 19th century. Prereq: 9 hours of philosophy other than logic. (Same as Philosophy 4111-21.)

4370 Theoretical Issues in Medical Ethics (4) (Same as Philosophy 4370.)

4410 American Religious Thought (4) Selected figures, movements, and problems in American religious thought from colonial period to present.

4450 Social and Religious Change (4) (Same as Sociology 4450.)

4610 Topics in Western Religious Thought and Institutions (4) Selected figures, issues, and institutions of department. May be repeated once for credit.

4810-20-30 Readings and Research in Religious Studies (3-4,3-4-3-4)

4850 Prossem Hanes in Religious Studies (3) For advanced students in religious studies. Specific topics 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. Maximum credit 9 hours.

4940 Sociology of Religion (4) (Same as Sociology 4940.)

4950 Theory of Religion (4) Elements for construction of theory of religion drawing on resources from field of psycho-history, social psychology, sociology of religion, cultural anthropology, theology, and comparative religion.

4960 Tradition, Change, and Modernity of 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, etc.). 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)

5355 Orientation to Medical Ethics (2)

5365 Applied Ethical Theory (4)

5510-20 Topics in the History of Religion (4,4)

5710-20 Topics in Religious Thought (4,4)

RELATED LANGUAGE STUDIES

2650 Readings in Hellenistic Greek (4) (Same as Classics 2650.)

3140-50-60 Elementary Classical Hebrew (3,3,3) 1140—Linguistic elements of Hebrew, phonology, syntax, 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: 3161 or consent of instructor.

4740-50-60 Elementary Sanskrit (4,4,4) Introduction to grammar of classical Sanskrit and reading of an annotated selection of epic and classical Sanskrit. (Same as Asian Studies 4740-50-60.)

4770-80-90 Intermediate Sanskrit (4,4,4) Advanced grammatical constructions and reading of epic and classical religious and narrative material (e.g., Bhagavad Gita, Mahabharatam, Ramayana, Kathasaritsagara). Prereq: 4760 or consent of instructor. (Same as Asian Studies 4770-80-90.)

4840 Readings in Selected Language Related to Religious Studies (3-4) Prereq: Consent of instructor. May be repeated. Maximum credit 12 hours.

Romance Languages

Professors: E. P. Barreto, Ph.D. California (Berkeley); C. W. Cobb, Ph.D. Tulane; J. C. Elliott, M.A. Illinois; W. H. Hettin, Jr. (Head), Ph.D. Florida State; T. B. Iving (Emeritus), Ph.D. Princeton; F. D. Maurino (Emeritus), Ph.D. Columbia; M. Petrovskaya, Ph.D. Kentucky; J. O. Swain (Emeritus), Ph.D. Illinois; A. M. Vazquez-Sim, Ph.D. Minnesota; G. E. Wade (Emeritus), Ph.D. Ohio State; A. H. Wallace, Ph.D. North Carolina.

Associate Professors: W. F. Byess (Emeritus), Ph.D. Wisconsin; R. M. E. DeRoys, Ph.D. Illinois; M. H. Handelsman, Ph.D. Kansas; N. T. Levy, Ph.D. Kentucky; C. R. M. Pinsky, Ph.D. California (Berkeley); Y. M. Washburn, Ph.D. North Carolina.

Assistant Professors: J. C. Elliott, M.A. Illinois; K. D. Levit, Ph.D. North Carolina.

Instructors: C. E. Cox, M.A. Tennessee; M. T. Rabot, Cert. de Lit. Poitiers; P. A. Wilson, M. A. Tufts.

Placement Examination: Students who have had two or more year's 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 2510. 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, reference in other fields, or travel should request 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. Superior 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 equivalent 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. Advanced students are encouraged to take additional 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

Clayton Education Building.

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 of literature, 9 hours); 3410 or 3420 or 3430 (intermediate composition and conversation, 3 hours); 4210 (phonetics, 3 hours); 4220 or 4230 (advanced grammar, 3 hours); 9 hours of literature at the 4000 level; 9 additional hours selected from courses in literature, language, or civilization. Students whose primary interest is language must have the following courses (or their
equivalent, with consent of the department): 2110-20 or 2130, 2520 or equivalent. Students pursuing a minor are strongly advised to consult with a departmental adviser.

Courses which are the equivalents of the following courses are acceptable toward the minor: 2130, 2520 or equivalent. Students finding course too difficult may easily transfer to a lower level. Potential majors and minors in French are urged to take this course. Students passing 2110 with grade of B or higher may be applied toward the major. Prereq: 2130, 2520, or equivalent. Must be taken in sequence. 3 hours and 2 labs.

1510-20 Elementary French (4,4) Must be taken in sequence. 4 class meetings and 2 laboratory periods.

2110-20 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.

2118-28 Honors: Elementary French (3,3,3) Honors course for students of superior ability. 1118 not for students who have taken French in high school. Freshmen admitted to 1118 and 1138 on basis of diagnostic test or conference with instructor, high school average, and performance on ACT.

