College of Liberal Arts

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

The curriculum of the College of Liberal Arts reflects this wide-ranging concern with the life of the mind. It emphasizes the breadth of human knowledge, perceived not only in terms of the traditional categories of the humanities and the natural and social sciences but also in broader perspectives which extend across academic fields and reach beyond the boundaries of a college of liberal arts. It also stresses depth of learning, thereby seeking to acquaint the student with the rigors of the intellectual process.

Through a study of the liberal arts one thus learns to participate in an intellectual tradition which is independent of particular teachers and which guides one in the choice of subjects for investigation and in the interpretation of those subjects. With time the individual begins to apprehend the great outlines of knowledge, the principles upon which it rests, the scale of its parts, and its lights and shadows.

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

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

Programs of Study

Granting the broad, general goals of a liberal education, students come into the College of Liberal Arts 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 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 communication design, drawing, painting, oil, watercolor, printmaking or sculpture are available in the art department office.

(3) BACHELOR OF MUSIC

The program leading to the Bachelor of Music degree prepares students for graduate study and for positions in which a professional degree is required. The degree is offered with a major in music which has concentrations in music theory, composition, music history and literature, piano literature, and applied music (voice—organ—strings—woodwind, brass and percussion instruments—multiple woodwind instruments).

(4) BACHELOR OF SCIENCE IN CHEMISTRY

The Bachelor of Science in Chemistry is a professional degree designed in accordance with standards laid down by the American Chemical Society 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. 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 individually designed, 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, unfortunately, it gives indication of frustration and lack of clear direction. Viewed as a whole it may appear to be a miscellany of unrelated courses which were chosen almost 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. Few students enter the College with firm 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 and ultimate decision making may be assured.

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 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 concentration; 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 core 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 degree is the Bachelor of Arts, and it is the appropriate objective for most students in the College of Liberal Arts. 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 in the major department or program, and counting no course in this major which has been used for Triad credit. (A course which satisfies a Triad requirement may serve, however, as a 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.

Note on 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 area requirements. Students developing multiple majors must specifically declare this intent at the time they apply for graduation. Once a student has declared the establishment of additional majors becomes subject to University second-degree requirements.

I. Basic Program

A. THE TRIAD:

Language, Literature, and the Arts

History and Social Science
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 structure and sound of music, and the 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 at least two of these modes of experience within this culture and through exposure to cultures that are foreign, distant, and strange. To know what one is not is essential for knowing what one is. Although there is no universal formula for determining which disciplines, skills, and enjoyments are of primary or of secondary importance, the written and spoken word has a 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 an historical perspective. Such perspective may be developed by a number of courses, including the traditional survey of western civilization or other broad surveys such as Asian history, Latin American history, history of the United States, and Afro-American history. More specialized courses in the history of particular segments of human experience, e.g., philosophy or religion, may also prove valuable.

A liberal education presupposes not only an awareness of the past but also a familiarity with contemporary social institutions, processes, and practices. From a wide variety of offerings in the social sciences the student 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 diverse phenomena. These ends may be realized through an understanding of the empirical and the rational, 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 completion of English 1510-20 or 518-28 or 1231-41.
(ii) By earning a score of 4 or 5 on the College Board Advanced Placement Test in English; or, with special permission, 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 (normal, after completing one quarter of freshman English at The University of Tennessee, Knoxville) a proficiency examination in writing, administered by the Department of English in cooperation with the Committee on Writing Standards.
(iv) By completing 4 hours of freshman English followed by a minimum of 6 hours in courses which require substantial emphasis on writing. The writing-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 in 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) 8 hours of literature in a foreign language in the 3000-level or above. Prerequisite to this option is intermediate-level competence in the language, demonstrated by diagnostic (non-credit) or proficiency (credit) examination or by completion of the 2000-level sequence in that language.

(ii) Intermediate-level competence in a foreign language, demonstrated by diagnostic (non-credit) or proficiency (credit) examination or by completing 8 credits hours in the introductory sequence, (or an approved equivalent) in that language; and 8 hours of literature in English (originally in English or in translation) drawn from the list of courses published by the Committee on Language, Literature and the Arts, available in the Liberal Arts Advising Center.

(iii) 24 hours in an integrated program in literature, culture, 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 are published by the Committee on Language, Literature, and the Arts and are 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 school 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 8-hour sequence from the several survey courses offered by the Department of History or in a comprehensive interdisciplinary sequence having a substantial emphasis in that area.
(b) 8 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 category (a) or (b).

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

(3) Science and Mathematics

Each student must complete 24 hours of course work in this area, including:
(a) One of the following two options:
   (i) An 8-hour sequence in a biological science; or
   (ii) An 8-hour sequence in a physical science.
(b) 16 hours drawn from additional courses offered by the College of Science and Mathematics in the physical sciences or from designated courses in:
   (i) 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 courses.

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 CONCENTRATION

In many ways the most important part of each student's program is the major concentration, for it is in this intensive study of one more or less limited field of knowledge that the individual begins to find a niche in the world of intellectual endeavor. The major concentration 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 advice is available in the Liberal Arts Advising Center and from designated faculty advisers in each major department or area.

Requirements for the specified majors available to students in the Basic Program vary from a minimum of 36 to a maximum of 56 credit hours in courses numbered 2000 and above, including prerequisites and corequisites (i.e., supporting courses in other departments or areas). Insofar as is consistent with the objective of a total program balanced reasonably between broad area requirements in the Triad, major concentration, 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
- Audiology
- Biology
- Botany
- Chemistry
- Computer Science
- Cultural Studies
- Economics
- English
- French
- Geography
- Geology
- German
- Greek
- History
- Human Services
- Zoology

C. SUPPLEMENTARY ELECTIVE COURSES

At least one-fourth of each student's curriculum in the Basic Program will be made up of courses selected according to the individual's interests to supplement and support the work being done in the major concentration 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 courses which the student might make in selecting the elective courses are:

(1) Additional courses in the major field;
(2) A related minor concentration in another department or area or in another college of the University (24 or more credit hours in courses numbered 2000 or above; see Note below);
(3) A concentration in the arts;
(4) An off-campus quarter;

Note: Minors are available in most of the departments and areas in which majors are offered, and also in the following:
- Asian Studies
- Biochemistry
- Black Studies
- Comparative Literature
- Latin American Studies
- Linguistics
- Mathematics
- Physical Sciences
- Portuguese
- Women's Studies

See Phi Beta Kappa requirements in mathematics, page 32.
Minors may be developed in other colleges of the University, but they must be approved by petition. Students transferring from other institutions must complete at least 6 of the 24 credit hours required for a minor at The University of Tennessee, Knoxville.

### II. Individualized Program

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

Students in the Individualized Program will normally satisfy the broad requirements of the Triad, just as those in the Basic Program do, although some latitude is provided for substitutions approved by the student's advisor and the dean of the College.

The point at which the greatest degree of individualization takes place, however, is in the area of concentration. Although the quantitative aspect of the area of concentration is the same as for the major in the Basic Program (i.e., a minimum of 36 hours in courses numbered above 2000), there is no restriction in principle on the choice of courses of which it is comprised.

The student may design a program, in consultation with an advisor, and submit it for consideration to the Committee on the Individualized Program. The proposed course 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 consult the program director, Dr. Harry Jacobson (Ayres Hall).

### III. College Scholars Program

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

The College Scholars Program affords the high ability student the opportunity to develop a meaningful curriculum. Each program is worked out individually with a special advisor (tutor) who under ordinary circumstances continues to advise the student throughout the college career. Together they determine what kinds of course work and/or other learning experiences will best fulfill the student's objectives, while at the same time achieving the kind of liberal education the College believes is important for every student.

In the final two years of the program students will be heavily involved in independent study or research resulting in a senior honors thesis or project report. Further information and applications may be obtained from the program director, Dr. Harry C. Jacobson, 226 Ayres Hall.

### IV. Preparation For The Health Professions

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<td>Pre-Dental Hygiene</td>
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<td>Pre-Medical Record Administration</td>
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<td>Pre-Medical Technology</td>
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<td>Pre-Nursing</td>
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<td>Pre-Physical Therapy</td>
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<tr>
<td>Other Health Professions</td>
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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 (UTCHS), as well as those required for the Bachelor of Arts degree in the College of Liberal Arts at UT, Knoxville.* The pre-medical technology program prepares students to undertake professional training during the fourth year of study at The University of Tennessee Center for the Health Sciences at Memphis. Other pre-health professional programs—dental hygiene, medical record administration, nursing, pharmacy, and physical therapy—are offered for those students who are planning to pursue professional training in health professional areas which lead to an undergraduate degree from UTCHS but not to a degree from UT.

**NOTE:** The UT Center for the Health Sciences is a state-supported institution and by legislative intent is required to admit all qualified Tennesseans prior to considering out-of-state applicants. At the present time there are more qualified Tennessee applicants than there are places available; therefore, out-of-state applications are not being considered. The only exception to this policy is for the program who is daughter or son of an alumnus or alumna of the UT Center for the Health Sciences and who has completed all of the undergraduate work at a college in the University of Tennessee system and is otherwise qualified competitively.

Admission to any program at the UT Center for the Health Sciences or to the Medical Technology Program at the UT Memorial Research Center and Hospital is at the discretion of that program's admissions committee. Admission to the University of Tennessee, Knoxville, 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 competition for admission to most programs in the health professions is keen, pre-health professional students are encouraged to work towards the completion of a degree program in a major which will enable the individual to adapt to an alternative program in the event admission to the desired program is not achieved. The preparatory courses necessary for professional study can be incorporated into the chosen major program.

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

### PRE-DENTAL PROGRAM

The College of Liberal Arts offers both three-year and four-year programs leading to the degree of Bachelor of Arts for students preparing for admission. Therefore, both programs are based upon the curriculum 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 the UT Center for the Health Sciences. 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 listed below. The requirement for a major is waived for those completing their fourth year at Memphis. 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 the UT Center for the Health Sciences. 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 entering the College. Pre-dental students are encouraged to plan to complete all requirements for the B.A. degree before enrolling in the College of Dentistry.

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<tr>
<td>1English 1510-20</td>
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<tr>
<td>1Chemistry 1110-20-30</td>
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<tr>
<td>1Mathematics 1101-1501</td>
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<tr>
<td>1Mathematics 1540-50</td>
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<td>2Triad II (History and Society)</td>
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<td>2Chemistry 3211-21-31 and 3212-22-32</td>
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<td>2Triad I</td>
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<td>3Speech 2311</td>
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<tr>
<td>4Biology and/or Zoology</td>
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<td>4Triad II</td>
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*Students wishing to prepare for professional training at institutions other than The University of Tennessee Center for the Health Sciences should consult the catalogs of those institutions to determine the specific preparation required for admission.
PRE-DENTAL HYGIENE PROGRAM

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

PRE-MEDICAL PROGRAM

The College of Liberal Arts 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, including a major of 36 or more hours in addition to the courses outlined below. The requirements for a major is waived for those taking their fourth year at Memphis. 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 the UT Center for the Health Sciences.

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.

PRE-MEDICAL RECORD ADMINISTRATION PROGRAM

Admission to the medical record administration program at the UT Center for the Health Sciences, leading to a Bachelor of Science degree from UTCHS at Memphis, requires completion of 135 hours of prescribed courses. Classes are admitted in September; applications must be filed by April 15. The selection process usually includes interviews with members of the faculty.

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

PRE-MEDICAL TECHNOLOGY PROGRAMS

The College of Liberal Arts offers two programs leading to the study of medical technology:

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

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

Science-Medical Technology Curriculum

The Science-Medical Technology Curriculum is a three-year program consisting of a minimum of 135 credit hours in the College of Liberal Arts. Students who complete this curriculum satisfactorily may apply for admission to the course of study in medical technology at The University of Tennessee Regional Research Center and Hospital in Knoxville. Successful completion of this course, which results in the granting of 50 credit hours, makes the student eligible for a Bachelor of Arts degree with a major in medical technology from UTK. In addition, a Certificate of Laboratory Training will be awarded by the UT Memorial Research Center and Hospital. Students will then be eligible for examination by the Board of Registry of the American Society of Clinical Pathologists in order to be certified as registered medical technologists.
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<td>Mathematics 2150-60 &amp; 1800-60</td>
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Junior  
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(Total 135)  

Senior  
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<td>or Completion of one year at the UT Center for the Health Sciences</td>
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Bulletins describing the three-pre-pharmacy programs in detail may be obtained from the Health Professions Office, 218 Ayres Hall.

PRE-PHARMACY PROGRAMS  
The College of Liberal Arts offers three programs preparing students for the study of pharmacy at the UT Center for the Health Sciences in Memphis. The Bachelor of Science in Pharmacy degree is conferred by UTCHS upon completion of three 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 Arts degree from the University of Tennessee, Knoxville, as well as to the professional degree in pharmacy from the UT Center for the Health Sciences, are based upon the program outlined below. In the three-year program, the student must complete at least 135 credit hours while enrolled in the College of Liberal Arts, and the B.A. degree is granted upon satisfactory completion of the first year of study at Memphis. In the four-year program the degree is granted upon completion of 180 or more credit hours while enrolled in the College, including a major of 36 or more hours in addition to the courses outlined below. The requirement for a major is waived for those taking their fourth year at Memphis. 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-PHYSICAL THERAPY PROGRAM  
Admission to the physical therapy program at the UT Center for the Health Sciences, leading to the degree of Bachelor of Science in Physical Therapy from UTCHS, requires completion of 191 hours of prescribed courses while enrolled in the College of Liberal Arts. The program in Memphis is 15 months in length. Students interested in the pre-physical therapy program are encouraged to consult with a health professions adviser in the Liberal Arts Advising Center or the Coordinator of the Health Professions Office for more information. Bulletins describing the physical therapy program in detail may be obtained from the Health Professions Office, 218 Ayres Hall.

OTHER HEALTH PROFESSIONS  
Cytotechnology  
Histotechnology  
Optometry  
Radiologic Technology  
Veterinary Medicine  
A library of materials about career opportunities in the health professions, including most allied health areas, has been developed and is located in the Health Professions Office, 218 Ayres Hall. Academic advisers are available to assist students in planning their programs in order to meet the requirements for admission to other programs.

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

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

Art History:  
<table>
<thead>
<tr>
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<tbody>
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A minimum of 13 hours other art history courses  

Studio:  
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<th>Course</th>
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<td>*Art 1115 Studio Fundamentals: Drawing and the Illusion of Space</td>
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<tr>
<td>*Art 1125 Studio Fundamentals: Surface composition and color</td>
<td>4</td>
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<td>*Art 1135 Studio Fundamentals: Real Space and Volume</td>
<td>4</td>
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<tr>
<td>Art 2105 Introduction to Drawing</td>
<td>4</td>
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<tr>
<td>Art 2205 Introduction to Painting</td>
<td>4</td>
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<td>Art 2405 Introduction to Sculpture</td>
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<tr>
<td>Art 2505 Introduction to Communication Design</td>
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<tr>
<td>Art 2605 Introduction to Printmaking</td>
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</table>

48 hours

*Prerequisite to 2000 level courses for B.F.A. program.

General Curriculum:  
In addition to the core program, B.F.A. candidates must fulfill the following general requirements:

A. Triad Courses  
I. Language, Literature and the Arts  
A minimum of 8 hours English Composition  

II. History and Society  
A minimum of 8 hours  

III. Science and Mathematics  
A minimum of 8 hours  

24 hours
College of Liberal Arts

B. Philosophy 3910 .................................. 4
C. Non-Art Electives
   A minimum of 20 hours. Students entering with a high school language deficiency must take a minimum of 8 credit hours of a foreign language ......... 20
D. Art Electives (within art department) A minimum of 40 hours ...... 40
E. Unspecified Electives .................................. 43

180 hours

COLLEGE ARTISTS PROGRAM

This 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 and graduation 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 not normally be considered after the completion of 90 hours. Admission to 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 course, general or departmental honors courses each quarter, and must participate in an honors exhibition prior to graduation.

STUDIO HONORS COURSES

Courses are designed for the exceptional student. Honors courses may be taken in any of the areas of studio instruction, and admittance is based on the following criteria:
A. Grade-point average of 3.2 in studio art courses
B. Portfolio of class and/or outside work
C. Recommendation of the studio faculty, and/or approval of the instructor

Continued participation is subject to periodic review by the faculty. Students qualified for honors courses will enroll in course numbers which most closely parallel their present level, i.e., sophomores in 2008, juniors in 3008, seniors in 4008. Each course number may be repeated for a maximum of 24 hours credit.

Bachelor of Music

The Department of Music offers the degree of Bachelor of Music with concentrations in music theory, composition, music history and literature, piano literature, and applied music (voice—piano—organ—strings—woodwind, brass and percussion instruments—multiple woodwind instruments). 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.

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<td>Applied Music</td>
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<td>Ensemble</td>
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**TOTAL: 180 hours**

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**VOICE**

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<td>Liberal Arts Electives</td>
<td>8</td>
</tr>
<tr>
<td>Electives</td>
<td>12</td>
</tr>
<tr>
<td>Music 2000</td>
<td>0</td>
</tr>
</tbody>
</table>

| TOTAL: 180 hours |

<table>
<thead>
<tr>
<th>Bachelor of Science in Chemistry</th>
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</table>

Students who desire to major in chemistry may select either the curriculum leading to the degree of 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.

<table>
<thead>
<tr>
<th>COOPERATIVE PROGRAM IN CHEMISTRY</th>
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</table>

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 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 make application to the head of the department at least one quarter in advance of the beginning of the first work period. Further information will be supplied on request.

<table>
<thead>
<tr>
<th>CURRICULUM REQUIREMENTS</th>
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</table>

<table>
<thead>
<tr>
<th>Freshman Hours</th>
<th>Credit</th>
</tr>
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<tbody>
<tr>
<td>Chemistry 1110-20-30 or 1118-28-38</td>
<td>12</td>
</tr>
<tr>
<td>Mathematics 1440-50-60 or 1848-58-68</td>
<td>12</td>
</tr>
<tr>
<td>Language, Literature, Art Triad (Writing Proficiency)</td>
<td>8</td>
</tr>
<tr>
<td>Language, Literature, Art Triad (Language, Foreign Language I)</td>
<td>8</td>
</tr>
<tr>
<td>History and Society Triad</td>
<td>8</td>
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<table>
<thead>
<tr>
<th>Sophomore Hours</th>
<th>Credit</th>
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</thead>
<tbody>
<tr>
<td>Chemistry 3211-23-31 or 3511-21-31 (latter recommended)</td>
<td>9</td>
</tr>
<tr>
<td>Chemistry 3219-29-39 or 3219, 3529-39 (latter recommended)</td>
<td>3</td>
</tr>
<tr>
<td>Mathematics 2840-50-60 or 2848-58-68</td>
<td>12</td>
</tr>
<tr>
<td>Physics 2510, 2310-20</td>
<td>11</td>
</tr>
<tr>
<td>Language, Literature, Art Triad (Language, Foreign Language II)</td>
<td>8</td>
</tr>
<tr>
<td>History and Society Triad</td>
<td>8</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Junior Hours</th>
<th>Credit</th>
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<tbody>
<tr>
<td>Chemistry 2140-49</td>
<td>4</td>
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<tr>
<td>Chemistry 3410-20-30</td>
<td>9</td>
</tr>
<tr>
<td>Chemistry 3429-39</td>
<td>2</td>
</tr>
<tr>
<td>Chemistry 4210-20, 4219-29</td>
<td>8</td>
</tr>
<tr>
<td>Computer Science 3150</td>
<td>3</td>
</tr>
<tr>
<td>Language, Literature, Art Triad (Language, Foreign Language II)</td>
<td>8</td>
</tr>
<tr>
<td>History and Society Triad</td>
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<table>
<thead>
<tr>
<th>Senior Hours</th>
<th>Credit</th>
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<tbody>
<tr>
<td>Chemistry 4110</td>
<td>3</td>
</tr>
<tr>
<td>Chemistry 4119</td>
<td>1</td>
</tr>
<tr>
<td>Chemistry 4110-20 or 4110 and co-requirement of 4710-20-30</td>
<td>4</td>
</tr>
<tr>
<td>Chemistry 4420</td>
<td>3</td>
</tr>
<tr>
<td>Chemistry Electives</td>
<td>6</td>
</tr>
<tr>
<td>Electives</td>
<td>27</td>
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</tbody>
</table>

| TOTAL: 186 hours |

*Foreign language option is recommended in the order German, Russian, or French.

*German 2530-40 or 2510-20 or Russian 2510-20 or French 2510-20 are recommended.

*To be chosen from the following: Chemistry 4430, 4500, 4640, 4710-20-30, Biochemistry 4110-20, 4230.

*At least 8 hours of these electives must be in a science other than chemistry; the rest may be in any area of the 8 hours of science other than chemistry, the following courses are recommended: Physics 3110, 3110-20-30, 4110-30-30, 4110-20-30; Mathematics 4610-20-30, 4540, 4540-60; Computer Science 4410-20-30, Geology 4610, Met. Engnr. 4510-20, Zoology 3380, Botany 3210.

<table>
<thead>
<tr>
<th>Preparation For Other Professions</th>
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</table>

Law

Students who plan to study law should consult the statement regarding admission to the College of Law (page 165) 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 43 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 44. Students are accepted into planning from a broad variety of undergraduate backgrounds. Detailed information on the planning profession, admission requirements and the program of study may be obtained from the Graduate School of Planning.

Public Administration

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

Freshman

(choose 8 hours)

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
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<tbody>
<tr>
<td>Political Science 2510-20, 2539</td>
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Sophomore

(Economics 2110-20-30)

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
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</thead>
<tbody>
<tr>
<td>Political Science 3566-66</td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>Political Science 3568-50, 3601-02-65-04</td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>Economics 3340</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Accounting 2110-2120, 2210</td>
<td></td>
<td>9</td>
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</table>

Junior

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Political Science 4610-20</td>
<td></td>
<td>7</td>
</tr>
<tr>
<td>Political Science 4410</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Economics 3410</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Accounting 3510</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Finance 4350-60</td>
<td></td>
<td>6</td>
</tr>
</tbody>
</table>

In addition, sufficient electives in political science must be taken to meet the number of hours required for a major in political science. Further information may be obtained in the Department of Political Science.

*Or equivalent honors courses.

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 45. 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 thirty states.

Application for admission to the Teacher Education Program should be made during the second or third quarter of the sophomore year in the office of the Dean of the College of Education, 212 Claxton Education Building. Criteria for admission are: (1) a 2.2 cumulative grade-point average; (2) satisfactory ratings in speech and hearing as determined by tests administered by the Speech and Hearing Center; (3) recommendation of the student's adviser.

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 teach during the 1979-80 academic year must apply by January 1, 1978.