Class held to maximum of 15 for individual attention. Class covers normal elementary French program for first year, but is enriched. Students expected to spend normal amount of preparation time. Students finding course too difficult may easily transfer to a lower level. Potential majors and minors in French are urged to take this course. Students passing 1110 with grade of B or higher are eligible for 1120 rather than 1120. Students passing 1120 with grade of B or higher are eligible for 1138 rather than 1130.

1510-20 Elementary French (4,4) Must be taken in sequence. 4 class meetings and 2 laboratory periods.

2110-20 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.

2118-28 Honors: Intermediate French (3,3,3) Honors course for students of superior ability. 1118 not for students who have taken French in high school. Freshmen admitted to 1118 and 1138 on basis of diagnostic test or conference with instructor, high school average, and performance on ACT.

Class held to maximum of 15 for individual attention. Class covers normal elementary French program for first year, but is enriched. Students expected to spend normal amount of preparation time. Students finding course too difficult may easily transfer to a lower level. Potential majors and minors in French are urged to take this course. Students passing 1110 with grade of B or higher are eligible for 1120 rather than 1120. Students passing 1120 with grade of B or higher are eligible for 1138 rather than 1130.

1510-20 Elementary French (4,4) Must be taken in sequence. 4 class meetings and 2 laboratory periods.

2110-20 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.

2118-28 Honors: Intermediate French (3,3,3) Honors course for students of superior ability. 1118 not for students who have taken French in high school. Freshmen admitted to 1118 and 1138 on basis of diagnostic test or conference with instructor, high school average, and performance on ACT.

Class held to maximum of 15 for individual attention. Class covers normal elementary French program for first year, but is enriched. Students expected to spend normal amount of preparation time. Students finding course too difficult may easily transfer to a lower level. Potential majors and minors in French are urged to take this course. Students passing 1110 with grade of B or higher are eligible for 1120 rather than 1120. Students passing 1120 with grade of B or higher are eligible for 1138 rather than 1130.

1510-20 Elementary French (4,4) Must be taken in sequence. 4 class meetings and 2 laboratory periods.

2110-20 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.
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 Linguistics: Romance Languages (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 of 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.

1110-20-30 Elementary Italian (3,3,3) Must be taken in sequence. Three class meetings and 2 laboratory periods.

1510-20 Elementary Spanish (4,4) Must be taken in sequence. 4 class meetings and 2 laboratory periods.

2110-20-30 Intermediate Italian (3,3,3) Must be taken in sequence. Three class meetings and 2 laboratory periods.

2510-20 Intermediate Italian (4,4) Must be taken in sequence. 4 class meetings and 2 laboratory periods.

2610-30 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.

3110-20-30 Aspects of Italian Literature (3,3,3) Prereq: 2110, or equivalent. Recommended for literature majors.

3310 Italian Literature in English Translation (3-4) Sicilian School, the Florentine School, Dante, Petrarch, Boccaccio, Machiavelli, Ariosto, Tasso. No change in credit hours after deadline. Option of 4 hours credit must present appropriate amount of extra work above that required for 3 hours.

3340 The Italian Cinema (3) Italian film masterpieces of such directors as Rossellini, DeSica, Fellini, Visconti; literary and socio-political relations; the Italian image in America.

3410-20-30 Advanced Grammar, Composition, and Conversation (3,3,3) Laboratory work, drills, and lapses. Prereq: 2110, 2520, or equivalent.

3510-30 Aspects of Italian Literature (4,4) Prereq: 2110, 2520, or equivalent. Recommended for literature majors.

4100-20 Italian Drama in English Translation (3-4,3-4) 4101—La commedia dell'arte and major works of Machiavelli, Metastasio, Alfieri, Goethe. 4200—20th-century theatre: operatic drama, the Grottesco, Piranesi, Delフィlippo, Frati. No change in credit hours after deadline. Option of 4 hours credit must present appropriate amount of extra work above that required for 3 hours.

4500-60-70 Dante and Medieval Culture (3,3,3) Readings and lectures in English for students majoring or minoring in other departments. Readings, reports, and term papers in Italian for students majoring or minoring in Italian. (Same as Comparative Literature 4500-60-70.)

4101 Foreign Study (1-16) See page 185.

4220 Petrarch (3) Prereq: 3130, 3520, or equivalent.

4230 Boccaccio (3) Prereq: 3130, 3520, or equivalent.

4410-20 Literature of the Rinascimento (3,3) From Pulci to Tasso, the Quattrocento and the Cinquecento. Prereq: 3190, 3520, or equivalent.

4530 The Modern Novel (3) Prereq: 2130, 2520, or equivalent.

4610 Contemporary Theatre (3) Prereq: 2130, 2520, or equivalent.

4620 Contemporary Poetry (3) Prereq: 2130, 2520, or equivalent.

4630 Contemporary Prose (3) Prereq: 2130, 2520, or equivalent.

4760 Italian Folklore (3) Folk arts, music, traditions, rituals, and lore of Italy from Middle Ages to present. (Same as Anthropology 4760.)

GRADUATE

See Graduate Catalog for requirements.

5011 Techniques in Literary Analysis (2)

5101 Foreign Study (1-12)

5102 Off-Campus Study (1-12)

5151-61-72 Bibliography and Methods of Research (1,1,1)

5610-20-30 Readings In Italian Literature (3,3,3)

5710-20-30 Seminar in Italian Literature (3,3,3)

Portuguese (811)

UNDERGRADUATE
Minor: A minor only is offered in Portuguese, consisting of 8 hours in the 3510-20 sequence (aspects of Portuguese literature) and 18 hours in the 4310-20-30 sequence (directed readings in Brazilian and Portuguese literature, a course of variable content which may be repeated for credit). Students may substitute Foreign Study (4101) for any of the above courses.

1510-20 Elementary Portuguese (4,4) Must be taken in sequence. 4 class meetings and 2 laboratory periods.

2510-20 Intermediate Portuguese (4,4) Must be taken in sequence. 4 class meetings and 2 laboratory periods.

3000-01 Advanced Portuguese (3,3) An accelerated course for students of superior ability in Spanish. Consent of instructor required.

3510-20 Aspects of Spanish Literature (3,3) Prereq: 2520 or equivalent. Recommended for literature majors.

3520 Advanced Spanish (3,3) Prereq: 2130, 2520, or equivalent. Recommended for literature majors.

4101 Foreign Study (1-16) See page 185.

4310-20-30 Directed Readings in Brazilian and Portuguese Literature (3,3,3) May be repeated with consent of instructor.

GRADUATE

5101 Foreign Study (1-12)

5102 Off-Campus Study (1-12)

5103 Independent Study (1-12)

Spanish (924)

UNDERGRADUATE
Major: Consists of 36 hours in courses numbered 3310 or above. Students whose primary interest is literature must have a minimum of 9 hours chosen from the following sequences: 3110-20-30 (aspects of Spanish literature, 9 hours); or 3310-20-30 (aspects of Spanish American literature, 9 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. Students whose primary interest is language must have a minimum of 9 hours chosen from the following sequences: 3110-20-30 (aspects of Spanish literature, 9 hours); or 3310-20-30 (aspects of Spanish American literature, 9 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 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 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 a minimum of 8 hours chosen from the following sequences: 3110-20-30 (aspects of Spanish literature, 9 hours); 3310-20-30 (aspects of Spanish American literature, 9 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 requirement. 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.

1110-20-30 Elementary Spanish (3,3,3) This sequence strongly recommended for students intending to take upper-division courses in Spanish. Must be taken in sequence. 3 hours and 2 labs.

1510-20 Elementary Spanish (4,4) Must be taken in sequence. 4 class meetings and 2 laboratory periods.

2110-20-30 Intermediate Spanish (3,3,3) This sequence strongly recommended for students intending to take upper-division courses in Spanish. Must be taken in sequence. 3 hours and 2 labs.

2510-20 Intermediate Spanish (4,4) Must be taken in sequence. 4 class meetings and 2 laboratory periods.

2510-20 Intermediate Spanish (4,4) Must be taken in sequence. 4 class meetings and 2 laboratory periods.

2510-20 Intermediate Spanish (4,4) Must be taken in sequence. 4 class meetings and 2 laboratory periods.

2510-20 Intermediate Spanish (4,4) Must be taken in sequence. 4 class meetings and 2 laboratory periods.

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2510-20 Intermediate Spanish (4,4) Must be taken in sequence. 4 class meetings and 2 laboratory periods.

2510-20 Intermediate Spanish (4,4) Must be taken in sequence. 4 class meetings and 2 laboratory periods.
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) 3010—Majors—tales, Cervantes, and the picaresque novel, religious mystics, Golden Age Theatre. 3020—Majors—tales of 20th Century Spanish literature: Unamuno, Lorca, Baroja, Ortega. 3030—Contemporary Spanish American fiction: Marquez, Borges, Fuentes, Asturias. No change in credit hours after add deadline. Option of 4 hours credit must present an appropriate amount of extra work above that required for 3 hours.

3110-20-30 Aspects of Spanish Literature (3,3,3) 3110—Introduction to Spanish literature, using selections from prose, drama, and poetry of the modern period; 3120—Aspects of Golden Age literature, including the mystics, Cervantes, and Lope de Vega; 3130—Aspects of modern Spanish literature, including Unamuno, Ortega y Gasset, and Garcia Lorca. Prereq: 2130, 2520 or equivalent. Recommended for literature majors. Not offered for graduate credit.

3210-20-30 Intermediate Composition and Conversation (3,3,3) Not offered for graduate credit.

4030 Masterpieces of Spanish Literature in English Translation (3) No foreign language credit.

4050-60-70 Hispano-American Literature and Culture (3,3,3)

4101 Foreign Study (1-16) See page 185.

4110-20-30 Spanish Literature of the Golden Age (3,3,3) The picaresque novel, Cervantes, the Comedia.

4140 Theatrical Spanish (1-3) Performance in one or more plays. Prereq: Intermediate Spanish or equivalent and consent of instructor. May be taken in place of 3110-20-30 or 3610-20. Prereq: 2130, 2520 or equivalent.