Curricula for students seeking teacher certification should include the following:

1) English 1510-20 or 1518-28
2) 18 hours, representing at least 3 fields, including:
   (a) 4 hours of 2000-level English
   (b) 12 hours of the students' choice from anthropology, art, English literature, Library and Information Science, 3510-20, foreign language (beyond the elementary level), history (upper division), music, philosophy, or religious studies
3) Language, Literature, and the Arts: 0-24 hours, the number of hours and choice of courses depending upon the options selected and the choices made in (2) above

4) History and Society:
   (a) One of the 8-hour historical sequences in category (a) of the triad list
   (b) Psychology 2500 or 2518
   (c) 4 hours from anthropology, economics, geography, human services, political science or sociology courses on the triad list
   (d) 0-8 additional hours of the student's choice from courses on the triad list, the number of hours depending upon choices made in (2) above

5) Science and Mathematics:
   (a) One of the 8-hour natural science sequences in category 1 or 2 of the triad list
   (b) 4 additional hours of natural science courses in categories 1 and 2
   (c) 4 hours of mathematics courses in category 4
   (d) 8 additional hours of the student's choice from courses on the triad list
6) Speech 2311
7) 9 hours in health and physical education, including at least 3 hours of school health, public health, or nutrition and 2 hours of physical education

8) Professional Education courses:
   (a) Education C&I 3010-20-30
   (b) Educational Psychology 3910
   (c) 6 hours of appropriate methods courses
   (d) Education C&I 3521-22-23
   (e) Education C&I 4710-20 (student teaching)
   (f) 6 hours of electives from the College of Education
9) Additional courses necessary to complete Liberal Arts major(s)
10) Additional courses required for certification in teaching subject area(s) (Consult Certification Clerk, 212 Claxton Education Building)

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

*Admission to the Teacher Education Program is prerequisite for Education C&I 3010, 3030, and 4710-20.

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 16.

Course Load

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

The 17 credit limit was one of three means chosen to implement a 1972 decision by the College faculty to reduce the average number of courses carried by students. A second means has been to introduce four-credit courses into the curriculum on a broader scale than ever before. Using such courses the credits achieved by students each quarter would remain substantially the same as in quarters prior to this innovation but would be generated with fewer courses. A final means has been to decrease the total number of hours required for the degree. The combination of the load reduction is to provide an opportunity for a deeper, more thorough learning experience in the courses which are taken.

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 level.

Satisfactory/No Credit Courses

A few courses in the College are offered only on a Satisfactory/No Credit 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 or NC grades will be calculated in the student's grade point average. Satisfactory is defined as C or better work on the traditional grading scale and No Credit is defined as less than C. The following regulations apply:

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

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

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

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

5. A transfer student with S/NC or equivalent credit earned prior to admission to the University of Tennessee, Knoxville, in a course which satisfies a Triad requirement may count it for that purpose. In the case of a course which satisfies a major or minor requirement, statement (1) applies.

The option of taking courses on a S/NC basis is provided to encourage the able student to venture beyond the limits of those courses in which the student does well and, motivated by intellectual curiosity, to explore subject matter in which performance may be somewhat less outstanding than work in preferred subject fields.

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

Off-Campus Study

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

Independent Study

Certain educational goals may best be met through Independent study done by an individual under the direction of a faculty member. Students who wish to do such independent work should obtain the approval of the faculty members and the departments concerned prior to embarking upon that 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 of Liberal Arts, 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 of Liberal Arts. 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 by selected academic institutions to which UT students may have approval enroll for credit. Assistance in identification 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 individual 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 choose 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 College of Health Sciences. Each quarter the Student Academic Affairs Office issues the Liberal Arts Quarterly Bulletin in order to keep students informed about changes in the College curriculum as well as matters relating to registration, courses, and requirements.

Office of Black Studies

The Office of Black Studies, 812 Volunteer Blvd., 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 institution, supplies information on financial assistance for Black students, and serves as the focal point for the coordination and development of an improved and expanded Black Studies Program at the University.

Black Cultural Center

The Black Cultural Center represents one effort by the University to promote greater awareness of the nature of the Black experience and the contribution of Black America to the national past. The Center seeks to fulfill this role through a variety of programs and occasions. Typical of its cross-c campus work is sponsorship of Black History Week, and the Black Arts Festival. Within the Center itself exhibits related to the Afro-American past, small group lectures, group study sessions, and a tutorial program aimed especially at minority students are a few of the ongoing activities.

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

Bureau of Public Administration

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

Psychological Clinic

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

The Department of Speech and Theatre offers a full schedule of dramatic presentations in three different theatres. The Clarence Brown Theatre has outstanding facilities for prosenium and open staging and for film productions, and, in a separate Studio Theatre, for laboratory productions. Carousel Theatre is designed for arena staging, and can be converted for open-air performances in the summer. Hunter Hills Theatre, located in the foothills of the Great Smoky Mountains near Gatlinburg, is an outdoor theatre in which performances are offered during the summer months.

Instructional Facilities

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

College Offices

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

Departments of Instruction

Numbers in parentheses following the course titles indicate quarter hours credit offered.

American Studies

See Cultural Studies.

Anthropology (122)

Professors: W.M. Bass (Head), Ph.D. Pennsylvania; C.H. Faulkner, Ph.D. Indiana; A.K. Guth, Ph.D. Michigan; P.W. Parmalee, Ph.D. Texas A&M.

Associate Professors: I. Harrison, Ph.D. Syracuse; R.L. Jantz, Ph.D. Kansas; M.C.R. McCollough, Ph.D. Pennsylvania.


UNDERGRADUATE

A major in anthropology shall consist of 39 hours, 12 of which are to be in the introductory 2000 level courses. Of the remaining 27 hours, 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, 3510, 3530, 3540, 3710, 3800, 4200, 4210, 4240, 4250, 4259, 4410, 4420, 4430, 4500, 4510, 4550, 4570, 4590, 4740.
(b) Physical: 3900, 3920, 3930, 4930, 4950, 4960, 4970.
(c) Archaeology: 3610, 3620, 3630, 3640, 4500, 4600, 4640, 4650.

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

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

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

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

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

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

3440 Religion of Primitive Peoples (3) Religions of nonliterate peoples. Place of religion in their social and cultural systems. 2530 recommended. (Same as Religious Studies 3440.)

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

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

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

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

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

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

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

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

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

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

3630 European Prehistory II (3) Cultural developments during Metal Ages. From close of Neolithic through Iron Age. 2520 recommended. 3620 and 3630 should be taken in sequence.

3640 Ancient Civilization of Mesoamerica (3) Introduction to archaeology of areas of advanced Indian culture in Mexico and Central America beginning with earliest cultures and proceeding to contact with Europeans. 2520 recommended.

3650 Prehistory of Tennessee (3) History of archaeological research in Tennessee and survey of prehistoric American Indian cultures identified through research.

3710 European Folk Culture (3) Traditional aspects of life as expressed in technology, beliefs, art, and folklore, under changing historical and socioeconomic conditions.

3800 Language and Culture (3) Relationship between linguistic categories and patterns of culture. Knowledge of linguistics not required. 2530 recommended.

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

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

3920 Principles of Physical Anthropology (3) Survey of materials and methods in physical anthropology. 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 nutrition. 2510 recommended.

3950 Human Identification (3) Introduction to techniques in identification of human skeletal material in Forensic Medicine.

4101 Foreign Study (1-16) See page 177.

4102 Off-Campus Study (1-16) See page 177.
For information regarding the Bachelor of Fine Arts degree, see page 172.

1115-23-35 Studio Fundamentals (4, 4, 4) 1115—Drawing; an illusion of space; 1125—Surface composition and color; 1135—Real space and volume. For art, architecture, related arts and art education majors. Others with permission of instructor only.

1815-25 World Art (4, 4) A survey: 1815—pre-history to 1400; 1825—1400 to present. 2008 Honors: Art (4) Intensified study for the exceptional student. May be repeated for a maximum of 24 credit hrs.

2105 Introduction to Drawing (4) Prereq: 1115. 2115 Drawing II (4) Prereq: 2105. May be repeated for a maximum of 8 credit hrs.

2116-17 Intermediate Design (4, 4) 2116—Motion picture as primary tool of research; 2117—Color theory and application. Prereq for 2117: 1115-25-35.

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

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

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

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

2415 Sculpture II (4) Prereq: 2405. May be repeated for a maximum of 8 credit hrs.


2515-25 Graphic Design (4, 4) 2515—Lettering and layout; 2525—Production. Prereq: 2505 for 2515; 2515 for 2525.

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

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

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

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

2616 Lithography II (4) May be repeated for a maximum of 8 credit hrs.

2617 Screen Printing II (4) May be repeated for a maximum of 8 credit hrs.

2715 Survey of Contemporary Art (4) 1945 to present.

2725 Black Art (4) Black artists in society. Emphasis on contemporary art forms.

3800 Honors: Intermediate Art (4) Intensified study for the exceptional student. May be repeated for a maximum of 24 credit hours.

3115 Drawing III (4) May be repeated for a maximum of 12 hours. Prereq: 8 hours of 2115.


3215 Painting III (4) May be repeated for a maximum of 12 hours. Prereq: permission of instructor.

3315 Watercolor III (4) May be repeated for a maximum of 12 credit hours. Prereq: permission of instructor.

3415 Sculpture III (4) May be repeated for a maximum of 12 hours.

3515 Visual Communications I (4) Graphic design, theory and techniques of problem solving for printed material. Prereq: 2255.

3516 Typography (4) Theories and techniques of typography and printing as a fine art medium. May be repeated for a maximum of 8 credit hours.

3517 Airbrush (4) Techniques and creative applications. May be repeated once for credit.

3525 Visual Communications II (4) Advanced pictorial perception, concepts, methods, and techniques for designer. Prereq: 2525.


3615 Intaglio III (4) May be repeated for a maximum of 12 hours.

3616 Lithography III (4) May be repeated for a maximum of 12 hours.

3617 Advanced Screen Printing (4) May be repeated for a maximum of 12 hours.


3705 Northern European Painting: 1350-1600 (4) Painting and printmaking of the low countries, France, Germany, England, includes international style manuscripts, Van Eyck, Bosch, Durer, Holbein, and Bruegel.

3715 Early Italian Renaissance Art: 1300-1500 (4) Painting, sculpture, and architecture. Includes Giotto, Masaccio, Donatello, Brunelleschi, Alberti, Botticelli, and Leonardo.


3726 Art of Northern Europe in Seventeenth and Eighteenth Centuries (4) Emphasis on Rembrandt, Vermeer, Hals, Rubens, Poussin, Callot, Georges de la Tour, Watteau, David, urban development of Paris and London, and pilgrimage churches of Southern Germany.

3735 History of Nineteenth-Century Painting in Europe and America (4) Emphasis on France: Neo-Classicism, Romanticism, Friedrich, Constable, Turner, Courbet and Barbizon landscapists, Hudson River Group, Pre-Raphaelite Brotherhood, Manet, Courbet, Impressionism, Eakins, Homer, Seurat through Cézanne.

3736 History of Twentieth-Century Painting in Europe and America (4) Fauvism, Die Brücke, Cubism, Der Blaue Reiter, Futurism, Dada and Surrealism, geometric abstraction, social commentary, Abstract Expressionism in the U.S.A. and parallels in Europe, Pop, Op, Minimal, and Concept Art.


3746 History of Modern Sculpture in Europe and America (4) From 1800 to 1900: Neo-Classicism to Rodin. From 1900 to present: emphasis on Cubism, Constructivism, Expressionism, Assemblage, Pop, Primary Forms, Environments, and Earthworks.

3755-56-57 Studies in Art History (4, 4, 4) Concentration in selected areas. Prereq: 12 hours of art history or permission of instructor.
5002 Non Thesis Graduation Completion (3)
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)
5110-20-30-40-50-60 Drawing and Composition (3, 3, 3, 3, 3, 3)
5210-20-30-40-50-60 Oil Painting (3, 3, 3, 3, 3, 3)
5310-20-30 Watercolor Painting (3, 3, 3)
5340-50-60 Watercolor (3, 3, 3)
5410-20-30-40-50-60 Sculpture (3, 3, 3, 3, 3, 3)
5510-20-30-40-50-60 Communication Design (3, 3, 3, 3, 3)
5610-20-30 Intaglio (3, 3, 3)
5611-21-31 Lithography (3, 3, 3)
5612-22-32 Screen Printing (3, 3, 3)
5770 Seminar in Art History (3)
5855-56-57 Reading and Research in Art History (2, 2, 2)
5900 Seminar in Art Criticism (3)

Asian Studies
See Cultural Studies.

Astronomy
See Physics and Astronomy.

Audiology and Speech Pathology (160)

Professors:
H.L. Luper (Head), Ph.D. Ohio State; S. Adler, Ph.D. Ohio State; C.W. Asp, Ph.D. Ohio State; D.M. Lipseth, Ph.D. Washington; H.A. Peterson, Ph.D. Illinois; B. Silverstein, Ph.D. Purdue.

Associate Professors:
S.B. Burchfield, Ph.D. Michigan State; P.J. Carney, Ph.D. Iowa; C.G. Maisel, M.Ed. Texas; I.V. Nabele, Ph.D. Czech Technical, Prague.

Assistant Professors:
T.O. Davidson, M.A. Tennessee; C.J. Ferrell, M.A. Tennessee.

Instructors:

UNDERGRADUATE

General Information. One of mankind's most significant developments has been the acquisition of organized systems of communication. Basic to most human language systems has been dyadic oral-aural communication. The Department of Audiology and Speech Pathology offers course work in the scientific study of oral-aural communication with special attention to variations considered normal or different. Many of the courses offered in the department cover information that should be valuable to students planning to enter any social service discipline. Suggested electives for non-departmental majors include: 3010, 3040, 3050, 3070, 3710, 4720, and 4750.

Majors. The two majors (audiology and speech pathology) within the department are preprofessional; those who are preparatory to graduate work and to professional certification in some aspect of communicative disorders. The Master's degree is required for most professional certificates and employment positions. Within the broad coverage of audiology, it is possible for a student to specialize to a limited extent by choosing elective courses which emphasize traditional diagnostic audiology or aural habilitation-rehabilitation. Students in speech pathology may specialize to a limited extent by choosing elective courses which emphasize speech disorders, language disorders, or cultural language differences. Students desiring school certification in speech and hearing or education of the deaf should consult the Department of Special Education and Rehabilitation for specific requirements. A major in audiology consists of Audiology and Speech Pathology 3010, 3050, 3200, 3310, 3710, 4040, 4450, 4720, 4930 plus not less than 10 or more than 22 credit hours from the following: 3055, 4250, 4460, 4470 and 4940.

Additional recommended courses for audiology majors are Audiology and Speech Pathology 4560, 4610, 4750 and Psychology 2500, 2520, 2540 and 3150. A major in speech pathology consists of Audiology and Speech Pathology 3010, 3050, 3065, 3200, 3310, 4040, 4320, 4330, 4650, 4720, plus not less than 8 but not more than 15 credit hours from the following: 3070, 4310, 4340, 4470, 4400, 4610, 4930, 4940.

Additional recommended courses for speech pathology majors are: Audiology and Speech Pathology 4520, 4450, 4460, 4470, 4750, Anthropology 2530 or 3410, Psychology 2500, 2520, 2530, 2540, 3150, Special Education 4030, 4341, 4342, 4110, 4120, 4130, 4610, and Child and Family Studies 4810.

1281 English Pronunciation for Foreign Students (3) (Same as English 1281.)

3010 Basic Acoustics in Speech and Hearing (4)
Fundamental aspects of acoustics in speech and hearing, including physics of sound.

3040 Introduction to Speech Pathology and Audiology (3) Nature, role, and incidence of speech, hearing, and language disorders. Cannot be used to satisfy requirements of major in audiology or speech pathology.

3050 Speech Science I: Phonetics (4) Basic phonetics including recognition and production of spoken English sounds with analysis of their formation; acoustic characteristics of speech and speech perception. Prereq: 3010.

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

3070 Psychology of Speech (3) Psychological factors in speech and language behavior.

3200 Speech and Language Development (4) Speech and language development in the normal child including development of distinctive features and implications of this process on diagnosis of speech and language development. Prereq: Psychology 3550 or Education 2430.

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

3710 Audiology (4) Fundamental aspects of normal hearing including anatomy and physiology of ear and basic audiometric procedures. Prereq: 3010. (Same as Special Education 3710.)
4040 Appraisal of Speech and Language Disorders (4) Diagnostic procedures for children and adults with speech and language problems including observation and practice with diagnostic tests. Prereq: 3050. (Same as Special Education 4190.)

4101 Foreign Study (1-16) See page 177.

4102 Off-Campus Study (1-16) See page 177.

4103 Independent Study (1-16) See page 177.

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

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

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

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

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

4310 Stuttering (4) Nature and treatment. Review and integration of various theories. (Same as Special Education 4310.)

4320 Clinical Practice in Speech Pathology (1-6) Prereq: 3040, 3050, 3060, 3100, 4040, and permission of instructor. Satisfactory-No Credit. (Same as Special Education 4320.)

4330 Clinical Practice in Speech Pathology (1-6) Prereq: 3040, 3050, 3060, 3100, 4040, and permission of instructor. Satisfactory-No Credit. (Same as Special Education 4330.)

4340 Clinical Practice in Speech Pathology (1-6) Prereq: 3040, 3050, 3060, 3100, 4040, and permission of instructor. May be repeated for credit. Satisfactory-No Credit. (Same as Special Education 4340.)

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

4450 Clinical Practice in Audiology (1-6) Prereq: 4720, 4930, or 4940. Satisfactory-No Credit. (Same as Special Education 4450.)

4460 Clinical Practice in Audiology (1-6) Prereq: 4720, 4930, or 4940. Satisfactory-No Credit. (Same as Special Education 4460.)

4470 Clinical Practice in Audiology (1-6) Prereq: 4720, 4930, or 4940. May be repeated for credit. Satisfactory-No Credit. (Same as Special Education 4470.)

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

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

4560 Problems in Audiology (1-6) May be repeated to maximum of 6 hrs credit. Prereq: Permission of instructor.


4650 Speech and Language of the Culturally Different Child (3) Discussion of speech and language differences of children of various minority groups, of different ethnic and class membership and from different geographic regions; their causes, and their effects upon educational programs.

4700 Audiology for Educators of the Deaf (4) Fundamental aspects of hearing, including physics of sound, anatomy and physiology of the ear, etiology and rehabilitation of hearing loss and basic audiometric techniques. May not be used to satisfy requirements of major in audiology and speech pathology. (Same as Special Education 4700.)

4719 Audiology Laboratory (1) Prereq: Permission of instructor. Undergraduate credit only. (Same as Special Education 4719.)

4720 Audiology II (4) Etiology and rehabilitation of hearing loss including pediatric and geriatric aspects, medical treatment and diagnostic audiometry. Prereq: 3710. (Same as Special Education 4720.)

4750 Noise in the Environment (3) Discussion of extent to which noise problem exists, introduction to methods of noise measurement, basic techniques in sound and vibration abatement, acoustical factors, and physiological concomitants in noise stimulation. Knowledge of acoustics is advisable.

4930 Aural Rehabilitation: Speechreading and Auditory Training (4) Speechreading as a receptive language process and development of maximum use of residual hearing in acoustically handicapped. (Same as Special Education 4930.)

4939 Laboratory in Aural Rehabilitation (1) (Same as Special Education 4939.)

4940 Advanced Aural Rehabilitation (4) Prereq: 4930 or permission of instructor. (Same as Special Education 4940.)

GRADUATE

5000 Thesis

5002 Non-Thesis Graduation Completion (3)

5040 Advanced Clinical Practice in Audiology (1-6)

5050 Practicum in Aural Habilitation (1-6)

5051 Practicum in Aural Rehabilitation (1-6)

5060 Anatomy and Physiology of Speech (3)

5070 Anatomy and Physiology of Hearing (3)

5071 Physiological Acoustics (3)

5100 Comparative Anatomy of Peripheral Auditory Structures (3)

5110 Introduction to Research in Speech and Hearing (3)

5119 Instrumentation in Speech and Hearing Science (3)

5200 Seminar on Stuttering (3)

5201 Aphasia (3)

5320-5340 Advanced Clinical Practice in Speech Disorders (1-6, 1-6, 1-6)

5350-5370 Advanced Clinical Practice in Speech Diagnosis (1-6, 1-6, 1-6)

5380 Cerebral Palsy (3)

5390 Cleft Palate (3)

5440 Hearing Aid Evaluation (3)

5450 Sound Measurement and Analysis in Hearing Conservation (3)

5460 Differential Diagnosis of Auditory Disorders (3)

5470 Impedance Measurement in Audiology (3)

5500 Seminar in Audiology (3)

5503 Seminar in Advanced Audiological Procedures (3)

5520 Seminar in Speech Pathology (3)

5540 Seminar in Language Pathology (3)

5550 Special Problems in Speech Pathology (1-3)

5560 Independent Study in Speech Pathology (1-3)

5600 Independent Study in Audiology (1-6)

5610 Practicum: Language Pathology in Children (3)

5651 Seminar in Language Differences (3)

5700 Seminar in Psycholinguistic Concepts in Speech Pathology (3)

5950 The Verbo-tonal System (3)

6000 Doctoral Research and Dissertation

6010 Experimental Phonetics (3)

6020 Psychoacoustics (3)

6060 Applied Anatomy and Physiology of Speech Mechanism (3)

6070 Experimental Techniques in Cochlear Physiology and Neurophysiology (3)

6080 Seminar in Speech Science (3)

6090 Seminar in Hearing Science (3)

6110 Experimental Design in Speech and Hearing (3)

6117 Theories of Hearing (3)

6500 Advanced Seminar in Audiology (3)

6520 Advanced Seminar in Speech and Language (3)

6560 Directed Research (1-6)

6570 Directed Study in Speech Pathology (1-3)

6580 Directed Study in Audiology (1-3)

6590 Directed Study in Speech Science (1-3)

6600 Directed Study in Hearing Science (1-3)

Bacteriology

See Microbiology.

Biochemistry (188)

Professors: J.W. Greenwald (Head), Ph.D. Purdue; J.E. Churchich, Ph.D. Sheffield (England); K.J. Monty, Ph.D. Rochester; T.P. Salo, Ph.D. Michigan.

Associate Professor: J.G. Joshi, Ph.D. Poona (India).

Assistant Professors: R.H. Feinberg, Ph.D. California (Berkeley); S.W. Hawkins, Ph.D. Chicago; L. Huang, Ph.D. Michigan State.

UNDERGRADUATE

No major is offered, although course work in biochemistry is applicable to majors in biology, and chemistry.

For the Bachelor of Arts Degree with a minor in biochemistry, the following courses are required: Chemistry 2140-49, 3211-21-31.
610 Functions of the Trace Elements (1)
6210 Structure and Function of Macromolecules (1)
6220 Biochemical Genetics (1)
6230 Metabolic Regulation (1)
6310 Biological Energy Transformations (1)
6320 Antigen-antibody Interactions (1)
6330 Biochemistry of Specialized Physiological Processes (1)
6410-20-30 Current Topics in Biochemistry (2, 2, 2)

Biology (190)

Coordinator: K.J. Monty

A major in biology may be met by completing one of the two 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 from approved upper division courses in biochemistry, botany, microbiology, and zoology. 1 Prerequisites to this concentration are: Biology 1210-20-30 or Botany 1110-20 or 1118-28 or Zoology 1118-28; Chemistry 1110-20-30. Corequisites are: Math 1840-50; a year sequence in physics (except 1410-20-30); and Chemistry 2140-49.

B. Concentration in Organismal and Systems Biology. Consists of Biology 3110, 3120, 3130, Chemistry 3211-21-31, 3219-29-39, and 18 hours from approved upper division courses in biochemistry, botany, microbiology, and zoology. 2 Prerequisites to this emphasis area: Biology 1210-20-30 or Botany 1110-20 or 1118-28 or Zoology 1118-28; Chemistry 1110-20-30. Corequisites are: Math 1840-50 or 1550-60 (Math 1840-50 is recommended choice); a year sequence in physics (except 1410-20-30) or Geology 1510-20.