4160-70-80 Advanced Conversation (2,2,2) Intensive training in prepared and spontaneous conversations. Subjects range from travel and current events to literature and aspects of national culture. Prereq: Completion of 9 hours 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, Russian, and Linguistics 4250.)

4260 Introduction to Historical and Comparative Linguistics (3) (Same as French, German, Russian, and Linguistics 4260.)

4270 Romance Linguistics (3) (Same as French and Linguistics 4270.)

4410 Spanish Civilization (3) Prereq: 2130, 2520, or equivalent.

4420-30 Latin American Civilization (3,3) Prereq: 2130, 2520, or equivalent.

4510 Special Topics in Nineteenth Century Spanish Literature (3) Prose, poetry and theatre of Spain in the Nineteenth Century. This course may focus on a genre, movement, or combination of several literary aspects. Course may be repeated with consent of department. Maximum credit 9 hours. Prereq: Intermediate Spanish or equivalent.

4710-20-30 Spanish Literature of Twentieth Century (3,3) 4710—Nondramatic Prose. 4720—Drama. 4730—Lyric Poetry. Prereq: 2130, 2520, or equivalent.

4810-20-30 Topical Survey of Spanish American Literature (3,3,3) 4810—Prose fiction: major exam-
3140 Deviance and the Social Order (4) Examination of relation between deviance and social order; various types of social deviance considered, with focus on their structure, social roles related to process of becoming deviant, and consequences of deviant conduct.

3150 Gender in Society (4) Exploration of gender in society utilizing various sociological perspectives with special focus on relationship of demographic characteristics to the prevalence of disease, organization of health care facilities, and staff-patient relationships.

3220 The Family (4) Examines theoretical frameworks and methodological approaches and their application in the sociological study of past and present family forms.

3320 Sociology of Communicative Processes (4) Sociological dimensions of communication and of communication processes at the organizational and interpersonal levels.

3350 Prejudice and Racism in the United States (4) (Same as Black Studies 3330.)

3340 Sociology of Poverty and Inequality (3) Factors contributing to condition of poverty and social consequences of being poor. (Same as Black Studies 3340.)

3350 Social Stratification (4) Study of economic class, prestige, life style, and power hierarchies; causes and consequences of structured social inequality.

3410 Urban Environment (4) Introduction to urban environment; emergence of the city, cities of New World, rise of metropolitan America; urban society, social worlds within urban environment.

3420 Urban Problems (4) Crises and the urban conscience; urban problems and interventions; housing, urban renewal, and neighborhood conservation; the urban poor, the disoriented, and alienated; planning for urban youth; the urban elderly; the social and physical planning process; new towns.

3510 Juvenile Delinquency (4) Critical assessment of nature of the delinquency problem, major sociological causes and their implications for control, and administration of juvenile justice.

3610 Sociology of Occupations (4) Introduction to occupations and their relation to the individual and society; technology and occupations; unequal rewards and occupations; social organization and occupations.

3620 Occupations as Organizations (4) Occupations as interest groupings; their impact on work settings and the wider community.

3672 Religion and Society in Japan (4) (Same as Religious Studies 3672.)

3690 Sociology of Aging (4) The aged as social minority and subculture in society; role changes in middle age and in old age; significance of increase in proportion of aged in terms of employment, welfare, retirement, and political power.

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 applied to social phenomena; formulating test 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. Subject matter determined by student and instructor with consent of department. Elective credit only. Prereq: Determined by department.

4030 Society and Law (4) General treatment of social origins and consequences of law and legal process. Particular emphasis on problems of law and social change, and on structure and functioning of legal sanctions. Law and law-like phenomena in formal organizations and primitive societies. (Same as Urban Studies 4300.)

4040 Sociology of Sport (4) Social organization and meaning of sport. The difference between sport and play and games, social stratification and sport, sport as an occupation, place of sport in mass culture, sport subcultures, and reciprocal influences of sport and cultural milieu.

4102 Off-Campus Study (1-16) See page 185.

4103 Independent Study (1-16) See page 185.

4110 Population Problems (4) Demographic factors and social structure; trends in fertility, mortality, population growth, distribution, and composition; population policy.

4120 Topics in Social Psychology (4) (Same as Psychology 4129.)

4130 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.

4160 Theory of Attitudes and Values (4) Study of organization, functions and measurement of attitudes and values, approaches to attitude change, and relationship to attitudes, values and behavior.

4180 Socialization Across the Adult Life Cycle (4) The social process through which people acquire skills and abilities and undergo identity transformations and types of adult socialization (e.g., occupational, institutional) are emphasized.

4310 Criminology (4)

4330 Urban Ecology (4) Examination of public, private, collective, and individual space. Classical school ecology, its neoclassical revisers, social area analysis, and cognitive symbolic ecology emphasized. (Same as Urban Studies 4350.)

4410 Educational Sociology (3) (Same as Educ. C & L 4410.)

4530 Community Organization (4) Structure; function; linkages. Change and development and important community studies. Emphasis on sociological analysis, not on implementation of change.

4540 Social and Religious Change (4) Critical review of historical and contemporary theories and methods employed in study of social change. Both macro and micro group change. (Same as Religious Studies 4540.)