Note: Students majoring in biology are advised to exercise care in fulfilling the science and mathematics triad requirements. Math 1840-50 (or in some cases 1550-60) and Chemistry 1110-20-30 or equivalent (20 hours altogether) must be completed by biology majors. Students majoring in biology are advised to consider completion of a physical science minor (page 211.)

Minor: Consists of Biology 3110-20-30 and 12 hours of upper division courses chosen from the list below. Biochemistry 4110-20, 4119, 5010; Botany, any 3000- or 4000-level courses; Microbiology, any 3000- or 4000-level courses; Zoology, any 3000- or 4000-level courses except 3010-20-30. (In meeting the upper division minimum requirement, not more than 10 hours may be credited from any one biological science department, and not more than 4 hours of research courses may be credited.) Prerequisites to the minor are Introductory Biology courses (Biology 1210-20-30 or Botany 1110-20 or 1118-28 or Zoology 1118-28; Chemistry 1110-20-30. Note: Certain upper division courses require organic chemistry or other prerequisites—consult the catalog description in each case.

1210-20-30 General Biology (4, 4, 4) 1210-Biology of cells: chemical basis of life, cell structure and function, energy metabolism, cell division, DNA, RNA, and protein synthesis, Monera, Protista, and Fungi.
1220-Biology of plants and animals: survey of plant kingdom, structure and function of plant tissues, plant growth and reproduction, survey of the animal kingdom, reproduction and development in animals, animal tissue and organ systems. 1230-Biochemistry, evolution, populations and ecology. May be taken in any sequence. Students who receive credit for 1210-20-30 may not also receive credit for Botany 1110-20, 1118-28 or Zoology 1118-28-38.
3110 General Genetics (4) Classical and modern principles of heredity. Prereg: 1210-20-30 or Botany 1110-20 or the equivalent of two years of high school biology and satisfactory ACT scores; Chemistry 1110-20-30. 3 hrs and 1 additional class meeting. May be taken in any sequence or combination with 3120 and 3130.
3120 Cell Biology (4) Organization and function of the cell. Prereg: Same as 3110. 3 hrs and 1 additional class meeting. May be taken in any sequence or in 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. Prereg. Same as 3110. May be taken in any sequence or combination with 3110 and 3120.

Black Studies
See Cultural Studies.

Botany (198)

Professors: R.W. Holton (Head), Ph.D. Michigan; E.E.C. Clebsch, Ph.D. Duke; H.R. DeSelm, Ph.D. Ohio State; W.R. Herndon (Vice Chancellor for Academic Affairs), Ph.D. Vanderbilt; L.R. Hessler (Emeritus), Ph.D.
ships, morphology and development. Not for botany graduate credit. Prereq: 6 hrs in biological sciences.

3030 Field Botany (4) Study of plants in natural environments including plant identification, collection, preservation and basic ecological concepts. Prereq: 6 hrs in biological sciences. Not for botany graduate credit.

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

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

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

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

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

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

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

4030 Mechanisms of Plant Speciation (4) Processes of plant species, emphasizing population genetics, isolation, drift, hybridization, variation in populations, establishment of population barriers and other aspects of plant speciation. Prereq: 3030-20 and Biology 3110.


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

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

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

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

GRADUATE

5000 Thesis

5011 Mycology (4)

5012 Morphology and Evolution of Phycocystes (4)

5017 Field Mycology (4)

5021 Bryology (4)

5022 Lichenology (4)

5031 Vascular Plant Taxonomy (4)

5061 Phycology (4)

5070 Principles of Biological Illustration (3)

5080 Pteridology (4)

5090 Morphology and Evolution of Basidiomycetes (4)

5120 Agrostology (4)

5150 Advanced Morphology of Flowering Plants (4)

5160 Biosystematics (4)

5210 Advanced Plant Physiology I (3)

5220 Advanced Plant Physiology II (3)

5290 Quaternary Problems (4)

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

5340 Plant Geography (4)

5350 Analysis of Plant Communities (4)

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

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

5780 Plant Cytology (4)

5810 Cytogenetics (4)

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

5830 Field Methods in Plant Ecology (4)

5840 Microbes in Ecosystems (3)

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

5870 Advanced Plant Genetics (4)

5910-20 Developmental Plant Morphology (3, 1)

6000 Doctoral Research and Dissertation

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

6060 Advanced Topics in Cryptogamic Botany (2-4)

6210 Photobiology (3)

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

6320 Ecosystems of the World (3)

6420 Advanced Topics in Genetics (2-4)

6620 Seminar in History of Botany (2)

6630-40 Radiation Ecology (2, 2)

6620 Advanced Topics in Plant Physiology (2-4)

6830 Advanced Topics in Ecology (2-4)

6930 Advanced Topics in Systematic Botany (2-4)

Chemistry (235)

Professors:
D.A. Shirley (Head), Ph.D. Iowa State; N.S. Bowman, Ph.D. Princeton; C.A. Buehler (Emeritus), Ph.D. Ohio State; W.E. Bull, Ph.D. Illinois; C.J. Collins, Ph.D. Northwestern; I.A. Dean, Ph.D. Michigan; J.F. Eastham, Ph.D. California (Berkeley); W.H. Fletcher, Ph.D. Minnesota; C.W. Keenan (Associate Dean), Ph.D. Texas; D.C. Kleinfeifer, Ph.D. Princeton; M.H. Lietzke, Ph.D. Wisconsin; G. Marnaroff, Ph.D. Louisiana State; A.D. Melaven (Emeritus), Ph.D. Penn State; G.D. O'Keiley, Ph.D. California (Berkeley); G.K. Schwitzer, Ph.D. Illinois; G.P. Smith, Ph.D. Virginia; H.A. Smith (Emeritus), Ph.D. Harvard; W.T. Smith (Emeritus), Ph.D. Ohio State; W.A. Van Hook, Ph.D. Johns Hopkins; T.F. Williams, Ph.D. London (England); J.H. Wood (Emeritus), Ph.D. North Carolina.

*Students with 2 years of high school biology and satisfactory ACT scores may, with the permission of the department, omit the freshman year sequence and enter Biology 3110-20-30 directly (see course listings under biology).
Assessors: J.E. Bloor, Ph.D. Manchester (Engel); J. E. Glazer, Ph.D. Kapiola, K. Kaballa, Ph.D. Purdue; C. A. Lane, Ph.D. California (Berkeley); J. W. Larsen, Ph.D. Purdue; R. W. Ladd, Ph.D. Indiana; J. C. Paris, Ph. D. Wisconsin; J. R. Peterson, Ph.D. California (Berkeley); E. L. Wehry, Ph.D. Purdue.


UNDERGRADUATE

For information regarding the Bachelor of Science in Chemistry degree and the cooperative program in chemistry, see page 175.

There are two alternative routes for the student to take in designing a program for a B.A. degree with a major in chemistry. Concentration A is designed to prepare the student for a career as a professional chemist or for entrance into graduate school in such fields as chemistry, biochemistry, geochemistry, etc. This program has similarities to that leading to the degree of Bachelor of Arts in Chemistry, (page 175), 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 approved by the Committee on Professional Training of the American Chemical Society.

The prerequisites consist of Chemistry 1100-1030, Mathematics 1400-50-60, 2480-50, Physics 2510, 2310-20. The concentration consists of Chemistry 2140, 2149, 3211-21-31 or 3511-21-31 (latter recommended), 3219-29-39 or 3219, 3529-39 (latter recommended), 3410-20-30, 3429 plus at least 10 hours of additional upper division work in chemistry. (Up to six hours of Biochemistry 4000-level and above or Geology 4610 may be applied to the ten-hour requirement.) While not required, Math 2860 is 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 application, 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 1100-20-30, Mathematics 1540-50-60 or 1840-50-60 and any of the following natural science options: (a) Physics 2210-20-30 or 2510, 2310-20; (b) Geology 1510-20; (c) Biology 1210-20-30; (d) Biology 3110-20 and Microbiology 3000, 3008; (e) Botany 1110-20. The concentration consists of Chemistry 2140, 2149, 3211-21-31 or 3511-21-31 (latter recommended), 3219-29-39 or 3219, 3529-39 (latter recommended), 4910-20-30, 4929 plus at least 10 hours of additional upper division work in chemistry. (Up to six hours of Biochemistry 4000-level and above or Geology 4610, may be applied to the ten-hour requirement.)

A minor in chemistry shall consist of the successful completion of 40 hours of upper division chemistry courses numbered 3200 and above including Chemistry 2140-49 (4 hours) and at least one of the following sequences: Chemistry 3211-3212-3231, 3219-3229 (or 3529)-3239 (or 3539) (12 hours) or Chemistry 3410-3420-3430 (9 hours) or Chemistry 4910-4920-4930 (9 hours).

Placement in Freshman Sequences: The sequence which meets all requirements of a year's general chemistry and is a prerequisite for upper division courses is 1100-20-30. The 1500 and 1600 series have more limited applications. The 1500 series emphasizes organic and biochemistry and may be used as a prerequisite for courses 3210 and 3810. The 1600 series is for non-science majors and does not provide an adequate background for any additional courses in chemistry.

It is impossible 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 1100 series after having completed courses 3210 and 3810, and 3810 may be used as a prerequisite for courses in the department and may then take 1120 followed by 1130. However, no single quarter of the 1500 or 1600 sequences may be substituted for the department.

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 1100-20-30 as a prerequisite, 1510-20-30 may be used as a prerequisite for the chemistry department.

Chemistry 1118-28-38 is an honors course designed for the superior student who has already made rapid progress in science. Selection is based on placement test scores and the high school chemistry grade. A grade of A or B in 1128 also gives credit for 1138 with the same grade. A student receiving a grade below B in 1118 will have the opportunity to complete the year's work by taking 1120-30. A student receiving a grade of C or D in 1128 must take 1130 to get the full 12 hours credit.

Beginning in 1960, students in high school and who have had high school chemistry and who have had additional experience (e.g., summer institute study, special research projects, home laboratory) are invited to apply during the summer to the 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.

1100-20-30 General Chemistry (4, 4, 4) General course of theoretical and descriptive chemistry. 1110—Modern atomic theory, chemical bonding, stoichiometry, and quantitative aspects of gas laws. 1120—Quantitative aspects of solution chemistry, kinetics, chemical equilibria, and thermochernistry. 1130—Descriptive chemistry of nonmetallic and metallic elements, electrochemistry and introduction to organic and biochemistry. Must be taken in sequence. 3 hours and 1 lab.

118 Honors: General Chemistry (4) (See explanation above.) 3 hrs and 1 lab.

1128-38 Honors: General Chemistry (4, 4) (See explanation above.) 3 hours and 1 lab.

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

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

1510-20-30 General Chemistry (4, 4, 4) Introductory course and emphasis on empirical relationships of chemical systems. 1510—Bonding and molecular structure, gas laws, liquid and solid state, solutions, colligates. 1520—Acids and bases, aqueous, basic and nonaqueous, kinetics and equilibria. Introduction to organic chemistry, alkanes, unsaturated and aromatic hydrocarbons. 1530—Reactions of various organic functional groups. Introductory biochemical reactions of acids and proteins, carbohydrates, lipids, nucleic acids. Must be taken in sequence. 3 hrs and 1 lab.

1610-20 Chemistry and Society (4, 4) Chemistry for nonscience majors emphasizing role of chemistry in dealing with current social concerns. 1610—Basic principles including particle nature of substances, their structure, and chemical changes. 1620—Impact and utilization of chemical principles in modern society with selected topics in areas of energy, environment, medicine and consumer products. Must be taken in sequence.


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 carbon and their reactions, mechanistic aspects, 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.


3429-39 Physical Chemistry Laboratory (1, 1, 1) Gases, liquids, chemical equilibria, solutions, phase equilibria, reaction kinetics and electrochemistry. The corresponding courses (3420 and 3430) are corequisites. 1 lab.

3511-21-31 Principles of Organic Chemistry (3, 3, 3) Structure and reactions 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: 3219-29-39 or 3219, 3529-39 is a corequisite; latter is recommended.

3529-39 Organic Chemistry Laboratory (1, 1, 1) Experiments on topics discussed in 3511-21-31. Corresponding laboratory 3219-29-39 or 3219, 3529-39 is a corequisite; latter is recommended.
need for operating knowledge of various spectroscopic and chromatographic techniques. Coreq. Prereq: (3521-31 or 3221-31) is a corequisite for students not having credit for the lecture.

3810 Radioactivity and Its Applications (3) Radioactive materials in tracer and therapeutic applications. Radioactive decay, detection apparatus and techniques, tracer procedures and safety precautions in agriculture, biology, medicine, nutrition, etc. Not for credit by chemistry or physics majors or minors. Prereq: Math 1550 or equivalent, 1 yr of General Chemistry.


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

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

4210 Advanced Analytical Chemistry (3) Chemical separations including chromatography, ion exchange and solvent extraction; spectrophotometric techniques. Prereq: 3420-49.

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

4220 Advanced Analytical Chemistry (3) Electroanalytical methods of analysis (including Potentiometry, coulometry, polarography, and voltammetry); magnetic resonance methods; mass spectrometry, x-ray absorption and fluorescence techniques. Prereq: 2140-49, 3420 or 4920 recommended.

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

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

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

4510 Organic Qualitative Analysis (3) Identification of organic compounds and mixtures. Prereq: 3211-21, 3211-29-39 or 3219, 3529-39. 3 labs. Not open to students who have completed 4610.


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

4640 Electronics for Chemists (4) Electronics in design and construction of chemical instrumentation. 2 hrs and 2 labs. Prereq: Physics 2310.

4710-20-30 Research in Chemistry (2, 2, 2) Open to senior majors with permission of department head. Written report must be submitted to research director at termination of project.

4910-20-30 Biophysical Chemistry (3, 3, 3) Physicochemical principles with applications to biological systems. Must be taken in sequence. Not open to students having 3410-20-30. 4910—Gas laws; first, second and third laws of thermodynamics; equilibrium. 4920—Solution chemistry; electrochemistry; kinetics; nuclear chemistry. 4930—Elementary quantum chemistry; optical and magnetic spectroscopy; light scattering; macromolecular properties. Prereq: 1110-20-30; Math 1540-50 or equivalent.

4929-39 Biophysical Chemistry Laboratory (1, 1) Experiments on topics discussed in 4910-20-30. Must be taken in sequence. Not open to students taking 3410-20-30-39 sequence. 4920 is coreq. or prereq for 4929. 4930 is coreq or prereq for 4939. 1 lab.

GRADUATE

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

For students minoring in chemistry, the prerequisite is two years of chemistry including quantitative analysis.

The Master's Program

Master's degree requirements are found in the Graduate School Catalog.

The Doctoral Program

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

5000 Thesis

5110-20-30-35 Advanced Organic Chemistry (3, 3, 3, 3)

5129 Advanced Organic Chemistry Laboratory (3)

5140 Introductory Polymer Chemistry (3)

5150 Kinetics of Polymerization (3)

5160 Organic Chemistry of Polymers (3)

5170 Physical Chemistry of Polymers (3)

5240 Electronics for Chemists (4)

5250-60-70 Advanced Analytical Chemistry (3, 3, 3)

5299-60-75 Advanced Analytical Chemistry Laboratory (1, 1, 1)

5290-90 Clinical Chemistry (3, 2)

5299 Clinical Chemistry Laboratory (1)

5310-20-30 Research in Chemistry (3, 3, 3)

5340-50 Quantum Chemistry (3, 3)

5410-20-30 Advanced Physical Chemistry (3, 3, 3)

5440 Experimental Methods of Infrared and Raman Spectroscopy (3)

5450 Statistical Thermodynamics (3)

5460 Radiation Chemistry (3)

5511 Survey of Inorganic Chemistry (3)

5521 Survey of Analytical Chemistry (3)

5531 Survey of Organic Chemistry (3)

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. G. Butledge (Head), Ph.D. Ohio State; A. Rapp (Emeritus), Ph.D. Illinois.

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

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

Greek and Roman Civilization

See Cultural Studies.

Greek

UNDERGRADUATE

A major in Greek consists of 39 hours of language courses numbered above 2000 but including Classics 4220. Nine hours from the following general courses may be substituted for language courses at the discretion of the department: Classics 3210-20, 3310-20, 4010. 4101 may be taken for a maximum of 6 hours. The Greek minor consists of 24 hours in
language courses numbered above 2000 including Classics 4220. Six hours from the following general courses may be substituted: Classics 3210-20, 3310, 3320.

1610-20 Beginning Greek (4, 4) Must be taken in sequence.

2610 Xenophon (4)
2620 Homer: Odyssey (4)
2630 Homer: Iliad (4)
2640 Greek New Testament (4) Prereq: 2610 or permission of instructor.
3010 Plato (3)
3020 Herodotus (3)
3030 Euripides (2)
4020 Aeschylus; Sophocles (3)
4030 Lysias (3)
4040 Aristophanes (3)
4050-60-70 Directed Readings in Greek (3, 3, 3)

GRADUATE

Graduate courses in Classics include wider reading of Greek or Latin authors in a selected field, more detailed study of one or the great departments of classical literature, and development of background and appreciation of Greek or Roman life and literature.

5000 Thesis
5110-20-30 Greek Epic, Homer (3, 3, 3)
5210-20-30 Greek Drama (3, 3, 3)

Latin

UNDERGRADUATE

A major in Latin consists of 39 hours in language courses numbered above 2000, but including Classics 4220. Nine hours from the following general courses may be substituted for language courses at the discretion of the department: Classics 3210-20-30, 3310, 3320, 3330. 4101 may be taken for a maximum of 6 hours. Greek language courses numbered above 2000 may be substituted for a maximum of 9 hours of Latin courses with permission 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 The University of Tennessee from other colleges and students who enter with high school units in Latin should register for the course 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 their 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.


1510-20 Beginning Latin (4, 4) Must be taken in sequence.

2511-21 Intermediate Latin (4, 4) 2511—Readings from the age of Cicero, 2521—Virgil's Aeneid. Open to those who have had at least two years of high school Latin, or equivalent.
3140 Ovid (3) Prereq: 3 or 4 years of high school Latin or 2521.
3150 Plautus and Terence (3) Prereq: 3 or 4 years of high school Latin or 2521.
3160 Catullus (2) Prereq: 3 or 4 years of high school Latin or 2521.
3440 Livy (3)
3450 Pliny and Martial (3)
3460 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

5000 Thesis
5310 Seminar in Caesar (3)
5410-20-30 The Latin Epic. Lucretius, Virgil, Lucan (3, 3, 3)
5510-20-30 Roman Comedy. Plautus, Terence (3, 3, 3)

GENERAL COURSES

2710 Greek Etymology (4) Origin and derivation of words. Greek etymology most commonly used in English language with special attention to words in scientific and technical vocabularies.
2720 Latin Etymology (4) Origin and derivation of words. Latin stems most commonly found in English language with special attention to words in scientific and technical vocabularies.
2810 Greek Life (4) Manners and customs, social and economic aspects of classical civilization; family, politics, law, finance, commerce.
2820 Roman Life (4) Description same as for Greek Life 2420.
2910-20 Survey of Greek Literature in English Translation (4, 4) 2910—Homer, lyric poetry, Herodotus. 2920—Thucydides, Plato, literature of the age of Alexander.
3210 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 3210.)
3220 Greek Mythology in the Classical Period (3) A study of use of myth in literature, history, religion, philosophy, and art of Classical Age of Greece, and change of attitude toward myth from earlier periods.

Familiarity with basic Greek myths is assumed. Reading, lectures, slides, and discussion. (Same as Religious Studies 3220.)

3230 Roman Mythology (3) Study of myths created by Romans, as well as those the Romans borrowed or Greek, with reference to Roman attitude toward history, religion, and society. Reading, lectures, slides, and discussion. (Same as Religious Studies 3230.)

3310 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 Archaic 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 Greek, Etruscan, and Roman sculpture, painting, and architecture with attention to city planning. Illustrated lectures.

3340 Cities of the Greek and Roman World (4) Archaeological survey of Greek and Roman cities from 3000 B.C. to 500 A.D. with emphasis on development of city planning and quality of life. Such cities as Mycenae, Athens, Priene, Alexandria, Rome, and Lepcis Magna will be studied.

3350 Shrines and Sanctuaries of the Greek and Roman World (4) 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 Basilea will be considered. Readings in selected classical authors will add to understanding of place of great shrines and sanctuaries in Greek and Roman life.

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

4101 Foreign Study (1-16) See page 177.

4210 Teaching of Latin (3) Carries no language credit. For description see Education, Curriculum and Instruction 3656. (Same as Educ. C&I 3656.)

4220 Seminar in Classical Studies (3) Special problems in literatures and other arts of Greece and Rome. For graduate students and advanced undergraduates. May be repeated for credit with permission of department.

4230 Classical Mythology and Its Uses (3) Intensive review and survey of Greek and Roman mythology for graduate students and advanced undergraduates. Emphasis on uses of classical mythology in literature, music, and plastic arts, especially of modern times.

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

GRADUATE

5620 Problems in Old World Archaeology (3)

Comparative Literature

See Cultural Studies.

Computer Science (266)


Associate Professors: R.M. Aiken, Ph.D. Northwestern; C.E. Hughes, Ph.D. Pennsylvania State; S.M. Seklow, Ph.D. Pennsylvania.
UNDERGRADUATE

Computer science offers undergraduate major and minor concentrations 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 1510 is a prerequisite to a major in computer science which consists of 2510, 3515, 3510, 3520, 4510, 4550, and an additional fifteen hours selected from computer science intermediate and advanced courses as listed below. Also required are Math 2840-50-60 (or the honors sequence 2845-58-68) and Statistics 3450.

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

Introductory and Service Courses

1010 Elementary Computer Programming (1) Initial exposure to computer programming in the FORTRAN language; not sufficient to serve as prerequisite for any other course.

1410 Introduction to Business Oriented Programming (3) Current and potential uses of computers as a tool in business environment with emphasis on learning FORTRAN programming. Not for credit for computer science major or if 1510 previously taken. Intended primarily for students in College of Business Administration. Prereq: Math 1560 or Math 1840.

1510 Introduction to Computer Science (4) Computer as a tool of varied uses in modern world; emphasis on basic programming in FORTRAN. Problem-solving processes; organization and characteristics of digital computers. Survey of applications of computers in various disciplines. Not for credit if 2410 previously taken. Prereq: Math 1560 or Mathematics 1840.


3010 Computers and Society (3) History of computing and computer systems; capabilities of computer; applications in artificial intelligence, humanities, social sciences, sciences and engineering; computing in foreign countries; computer assisted instruction; future advances in computing; careers in computing. Prereq: Permission of instructor.

3150 Introduction to Numerical Algorithms and Programming (3) Roots of equations, systems of linear equations, least-squares data fitting, numerical integration, numerical methods for ordinary differential equations. Introduction to programming in FORTRAN 3150 and 3155 may not both be taken for credit; students with a knowledge of FORTRAN should take 3155. Prereq: Coreq: Math 2860. (Same as Math 3150.)

3155 Introduction to Numerical Algorithms (3) Roots of equations, systems of linear equations, least-squares data fitting, numerical integration, numerical methods for ordinary differential equations. 3150 and 3155 may not both be taken for credit; students with no knowledge of FORTRAN should take 3150. Prereq: 1510 or permission of instructor. Prereq: Coreq: Math 2860. (Same as Mathematics 3155.)

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

3910 Commercial Computer Concepts and Control (3) Elements, operating, and control of computers in a business environment. Topics include input, storage, data manipulation, output, flowcharting, and control error. Prereq: 3410 and Accounting 2210.

4310 Computation in Statistical Analysis (3) Use of digital computer in standard statistical analyses, such as frequency tabulations, percentiles and data reduction, correlation and regression, analyses of variance. Elementary programming in a problem-oriented scientific language, e.g., FORTRAN. Prereq: Statistics 2100 or equivalent. 3 lectures. Not for credit for computer science majors.

4320 File Maintenance and Data Processing (3) Applied computer programming. Error analysis of FORTRAN programs, overlay structures, maintenance of tapes and direct access information storage files, use of utility programs, sort and merge. (Not for credit for computer science major.) Prereq: one course in FORTRAN programming.

4330 Special Projects in Applied Programming (3) Applied programming in area of student's primary interest, using the digital computer. To be directed by computer science faculty, perhaps jointly with student's faculty advisor. Oral and written reports. Prereq: programming experience. 1-3 hours. May be repeated for a maximum of nine hours credit.

Intermediate and Advanced Courses

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


3715 Discrete Structures (3) Introduction to discrete structures useful in computer science. Sets, set logic, relations, functions, proof techniques, graph theory, lattices, Boolean algebras. Prereq: 1510 and Math 2860 or equivalents. (Same as Mathematics 3715.)

4035-45 Introduction to Numerical Linear Algebra (3, 3) Floating-point numbers and arithmetic on modern digital computers; numerical algorithms for solving systems of linear equations; linear least-squares methods and eigenvalue computations. Prereq: 3150 or 3155. (Same as Mathematics 4035-45.)

4225-35 Introduction to Numerical Analysis (3, 3) (Same as Math 4225-35.)

4510 Data Structures and Nonnumeric Programming (3) Data structures and algorithms for their manipulation. Arrays and orthogonal polynomials, floating point arithmetic, binary trees, dynamic storage allocation, organization of files, programming, software, human aspects. Prereq: 3520 or permission of instructor.


4610 Operating Systems-Concepts and Facilities (3) Detailed examination of major operating system. Memory, processor, device, and data management. Interrupts, machine-level I/O, loaders and relocation, device drivers, operating system, time sharing, SPOOLING. Prereq: 4550 and 4510.

4620 Operating Systems-Case Studies (3) Alternatives in operating system design, dynamic relocation, paging, segmentation, memory sharing, time slicing, priority, concurrency, real time systems. Examples from different operating systems analyzed as appropriate. Prereq: 4510 or equivalent or permission of instructor.


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

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

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

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

4980-90 Special Studies in Computer Science (1-4) Credit determined at time of registration. May be repeated for credit to maximum of 9 hours with permission of department. Prereq: recommendation of computer science staff.

GRADUATE

5000 Thesis

5002 Non-Thesis Graduation Completion (3)

5010 Computer Assisted Instruction (3)

5050 Computer Modeling and Simulation of Physical Systems (3)

5210 Artificial Intelligence (3)

5250 Medical Computing (3)

5430 Compiler Design (3)

5455 Finite Difference Methods for Partial Differential Equations (3)

5465 Mathematical Aspects of the Finite Element Method (3)

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

5670-80 Advanced Operating Systems (3, 3)

5710 Finite Automata Theory (3)

5730 Computability and Computational Complexity (3)

5750 Theory of Formal Languages (3)

5810 Information Organization and Retrieval (3)

5840-50 Pattern Recognition (3, 3)

5910-20-30 Special Topics in Computer Science (1-3, 1-3, 1-3)

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

5970-80-90 Seminar (1-3, 1-3, 1-3)

Cultural Studies

Director: Dr. Charles Jackson

Basic Staff: S.R. Blaschke, Ph.D. History; J.S. Elliott, Ph.D. Russian; D.M. Fies, Ph.D. Russian; C.O. Jackson, Ph.D. History; S.B. Kurth, Ph.D. Sociology; H.E. Landwirth, Ph.D. Spanish; D.H. Littlejohn, B.A. Special Programs; C.J. Mellor, Ph.D. German; M.E. Peek, M.A. History; M.P. Rice, Ph.D. Russian; H.C. Rutledge, Ph.D. Classics; P.B. Scott, Ph.D. Home Economics; Z. Shinkawa, M.A. Special Programs; S.E. Young, Ph.D. Music.

*On leave.
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, Asian studies, Black studies, comparative literature, Latin American studies, linguistics, Medieval studies, and Russian and East European Studies. Minors are provided in Asian studies, Black studies, comparative literature, Latin American studies, linguistics, Medieval studies, and women's studies.

**American Studies (099)**

History 2510-20 (or equivalent honors courses) are prerequisite to a concentration in American Studies which consists of 36 quarter hours. English 3010-20-30, 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.

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

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

**Asian Studies (145)**

This concentration consists of 36 quarter-hours, including Asian Studies 2510-20 and at least eight hours from Asian Studies 3310-20-30-40. In addition to courses with Asian studies numbers, courses from at least two other departments must be selected. The Asian studies minor consists of 24 quarter-hours, including Asian Studies 2510-20 and at least eight hours from Asian Studies 3310-20-30-40. Students completing the minor successfully will upon application to the program chairperson be awarded the Asian studies certificate in acknowledgement of the work. In addition to courses with Asian studies numbers, courses from at least two other departments must be selected from the list below.

For further information consult the chairperson of the Asian Studies Committee, Dr. Stephen Young.

Anthropology: 3510 Peoples and Cultures of Mainland Asia (3) 4400 Peoples of China I: Chinese Society before 1839 (3) 4510 Peoples of China II: Chinese Society after 1839 (3) 4570 Peoples of Southeast Asia (3) 4580 Peoples of Japan (3)

Art: 3775-76-77 History of Oriental Art (4, 4, 4) 4875-76-77 Studies in Oriental Art History (4, 4, 4)

Geography: 3870 Geography of Asia (4)

History: 3810-20-30 History of East Asia (3, 3, 3)

3780-90 History of the Middle East I, II (3, 3) 3795 Contemporary Middle East (4) 4811-21 History of Japan I, II (4, 4) 4870 Cultural History of China (3) 4880 History of Modern China (3) 4890 History of Contemporary China (3)

Music: 4260 Introduction to Ethnomusicology (3)

Political Science: 3621-22 Politics of Asian States (4, 4) 3641-42 Government and Politics of Middle East and North Africa (4, 4) 3650 Philosophy and Religion in India (4) 3660 Buddhist Philosophy and Religion (4) 3670 Religion and Philosophy in China and Japan (4)

Religious Studies: 3680 Islam (4) 3760 Eastern Religions and Western Thought (3) 3770 Zen Buddhism (3) 4670 Topics in Eastern Religions (4) 4960 Tradition, Change and Modernity in Asia (4)

Romance Languages: 1510-20 Arabic (4) 2510-20 Intermediate Modern Standard (4, 4) 3510-20 Intermediate Modern Standard (4, 4) 3610 Islamic Literature in English Translation (4)

2510-20 Asian Civilization (4, 4) Introduction to Asian civilization by comparative study of development of religion, social institutions, and high culture in India, China, Japan and the Islamic world. 2531-32 Intermediate Chinese (4, 4) Must be taken in sequence.

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

3000 Selected Topics in Asian Studies (4)

3100-20-30-40 Asian Cultures (4, 4, 4, 4) Readings in translation from classical and modern literature together with study of religion/philosophy, society, art and music. 3310-India; 3320-China; 3330-Japan; 3340-Islam.

3531-32 Intermediate Chinese (4, 4) Prereq: 1521-22 or equivalent or permission of instructor; must be taken in sequence.

3631-32 Intermediate Japanese (4, 4) Prereq: 2621-22 or equivalent or permission of instructor. Must be taken in sequence.


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

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

**Black Studies (195)**

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

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

2010-20 Introduction to Black Studies (4, 4)

3140-50-60 Directed Readings in Black 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 permission 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 Race in America (4) (Same as Religious Studies 3550.)

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

3630-40 Theory of Education in Black People (4, 4) The course will trace, analyze, and interpret educational systems established for and by Blacks. Special emphasis will be given to colonial experience and the Washington-DuBois controversy in 3630; 3640 will deal with present urban educational problems of Blacks. Recent proposed remedies and solutions as integration, compensatory programs, decentralization, voucher systems; Black Studies and Education Schools will be discussed. 2010-20, History 1950-60 recommended. Prereq: consent of instructor.

4101 Foreign Study (1-16) See page 177.

4102 Off-Campus Study (4-8) See page 177.

4103 Independent Study (1-8) See page 177.

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

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

4500 Current Issues and Topics in Black Studies (3-4) Topics and issues in area of Black studies. Content and credit determined by instructor. May be repeated. Maximum credit 12 hours.

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

4830 Black Women in American Society (4) Historical and contemporary sociocultural factors in American society as they relate to the Black woman. History 1950-60 recommended. Prereq: consent of instructor.

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

Anthropology 3530 Peoples and Cultures of Africa (3)

Anthropology 3930 Biology of the Races of Man (3)

Art 2725 Black Art (4)

CFS 4310 The Afro-American Family (3)

English 2540 The Literature of Black America (4)

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

Geography 3830 Geography of Africa (3)
Comparative Literature (260)

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

A minor in comparative literature consists of 24 hours including Comparative Literature 4010, two courses from Comparative Literature 4012-22-32, 6 hours of literature in a foreign language in courses numbered 3000 and above, and 9 hours of literature courses numbered 3000 and above, either in English or in a foreign language, from at least two of the following departments: Classics (4010, 4250, 4510), English, Germanic and Slavic Languages, Religious Studies, and Romance Languages (certain courses in Philosophy or Speech and Theatre may be substituted with the approval of the Comparative Literature Program). Minors in comparative literature are strongly encouraged to continue their study of a foreign language beyond the minimum requirement.

For further information, consult the chairperson 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.

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

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

5012 Comparative Theories of Literature (3)

5022 Approaches in Comparative Literature (3)

5032 Studies in Comparative Literature (3)
Classics 3210-20-30 Greek and Roman Mythology (3, 3, 3)
Classics 4010 Greek Drama in English Translation (3)
Classics 4510 Selected Reading in Latin Literature in Translation (3)
English 3411-12-20-30 Modern Drama (3, 3, 3, 3)
English 3710 Literature of the English Bible (3)
English 3910-20-30-40 Comparative Literature (3, 3, 3, 3)
English 4720 Folktale (3)
English 4730 Popular Ballad (3)
English 4950 Approaches to Literature (3)
English 5860 Introduction to Literary Research (3)
German 3210-20-30 Masterpieces of German Literature in English Translation (3, 3, 3)
German 4030 German Drama in English Translation (3)
German 4040 The Modern German Novel in English Translation (3)
German 4050 The Faust Legend (3)
Russian 3210-20-30 Survey of Russian Literature in English Translation (3, 3, 3)
Romance Languages 4010 Masterpieces of French Literature in English Translation (3)
Romance Languages 4020 Masterpieces of French Drama in English Translation (3)
Romance Languages 4030 Masterpieces of Spanish Literature in English Translation (3)
Romance Languages 4040 Masterpieces of Spanish Drama in English Translation (3)
Romance Languages 4050-60-70 Dante and Medieval Culture (3, 3, 3)

Greek and Roman Civilization

The Greek and Roman civilization concentration consists of Classics 2810 and 2820 and 30 hours from courses numbered above 3000. Students are encouraged to satisfy the Triad requirement in language, literature and the arts with either Greek or Latin in either Option 1 or Option 2. The following courses are required in this concentration: Classics 4010 and 4510; 9 hours from Classics 3210-20-30, 3310-20-30. For no more than 6 of these 15 hours students may substitute courses numbered above 3000 in Greek and Latin (exclusive of any courses taken to satisfy the Triad requirement). Upon consultation with the advisor the student may take the remaining 15 hours from the following courses: History 3750-60-70; Philosophy 3111-3121, 4410-20; Religious Studies 4310. Students could include Classics 4220 or History 4000 when the student is a Classics major.

For further information, consult the chairperson of the program, Dr. Harry Rutledge.

Latin American Studies (600)

Concentration consists of 36 hours including Spanish 3710-20 or Portuguese 3510-20, History 3870-80-90, Political Science 3625-28, 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 or Portuguese or a practical working knowledge acquired independently are a prerequisite.

Minor: Consists of 24 quarter hours selected from Geography 3860 or 3790, History 3870-80-90, Political Science 3625-28, and Spanish 3710-20 or Portuguese 3510-20, and the Latin American studies sequence 2510-20 or Independent Research 4010.

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

2510-20 Introduction to Latin American Studies (4, 4) Introduction to societies of Latin America with special emphasis on dominant culture patterns, social changes, and impact of nationalism. 2510 Pre-Colonial and Colonial periods through the Independence era; 2420—Latter 19th Century and the Modern period.

4010 Independent Research in Latin American Studies (3-9) 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 America 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 permission of instructor.

Linguistics (623)

This cultural studies 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
Medieval Studies (674)

A concentration in Medieval studies focuses upon culture and society from the collapse of the Roman Empire to the sixteenth century. Such a concentration offers the opportunity to deepen one’s self-awareness and broaden one’s view of the range of human possibilities by studying a very different and remote culture—its conditions of life, social and political institutions, values and ideals, and modes of perception and expression. A concentration in Medieval studies consists of Medieval Studies 2010 and 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 concentration. Each student’s program, major or minor, must be approved in advance by the Medieval Studies Coordinating Committee, chairperson Sarah Blanpied, 1113 McClung Tower.

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.

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.

Category #1

History, Philosophy, Political Science and Religious Studies.

History 3061 History of Western Religious Thought (6) and Institutions (4)

History 3411 Renaissance (3)

History 3710 History of Germany (3)

History 3780 History of Middle East (3)

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

History 4500 History of Medieval England (3)

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

Philosophy 4430 Medieval Philosophy (4)

Political Science 3802 Studies in Political Thought (4)

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

Religious Studies 3411 Renaissance and Reformation (4)

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

Category #2 Language and Literature

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

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

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

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

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

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

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

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

French 3210 French Literature in English Translation (3)

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

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

German 3240 Old Norse Literature in English Translation (3)

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)

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

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

Category #3 The Arts

Architecture 4010 Special Problems in Architecture (1-8) (when subject is part of medieval culture and society, e.g. Gothic and Scholasticism)

Architecture 4130 Seminar in Medieval Architecture (4)

Art 3704 History of Medieval Art (4)

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

Art 3705 Northern European Painting, 1350-1600 (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)

Theater 3252 History of the Theater (4)

Russian and East European Studies (887)

There are two approaches for the student to take in designing a program with a concentration in Russian and East European studies.
Track I is designed for students whose major interest is in a career in the academic world or in some branch of government service. Prerequisites to this track are Russian 2510-20 and 2640-50. The track consists of Economics 4000, Geography 3880; six hours from History 3470-80-90, 4470, 4480, and 4490; Political Science 4815 and four hours from Political Science 3631-32, 3715; Russian 3110-20-30 or 3810-20-30; and six hours from Russian 3210-20-21-30, 3240, 3250, 3260.

Track II is designed for students whose major interest is in a career in the world of international business and/or finance specifically oriented toward trade with the Soviet Union and Eastern Europe. Prerequisites to this track are Russian 2510-20 and 2640-50. The track consists of Economics 3210, 4000, and 4230; three hours from History 3470-80-90 and three hours from History 4480, 4490, or Geography 3880; Political Science 4815 and four hours from 3631-32, 3715; Russian 3110-20-30 or 3810-20-30; Marketing 4230; and Finance 4420.

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

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

Women's Studies (994)
Minor: Consists of Women's Studies 2010-20 and 16 hours of appropriate courses numbered 3000 or above. Supporting courses are drawn from several departments and colleges on the UTK campus. A list of available courses will be published annually by the Women's Studies Committee. For further information consult the chairperson of Women's Studies, Dr. Suzanne Kurth.

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

Cultural Studies (270)
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 a 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 page 177.

4102 Off-Campus Study (1-16) Acceptable for credit in any cultural studies concentration or minor except Black Studies. Registration by consent of Director of Cultural Studies and respective chairperson. See page 177.

4103 Independent Study (1-16) Acceptable for credit in any cultural studies concentration or minor except Black Studies. Registration by consent of Director of Cultural Studies and the respective chairperson. See page 177.

GRADUATE
5101 Foreign Study (1-12)
5102 Off-Campus Study (1-12)
5103 Independent Study (1-12)

Ecology (278)
J. Frank McCormick, Director.
Basic Faculty:

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

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

Application forms for admission should be obtained from the Graduate School. Inquiries concerning the admission requirements should be addressed to the Director, Graduate Program in Ecology, 408 10th Street, University of Tennessee, Knoxville, Tennessee 37916.

COURSES ACCEPTABLE IN PROGRAM
Agricultural Biology
4010 Biology of Soil Microorganisms (4)
4510 Freshwater Fishery Biology (4)
4520 Management of Lakes and Ponds (4)
Botany
4310 Plant Ecology (4)
5340 Plant Geography (4)
5350 Analysis of Plant Communities (4)
5510-20-30 Systems Ecology (3, 3, 3)
5830 Field Methods in Plant Ecology (4)
Ecology
5000 Thesis
5100 Special Problems in Ecology (1-3)
5210-20-30 Principles of Ecology (2, 2, 2)
5310 Ecology for Planners and Engineers (3)
5320 Implementation of Environmental Policy (3)
6000 Doctoral Research and Dissertation
6100 Special Topics in Ecology (3)
6110 Seminar in Animal Behavior (2)
6120 Seminar in Aquatic Ecology (2)
English (339)


Assistant Professors: J.M. Armstead, Ph.D. Duke; D.R. Cox, Ph.D. Massachusetts; R.T. Goetz, Ph.D. Yale; N.M. Goelee, Ph.D. Yale; A.J. Hefferman, M.A. New York; M.A. Lofaro, Ph.D. Maryland; M.P. Richards, Ph.D. Wisconsin.


English (328)

See Faculty list, page 81.

Economics courses offered in the Department of Economics of the College of Business Administration provide opportunity for a major or minor in Liberal Arts. See page 62 for description of the courses available. Requirements for a major in economics consist of: (1) Economics 2110, 2120, and 2130 (and a minimum of 33 additional hours in upper division economics courses); Economics 3110 (or the sequence 3111 and 3112) plus 3120 are required as a 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.

Latin American Studies. See Cultural Studies.

Russian and East European Studies. See Cultural Studies.

(a) 6-8 hours of 3000-level literature in a foreign language; or
(b) 8-9 hours of comparative literature or foreign literature in translation, at least half at the upper-division level.

(4) Corequisites—English majors must complete the second (2000-level) year of a foreign language. Special Programs for the Major—The Departmental Committee on the Major is empowered to approve the individualized programs developed by students in consultation with their advisors. These programs need not necessarily fulfill all of the requirements listed above.

Hours for Students who qualify, the English department offers a program of individualized study in the fourth year, culminating in a senior thesis and comprehensive examination. If these two are passed with grades of B or better, the student will be graduated with honors in English.

Classification of Upper-Division English Courses for the Major

A. To the Eighteenth Century: 3510, 3520, 3530, 3510-3520, 3510-3520, 4010-20, 4510, 4730, 4850, 4860, 4910-20.


C. Nineteenth and Twentieth Century: 3030, 3070, 3080, 3140, 3150, 3210-20, 3411-12-20-30, 3930, 3940, 4060, 4210-20-30, 4230-30-40, 4620, 4652, 4680, 4680.

D. Advanced Writing: 3450, 3460, 3470, 3830, 4960.

Minor: 24 hours, including at least 18 at the upper-division level.


Certification for Teaching English and Speech in Tennessee—Consult Certification Clerk, Room 212, Claxton Education Building.

General Prerequisites—English 1510-20 or equivalent are prerequisite to all English courses numbered above 2000.

Note: English 1510-20 and English 1518-28 are offered on a grade system of A, B, C, I, NC, W.

1211 Written and Oral English for Foreign Students (8) 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 (graduates, undergraduates and transfer students) who are not excused from it on the basis of the English Proficiency Examination required of every new foreign student.

1221 Written and Oral English for Foreign Students (6) Emphasis on the more advanced structures of English grammar and on paragraph writing. Required during the first quarter of residence of foreign students who on the English Proficiency Examination demonstrate need for work in English structure, but not at the intensive level of English 1211. Required also of foreign students who complete 1211.

1231 English Composition for Foreign Students (4) Composition and reading for students whose native language is not English. Emphasis on organization, paragraph, and theme structure, with attention to grammar and mechanical usage. 1221 or recommendation based on English Proficiency Examination.

"English 1231-41 replaces English 1510-20 for undergraduate foreign students."
3160 The Short Story (3) British and Continental European, with emphasis on twentieth century.
3170 The American Short Story (3) From nineteenth-century beginnings to present, emphasis on twentieth century.
3310 Women Writers in England and America (3) Emphasis upon the literary consciousness of women in the nineteenth and twentieth centuries.
3330 Introduction to Study of English Language (3)
3340 Varieties of English (3) Theories, methodologies, and findings of English and American dialectology.
3360-70 Old and Middle English Literature (3) 3360-Old English heroic and elegiac poetry and major genres of early Middle English. 3370-Backgrounds and distinguishing characteristics of Middle English literature from 1300 to 1500.
3411-12-20-30 Modern Drama (3, 3, 3, 3) 3411—Continental and English from 1890. 3420—British. 3430—American. (Graduate credit normally limited to students in Speech and Theatre.)
3440 Literature and Film (3) Aesthetic relationships, emphasis upon media comparison.
3450 Writing of Fiction (3) Practice based upon analysis of modern fiction. (Sophomores admitted with instructor's written permission.)
3460 Advanced Fiction-Writing (3) Prereq: English 3450 and permission of instructor.
3470 Writing of Poetry (3) Practice based upon analysis of poetry.
3510 Sixteenth-Century Prose and Poetry (3) More and Wyatt to Spenser.
3520 Elizabethan Drama (3) Marlowe, Jonson, and others.
3530 Jacobean Drama (3) Beaumont and Fletcher toMassinger and Shirley.
3610 Restoration and Eighteenth-Century Poetry (3) Emphasis upon Dryden and Pope.
3620 Restoration and Eighteenth-Century Drama (3) Dryden through Sheridan.
3630 Restoration and Eighteenth-Century Prose (3) Defoe, Addison, Steele, Swift, and others.
3670 Age of Johnson (3)
3710 Literature of the English Bible (3) Types of Old Testament literature, excluding Wisdom literature. (Same as Religious Studies 3710.)
3711 Literature of the English Bible (3) Old Testament Wisdom literature and types of New Testament literature. (Same as Religious Studies 3711.)
3840-50 Writing of Non-Fiction Prose (3, 3) Strategies of writing on personal and academic subjects. Discussion of student and professional writing. Conferences on individual student’s goals and problems. Open to sophomores with instructor’s permission. 3840-How to find, develop, and present an idea. 3850-How to convince a reader through logical and emotional appeals.
3860 Special Topics in Writing (3) Original writing integrated with reading, usually taught by professional author. Topics vary. May be repeated. Maximum 9 hours credit.
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. 1590-1601, including I Henry IV, Twelfth Night, and Hamlet. 4020—Later plays, 1601-1613, with emphasis upon tragedies and dramatic romances.
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 F. Scott and Hemingway. 4070—Early twenties to present.
4101 Foreign Study (1-16) See page 177.
4102 Off-Campus Study (3-12) See page 177.
4103 Independent Study (3-12) See page 177.
4118-28-38 Honors: Senior (3, 3, 3) Admission by permission of department.
4140-50 Technical Writing (3, 3) 4140—For students planning careers in physical, life and health sciences, engineering, agriculture, and forestry. Writing of proposals, laboratory and progress reports, abstracts and journal articles. 4150—Writing of scientific feature articles in which data are marshalled and analyzed for human interest.
4210-20 Victorian Poetry (3, 3, 3) 4210—Tennyson and Pre-Raphaelites, 4220—Browning, 4230—Arnold, Clough, FitzGerald, and others.
4430 Modern English Grammar (3) New approaches with emphasis on the generative-transformational approach.
4440 Language in Society (3) Methodology and significant discoveries of sociolinguistics in America.
4450 Dialectology (3) Theories and methodologies of dialect research, fieldwork and analysis. Prereq: 3340 or permission of instructor.
4460 Special Topics in English Linguistics (3) May be repeated for credit with permission of department.
4471-81 English as a Second or Foreign Language (3, 3) 4471—Applied linguistics in teaching and learning of English as second or foreign language. Phonological and grammatical structure of present-day English. Analysis of differences (phonological, grammatical, and lexical) between English and another language. Prereq: second year of a foreign language. 4481—Materials and methods of language teaching, with emphasis on preparation of materials and structured teaching situations. Theory of testing language competence and performance, with emphasis on construction of tests. Team teaching with an experienced member of the staff. Prereq: 4471. (Same as Linguistics 4471-81.)
4510 Introduction to Literary Criticism (3)
4610-20-30 Black Literature (3, 3, 3) Trends and developments.
4651 Southern Literature from 1585 to 1860 (3) Beginning of writing in the South, especially in its relations to formation of regional or southern tradition in literature.
4652 Southern Literature from 1860 to 1970 (3) Humorists, local colorists, and realists of later nineteenth century and New South; emphasis upon Southern flowering of 1920-1950, recent trends.
4660 Emerson and Thoreau (3)
4680 American Humor through Mark Twain (3)
4720 Introduction to Folklore (3)
4730 The Popular Ballad (3)
4850 Millon (3) Emphasis on major poeoms.
4860 Seventeenth-Century Prose and Poetry (3) Bacon and Donne to Marvell.
4910-20 Chaucer (3, 3) 4910—Early poems and Troilus and Criseyde; 4920—The Canterbury Tales.