4560 Formal Organization (4) Analysis of bureaucratic process, division of labor, delegation of authority, channelled communication under system of rationality.

4590 American Minority Groups (4) Minority groups and social structure in American society; analysis of intergroup relations with attention given to both past and present 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.

4930 Sociology of Religion (4) Interrelationships of society, culture, and religion. (Same as Religious Studies 4940.)

4988 Honors: Sociology (4) Intensive study and research under faculty direction, including writing of senior thesis. Course credit may be split into two quarters. Candidacy is open only to majors who have shown marked capability for independent study and have grade averages of at least 3.0 in the College of Liberal Arts and 3.2 in the department. Prereq: Senior standing.

GRADUATE

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

Speech and Theatre

Professors:

Associate Professors:

Assistant Professors:

UNDERGRADUATE
Major:
The major, speech and theatre, offers two areas of concentration as follows:

Concentration in Speech: Courses numbered 2000 and above, 12 hours of which may be electives approved by the department.

Concentration in Theatre: Theatre 1320-30-40 is prerequisite to a concentration which consists of Theatre courses numbered 2000 and above, 12 hours of which may be electives approved by the department.

Concentration in Communication: Courses numbered 2000 and above, 12 hours of which may be electives approved by the department.

Assistant Professors:

Speech (943)

1211 Communication and Society (4) Study of communication media (posters, speeches, songs, plays, performances, films) and social change.

1212 Introduction to Speech Communication (4) Fundamental theories and practices with particular reference to interpersonal communication, persuasion, semantics, psycholinguistics; legal and ethical dimensions of communication.

2021 Voice and Diction (4) Voice production; attention to individual speech problems.

2311 Public Speaking (4) Basic principles of speech preparation and delivery.

2331 Argumentation and Debate (4) Recommended: 2311

2351 Interpersonal Communication (4) Communication theory in its application to small groups, casual communication, structured communication, and informal communication.

2361 Business and Professional Speaking (4) Basic principles of oral communication within organizations: listening skills, interviewing techniques, formal presentation (including technical papers and reports), conference planning, selecting and employing visual aids, informal communication systems, communicating corporate image, and other aspects of business and professional communicating.

2410-20-30 Intercollegiate Forensics (1,1,1) Supervised work in tournament debate and individual events. Prereq: Consent of instructor.

2411 Persuasion (4) Persuasive theory: psychological, sociological, and cultural dimensions.

2421 Advanced Research Methods in Speech Communication (4) Advanced research methods in speech communication, including methods of data analysis.

2422 Advanced Argumentation and Debate (4) Prereq: 2421 or consent of instructor.

2423 Advanced Phonetics (4) Phonetic aspects of speech production.

2424 British Oratory (4) Historical and critical study of British public address.

2425 Rhetorical Theory and Criticism (4) Survey of rhetorical theory; contemporary approaches to criticism of public address.


2432-40 History of the Theatre (4,4) Drama in performance and the theatre as social institution in the United States, 1650-1850.

2435 Interpersonal Communication (4) Communication theory in its application to small groups, casual communication, structured communication, and informal communication.

2451 Communicating Through Visual Aids (4) Formal presentation through visual aids. Production participation required.

2452-60 Communication Theories (3,3) Communication theory in its application to character development, persuasion, and interpersonal communication.

2461 Quantitative Research Methods in Speech Communication (4) Descriptive and inferential statistics; the design and evaluation of experiments; planning field studies; using statistical analysis.

2462 Rhetorical Theory and Criticism (4) Survey of rhetorical theory; contemporary approaches to criticism of public address.

2463-65 Studies in Rhetoric (3,3) Advanced study of specific topics in rhetorical theory.

2466-68 Studies in Persuasion (3,3) Advanced study of specific topics in persuasive communication.

2471 British Oratory (4) Historical and critical study of British public address.

2472 Persuasive Uses of Imaginative Literature (4) Topics in social and political uses of novels, plays and poems.

2473 Advanced Phonetics (4) Phonetic aspects of contemporary dialects of the English language. Prereq: Consent of instructor.

2474 Studies in American Public Address (4) May be repeated. Maximum credit 12 hours.

2499 Colloquium in Speech Communication (1-4) 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)

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.


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. Production participation required.

2211-21 Stagecraft (4,4) 2211—Techniques of scene construction. 2221—Fundamental methods of stage lighting. Production participation required.

2231 Basic Stage Costuming (4) Costume design and construction: basic theory and technique. Production participation required.

2311-22 Advanced Acting (4,4) Historical styles of acting. 3211—Renaissance, 17th and 18th Centuries. Prereq: Consent of instructor. Production participation required.

3151 Theatre Practicum: Performance (1-4) Supervised work on departmental productions. Available for credit only to theatre majors or with consent of department. Prereq: Consent of instructor. May be repeated. Maximum credit 4 hours.

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. May be repeated. Maximum credit 4 hours.

3153 Summer Repertory Productions (1-4) Supervised work on summer repertory productions. Available only to members of summer company by consent of instructor. May be repeated. Maximum 4 credit hours.

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 of stage design: preliminary work in form, movement, scale, and style; rudiments of rendering techniques; partner and ground-plan preparation. 3222—Stage interpretation through scenic means; setting as environment for dramatic action; rudiments of model making. Must be taken in sequence.


3262-3 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.

3271-22 Introduction to Lighting Design (4,4) Introduction to lighting design: historical and critical study of theatre architecture, scene design, and acting styles. 3272—Antiquity to the Renaissance. 3273—The European theatre, 1650-1850. 3274—Modern Theatre.

3282-3 History of the American Theatre (3,3) Development of the theatre as social institution in American life. 3282—From its beginnings to 1900. 3283—From 1900 to present.

3291-22 Introduction to Lighting Design (4,4) Historical development of specific aspects of the design of lighting. Production participation required. Prereq: 2211-21 and consent of instructor.

3451-52 Play Directing (4,4) Must be taken in sequence. Prereq: 2211.

3511-12 Introduction to Costume Design (4,4) Costuming as a technique and art form; problems in basic lighting practice. Must be taken in sequence. Prereq: 2211-21 and 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. May be repeated. Maximum credit 4 hours.

4152 Theatre Practicum: Production (1-4) Continuation of 3152. Available for credit only to theatre majors. Prereq: consent of instructor. May be repeated. Maximum credit 4 hours.

4153 Summer Repertory Productions (1-4) Continuation of 3153. Available only to members of summer company; continuing consent of instructor. May be repeated. Maximum 4 credit hours.

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-Perception of surface color; construction of spatial illusion through color with reference to rendering, scene painting, and preparation of painter's elevations. Must be taken in sequence. Prereq: 2211-21, 3221-22, 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)

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)

5520 Projects in Lighting Design (3)

5630 Projects in Set Design (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 (A,B,A,A,A)

5680-81-82 Design and Technical Theatre Seminar (1,4,1,4,1)

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 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 185.

4102 Off-Campus Study (1-16) May be repeated for major credit to maximum of 24 hours. See page 185.

4103 Independent Study (1-16) May be repeated for major credit to maximum of 8 hours. See page 185.

4560 Rhetoric of the Women's Rights Movements (4) Historical and critical study of public address in campaign for women's rights from the 1830's to the present. Same as Women's Studies 4560.

4840 Group Performance of Literature (4) Oral interpretive techniques of choral reading, readers theatre, and chamber theatre.

GRADUATE

5000 Thesis

5002 Non-Thesis Graduation Completion (3-15)

5110 Introduction to Graduate Research in Speech and Theatre (3)

5120 Directed Reading and Research (3)

5160 Theory and Technique in Oral Interpretation (4)

Statistics
See faculty list page 94.
Liberal arts students may major or minor in statistics under the supervision of the faculty of the statistics department in the College of Business Administration. The major is designed to prepare students for graduate studies in statistics or for professional work in various applications of statistical methods, including applications in the natural and social sciences, business, and industry. It is highly recommended that a student majoring in statistics have a minor in an area of application.

Major:

(a) Required courses: 27 hours to consist of Mathematics 2840-50-60; Statistics 3450-60; Computer Science 4310; Statistics 3550 or Mathematics 4650 or 4750.

(b) Statistics electives: 15 hours from upper-division statistics courses not listed in part (a) above.

(c) Electives: 12 hours to be selected from no more than two of the following groups: Computer Science 3150, 3510, 3520, 4320; Industrial Engineering 3430, 3510, 3520, 3530, 4590; Industrial Management 4610, 4620; Mathematics 3780-80, 4060-70, 4510-20-30 (or 4518-29-38), 4660-70.

Minor:

(a) Required courses: 21 hours to consist of Mathematics 2840-50-60; Statistics 3450-60; Computer Science 4310.

(b) Statistics electives: 9 hours from upper-division statistics courses not in part (a) of the minor.

University Studies (984)

(Non-Departmental)

University studies deal with important topics which are sufficiently comprehensive to require study and attention of students and faculty from more than one college. They are open to all qualified members of the UKT community.

1000 The First Course (3) An introduction to university education as an adventure in personal growth and professional development. S/NC.

2010 Technology, Society and the Common Good (3,3) Introduction to the interlocking relationships between population, food production and distribution, environmental pollution, depletion of non-renewable natural resources, global arms race, etc. Two quarter sequence designed for students of all colleges; first quarter-global perspectives; second quarter-decisions for the future. Extensive use of films, field trips, student discussion.

4100 Energy Needs and Our Environment (3) Problems of present and projected energy resources and demands; economic, behavioral, legal, technical, and environmental opportunities and constraints; regional impacts of energy production and consumption. Topical focus will change from quarter to quarter. May be repeated with approval of instructor.

Women's Studies
See Cultural Studies.