4950 Approaches to Literature (3) Basic knowledge and techniques necessary to understand and evaluate various kinds of imaginative literature.

4991-92 Survey of British Literature (4, 4) 4991—From beginnings to eighteenth century; 4992—From eighteenth century to present.

GRADUATE

5000 Thesis

5002 Non-Thesis Graduation Completion (3)

5101 Foreign Study (1-12)

5102 Off-Campus Study (1-12)

5103 Independent Study (1-12)

5110-20-30 Tutorial in English (1, 1, 1)

5150 Old English Prose (3)

5170-80 History of the English Language (3, 3)

5210-20-30 Readings in American Literature from Colonial Period to Present (3, 3, 3)

5310 Rhetoric and Composition: Theory and Practice (3)

5410-20-30 Readings in Middle English Literature (3, 3, 3)

5510 Readings in Literary Criticism from Plato and Aristotle to Present (3)

5610-20-30 Readings in English Literature of Nineteenth Century (3, 3, 3)

5710-20-30 Readings in English Literature of Eighteenth Century (3, 3, 3)

5810-20-30 Readings in English Literature of Renaissance (3, 3, 3)

5860 Introduction to Literary Research (3)

5910-20-30 Readings in English and American Literature of Twentieth Century (3, 3, 3)

6000 Doctoral Research and Dissertation

6110-20-30 Studies in Elizabethan Literature (3, 3, 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 Spenser and Milton (3, 3, 3)

6610-20-30 Studies in English Romanticism (3, 3, 3)

6710-20-30 Studies in Eighteenth-Century Literature (3, 3, 3)

6810-20-30 Studies in Drama and Theatre (3, 3, 3)

6910-20-30 Studies in Twentieth-Century Literature (3, 3, 3)

French

See Romance Languages

Geography (415)

Professors: E.H. Hammond (Head), Ph.D. California (Berkeley); S.R. Jumper, Ph.D. Tennessee; R.G. Long, Ph.D. Northwestern; T.H. Schmudder, Ph.D. Wisconsin.

Associate Professors: C.S. Aiken, Ph.D. Georgia; T.L. Bell, Ph. D. Iowa; J.W. Brinkman, Ph. D. Wisconsin; J.B. Rehder, Ph.D. Louisiana State.

Assistant Professors: J.R. Carter, Ph.D. Georgia; W.N. Cherry, M.S. Tennessee; B.A. Ralston, Ph.D. Northwestern.

UNDERGRADUATE

Major: Eight hours in courses numbered at the 1000 or 2000 level are recommended as an introduction to a major which consists of Geography 4110, 4710 and 4990, and an additional 28 hours selected from courses at the 3000 and 4000 level. At least one course must be selected from each of groups A, B, C, and D below:

a. Physical Geography: 3520, 3530, 4550
b. Economic Geography: 3410, 3430, 3490, 4610, 4630
c. Cultural Geography: 3450, 3610, 3660, 4240
d. Regional Geography: 3790, 3800, 3810 3840, 3870, 3880, 3910, 3920, 3930, 3940

For those pursing a program leading to professional employment or graduate study in geography, 4210 and/or a senior project under 4103 are/is strongly recommended.

Minor: Eight hours in courses numbered at the 1000- or 2000-level are recommended as an introduction to the minor which consists of 24 hours selected from courses at the 3000- and 4000-level.

Students wishing to major or minor in geography are strongly urged to consult with a departmental undergraduate adviser. Through choices available within the structure of the major and by appropriate selection of electives outside the department, each student may develop a coherent program in accordance with his 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.

Asian Studies. See Cultural Studies.

Latin American Studies. See Cultural Studies.

Russian and East European Studies. See Cultural Studies.

1610-20 Introduction to Geography (4, 4) Selected problems or situations of contemporary interest are studied in depth, illustrating geographical points of view and techniques. Need not 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 patterns of distinctive environmental significance to man. Must be taken in sequence. 1810 not open to students who have taken 1110.

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

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


3430 Urban Geography (4) Concepts and theories concerning development and significance of systems of cities and internal morphology of cities. Not open to students who have taken 4680.

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 atmosphere and resulting weather events. Nature of individual weather elements, their measurement and analysis over time and space.

3520 The Atmospheric System and Man (4) Overview of general circulation system leading to world pattern of climates. Role of climate in agriculture, architecture, human comfort, and economic activity.

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

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

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

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

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

3800 Geography of South America (4) Not open to students who have taken 3730, 3750, or 3760.

3810 Geography of Europe (4)

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 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 relate 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)

3930 Geography of Tennessee (4)

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

4100 Quantitative Methods in Geography (4) Geographic applications of statistical techniques, point pattern analysis and analysis of aerial photo data. Prereq: Mathematics 3000 or permission of instructor.

4101 Foreign Study (1-16) See page 177.

4102 Off-Campus Study (1-16) See page 177.

4103 Independent Study (1-16) See page 177.

4210 Problems in Geographic Method (4) Examples of problems and approach in geographic 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 on changing population patterns, development of agricultural regions and patterns of urban development. Not open to students who have taken 4250-60.

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

4550 Geography of Soils (4) Soils as physical systems and their relationship to environments. Investigation of specific cases of 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 permission of instructor.

4630 Geography of Agriculture (4)

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

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

4740 Remote Sensing: Types and Applications (4) Study of remote sensing and other remote sensing techniques. Emphasis upon value of various types of imagery for geographic interpretation and sample mapping. Prereq: Permission of instructor.

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

GRADUATE

Master's Program

The general requirements for the Master's degree are given in the Graduate School Catalog.

Doctoral Program

General requirements for Doctor's degree are given in the Graduate School Catalog.

5000 Thesis

5101 Foreign Study (1-12)

5102 Off-Campus Study (1-12)

5150 Introduction to Geographical Research (3)

5160 Research Design and Field Problems (4-6)

5170 Geographic Concept and Method (3)

5200 Special Problems in Geography (2-6)

5250 Advanced Historical Geography (3)

5260 Advanced Cultural Geography (3)

5310 Advanced Regional Geography of United States (3)

5320 Advanced Regional Geography of the South (3)

5410-20 Advanced Economic Geography (3, 3)

5520 Advanced Urban Geography (3, 3)

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

5610 Topics in Climatology (3)

5710 Seminar in Geography (3)

5720 Topics in Quantitative Geography (3)

5740 Advanced Topics in Remote Sensing (3)

5915 Regional Geomorphology (4)

6000 Doctoral Research and Dissertation

6110-20 Seminar in Economic Geography (3, 3)

6220-30 Seminar in Urban Geography (3, 3)

6240-50 Seminar in Historical Geography (3, 3)

6260-70 Seminar in Cultural Geography (3, 3)

6310-20 Seminar in Rural Geography (3, 3)

6410-20 Seminar in Regional Geography of United States (3, 3)

6610-20 Seminar in Regional Geography of Latin America (3, 3)

6710-20 Seminar in Physical Geography (3, 3)

Geological Sciences

Professors:

G. Briggs (Head), Ph.D. Wisconsin; H.J. Kleeper, Ph.D. Ohio State; O.C. Kopp, Ph.D. Columbia; R.E. McLaughlin, Ph.D. Tennessee; D.H. Roeder, Ph.D. Goethe University (Germany); K.R. Walker, Ph.D. Yale; J.G. Wells, Ph.D. North Carolina.

Associate Professors:

M. Clark, Ph.D. Pennsylvania State; L.A. Taylor, Ph.D. Lehigh.

Assistant Professors:

D.W. Byerly, Ph.D. Tennessee; F.B. Keller, M.Ph. Yale; K.C. Mira, Ph.D. Western Ontario; W.P. Staub, Ph.D. Iowa State.

The Department of Geology provides training for (1) those who plan a career as a professional geologist 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 relationships to the other sciences, engineering, business, law, and other disciplines.

The major requirements set forth below are designed to provide geology majors with a broad base from which 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 guided in planning his program by a departmental adviser. A list of advisers is available in the departmental office.

UNDERGRADUATE

Major: Geology 1510 and 1520 or 1810 and 1820 are prerequisite to a major which consists of Geology 3160, 3260, 3360, 3370 and at least 24 hours additionally in upper-division courses in geology chosen to include at least twelve 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.

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 1840-50¹ 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 1510 and 1520 or 1810 and 1820 are prerequisite to a minor which consists of at least twenty-four hours in courses numbered 2000 or above.

Geology (424)

1000 Frontiers in Earth and Planetary Sciences (4)

Recent developments in earth science of interest to the public. Designed for non-majors; treats popular topics such as discoveries on moon by Apollo missions, earthquake prediction, and drifting of continents.

1510 Geoscience I (4) Introduction to study of the earth with emphasis upon its materials and processes which change it. 3 hrs and 1-2 hr lab or field period.

1520 Geoscience II (4) Continuation of Geoscience I emphasizing changes of the earth and its inhabitants throughout time. Prereq: 1510. 3 hrs and 1-2 hr lab or field period.

1810-20 Introductory Geology (4, 4) Introductory courses sequence emphasizing geologic principles and methods of study. 1810-Earth, its materials and processes that change it. 1820-Origin and development of earth and life upon it. Designed for students with strong interest in science, course is taught by team of specialists, each representing units in its area of specialization. Laboratory and field trips provide opportunities to apply principles and methods of study to specific geologic problems. Must be taken in sequence. Students having begun 1510-20 sequence can change into 1810-20 sequence and vice versa. 3 hrs. and one 2 hr. lab or field period.

2130 Geological History of the Earth (4) Origin and evolution of continents, atmosphere, oceans and earth's inhabitants with emphasis on physical history of North America. Prereq: 1520 or 1820. 3 hrs and 1 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 hrs and 1 lab or field period.


2610 Introductory Geology for Engineers (3) Materials and structure 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

¹Mathematics 1840-50 has prerequisites of 2 years high school algebra and one semester of trigonometry equivalent. Students who are deficient in these subjects may need to take Mathematics 1050 or/and 1900 prior to enrolling in Mathematics 1840-50. Contact the Department of this catalog or the Department of Mathematics for details.
of ocean basins and physical and biological processes within ocean basins and their contained water and sediment masses. 1510 or 1810 recommended.

3160 Introduction to Earth Materials (4) Introduction to ore minerals, rocks and soils. Laboratory includes hand specimen and analytical methods of identification of important rock-forming and economic mineral groups and their major rock types. Prereq: 1510 or 1810. 2 lectures and 2 labs.

3180 Mineralogy (4) Classification and identification of silicate and non-silicate minerals. Miners as phases in rock forming systems. Laboratory includes hand specimen, chemical and x-ray methods of identification. Prereq: 3160; Chemistry 1110-20 or equivalent. 2 lectures and 2 labs.

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

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

3260 Paleobiology (4) Introduction to principles and materials of paleontology as applied to interpretation of earth history. Prereq: 1520 or 1820, Biology 1210-20 or permission of instructor. 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 permission of instructor. 3 lectures and 1 lab or field period.

3290 Physical and Biological Quaternary Environment of Humans (4) Interdisciplinary interactions of physical and biological Quaternary environments with humanity, stressing important effects on landscapes and biota that influence humans today. 2 lectures and 2 hrs lab or field period.

3310 Lithology (4) Classification and properties of igneous, metamorphic and sedimentary rocks. Laboratory includes both hand specimen and microscopic study of important rock types. Prereq: 3160, 3180 strongly recommended. 2 lectures and 2 labs.

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

3360 Stratigraphy-Sedimentation (4) Introduction to principles of stratigraphy and practical application of sedimentary processes and interpretation of depositional environments. Prereq: 1520 (or 1820) and 3160. 3 hrs and 1 lab or field period.

3370 Structural Geology (4) Introduction to structural geology. Laboratory work includes depth and thickness problems, structure sections, structure contour maps, etc. Prereq: 1520 or 1820; Mathematics 1840-50 or equivalent. 3 hrs and 1 lab.

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

3510 Introductory Environmental Geology (4) Geologic problems involving earth environments and resources, and geologic parameters associated with their control and misuse. Prereq: 1520 or 1820 or permission of instructor. 2 lectures and 2 lab or field periods.

3520 Our Changing Landscapes (4) Basic introduction to study of landscape-forming processes and their interactions with earth materials to produce landscapes. Laboratory experience includes slope- and stream-related experiments and field experience. Not intended for geology majors. 2 hrs 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: 1520 or 1820.

4110 Principles of Economic Geology (4) Formation of mineral deposits. Prereq: 3160; 3370 or equivalent.

4115 Elementary Applied Geophysics (4) Basic principles of electrical, seismic, gravity and magnetic surveying. Recommended: 1520, Physics 2220 or 2320. 3 lectures and 1 lab.

4130 Sedimentology (4) Prereq: 3310. 2 hrs and 2 labs.

4210 Biostatigraphy (4) Fossil faunas and floras and their use in geochronology, stratigraphic correlation, and paleoecology. Prereq: 3210-20. 3 hrs and 1 lab.

4230 Paleocology (4) Principles of environmental analysis as applied to fossil assemblages and associated lithologies. Prereq: 3260 or permission of instructor. 3 hrs and 1 lab.

4240 Paleobotany (4) Survey of fossil record of plants with 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: 1520 or 1820 or 2210; Botany 3010-20 or permission of instructor. 3 hrs and 1 lab or field period. (Same as Botany 4240.)

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

4370 Tectonic Styles (4) Elements, habitats, and geotectonic causes of basic styles of tectonic deformation are presented on maps, sections, aerial photographs and fabric diagrams. 3 lectures and 1 seminar or lab. Prereq: 3370 or permission of instructor.

4440 Field Geology (8) Five weeks' field course, first term summer quarter. Advanced undergraduates or first-year graduate students in geology. Employs entire field course for most of time. A report is required, to be submitted no later than end of fall quarter. Prereq: 12 quarter hours of geology and permission of instructor.

4450 Geologic Photography and Photogrammetry (4) Principles of terrestrial and aerial geologic photography, including photographic principles and practical application of terrestrial and aerial photography, and image interpretation. Prereq: 3370 or permission of instructor. 3 lectures and 1 lab.

4510 Principles of Geomorphology (4) Gradational processes acting at earth's surface and landforms produced. Prereq: 1510 or 1810 or permission of instructor. 3 hrs and 1 lab.

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. Recommended 3160.

4650 Mineral Phase Equilibria (3) Principles of phase chemistry and application of phase equilibria studies in rock-forming mineral systems as aid to understanding conditions of formation and modification of rocks. Prereq: 3310 or permission of instructor.

4655 Electron Microprobe Analysis: Theory and Application (3) Techniques and applicability of electron probe in chemical analysis, emphasis on applications in the earth sciences. Prereq: 3310 or permission of instructor. 2 lectures and 1 lab.

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: 3310, Mathematics 1830, Physics 1330, Recommended: Mathematics 2610 and 2620.

4780 Global Tectonics (3) Earth's gravity field, seismology and internal structure of earth; geo-magnetic field, paleomagnetism, radioactivity and age of earth; earth's internal heat, creep and anelasticity of the mantle. 3 lectures per week. Prereq: 4115 or permission of instructor.

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

GRADUATE
Master's Program

General requirements for Master's degree given in the Graduate School Catalog.

Doctoral Program

General requirements for Doctor's degree given in the Graduate School Catalog.

5000 Thesis

5050 Geochemistry of Ore Mineral Deposits (3)

5060 Experimental Geochemistry (3)

5069 Experimental Geochemistry Laboratory (1-3)

5120 Geophysics-Gravity and Magnetic Methods (4)

5130 Geophysics-Seismic Exploration Methods (4)

5210-20-30 Special Problems in Geology (1-4, 1-4, 1-4)

5290 Quaternary Problems (4)

5310 Principles of Stratigraphy (4)

5320-30 Advanced Historical Geology (3, 3)

5340 Seminar in Local Stratigraphy (1)

5350-60 Selected Topics in Geology (1, 1)

5370 Mesofacial Analysis (4)

5460 Photogeologic Interpretation (4)

5470 Plate Tectonics and Orogeny (4)

5510 Optical Mineralogy (4)

5520 Igneous Petrology (4)

5530 Metamorphic Petrology (4)

5540 Non-carbonate Sedimentary Petrology and Basin Analysis (4)

5550 Carbonate Sedimentology (4)

5630 X-ray Diffraction and Spectroscopy (4)

5640 Clay Mineralogy (4)

5650 Thermodynamics for Geologists (3)

5660 Chemical Geology (3)

5670 Geochemical Prospecting (3)

5710 Advanced Paleontology (4)

5750 Petrophysics (3)

5810 Geology of Fuels (4)

5820 Metallic Mineral Deposits (4)

5830 Non-metallic Mineral Deposits (4)

5840 Ore Microscopy (4)

5850 Regional Studies in Economic Geology (3)

5915 Regional Geomorphology (4)

6000 Doctoral Research and Dissertation
Germanic and Slavic Languages

Professors: H. Kratitz (Head), Ph.D. Ohio State; H.W. Fuller, Ph.D. Wisconsin; E.T. Hankamer (Emeritus), Ph.D. Bonn (Germany); R.L. Hillebrand, Ph.D. Cornell; R.L. Nordstiek, Ph.D. Ohio State; J.C. Osborne, Ph.D. Northwestern.

Associate Professors: J.E. Fall, Ph.D. Pennsylvania; D.E. Lee, Ph.D. Stanford; R.D. Eckenrode, Ph.D. Vanderbilt.

Assistant Professors: K.L. Black, Ph.D. Bryn Mawr; J.S. Elliott, Ph.D. Michigan; D.M. Fiene, Ph.D. Indiana; G.J. Gottsche, Ph.D. Wisconsin; N.A. Lauckner, Ph.D. Wisconsin; C.J. Meller, Ph.D. Chicago.


*On leave.

UNDERGRADUATE

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

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

Foreign Study: Students are encouraged to study abroad. The department is prepared to recommend summer study programs and junior year abroad programs for students who are interested in foreign study. Credits from recognized foreign study programs can readily be transferred to The University of Tennessee. For qualified students, the department also offers German 4101 Foreign Study and Russian 4101 Foreign Study. See page 177. 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 2510-20 or 2530-40 or the equivalent is a prerequisite to the major and minor. The major concentration shall consist of at least 36 hours of German in courses numbered above 3000, usually including German 3110-20-30 or 3410-20-30, 3810-20-30, 9 hours 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 2510-20, 2530-40 or its equivalent is a prerequisite to this minor. The minor concentration shall consist of at least 24 hours of German courses numbered above 3000, which will normally include German 3110-20-30 (or 3410-20-30), and 15 additional hours of courses numbered above 3000, excluding 3010-20-30 and courses in English translation.

**Russian**

**Major**: Russian majors should carefully prepare their programs in consultation with the departmental faculty adviser. Russian 2510-20 or its equivalent is a prerequisite to the major. Russian 2640-50 is a corequisite to the major. The major itself consists of 36 hours of Russian courses, including Russian 3510-20, 3610-20-30, 9 hours from Russian 3210-20-21-30-40-50-60, and 9 hours of courses numbered above 4000. It is recommended that majors also take History 3470-80-90 and 9 hours of sophomore English. Majors are urged to consider a minor in some other area of the humanities.

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

**Russian and East European Studies**. See Cultural Studies.

Certification for Teaching German and Russian in Tennessee

Consult Certification Clerk, Room 212, Claxton Education Building.

**German (433)**

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

1518-2518-28 Honors: Elementary and Intermediate German (5, 5, 5) Honors courses for students of superior ability. Students are admitted on the basis of high school average and performance on the American College Testing Program. Upper-classmen must have a B average. A grade of C or above must be achieved in 1518 in order to continue with 2518. A student obtaining a grade of D or better in 1518 may continue with 1530 Intermediate German. This sequence is equivalent to 1510-20 and 2510-20 and its completion makes the student to enter all 3000-level German courses.

1530 Elementary German through Individualized Instruction (1-8) Same material as in German 1510-20, but student may proceed at his own pace, with a minimum of one credit hour per quarter. With completion of four hours student has option of transferring to 1520. May be repeated. Maximum credit 8 hours.

2510-20 Intermediate German (4, 4) Must be taken in sequence. Students who have had two units of German or equivalent in one year in college and who wish to continue Intermediate German after some lapse of time are given the opportunity of enrolling in a five-hour per week section of German 2510-20. In this class they will have the benefit of a controlled review of the basic essentials of Elementary German.

2530-40 Intermediate German (4, 4) For students in Science-Medical curriculum or B.S. curricula in natural science, medicine.

3010-20-30 Elements of German for Upper Division and Graduate Students (3, 3, 3) For graduate students preparing for language examinations and Upper Division undergraduates desiring reading knowledge of second foreign language. Prereq: Two years of some foreign language in college or permission of department. Undergraduate grade credit only. No credit for students having completed 1510-20.

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

3110-20-30 Introduction to German Literature (3, 3, 3) Prereq: 2520 or equivalent.