Zoology (995)

Professors:
- J. H. Abele (Head), Ph.D. Brown; R. M. Bagby, Ph.D. Illinois; D. L. Bunting, Ph.D. Ohio State; J. G. Carlson (Emeritus), Ph.D. Pennsylvania; A. C. Cole (Emeritus), Ph.D. Ohio State; J. C. Daniels, Jr., Ph.D. Colorado; D. A. Emmer, Ph.D. Minnesota; R. C. Fraser (Emeritus), Ph.D. Minnesota; B. Hochman, Ph.D. California (Berkeley); J. C. Howell (Emeritus), Ph.D. Colorado; E. T. Howley, Ph.D. Wisconsin; K. W. Jeon, Ph.D. London (England); A. W. Jones (Emeritus), Ph.D. Virginia; R. F. Johnson, Ph.D. Iowa; J. N. Liles, Ph.D. Ohio State; S. E. Fiechter, Ph.D. Wisconsin; L. E. Roth (Vice Chancellor for Graduate Studies).
- P. L. Chicago, C. A. Shivers, Ph.D. Michigan State; J. T. Tanner (Emeritus), Ph.D. Cornell; G. H. Welch, Ph.D. Florida; M. C. Whiteside, Ph.D. Indiana; G. L. Whitson, Ph.D. Iowa.

Associate Professors:
- K. D. Burnham, Ph.D. Iowa; A. C. Eichertmacht, Ph.D. Kansas; D. J. Fox, Ph.D. Johns Hopkins, M. A. Handel, Ph.D. Kansas State; J. A. MacCabe, Ph.D. California (Davis); M. L. Pan, Ph.D. Pennsylvania; S. L. Pimm, Ph.D. New Mexico State; G. L. Vaughn, Ph.D. Duke.

Assistant Professors:
- T. T. Chen, Ph.D. Florida; L. D. Ekiin, Ph.D. Indiana; G. F. McCracken, Ph.D. Cornell, N. B. Greenberg, Ph.D. Rutgers.

UNDERGRADUATE

Prerequisites to upper-division courses:

Biology 1210-20-30 or Zoology 1118-28-38 are prerequisites for all upper-division courses, with the exception of 3090 and 4940. Additional prerequisites will be included with course descriptions. Courses numbered in the 4000s are no more advanced than those in the 3000s except as may be indicated by prerequisites.

Major:
- Consists of Biology 3110, 3120, 3130; 18 hours of upper-division zoology courses 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 must include at least one laboratory or field course. 1 to 3 hours of Zoology 3990 may also be included. Prerequisites to this major are: Biology 1210-20-30 or Zoology 1118-28-38 (Zoology 2920-30 may be substituted for Zoology 1118 or Biology 1220) and Chemistry 1110-20-30. Corequisites are Mathematics 1811-15, 1840-50 or 1540-50 (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 1841-51 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 3000-level biology courses may be used, e.g., Biology 3110, 3120, 3130.) Prerequisites to this minor are Biology 1210-20-30 or Zoology 1110-20-30 and Chemistry 1110-20-30.

Note: Certain Zoology courses require organic chemistry or other prerequisites—consult the catalog description for each course.

Many courses in this department are offered only in specified quarters. Students should plan in advance the proper sequence.

Information on the quarter a course is to be offered is available in the departmental office.

1118-28-38 Honors: Fundamentals of Zoology (4, 4, 4) Course designed for superior students in any field who are interested in obtaining a solid foundation in zoology. On completing this sequence students may register for core Biology 3110-20-30. Honors zoology is open to all students with a minimum ACT composite score of 27 or with a minimum GPA of 3.2 in college. Students must achieve at least a B in any quarter to be eligible for the next quarter. Students who do not satisfy requirements must complete the sequence with appropriate quarters of Biology 1210-20-30. Must be taken in sequence. 1118-Fall Processes, Structure and development. 1128 Winter: Genetecis and phylology. 1138 Spring: Ecology, independent projects. Each quarter consists of six hours of combined lecture and lab. Students who receive credit for this sequence may not receive additional credit for Biology 1210-20-30 or Botany 1110-20-30. 1128-1138-1118-28 2460-70-50 Human Anatomy and Physiology for Nurses (4, 4, 4) Same as 2460-70-50 except 2 hours and 2 labs.

2510-20-30 Human Biology (3, 3, 3) For non-majors. Not available for major credit in Biology or Biology 2510—What we are; diversity of life forms, uniqueness of man, cell biology, reproduction, development, principles of genetics. 2520—How we live: physiology of movement, utilization of food, respiration, circulation, excretion. 2530—Survival: infection and immunity, aging, and human variation. 2540—Mental health: anxiety, depression, cancer, nutritional inadequacies, human ecology, genetic engineering. May be taken in any sequence.

2920-30 Human Physiology (4, 4) Fundamentals of biology, principles of human physiology. Must be taken in sequence. Prereq: One year of college chemistry. 3 hours and 1 lab. 2930 Human Anatomy (4) Gross and Microanatomy of the Human. Prereq: 1 year of an introductory Biology course or Zoology 2920-30 or equivalent. 2 hours and 2 labs. (Does not carry credit for Biology or Zoology Majors).

3050 Comparative Vertebrate Embryology (5, 5) Developmental morphology of selected vertebrates. 2 hours and 4 labs.

3060 Comparative Vertebrate Anatomy (5) Physiogy and anatomy of organ systems. Dogfish shark and cat primarily used in laboratory. Three hours and 2 labs.