3410-20 Readings in Modern and Contemporary German Literature (3, 3) Prereq: 2520 or equivalent.

3410-20-30 Conversation and Composition (3, 3, 3) Prereq: 2130 or equivalent.

ADVANCED UNDERGRADUATE

AND GRADUATE

4101 Foreign Study (1-16) See page 177.

4102 Off-Campus Study (1-13) See page 177.

4103 Independent Study (1-16) See page 177.

4110-30-30 Studies in Classical and Modern Writers (3, 3, 3) Content varies. May be repeated for credit. Prereq: 9 hrs of 3000 courses (exclusive of 3010-20-30, 3210-20-30, 3310) or equivalent.

4140-50 Selected Topics in German Literature from 1750 to the Present (3, 3) Prereq: 9 hrs of 3000 courses (exclusive of 3010-20-30 and 3210-20-30) or equivalent.

4160 Studies in German Authors (3) Life and works of a single outstanding German literary figure. Content varies. May be repeated for credit. Prereq: 9 hrs of 3000 courses (exclusive of 3010-20-30 and 3210-20-30).

4170 Theatrical German (1-3) Performance in one or more German plays. May be repeated for credit with permission of department. Prereq: 2520 or equivalent or consent of instructor.

4210-30-30 Studies in German Literary Types (3, 3, 3) Lyric Poetry—Dichtung—Lyric Prose. Prereq: 1 yr of German. Prereq: 9 hrs of upper division English, or 9 hrs of upper division courses in a modern or ancient language (exclusive of German and French 3010-20-30, courses in literature in translation, and general courses in Latin and Greek requiring no knowledge of these languages), or permission of department. (Same as Russian, French and Spanish 4260.)

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

4260 Introduction to Historical and Comparative Linguistics (3) (Linguistics 390) Historical and comparative linguistics. Introduction to historical, sociological influences upon the development of language. Semantics and Lexicography. All these topics copiously illustrated by selected examples from Indo-European languages. Prereq: 9 hrs of upper division English, or 9 hrs of upper division courses in a modern or ancient language (exclusive of German and French 3010-20-30, courses in literature in translation, and general courses in Latin and Greek requiring no knowledge of these languages), or permission of department. (Same as Russian, French and Spanish 4260.)

4270 Introduction to Germanic Linguistics (3) Phonetics and phonemics of German, German grammar and German vocabulary from a descriptive point of view. Dialects of German. Introduction to study of other Germanic languages.

4310-20 History of German Language (3, 3)

4610-30 German Civilization (3, 3) Prereq: 2520 or equivalent.

4618-28-38 Honors: Senior German (3, 3, 3)
Intended to give student of special aptitude greater opportunity to do independent study than is possible in ordinary courses. Prereq: Senior standing, with a record of A in half of German courses taken as prerequisite to the 4000 courses, average of B in remainder, and permission of department.

4810-20-30 Advanced Conversation and Composition (3, 3, 3) Prereq: 3610-20-30 or equivalent or permission of department.

GENERAL COURSES

2640-50 Culture of German-Speaking Peoples (4, 4) Studies in culture and life-style of German-speaking peoples from their first contact with Romans to the present. Readings are in English language.

3210-20-30 German Literature in English Translation (3-4, 3-4, 3-4) No foreign language credit. No change in credit hours after add deadline. Students opting for 4 hours credit will be expected to present an appropriate amount of extra work above that requiring for 3 hours.

3240 Old Norse Literature in English Translation (3-4) Prose readings of sagas of Scandinavian kings, great Icelandic family sagas, and Vinland sagas, narrating discovery of America around the year 1000. Mythological and heroic poems of the Edda.

3250 Modern Scandinavian Literature in English Translation (3) Introduction to modern literature of Sweden, Norway, Denmark, and Iceland. Representative readings by such writers as Ibsen, Strindberg, Lagerolf, Hamsun, Vennesa, Lagerkvist, Bang, Nexo, Laxness.

3260 German Drama in English Translation (3) From Lessing to present. No foreign language credit.

3270 Modern German Novel in English Translation (3) From 1860 to present. Remarque, Hesse, Mann, Kafka, Frisch, Böll, Grass. No foreign language credit.

3280 Goethe’s Faust in English Translation (3) Intensive study of Faust I and II and survey of criticism and interpretations of the work. No foreign language credit.

3310 Dramas of Bertolt Brecht (3-4) Chronological survey of Brecht’s dramatic works and theoretical writings in English translation. No foreign language credit.

3320 Novels of Hermann Hesse (3-4) Study and analysis of Hesse’s major novels in English translation. No foreign language credit.

3330 Dramas of Ibsen and Strindberg (3-4) Study of two principal forerunners of twentieth-century drama. Works are read in English translation. No foreign language credit.

3340 Special Topics in German Literature in English Translation (1-4) Topics and credit hours vary and are announced in advance. Student suggestions for topics are welcome. No foreign language credit. May be repeated for credit.

4050 The Faust Legend (3) Survey of development of legend from Faust chappub to present, excluding Goethe’s Faust. No foreign language credit.

GRADUATE

The Department of Germanic and Slavic Languages offers three advanced degrees. They are: Master of Arts (M.A.) in German, Master of Arts in College Teaching (M.A.C.T.) in German, and Doctor of Philosophy (Ph.D.) in German Language and Literature. The requirements for these degrees are set forth in the Graduate School Catalog.

5000 Thesis

5101 Foreign Study (1-12)

5102 Off-Campus Study (1-12)

5103 Independent Study (1-12)

5160 Introduction to German Semantics (3)

5200 Proseminar (3)

5210-20-30 College Teaching of German (1, 1, 1)

5410-20-30 Medieval German Language and Literature (3, 3, 3)

5500 Studies in German Literature (3)

5510 German Humanism and Reformation (3)

5520 German Baroque Literature (3)

5530 The Enlightenment and the Rococo (3)

5540 German Classicism (3)

5550 Goethe’s Faust (3)

5560 German Romanticism (3)

5570 German Realism and Naturalism (3)

5580 Modern German Literature (1889-1945) (3)

5590 Modern German Literature (1945- Present) (3)

5600 German Literary Theory and Criticism (3)

5610-20-30-40-50-60 Directed Readings in German Language and Literature (3, 3, 3, 3, 3, 3)

5710 Introduction to Old Norse (3)

5720 Readings in Old Norse Prose (3)

5730 Readings in Old Norse Poetry (3)

6000 Doctoral Research and Dissertation

6100 Gothic (3)

6120-30 Old High German (3, 3)

6140 Old Saxon (3)

6210-20-30-40-50-60 Seminar in German Literature (3, 3, 3, 3, 3, 3)

6310-20-30 Seminar in German and Germanic Philology (3, 3, 3)

Russian (886)

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

1610-20 Elementary Serbo-Croatian (4, 4) Must be taken in sequence.

1710-20 Elementary Czech (4, 4) Must be taken in sequence.

2510-20 Intermediate Russian (4, 4) Must be taken in sequence.

2670-80 Intermediate Serbo-Croatian (4, 4) Must be taken in sequence.

2710-20 Intermediate Czech (4, 4) Must be taken in sequence.

3010-20-30 Elements of Russian for Graduate Students and Seniors (3, 3, 3) For graduate students preparing for language examinations and seniors desiring reading knowledge of a second foreign language. Prereq: 2 yrs of some foreign language in college or permission of department. Undergraduate credit only. No credit for students who have completed 3510-20 or equivalent.

3510-20 Russian Composition and Conversation (4, 4) Practice in writing and speaking; grammar review and vocabulary building.

3610-20 Introduction to Russian Literature (3, 3, 3) Russian Poetry, 3620: Russian Short Stories, 3630: Russian Short Novels. Prereq: Completion of Russian 3510-20 or equivalent.

ADVANCED UNDERGRADUATE AND GRADUATE

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

4101 Foreign Study (1-16) See page 177.

4102 Off-Campus Study (1-16) See page 177.

4103 Independent Study (1-16) See page 177.

4110-20-30 Studies in Major Russian Writers (3, 3, 3) Content: Pushkin, Lermontov, Gogol, Turgeney, Tolstoy, Chekhov, others. Prereq: 9 hrs of 3000 courses (exclusive of 3010-20-30, 3210-20-30-40-50-60-70, 3310) or equivalent. May be repeated for credit of 3010-20-30, 3210-20-30-40-50-60-70, 3310 or equivalent.


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

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

4270 Introduction to Slavic Linguistics (3)

4310-20-30 Advanced Studies in Russian Language (3, 3, 3) Intended primarily for students majoring or minoring in Russian who are interested in language and linguistics. Includes problems in morphology and syntax, stylistics and translation techniques and history of Russian language as well as other special problems for advanced students of Russian.

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 3010-20-30, 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.

3210-20-21-30 Survey of Russian Literature in English Translation (3-4, 3-4, 3-4, 3-4) 3210—Russian realism; development of nineteenth-century novel; selections from works of Pushkin, Gogol, Lermontov, Leskov, Goncharov, Chernyshevsky, and Turgenev. 3220—Works of I. S. Tolstoy. 3221—Works of F. M. Dostoevsky. 3230—Twentieth-century Russian literature, on eve of revolution and under Soviets. 3240 The Russian Drama in English Translation (3-4) Selections from works of Foruzin, Gribioeno, Pushkin, Gogol, Ostrovsky, Turgeney, Chekhov, and others.

3250 The Works of Ivan Turgenev and Anton Chekhov in English Translation (3-4)

3260 Russian Folklore in English Translation (3-4)

3270 Russian Philosophical and Theological Thought (4) A survey of the development of 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.)

Greek See Classics.

Greek and Roman Civilization See Cultural Studies.

Hebrew See Religious Studies.
1610-20 A History of World Civilization Since 1450
(4, 4) Interaction of Western World and Non-Western Societies in the fifteenth century. 1610—ca. 1450-1800. 1820—1600 to present.

1590-60 Afro-American History: An Introduction (4, 4) African civilization to 1890. 1890—1960 to present.

2350 U.S. and World Crisis, 1889 to Present (4) An introduction to the course in history of the twentieth century.

2510-20 History of the United States (4, 4) 2510—Settlement to 1685. 2520—1685 to present.

2511-21 Readings in United States History (1, 1) Directed reads in aspects of the national past. For students who have not yet met American historical requirements in American history, and for transfers who enter Liberal Arts with credits, but fewer than eight, in an American history sequence. 2511—Settlement to 1685. 2521—1685 to present. PreReq: permission of department. Coreq: 2510 for 2511, 2520 for 2521.

2518-28 Honors: History of the United States (4, 4) Consent of department required.

3008 Honors: Introduction to Historical Analysis and Interpretation (3) Required of students working for honors in history.

3038 Honors: Philosophy and Method (3) Principles and techniques of research and study of critical and speculative philosophy of history. Required of students working for honors in history. Admission with permission of department.

3048: Honors: Readings (3) Required of and open only to students working for honors in history.

3061-71 History of Western Religious Thought and Institutions (4, 4) Same as Religious Studies 3061-71.

3140-50-60 History of England (3, 3, 3) 3140—To 1668. 3150—1668 through Reform Bill of 1682. 3160—1832 to present.

3311-21 History of Tennessee (3, 3) 3311—18th century to Civil War Era. 3321—1865 to present.

3411-12-13 Renaissance and Reformation (3, 3, 3) 3411—Reformation. 3412—Reformation 1517-1550. 3413—Catholic Reformation and Wars of Religion. (Same as Religious Studies 3411-12-13.)

3421-22-23 Early Modern Europe 1600-1815 (3, 3, 3) 3421—Seventeenth Century Europe. 3422—Ancient Regime. 3423—French Revolution and Napoleon.


3445-46 History of France (4, 4) 3445—France to 1875. 3446—France since 1871.

3470-80-90 History of Russia (3, 3, 3) 3470—To 1801. 3480—19th Century. 3490—20th Century.

3610-20 The American Colonies and the American Revolution (3, 3) 3610—Settlements to 1754. 3620—1754-1815.


3670 Popular Culture in the United States (4) Examination of significance of fads, fashions, and amusements of American public from period-to-period, since the fifteenth century. Not for graduate credit.

3680 Indian-White Relations in United States (4) White man's relationship with the Indian since Colonial times. Emphasis on dilemma of two cultures existing side by side; background and formulation of official Indian policy; undermining of policy by frontier circumstances; Indian wars and campaigns; and present-day relationships. Not for graduate credit.

3710-20-30 History of Germany (3, 3, 3) 3710—First Reich to 1918. 3713—2nd Reich, 1871-1890. 3730—From a Unified to a Divided Germany, 1890 to present.

3751 Ancient Near Eastern Civilization (3) Early and Middle Bronze Ages.

3752 Ancient Near Eastern Civilization (3) Late Bronze and Iron Ages.

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

3780-90 History of the Middle East (3, 3) 3780—Rise and spread of Islamic Civilization to the 16th century. 3790—The impact of the West on 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.)

3810-20-30 History of East Asia (3, 3, 3) 3810—Traditional China and Japan, ancient to mid-nineteenth century. 3820—Modern China, Japan, and Korea, mid-nineteenth century to 1920's. 3830—Contemporary China, Japan, and Korea, 1920's to present.

3870-80-90 History of Latin America (3, 3, 3) 3870—Exploration, conquest, settlement, and colonial life to 1800. 3880—Major countries of South America, 1800-present. 3890—Mexico, Central America, and the Caribbean, 1800-present.


4010-11-12 History Colloquia (3, 3, 3) 4010—General. 4011—European. 4012—American. Small group study of selected historical period or theme. Recommended that students have previously taken appropriate lower-division historical sequence.

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 (0, 6) Required of students working for honors in history.

4101 Foreign Study (1-16) See page 177.

4102 Off-Campus Study (1-16) See page 177.

4103 Independent Study (1-16) See page 177.

4120-30 History of Colonialism and Imperialism (3, 3) 4120—Background. Age of Discovery and Exploration to Nineteenth Century. 4130—Nineteenth Century to Present.

4250-60-70 European Intellectual and Cultural History (3, 3, 3) 4250—From Reform to Scientific Revolution (1500-1700). 4260—From Enlightenment to Age of Realism (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.

4311-21 History of American Foreign Relations I, II (4, 4) 4311—Revolution to 1912. 4321—1912 to present.

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

4380 Civilian-Military Relationships in the Modern World (3) Civilian-military affairs from about 1900 to 1960 in Western Europe, Russia, and America, emphasis on Western Europe: e.g. Dreyfus Affair, Army in Nazi Germany, and Truman-MacArthur controversy.

4410-20-30 Europe Since 1914 (3, 3, 3) 4410—Prewar European Society and Politics to World Depression. 4420—World Depression to end of World War II. 4430—Postwar Europe, 1945-present.

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

4480 Russian Intellectual History (3)

4490 Soviet Foreign Policy (3)

4500 History of Medieval England (3)

4510-20 Tudor-Stuart England (3, 3) 4510—1485-1603. 4520—1603-1714.

4551 Great Britain from Burke to Bright (1780-1848) (3).

4570 Twentieth-Century Britain (3)

4580 Revolution and Reform: Ireland in the 19th and 20th Centuries (4)

4590 History of Canada, 1774-Present (3)

4610-20-30 The American Frontier and Western Movement I, II, III (3, 3, 3) Settlement and development of the "West" throughout American history. 4610—From the Atlantic to the Mississippi. 4620-30—The Trans-Mississippi West.

4640-50-60 Social and Cultural History of the United States (3, 3, 3) 4640—Colonial Society and Early National to 1825. 4650—1825-ca.1900. 4660—1900-present.

4670 Cities and Urbanization in American History (4) Origins, growth and influence of American cities in development of the Nation, from colonial era to present.

4710-20-30 Medieval History, 500-1400 (3, 3, 3) 4710—Early Medieval period to Revival of Empire in 962. 4720—962 to Renaissance of twelfth century. 4730—Renaissance of twelfth century to Italian Renaissance.

4740 The City in Europe, ca. 1200, 1900 (3) Survey of European urban growth, with comparative analysis of major periods of urbanization of thirteenth and nineteenth centuries. Emphasis on relationship between demographic, economic and social foundations of cities and political and cultural development.

4770-80 Austria and Central Europe (3, 3) 4770—To 1867. 4780—Since 1867.

4811-21 History of Japan (4, 4)

4840 History of Mexico (3)

4850 History of the Caribbean (3) Caribbean region from discovery and colonization to contemporary times.

4870-80-90 China (3, 3, 3) 4870—Cultural History of China. 4880—History of Modern China. 4890—History of Contemporary China.


GRADUATE

A student who enrolls in the Graduate School with intention of obtaining an advanced degree in history shall have completed an undergraduate major in history or its equivalent.

The Master's Program

General requirements for the Master of Arts and Master of Arts in College Teaching degrees are found in the Graduate School Catalog.

The Doctoral Program

General requirements for the Doctor's degree are found in the Graduate School Catalog.

5000 Thesis

5002 Non-Thesis Graduation Completion (3)

5015 Periods in European History (3)

5018 Periods in American History (3)

5101 Foreign Study (1-12)

5102 Off-Campus Study (1-12)

5103 Independent Study (1-12)

5211-12-13-14-15-16-17-18-19 M.A. Reading Courses (3, 3, 3, 3, 3, 3, 3, 3)

5221-22-23-24-25 M.A. Reading Courses (3, 3, 3, 3, 3)

5240 Introduction to Historical Research (3)

5250 European Historiography (3)

5260 American Historiography (3)

5271-72-73 Teaching of College History (0, 0, 3)

5280 Philosophy and Methodology (3)

5290 Quantitative Analysis of Historical Data (3)

5300 Topics in History (3)

5310 Topics in Women's History (3)

5360 Topics in American Foreign Relations (3)

5410 Topics in Early Modern European History (3)

5440 Revolution and Restoration in Central Europe, 1780-1850 (3)

5444 Topics in French History (3)

5445 Topics in Nineteenth-Century European History (3)

5450 Topics in Twentieth-Century European History (3)

5480 Topics in Russian History (3)

5510 Topics in Tudor-Stuart England (3)

5520 Topics in Modern English History (3)

5550 Reaction and Reform in England, 1789-1848 (3)

5560 Anglo-Irish Relations (3)

5640 Topics in American Social and Cultural History (3)

5645 Topics in American Urban History (3)

5650 Topics in American Westward Movement (3)

5660 Topics in Negro History (3)

5670 Topics in American Colonial History (3)

5675 Topics in the Early National Period of American History (3)

5680 Topics in Nineteenth-Century American History (3)

5690 Topics in Twentieth-Century American History (3)

5710 History of the Crusades (3)

5720 Topics in Medieval History (3)

5740 Topics in European Urban History (4)

5750 Topics in Ancient History (3)

5780 Topics in German National Socialism (3)

5790 Topics in Middle Eastern History (3)

5810 Topics in Andean History (3)

5820 Topics in Mexican History (3)

5850 Topics in Chinese History (3)

5860 Topics in Japanese History (3)

5910-20 Topics in Southern History (3)

6000 Doctoral Research and Dissertation

6210-20-30-40 Directed Readings (3, 3, 3, 3)

6300 Seminar in Special Studies (3)

6310 Seminar in Tennessee History (3)

6350 Seminar in American Diplomatic History (3)

6410-20 Seminar in Western Europe (3, 3)

6444 Seminar in French History (3)

6480 Seminar in Russian History (3)

6510 Seminar in English History (3)

6610 Seminar in American Colonial History (3)

6620 Seminar in Era of American Revolution (3)

6630 Seminar in Early National Period of American History (3)

6635 Seminar in Jacksonian Period (3)

6640 Seminar in Social and Cultural History of the United States (3)

6650 Seminar in American Westward Movement (3)

6710 Seminar in Medieval Institutions (3)

6740 Seminar in the Crusades (3)

6770 Seminar in Central European History (3)

6810 Seminar in Latin American History (3)

6910 Seminar in the Civil War Era (3)

6930 Seminar in Twentieth-Century America (3)

6940 Seminar in History of the South (3)

6960 Seminar in Negro History (3)

Honors Program (509)

Director: Dr. Harry Jacobson

Non-Departmental

The following courses are restricted to students who have been selected to participate. 1118-28-38 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.

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

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

3118-28-38 Honors: Junior—Colloquium (2, 4, 2, 4, 4) Small group studies of selected topics. May be repeated.
4101 Honors: Foreign Study (1-16) See page 171, and Director of Special Programs. Primarily for College Scholar Students.

4102 Honors: Off-Campus Study (1-16) See page 171 and Director of Special Programs. Primarily for College Scholar Students.

4103 Honors: Independent Study (1-16) See page 171 and Director of Special Programs. Primarily for College Scholar Students.

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

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

Human Services (532)

Associate Professor: R.F. Kronick (Director), Ph.D. Tennessee; J.D. McLean, Ph.D. Chicago.

Assistant Professor: F. J. Spicuzza, M.S.W. Tennessee.

Instructors: J.E. Everett, M.S.W. Michigan; N. Wright, M.S.W. Pittsburgh.

Major: 48-52 hours
Requirements: Human Services 2690, 3100, 3300, 4220, 4229, 4400.

In addition, four courses from the following alternative areas (one course from each of the four areas):

I. Culture and Personality
American Studies 3010; Anthropology 3410, 3930, 4740; Audiology & Speech Pathology 4650; Child Development 3210, 3220, 4810; Educational Psychology 4110, 4800; Psychology 3210, 3550, 3650, 4510; Sociology 3130, 4820.

II. Complex Organizations
Political Science 3565, 3566, 4665, 4666; Religious Studies/Sociology 4940; Sociology 3610, 3620, 4560.

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

IV. Community and Society
Economics 3220, 3410; Geography 3430; Human Services 4900; Political Science 3710, 3720, 3730, 4580, 4590; Public Health 3330; Religious Studies 3550, 3650, 3810; Rural Sociology 3420; Sociology 3160; 3330, 3350, 3420, 3690, 4330, 4530, 4540, 4930.

Total Hours Credit: 48-52

Students enrolled in the College of Liberal Arts prior to fall quarter, 1972, who are under the previous curricular requirements will find requirements for a major in the 1972-73 or earlier general catalog.

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

3100 Social Welfare as a Social Institution (4) Specific social welfare institutions examined in depth in relation to human needs, structure, program, and service approaches. 2690 recommended.

3200 Peoples and Problems of Appalachia (4) Course designed to provide better understanding of Appalachian peoples, through exploring their lifestyle and institutions from contemporary human services point of view; thesis placed on political and economic structures of region. Recommended: Anthropology 4740.

3300 Human Needs and Services (4) Consideration of basic needs of people in urban-industrial society (e.g., income, housing, medical care) and societal response to those needs in the form of voluntary and governmental organization and agency services.

4100 Deviant Behavior as a Product of Labeling (4) Course is designed to show how label placed on the role he plays in maintaining the deviance or deviant role of client or clients he is serving. Settings considered will include crime, delinquency, health, and blindness.

4101 Foreign Study (1-16) See page 171.

4102 Off-Campus Study (1-16) See page 171.

4103 Independent Study (1-16) See page 171.

4220 Human Services Methodologies (4) Introduction to some specific helping techniques, essentials in 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 having 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 social services; to provide some direct services in a supervised learning situation. For majors only. May be repeated. 16 hours required. S/NIC Prerequisite: permission of instructor.

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

Italian
See Romance Languages.

Japanese
See Cultural Studies (Asian Studies).

Latin
See Classics.

Latin American Studies
See Cultural Studies.

Linguistics
See Cultural Studies.

Mathematics (641)

Professors: L.K. Barrett (Head), Ph.D. Pennsylvania; G.E. Albert (Emeritus), Ph.D. Wisconsin; J.S. Bradley, Ph.D. Iowa; J.H. Carruth, Ph.D. Louisiana State; R.E. Cline, Ph.D. Purdue; R.J. Daverman, Ph.D. Wisconsin; D.J. Dessart, Ph.D. Maryland; E.D. Eaves (Emeritus), Ph.D. Texas; H. Frankendael, Ph.D. Illinois; D.A. Gardiner, Ph.D. North Carolina State; R.T. Gregory, Ph.D. Illinois; D.B. Hinton, Ph.D. Tennessee; J.S. Householder (Emeritus), Ph.D. Chicago; D.S. Husch, Ph.D. Florida State; H.T. Mathews, Ph.D. Tulane; R.M. McConnell, Ph.D. Duke; D.D. Miller, Ph.D. Michigan; R.J. Piemonts, Ph.D. Auburn; K.C. Reddy, Ph.D. Indian Institute of Technology; F.W. Stallman, Ph.D. Giessen (Germany); B.D. Steeman, Ph.D. Dundee (Scotland).

Associate Professors: J.D. Chandler, Jr., Ph.D. Virginia; C.E. Clark, Ph.D. Louisiana State; D.E. Dobbs, Ph.D. Cornell; M.D. Gunzburg, Ph.D. New York University; W.E. Haver, Ph.D. SUNY at Binghamton; G.S. Jordan, Ph.D. Wisconsin; K.R. Kimmel, Ph.D. Ohio State; G.A. Klassen, Ph.D. Nebraska; Y. Kuo, Ph.D. Cincinnati; B.S. Rajput, Ph.D. Illinois; P.W. Schafer, Ph.D. Maryland; J. Smith, Ph.D. California (Berkeley); K. Soni, Ph.D. Oregon State; R.P. Soni, Ph.D. Oregon State; L.H. Turner, Ph.D. Purdue; W.R. Wade, Ph.D. California (Riverside); C.G. Wagner, Ph.D. Duke.

Assistant Professors: D.F. Anderson, Ph.D. Chicago; W. Brandl, Ph.D. Northwestern; V.A. Douglass, Ph.D. Harvard; E.L. Evans, M.S. Houston; W.P. Keigher, Ph.D. Illinois; J.W. Lee, Jr., Ph.D. Los Angeles; R.W. Leggett, Ph.D. Kentucky; B. Oder, Ph.D. California Institute of Technology; D.R. Peterson, Ph.D. Michigan State; W.H. Row, Jr., Ph.D. Wisconsin; R.J. Rowlette, Ph.D. Virginia; S.M. Serbin, Ph.D. Cornell; R.D. Shelton, Ph.D. Rice; K.R. Stephenson, Ph.D. Wisconsin; C.C. Stanford, Ph.D. California (Davis); A.T.M. Wang, Ph.D. Minnesota; R.D. Weidner, Ph.D. California (Berkeley).

Instructors: E.S. Carlson, M.A. Alabama; C.G. Doss, M.A. Tennessee; M.S. McLean, M.S. Purdue; D.P. Nash, M.A. Colorado; A.M. Steele, M.Ed. Pittsburgh.

UNDERGRADUATE Placement Information for Freshmen Courses: Students who need more than one year of mathematics should plan to take 1840-50-60 (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 1500 with a grade of C or better before 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 32 in mathematics and a
high school average of at least 3.00 are eligible for the honors course 1848. Prospective mathematics majors who meet these requirements are particularly encouraged to take 1540 or 1550. A maximum of six hours credit may be obtained in mathematics from courses numbered below 2000.

Honors Courses: The current practice of the department is to offer honors versions (1848-58-68 and 2840-50-60) of 1840-50-60 and 2840-60-60 in sequence, fall-winter-spring, each year. In addition to these regularly offered honors courses, an honors version of 1540 or 1550 may be arranged with the consent of 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).智能缺失或不完整，无法提供更多信息。

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

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

2. Advanced Requirements
   a. 2140 or 2150, and mathematics courses numbered 3050 or above, including a senior seminar (4910 or 4920) and at least two of the following sequences:


Note: The two sequences selected cannot contain the same course.

b. 9 additional hours in courses from the following list: Mathematics courses numbered 4000 or above, valid 4100, Computer Science 4010, 4020, 4210, 4220, 4230, 4250, 4260, 4270, 4280, 4290, 4300.

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

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

Minor: Consists of 2840-50-60 or 2848-58-68; or 2540-50-60, 2610 and 2860 and at least 12 hours in courses numbered 3050 or above.

Program Planning for Majors:
Mathematics majors have considerable freedom in determining how they will meet the Advanced Requirements of the major. In order to offer a proficiency in programming, the mathematics department has designed several sample programs which majors may wish to follow. A brief description of these programs appears below; more detailed information about these or any additional programs which the department may design in the future is available in Ayres 121. Completion of the courses suggested in any of the following programs will meet (and, in some cases exceed) the Advanced Requirements for a major in mathematics.

All students who intend to pursue graduate studies in the mathematical sciences are strongly urged to study French, German, or Russian for at least two years.

Program 1. This program is designed for students who have a general interest in mathematics and do not plan to become professional mathematicians. Supplemented by appropriate non-mathematical electives, such a program may be used to prepare, for example, by pre-medical or pre-law students, by students planning to teach secondary school mathematics, or by those who plan to enter business after graduation. Suggested courses: Mathematics 3150, 3505-60, 3780-90, 3930, 4510-20, 4120, senior seminar, 6 hours of math electives.

Program 2. This program emphasizes pure mathematics and is designed to prepare students for graduate work in any of the mathematical sciences. Suggested courses: Mathematics 3150, 3920-30, 4510-20, 4120, 4150-60, 4250, senior seminar, 3 hours of math electives. The honors courses 4518-28-38 and 4158-68 are especially recommended. Since 4158-68 begins only in the fall quarter, students who wish to enroll in this sequence should take 4120 during their sophomore or junior years.

Program 3-A. This program emphasizes numerical mathematics, and is designed to prepare the student for employment in industry. Suggested courses: Mathematics 3150, 4220-30, 4160, 4060-70, 4250, Computer Science 4410, Mathematics 4990 or Computer Science 4330, senior seminar, 8 hours of math electives selected from 4540, 4550, 4620, 4640, 4710.

Program 3-B. This program emphasizes numerical mathematics and is designed to prepare the student for graduate work in numerical mathematics or computer science. Suggested courses: Mathematics 3150, 4220-30, 4160, 4060-70, 4150-20-30, 4250, Computer Science 4410, Mathematics 4990 or Computer Science 4330, senior seminar, 3 hours of math electives.

Program 4-A. This program emphasizes operations research, probability, and mathematical statistics and is designed to prepare the student for employment in business or industry. Suggested courses: Mathematics 3150, 4540, 4600-70, 4650-60-70, 4750-60-70, Statistics 3450, Industrial Engineering 3510-20-30, senior seminar, 3 hours of math electives.

Program 4-B. This program emphasizes operations research, probability, and mathematical statistics, and is designed to prepare the student for graduate work in one or more of these areas. Suggested courses: Mathematics 3150, 4540, 4600-70, 4650-60-70, 4750-60-70, Industrial Engineering 3510-20-30, senior seminar.

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

Students following this program should supplement their mathematical training by selecting electives such as Economics 2110-20-30 or 2118-28-38, Accounting 2110-30, Insurance 3220, 4710-20, Marketing 3110, Statistics 3450, Industrial Engineering 3510-20-30; Computer Science 3510, 3520, 4550. Students in this program should also plan to take the Society of Actuaries Examinations 1 and 2.

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

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

1540 College Algebra (4) Sets, real and complex number systems, exponents and radicals, fundamental algebraic operations, theory of equations, polynomial functions, equations, graphs. Prereq: Two years of high school algebra or one year algebra and one year geometry.

1550-50 Introductory Calculus-General Mathematics (4) Straight line, coordinate geometry, derivatives of algebraic functions, applications, maxima and minima, related rates, antiderivatives, integration of algebraic 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: Students with an adequate high school background in Algebra are advised to begin the 1540-50 series with 1550.

1630 Analytic Geometry (5) Straight line; plane curves, polar coordinates; parametric equations, line and plane in three dimensions; review of trigonometry. Preparation students expected to have completed 2170-20 and cannot be taken for credit in addition to 1810-20. Prereq: Two years high school algebra and one semester of trigonometry or equivalent.

1700 Precalculus Math (4) Function concept and use of functional notation. Properties of functions and their graphs. Polynomial, exponential, logarithmic and trigonometric functions. Preparation: 3 yrs of high school algebra; and equivalent of one-half yr trigonometry or taking Mathematics 0150 concurrently.

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

1842-52-82 Single Variable Calculus with Computer Support (5, 5, 5) Same coverage as calculus 1840-50-60 but with computer support. Preparation: FORTAN is introduced and applied to problems from following areas: computer evaluation of functions, limit operations, application of definite derivative, approximation via differentials; approximate solution of equations by bisection, secant and Newton's method; rectangular, trapezoidal, and Simpson's rules for numerical integration; Euler's method for initial value problems. Preparation: Two years of high school algebra, one year geometry, and one semester of trigonometry or equivalent.

1848-58-88 Honors: Single Variable Calculus (4, 4, 4) For students who have had trigonometry, selected on basis of placement test scores and high school record. Students receiving a grade in the course will have the year's work in calculus by taking 1850-60. Special sections of 1858 will be made available for students who perform well on the placement test. Prereq: The taken in sequence.

1900 Selected Topics (4) Applications of definite integration; approximate integration; simultaneous linear equations; matrix inversion; elementary linear programs; description of statistical studies; confidence intervals; statistical decision rules; probability; finite probability, and finite statistics. Preparation: 1540 and 1840-60. Prereq: 1840-60. Prereq: Taylor series, indeterminate forms, absolute convergence. Prereq: Math 1860. Must be taken in sequence. 2640—Vectors, matrices, systems of linear equations, quadratic forms, solid analytic geometry, dot and cross product of vectors, space curves. Functions of several variables, directional derivatives, multiple integrals, cylindrical and spherical coordinates, series, convergence tests, power series, Taylor series, indeterminate forms, absolute convergence. Prereq: Math 1860. Must be taken in sequence. 2640—Vectors, matrices, systems of linear equations, quadratic forms, solid analytic geometry, dot and cross product of vectors, space curves. Functions of several variables, directional derivatives, multiple integrals, cylindrical and spherical coordinates, series, convergence tests, power series, Taylor series, indeterminate forms, absolute convergence. Prereq: Math 1860. Must be taken in sequence.

2840-58-68 Honors: Multivariable Calculus and Matrix Algebra (4, 4, 4) Honors course for selected students admitted on basis of performance in 1848-58-60 or 1840-50-60.

Prerequisites: If specific courses are listed below, preparation satisfactory to the instructor will be an acceptable substitute. Graduate standing is prerequisite to enrollment in courses numbered above 6000. Undergraduates working towards a major in mathematics with a view to taking advanced work are strongly recommended to include 4510-20-30 and 4510-60-70 during the junior or senior year.

3000 Elementary Quantitative Methods (4) Elementary course designed to prepare students in social and life sciences for quantitative courses in their department. Treats basic topics in probability and statistics with particular emphasis on applications to social science. Preparation: 1 yr high school algebra and at least sophomore standing in Elementary Education, College of Education, or consent of instructor.

2412-22 Finite Mathematics (4, 4, 4) Logic and sets, combinatorics and probability, vectors and matrices with applications in business and game theory. Prereq: Applications to simple problems in the behavioral and/or managerial sciences. Prereq: Two years of high school algebra or one year of algebra and one year geometry.

2512 Calculus Refresher (4) Functions, graphs, limits, derivatives, mean value theorem, integration and properties of definite integrals, power series. Preparation: Students who have had some previous exposure to Differential and Integral Calculus. Prereq: 1130 or 1560 or equivalent and permission of instructor.

2540-50-60 Calculus (4, 4, 4) Calculus sequence for students who have completed 1560 or students who have a significant introduction to calculus in high school. Definition of a derivative; derivatives of algebraic functions, the chain rule, differentials, continuity, applications of derivatives; Rolle's Theorem, the Mean Value Theorem, maxima and minima; indefinite integrals and applications, the definite integral and applications. Fundamental Theorem of Calculus. Derivatives and integrals of transcendental functions, methods of integration, parametric equations, vectors, differentiation of vectors, scalar and vector products, equations of lines and planes, surfaces. Partial differentiation, directional derivatives, the chain rule and applications. Preparation: One year of high school algebra, one year geometry, and one semester of trigonometry or equivalent.

2610 Introduction to Differential Equations (2) First order linear differential equations, exact, and linear first order equations, integrating factors. Second order linear equations with constant coefficients. Prereq: 1830. Prereq: 1 year of high school algebra, one year geometry, and one semester of trigonometry or equivalent.

2710-20-30 Calculus (5, 5, 5) For students who have had a separate course in analytic geometry. 2710—Functions, graphs, limits, derivatives of algebraic functions, applications. Preparation: 2720—Definite integrals, applications, polynomials, coordinate, transcendental functions, methods of integration, parametric equations, vectors, in 2- and 3-dimensional space. 2730—Elementary linear algebra, vectors in 3-space, applications, partial differentiation, multiple integrals. Preparation: TBA. Must be taken in sequence. Prereq: 1630 or equivalent.


2848-58-68 Honors: Multivariable Calculus and Matrix Algebra (4, 4, 4) Honors course for selected students admitted on basis of performance in 1848-58-60 or 1840-50-60.

Prerequisites: If specific courses are listed below, preparation satisfactory to the instructor will be an acceptable substitute. Graduate standing is prerequisite to enrollment in courses numbered above 6000. Undergraduates working towards a major in mathematics with a view to taking advanced work are strongly recommended to include 4510-20-30 and 4510-60-70 during the junior or senior year.

3000 Elementary Quantitative Methods (4) Elementary course designed to prepare students in social and life sciences for quantitative courses in their department. Treats basic topics in probability and statistics with particular emphasis on applications to social science. Preparation: 1 yr high school algebra and at least sophomore standing in Elementary Education, College of Education, or consent of instructor.

2412-22 Finite Mathematics (4, 4, 4) Logic and sets, combinatorics and probability, vectors and matrices with applications in business and game theory. Prereq: Applications to simple problems in the behavioral and/or managerial sciences. Prereq: Two years of high school algebra or one year of algebra and one year geometry.

2512 Calculus Refresher (4) Functions, graphs, limits, derivatives, mean value theorem, integration and properties of definite integrals, power series. Preparation: Students who have had some previous exposure to Differential and Integral Calculus. Prereq: 1130 or 1560 or equivalent and permission of instructor.

2540-50-60 Calculus (4, 4, 4) Calculus sequence for students who have completed 1560 or students who have a significant introduction to calculus in high school. Definition of a derivative; derivatives of algebraic functions, the chain rule, differentials, continuity, applications of derivatives; Rolle's Theorem, the Mean Value Theorem, maxima and minima; indefinite integrals and applications, the definite integral and applications. Fundamental Theorem of Calculus. Derivatives and integrals of transcendental functions, methods of integration, parametric equations, vectors, differentiation of vectors, scalar and vector products, equations of lines and planes, surfaces. Partial differentiation, directional derivatives, the chain rule and applications. Preparation: One year of high school algebra, one year geometry, and one semester of trigonometry or equivalent.

2610 Introduction to Differential Equations (2) First order linear differential equations, exact, and linear first order equations, integrating factors. Second order linear equations with constant coefficients. Prereq: 1830. Prereq: 1 year of high school algebra, one year geometry, and one semester of trigonometry or equivalent.

2710-20-30 Calculus (5, 5, 5) For students who have had a separate course in analytic geometry. 2710—Functions, graphs, limits, derivatives of algebraic functions, applications. Preparation: 2720—Definite integrals, applications, polynomials, coordinate, transcendental functions, methods of integration, parametric equations, vectors, in 2- and 3-dimensional space. 2730—Elementary linear algebra, vectors in 3-space, applications, partial differentiation, multiple integrals. Preparation: TBA. Must be taken in sequence. Prereq: 1630 or equivalent.

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

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

GRADUATE

The Department of Mathematics offers four advanced degrees. In order to become a candidate for any one of these the student must first be admitted to The Graduate School. The Master of Arts and Master of Science degree programs presuppose a Bachelor's degree with a major in mathematics. The Master of Mathematics degree is intended primarily for teachers of high school mathematics. Applicants for admission to this program must take the GRE and the GRE Subject Test, Part in Mathematics.

4500 Thesis

4502 Non-Thesis Graduation Completion (3)

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

5012 Differential Geometry for Teachers (3-4)

5013 Geometry for Teachers (3-4)

5014 Analysis for Teachers (3-4)

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

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

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

5150 Foundations of Analysis (3)

5160 Foundations of Analysis (3)

5170 Foundations of Analysis (3)

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

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

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

5310-30-40 Introduction to Higher Geometry (3, 3, 3)

5340-50-60 Numerical Treatment of Algebraic and Transcendental Equations (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, 3, 3)

5465 Mathematical Aspects of the Finite Element Method (3)

5480-90 Mathematical Programming (3, 3)
UNDERGRADUATE

Major

1. Prerequisites and corequisites
   - Chemistry 2140 and 2149 (Analytical
     Chemistry and Laboratory) ......... 4
   - Psychology 3211-21-31 and 3919-29-39
     (Organic Chemistry and Lab) .. 12

2. Courses in the major:
   - Biology 3110 (Genal Genetics) .... 4
   - Biology 3120 (Cell Biology) ....... 4
   - Microbiology 3000 (Introduction to
     Microbiology) ................. 3
   - Microbiology 3009 (Introduction to
     Microbiology) ................. 2
   - Microbiology 4111 (Physiology of
     Bacteria) ..................... 3

   Seventeen (17) hours from the following list of
   upper division courses in microbiology as follows:
   3 hours from Group A; 3 hours from
   Group B; 4 hours from Group C; and 7 hours
   from any courses in Groups A, B, C, or D.

   Group A
   - Microbiology 3061 (Pathogenic
     Microbiology) .............. 3
   - Microbiology 3071 (Immunology) .... 3

   Group B
   - Microbiology 4521 (Virology) ........ 3
   - Microbiology 4811 (Genetics of
     Bacteria and Viruses) ......... 3

   Group C
   - Microbiology 3069 (Pathogenic Lab) .... 2
   - Microbiology 3079 (Immunology Lab) ... 2
   - Microbiology 4112 (Bacterial Physiology
     Lab) ................................ 2
   - Microbiology 4529 (Virology Lab) .... 2
   - Microbiology 4819 (Bacterial and Viral
     Genetics Lab) ................. 2

   Group D
   - Microbiology 3810 (Food Microbiology) .... 4
   - Microbiology 3820 (Yeasts and Molds)
     ................................ 3
   - Microbiology 4210 or 4220 or 4230
     (Special Problems in Microbiology) .... 3
   - Microbiology 4130 (Taxonomy of
     Bacteria) 3 hours
   - Any courses from Group D plus additional
     courses from groups A, B, or C .... 7
   - Any 5 hours of courses listed in
     Natural Science and Mathematics in
     the College of Liberal Arts or
     the College of Agriculture ....... 5

Total Hours Required .......... 54

Microbiology (584)

2010 Microbiology (4) Fundamental concepts and
applications of microbiology with laboratory
examination. Course meets needs of programs
that require only a single course in microbiology.
Not open to students who have taken other
microbiology courses.

2110 Microbiology for Student Nurses (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, epi-
demiology of infection, and principles of immunity
and allergy. 3 hrs and 1 lab.

2110 General Microbiology (5) Introductory course
designed for students in School of Nursing and pre-
veterinary medicine. Survey of general properties
of bacteria, viruses, and fungi including study of
pathogenesis, immunity, and applied bacteriology.
Laboratory exercises designed to parallel lecture
hours. 3 hrs and 2 labs.

3000 Introduction to Microbiology (3)
Eucaryotic and procaryotic protists, viruses, microbial
growth, bacterial structure, bacterial and viral genetics,
pathogenesis, immunity, and applied microbiology.
Prereq: Chemistry 1110-20-30, Biology 3120. Prereq
or coreq: Biology 3110.

3009 Introductory Microbiology Laboratory (3)
Laboratory exercises designed to accompany 3000.

3061 Pathogenic Microbiology (3) Disease
producing microorganisms including bacteria,
ricketsia, chlamydia, and fungi. Prereq: 3000 and
3009.

3069 Pathogenic Microbiology Laboratory (2)
Techniques for isolation, cultivation, and identify-
cation of pathogenic microorganisms. Prereq or
coreq: 3061.

3071 Immunology (3) Basic principles and
mechanisms involved in resistance to infectious
disease; allergy and anaphylaxis. Open to graduate
students in other biological sciences without
prerequisite. Prereq: 3000 and 3009 or permission
of instructor.

3079 Immunology Laboratory (2) Laboratory
procedures involving several species of animals,
and techniques used in immunology research.
Prereq or coreq: 3071.

3089 Serological Methods (3) Practical procedures
in Serology and Clinical Immunology. Prereq or
Coreq: 3071.

3100 Food Bacteriology (4) Standard methods for
examination, cultivation, and identification of
bacteria associated with food fermentation and food
spoilage. Prereq: 3100 and Chemistry 2230 or 3211.
2 hrs and 2 labs.

3820 Yeasts and Molds (4) Morphology, taxonomy,
and physiology of yeasts, actinomycetes, and fungi
of industrial importance. Prereq: 201 or
Chemistry 2230 or 3211, or permission of instructor.
2 hrs and 2 labs.

4010 Biology of Soil Microorganisms (4)
Same as Agricultural Biology 4010.

4101 Foreign Study (1-6) See page 171. No more
than 3 hours may be applied toward a major or minor
in microbiology. May be repeated to a total of
16 hours.

4102 Off-Campus Study (1-6) See page 171. No
more than 3 hours may be applied toward a major or
minor in microbiology. May be repeated to a total of
16 hours.

4103 Independent Study (1-6) See page 171.
No more than 3 hours may be applied toward a major
or minor in microbiology. May be repeated to a total of
16 hours.

4111 Physiology of Bacteria (3) Cell chemistry and
structure; growth, nutrition, and metabolism of
microorganisms. Prereq: 3000, 3009, and 12 hrs of
organic chemistry.

4112 Bacterial Physiology Laboratory (2) Prereq or
coreq: 4111.

4130 Taxonomy of Bacteria (3) Bacterial
classification. Prereq: 3000 and 3009. 3 hrs.

4200 Special Problems in Microbiology (2-4)
Individual study. Involvement in the research
program of a faculty member, independent study
projects. Project is undertaken under direction of
faculty member with approval of department. Not
more than 3 credit hours in this sequence may be
used in a major in microbiology.

4444 Seminar in Microbiology (1) May not be
applied towards a major in microbiology. Prereq:
senior standing, permission of instructor.
Satisfactory/No Credit.

4521 Virology (3) Spectrum of bacterial, animal
and plant viruses is presented with special emphasis on
a comparison of infectious cycles and molecular
concepts of replication. Prereq: 3000 and 3009
and Biochemistry 4110-23 or permission of instructor.