3080 Principles of Animal Physiology (5) Physiology of organ systems of animals including man. Prereq: Biology 3120; coreq: Chemistry 3221. Physics 2210-20-20 recommended. 3 hours and 1 lab.

3090 Biology and Human Affairs (3) (Same as Botany 3090.)

3110 General Entomology (5) Introduction to insects; basic structure, behavior; classification of insect orders and representative families; interpretation and use of keys. 3 hours and 2 labs.

3150 Invertebrate Zoology (5) Biology of invertebrates (exclusively invertebrates) with emphasis on ecology, and behavior. Prereq: Biology 3130. 3 hours and 2 labs.

3220 Physiology of Reproduction (3) (Same as Animal Sciences 3220.)

3230 Histology (4) Study of animal tissues. Prereq: Biology 3120. 2 hours and 2 labs.

3410 Bioethics (3) Relationship between biological discoveries and human values. Open discussions of selected dilemmas arising from new knowledge about medicine, behavior, resources, and technology.

3720 Ethology and Sociology (3) Basic concepts of the evolutionary approach to behavior with special reference to controversial issues in applications to psychology, the social sciences, and the arts. (Same as Psychology 3720.)

3920 Human Endocrinology (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. Three lectures and 1 discussion. Prereq: A course in physiology. (Does not carry credit in the Zoology major or minor.)

3990 Zoology Colloquium (1) Weekly discussions of contemporary interest. Open to sophomores, juniors, and seniors. Each Zoology major is required to take a minimum of one hour. Grade: S/NC. May be repeated. Maximum 12 hours.

4025 Developmental Biology (4) Experimental morphogenesis, fertilization, cellular interactions, hormonal, and related topics with examples drawn primarily from invertebrates and vertebrates. Prereq: 3050. 2 hours and 2 labs.

4110-20-30 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 hours of involvement per week. Prereq: Biology 3110, 3120, 3130, and senior standing.

4190 Mammalogy (4) Classification, evolution, distribution, reproduction, populations, and behavior. 2 hours and 2 lab or field periods.

4200 Ichthyology (5) Classification, collection and identification, distribution, life histories, and economic importance of fishes. Prereq: Biology 2130 or consent of instructor. 2 hours and 2 labs or field periods.

4210 Cell Physiology (5) Development of modern concepts in cell physiology from point of view of information control 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 determining distribution and numbers of animals; intra- and interspecific relationships. Prereq: Biology 3130. 2 hours and 2 labs.


4259 Comparative Animal Physiology Laboratory I (1) Coreq: 4250.


4269 Comparative Animal Physiology Laboratory II (1) Coreq: 4260.

4270 Immunology (3) (Same as Microbiology 4270.)

4280 Comparative Endocrinology (5) Comparative analysis of the physiology and morphology of endocrine glands in vertebrates and invertebrates. Their role and interaction in maintenance of the organism in homeostasis. Prereq: 3060 or equivalent. 3 hours and 1 lab.

4285 Herpetology (4) Classification, distribution, life histories, collection, and identification of amphibians and reptiles, primarily of local species. 2 hours and 2 labs or field periods.

4300 Ornithology (4) Morphology, physiology, behavior, reproduction, population, evolution, field identification. 2 hours and 2 labs or field periods.

4320 Microtechnique (4) 3320 recommended. 2 hours and 2 labs.

4330 General Cytology (4) Study of cellular organization 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 labs.

4380 Organic Evolution (3) Modern concepts of animal evolution. Prereq: Biology 3110.

4390 Human Genetics (3) Principles and problems of inheritance in man. Prereq: Biology 3110.

4410 General Parasitology (4) Morphology, taxonomy, and the functioning of these parasites with emphasis on host-parasite relationships. 3 hours and 1 lab. Prereq: Biology 3130 or consent of instructor.

4560 Introduction to Aquatic Ecology (4) Introduction to the physicochemical nature of the inland waters. Biotic communities are described and their interrelationships explored. Prereq: Chemistry 1110-20-30 and Biology 3120. 2 hours and 2 labs.

4700 Arachnology (4) Biology of spiders, mites, scorpions, and relatives. Prereq: 3110 or 3120. 2 hours 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 hours and 2 labs.

4940 Physiology of Exercise (4) Functions of the body in muscular work: physiological aspects of fatigue, training, and physical fitness. Prereq: 2360-30 or 3080. 3 hours and 1 lab.

G R A D U A T E

5000 Thesis

5017 Colloquium in Ethology (1)

5050 Zoology Seminar (1)

5075 Zooplankton Ecology (4)

5080 Graduate Research Participation (3)

5110-20-30 Special Problems (2, 2, 2)

5150 Zoological Bibliography (1)

5160 Fresh-Water Invertebrates (4)

5210 Plant Parasitic Nematodes (4)

5250 Physiology of Hormones (4)

5270 Advanced Neuroanatomy (5)

5280 Insect Physiology (4)

5390 Quaternary Problems (4)
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