4529 Virology Laboratory (2) Laboratory
procedures for isolation, handling and culturing of
both animal and bacterial viruses. Methodology for
condensation of morphology of virus replication is
presented. Prereq or coreq: 4521.

4811 Genetics of Bacteria and Viruses (3)
Analysis of genetic systems in bacteria and viruses.
Mechanism and expression of mutation, recombination and genetic transfer. Prereq: 3000 and 3029.

4819 Bacterial and Viral Genetics Laboratory (2) Laboratory exercises designed to accompany 4811. Coreq: 4811, or prereq: General Genetics.

4820 Medical Mycology (2) Disease causing fungi; cytology, physiology, pathogenesis and immunity; emphasis on methodology of isolation and identification. Prereq: 3000, 3009, and 3620 or permission of instructor.

4829 Medical Mycology Laboratory (2) Prereq or coreq: 4820.

4960 Microbial Ecology (3) Application of ecological principles to study of microbial communities. Emphasis on functional role of microorganisms in natural environments. Prereq: 3000, one-year organic chemistry, Biology 3130, or permission of instructor.

GRADUATE

5000 Thesis

5002 Non-Thesis Graduation Completion (3)

5011-12-13-14-15-16 Mini-course in Microbiology (1, 1, 1, 1, 1, 1)

5130 Topics in Taxonomy (3)

5310 Selected Topics in Microbiological Research (3)

5360 Topics in Immunology and Immunchemistry (4)

5400 Seminar in Microbial Physiology (1)

5410 Seminar in Immunology (1)

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 Microbial Ecology (3)

5830 Seminar in History of Microbiology (1)

5850 Seminar in History of Microbiology (1)

5910-20-30 General Seminar (1, 1, 1)

5940 Seminar in Microbial Genetics (1)

5970 Seminar in Virology (1)

6000 Doctoral Research and Dissertation

6410 Concepts of Immunology (3)

6720 Advanced Topics in Microbial Physiology (3)

6730 Advanced Topics in Microbial Pathogenesis (3)

6740 Advances in Virology (3)

6760 Advanced Topics in Microbial Genetics (3)

6810-20-30 Problem Seminar (1, 1, 1)

Medical Technology (669)

Courses listed below are open only to qualified students who have completed the first three years of the Science-Medical Technology Curriculum, described on page 171, 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 taxonomy, methods of culture, techniques of identification, and evaluation of antibiotic sensitivity. Gross and qualitative chemical examination of pathogenic protozoa and helminth parasites of man.

4021-22 Clinical Microbiology (6, 6) Clinical aspects of biochemistry, including overview of principles and instrumentation with emphasis on practical laboratory applications of analytical procedures, specimen collection and handling, significance of results, and quality assurance. Includes blood gas analysis, including radioimmunooay, and analysis of blood and other body fluids for enzymes, hormones, and other constituents of clinical interest, utilizing both automated and manual techniques.

4031-32 Hematology and Clinical Microscopy (6, 6) Principles, theories, techniques, and instrumentation related to the quantitative and qualitative evaluation of cellular elements of blood and other body fluids; factors of hemostasis, quantitative chemical 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 operation. Erythrocyte antigens and their normal and abnormal immunological behavior. Standard technical practices used in evaluating blood typing, cross-matching, and antibody detection, and preparation of blood components for transfusion. Safety control methods standard to an efficient blood bank are important part of course material.

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 microscopic evaluation and role of histopathology in clinical diagnosis.

4071 Orientation and Basic Techniques (1) Designed to facilitate transfer 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 specimen, principles of operation of major laboratory instruments, review of laboratory math and introduction of quality control procedures. Portions of course extend over entire clinical year.

4072 Principles of Supervision and Education in Medical Technology (1) Consists of seminars in basic principles of management, supervision, and education theories and methods. There will be comprehensive examination covering the 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 173. Information regarding requirements for the major and minors under the revised B.A. curriculum may be obtained in the departmental office.

Major:

(a) Concentration in Applied Music - consists of Music 2111-21-31, 2113-23-33, 2130-20-30-40, 27 hours in applied music at the 2000-3000-4000 level (9 hours each), and Junior and Senior recitals. Prerequisites are Music 1111-21-31, 1113-23-33, and 3 quarters of study in applied music at the 1000-level.

(b) Concentration in Music History and Literature - consists of Music 2111-21-31, 2113-23-33, 2130-20-30-40, and 27 upper division hours in music history and literature. Prerequisites are Music 1111-21-31, 1113-23-33, and 1340. Minor:

A) Concentration in Applied Music - consists of Music 2000, 2111-21-31, 2130-20-30-40 and 18 hours in applied music at the 2000-3000-4000 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, 2130-20-30-40, 10 upper division hours in music history and literature. Prerequisites are the same as those for the major.

The Bachelor of Science in Music Education, designed for preparation for institutional teaching, is administered by the Department of Music Education. See page 97 for requirements.

General

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

1010-20-30-40-50-60 Class Piano (1, 1, 1, 1, 1, 1) 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) For music and music education majors only. May be repeated for credit.

2000 Solo Class (0)

2010 Introduction to Musical Theatre Technology (3) Stage technology unique to lyric stage.
2055-65-75 Diction for Singers (2, 2, 2) Sounds by phonetic symbols. Opera and art songs used for examples. Performance practice.
3000 Junior Recital (0)
3011-21-31 Organ Literature (1, 1, 1) Organ music from preclassical period to present. Prereq: permission of instructor.
3012-22-32 Song Literature (2, 2, 2) Study of literature from 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 permission of instructor.
3014-24 Woodwind Literature (2, 2) Prereq: permission of instructor.
3015 Percussion Literature (1) Prereq: permission of instructor.
3016 String Literature (2) May be repeated. Maximum 6 hours credit. Prereq: permission of instructor.
3025-26-27 Elementary and Intermediate Piano Pedagogy (2, 2, 2) Piano methods and materials for pre-college level student. Collegiate laboratory experiences. Prereq: permission of instructor.
3040-50-60 Advanced Piano Literature (2, 2, 2) Piano music from preclassical period to present. Prereq: permission of instructor.
3041 Keyboard Harmony (2) Melody harmonization, figured bass realization, and improvisation. Prereq: 1131-33, and keyboard proficiency at the 2000 level. 3051 Organ Improvisation (2) Prereq: 3041 and organ proficiency at the 2000 level.
3052-53 Jazz Improvisation (2, 2) Study and application of principles of improvisation, including nomenclature, chord progressions, chord-scales, patterns, melodic development, and free form devices. Prereq: permission of instructor. 2 hours and 1 lab.
3044-54 Brass Literature (2, 2) Prereq: permission of instructor.
3061 Church Service Playing (2) Accompanying on the organ, conducting from the organ, general church service playing. Prereq: permission of instructor.
3070 Opera Production (1-3) Supervised work on opera productions. May be repeated for credit. Prereq: permission of instructor.
3199 Electronic Music Techniques (3) Introduction to taped and live electronic music. Historical background, theoretical concepts, tape and synthesizer usage. Prereq: permission of instructor.
4000 Senior Recital (0)
4001 Organ Design (3) Historical, tonal and mechanical principles of organ design.
4010-20-30 Piano Techniques (1, 1, 1) Problems of piano playing: development of piano technique; style and interpretation; program building. Prereq: permission of instructor.
4011-21-31 Organ Techniques (1, 1, 1) Problems of organ playing: development of technique; problems in style, interpretation and registration; program building. Prereq: permission 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. Collateral laboratory experiences accompany the study. Prereq: permission 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 permission of instructor.
4045 Projects in Opera Theatre (1-3) May be repeated for credit. Prereq: permission of instructor.
4050 Advanced Instrumental Conducting (3) Development of knowledge and skills in instrumental conducting; study of various periods and composers. Prereq: 4060. 4060 Choral Conducting (3) Development of knowledge and skills in choral 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. 4420 or equivalent.
4074-84 Church Music Seminar (3, 3) History and philosophy of church music; liturgies and liturgical music; church music administration. Prereq: permission of instructor.
4111-21-31 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 or 1118-28-38. Must be taken in sequence. 2 hrs per week.
1118-28-38 Honors: Theory I (4, 4, 4) Materials of music with emphasis on literature of Baroque, Classic, and Romantic periods. Exercises and projects in writing and analysis. Designed for music majors with concentrations in theory or composition. Other students may be admitted subject to placement examination. Grade of C or better must be achieved to continue the course sequence.
2111-21-31 Theory II (3, 3, 3) Materials of music with emphasis on literature of Romantic and Contemporary periods. Exercises in writing and analysis. Must be taken in sequence. Prereq: 1131 or 1136 or permission of instructor.
2113-23-33 Advanced Ear Training (1, 1, 1) Should be taken concurrently with 2111-21-31 or 2119-28-38. Must be taken in sequence. 2 hrs per week.
2118-28-38 Honors: Theory II (4, 4, 4) Materials of music with emphasis on literature of Romantic and Contemporary periods. Exercises and projects in writing and analysis. Prereq: 1138 or placement examination.
3111-21-31 Tonal Counterpoint (3, 3, 3) Counterpoint techniques of eighteenth century, with emphasis on works of J.S. Bach. Must be taken in sequence. Prereq: 2136 or 2138.
3112 Instrumentation (3) Basic techniques in scoring for voices; brass, woodwind, and string choirs; and percussion. Prereq: 2131 or 2138.
3113 Analysis I (3) Study and practice in analysis of structures of music from smallest structural units to large compound forms. Emphasis on macro-analytic techniques. Prereq: 2131 or 2138 or equivalent.
3114-24 Choral Arranging (3, 3) Analysis of scores and writing of arrangements for choruses. 3114—male and female chorus, 3114—mixed chorus. Prereq: 3112 or permission of instructor.
3122 Orchestration (3) Advanced techniques in instrumental writing with emphasis on scoring for the concert orchestra. Prereq: 3112 or permission of instructor.
3123 Analysis II (3) Continuation of Analysis I with emphasis on micro and linear analytic techniques. Prereq: 3113.
4100 Independent Study in Music Theory (1-3) May be repeated for credit. Prereq: permission of department head.
4101 Foreign Study (1-16) See page 177.
4112 Twentieth-Century Compositional Techniques I (3) Study of the compositional techniques from Debussy to present. Analysis of scores; idiomatic writing. Prereq: 2131 or equivalent.
4113 Pedagogy of Music Theory (3) Techniques, methods and materials involved in college-level music theory instruction. Prereq: 4060.
4114 Stage Band Arranging (3) Analysis of scores and scoring for the stage band. Prereq: 3112 and permission of instructor.
4115 Variation (3) Study and application of variation procedures. Prereq: 3123 or equivalent.
4116 Set Structure in Musical Composition (3) Theory of sets and its application to analysis of music. Prereq: permission of instructor.
4124 Band Arranging (3) Study and application of techniques employed in scoring for the marching and concert bands. Prereq: 3112 or equivalent.
4135 Band Transcription (3) Technique and application of transcribing keyboard and orchestral music for concert band, marching and rescoring. Prereq: 3112 or equivalent.
MUSIC HISTORY AND LITERATURE
1210-20 Orientation in Music—Appreciation (4, 4) 1210—Developing receptive listening skills through study of materials of music, musical styles, and musical aesthetics. Illustrative examples selected from fourth through the twentieth centuries. 1220—Introduction to masterworks of music from 1600 to present. For non-music majors. Prereq: 1210 for 1220 or permission of instructor.
1340 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) 2310—to 1600. 2320—1600—1800. 2330—1800—1900. 2340—1900 to present. Requires musical background. Prereq: permission of instructor.
2310 Orientation in Music: Germany from 1750 (4) Historical study of German composers and their music from the classical period. Prereq: 1210 or permission of instructor.
2311 Orientation in Music: The Twentieth Century (4) Examination and study of serious, popular, folk, and ethnic music of the twentieth century. For non-music majors. Prereq: 1210 or permission of instructor.
2312 Orientation in Music: Music for the Theatre (4) Study of selected, representative music composed for Broadway stage, films, opera, and opera. For non-music majors. Prereq: 1210 or permission of instructor.
2320 The Concerto (3) Survey of literature from seventeenth century to present.
2340 The Symphony (3) Survey of symphonic literature from precursors of classical symphony to present.
2360 Chamber Music (3) Survey of chamber music from 1750 to present.
2371-81 History of Opera (3, 3) Dramatic, vocal and orchestral elements in operas of Italian, French, and German School. 3271—1600—1600. 3281—1600—present.
3340 Oratorio (3) Choral works other than those appropriate for use in church.
3350 Introduction to Afro-American Music (4) History of African music, blues, gospel, music and jazz with emphasis on Black artists and their contributions.
4200 Independent Study in Music History and Literature (1-3) May be repeated for credit. Prereq: permission of department head.

4210 Music in the Romantic Period (3) Survey of music from Beethoven through post-Romantic instrumental and vocal styles.

4230 Contemporary Music: 1945 to Present (3) Survey of new and avant-garde music in Europe and America since World War II.

4241 American Music (3) American music from colonial times to present. Emphasis on twentieth century includes folk and cultivated traditions. Prereq: 1212-20 or equivalent.

4260 Introduction to Ethnomusicology (3) Basic attitudes and techniques of ethnomusicology. Survey of music cultures of the Pacific, Near East, Asia and Africa.

4270 Evolution of Jazz (3) Study of origin, development and styles of jazz music and its exponents.


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

4310 History of Art Song (3) Survey of art song from Fifteenth Century to 1930.

4315 Wind Chamber Music (3) Study of wind chamber music from 18th through 20th Century. Emphasis placed on style interpretation, rehearsal techniques, programming and musical significance, both historical and theoretical.

4340-50 Works of Bach (3, 3) Detailed examination of sonatas, chamber, keyboard, and orchestral works; cantatas, motets, Passions and oratorios, 4340—instrumental works; 4350—vocal works.

APPLIED MUSIC

Applied study is classified as Principal or Secondary.

Students studying their principal (major) instrument register for credit appropriate to their program, 2-4 credit hours; students studying a secondary instrument register for 1 hour credit. Study at the principal level requires 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 nine credit hours 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.

Advancement in applied music is measured by proficiency (Jury) examination.

Students who do not meet proficiency requirements at any level may be required additional study at that level. Course level and credit hours will be determined by the applied faculty.

All students studying applied music at the principal level are required to register for Music 2000 Solo Class. The requirements for this course are to attend scheduled concerts, recitals, master classes, 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)

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.

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.

2599-3599-4599-5599 Composition (1-3, 1-3, 1-3, 1-3) May be repeated for credit. Prereq: permission of instructor.

3597-4597-5597 Composition with Electronic Media (1-3, 1-3, 1-3) May be repeated for credit. Prereq: 3199 and permission of instructor.

ENSEMBLES

All students studying applied music are required to perform in a major musical organization each quarter. String, woodwind, brass, and percussion students must be enrolled in an instrumental organization; voice students in a choral organization, opera workshop or opera theatre.

A student's preference for musical organization will be honored whenever possible, but factors considered in making the assignment will include playing ability, specific needs of various organizations, and previous performance experience at the University.

3600-5600 Small Ensemble (1, 1) May be repeated for credit.

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.

3607-5607 Tuba Ensemble (1, 1) May be repeated for credit.

3610-5610 Percussion Ensemble (1, 1) May be repeated for credit.

3612-5612 Baroque Ensemble (1, 1) May be repeated for credit.

3620-5620 U.T. 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 Varsity Band (1, 1) May be repeated for credit.

3656-5656 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.

3684-5684 Campus Chorus (1, 1) May be repeated for credit.

3686-5686 Men's Glee Club (1, 1) May be repeated for credit.

3687-5687 Women's Chorale (1, 1) May be repeated for credit.

3699-5699 Accompanying (1, 1) May be repeated for credit.
Philosophy (745)

Professors:
J.W. Davis (Head); Ph.D. Emory; R.B. Edwards, Ph.D. Emory; R.D. Herrmann, Ph.D. Mainz (Germany); M.H. Moore (Emeritus), Ph.D. Chicago; D. Van de Vate, Ph.D. Yale.

Associate Professors:

Assistant Professors:
J.O. Bennett, Ph.D. Tulane; G.G. Brenkert, Ph.D. Michigan; S.M. Cohen, Ph.D. Northwestern; K.A. Emmett, Ph.D. Ohio State; H.P. Hamlin, Ph.D. Georgia; E.R. Jones III, Ph.D. Chicago; B.C. Latta, Ph.D. Yale; S.J. Reaven, Ph.D. California (Berkeley).

Instructor:
M.L. Osborne, M.A. Bryn Mawr.

Philosophy seeks to understand human worlds: the universe, the world, relations. It involves (1) use of logical and scientific methods, (2) appreciation of all values, (3) history of ideas, (4) philosophical systems.

Philosophy is an appropriate major for students wishing a broad education, and those preparing for careers as writers (whether journalistic or literary), lawyers, ministers, teachers, in various types of political and government service, and in non-technical positions in business and industry.

A major in philosophy implies a balanced program in the humanities, natural and social sciences. Graduate students should read French or German, preferably both, other ancient or modern languages are useful and for some advanced work necessary.

UNDERGRADUATE

Major: 36 hours in courses numbered 2000 and above. Majors should discuss their program with a member of the philosophy faculty.

Minor: 24 hours in courses numbered 2000 and above. It is suggested that minors discuss their programs with a member of the philosophy faculty.

American Studies. See Cultural Studies.

Russian and East European Studies. See Cultural Studies.

Organizational Psychology Programs

See Graduate School.
4410 Plato (4) Prereq: Eight hours of philosophy or permission of instructor.
4420 Aristotle (4) Prereq: Eight hours of philosophy or permission of instructor.
4430 Medieval Philosophy (4) Prereq: Eight hours of philosophy or permission of instructor.
4450 Continental Rationalism (4) Prereq: Eight hours of philosophy or permission of instructor.
4460 British Empiricism (4) Prereq: Eight hours of philosophy or permission of instructor.
4470 Kant (4) Prereq: Eight hours of philosophy or permission of instructor.
4480 Advanced Topics in Existentialism and Phenomenology (4) Prereq: Eight hours of philosophy or permission of instructor.
4490 Process Philosophy (4) Prereq: Eight hours of philosophy or permission of instructor.
4511 Advanced Topics in Logic (4) Prereq: Permission of instructor. May be repeated for credit.
4610 Philosophical Analysis (4) Eight hours of philosophy or permission of instructor.
4620 Philosophy of Mind (4) Problems of mind and body in relation to consciousness and personal identity. Prereq: 8 hours of philosophy or permission of instructor.
4630 Philosophy of Language (4) Prereq: Eight hours of philosophy or permission of instructor.
4710 Philosophy of Natural Science (4) Consideration of standard topics pertinent to natural science including reduction of theories and teleological explanation. Familiarity with symbolic logic is recommended. Prereq: 3770 or two years of natural science.
4720 Philosophy of Social Science (4) Examination of methods of inquiry and modes of explanation in social sciences. Prereq: 3770 or two years of social science.
4810 Metaphysics (4) Prereq: 8 hours of philosophy or permission of instructor.

GRADUATE

5000 Thesis
5050 Symbolic Logic (4)
5080 Philosophy of Logic (4)
5110-20-30-40-50-60 Studies in History of European Philosophy (4, 4, 4, 4, 4, 4)
5250 Studies in the History of American Philosophy (4)
5310-20-30 Studies in Value and Normative Theories (4, 4, 4)
5370 Topics in Medical Ethics (4)
5410 Philosophy of History (4)
5430 Philosophy and Literature (4)
5450 Problems of the Self (4)
5460 Philosophy of the Mind (4)
5510-20 Studies in Epistemology (4, 4)
5550-60 Philosophy of Science (4, 4)
5610 Recent Developments in Philosophy of Religion (4)
5710 Studies in Metaphysics (4)
5810 Social and Political Philosophy (4)

5910-20-30 Research (4, 4, 4)
5950 Clinical Practicum in Medical Ethics (4-12)
6000 Doctoral Research and Dissertation
6110-20-30 Seminars in History of European Philosophy (4, 4, 4)
6150-60 Seminars in History of American Philosophy (4)
6250 Seminar in Philosophy of Religion (4)
6310 Seminar in Axiology (4)
6370 Advanced Topics in Medical Ethics (4)
6510 Seminars in Epistemology (4)
6550 Seminar in Philosophy of Science (4)
6950 Advanced Residence in Medical Ethics (4-12)

**Physical Sciences**

**Major:** None offered.

**Minor:** Consists of the following courses: Physics 2210-20-30, Chemistry 2140-49, 3211-21-31, 3219-29-39, and six hours chosen from Biochemistry 4210-20-30, Chemistry 3410-20-30, 4140-50, 4910-20-30 or Physics 4140-20-30, 3610-20-30. Prerequisites to this minor concentration are Mathematics 1840-50 and Chemistry 1110-20-30. The physical sciences minor is designed particularly for students majoring in one of the biological sciences and/or preparing for graduate studies in a biological science or medicine.

*Mathematics 2840 is a prerequisite for these courses.*

**Physics and Astronomy**


Associate Professors: C.R. Bingham, Ph.D. Tennessee; W.E. Blass, Ph.D. Michigan State; T.A. Callcott, Ph.D. Purdue; R.W. Childers, Ph.D. Vanderbilt; J.R. Connell, Ph.D. Colorado State; K.E. Duckett, Ph.D. Tennessee; W.A. Dunnill, Ph.D. Florida; O.C. Eldridge, Ph.D. California (Berkeley); E.L. Hart, Ph.D. Cornell; P.G. Hurry, Ph.D. Tennessee; H.C. Jacobson, Ph.D. Yale; J.W.L. Lewis, Ph.D. Mississippi; R.W. Lide, Ph.D. Michigan; I.R. Lloyd, Ph.D. California; D.J. Pegg, Ph.D. New Hampshire; L.L. Riedinger, Ph.D. Vanderbilt; S.Y. Shieh, Ph.D. Maryland; C.C. Shih, Ph.D. Cornell.

Astronomy (150)

2110-20-30 Introductory Astronomy (4, 4, 4) Surveys astronomical data and theories. 2110-20 concentrate on the solar system. 2130 introduces stellar astronomy including binary and variable stars clusters and nebulae. It is recommended that the courses be taken in sequence. 4 hrs 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 hrs lecture-discussion; 2 hrs lab per week. Coreq: Math 1810-20-30 or equivalent.

4110-30 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 determination. Current developments. Approach will be interdisciplinary. Acceptable for major credit in physics. Prereq: Physics 2330 and permission of instructor.

Physics (773) UNDERGRADUATE

The undergraduate program in physics is designed to give the student a wide background which will permit ready specialization in various areas such as nuclear physics, solid state physics, high energy physics, molecular physics, etc. Students planning to major in physics are urged to consult advisers in the Department of Physics prior to registration in freshman year with regard to selection of proper first course in physics.

**Major:** Physics 1318-28-38 and Mathematics 1840-50-60 are prerequisites to a major in physics which includes the following courses: Physics 2318-28-38, Mathematics 2840-50-60; Physics 3210-20; either Physics 3710-20-30 or 4110-20-30; 4210-20; and at least six hours from 3510-20-30, 3610-20, 4230-40, 4510-20-30, 4540-50. Physics 1310-20-30 or Basic Engineering 1310-20-30 may be substituted for Physics 1318-28-38 and Physics 2310-20-30 may be substituted for Physics 2318-28-38 as a graduation requirement. Transfer students from other schools in the same major must 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 Mathematics 2840-50-60. It is suggested that students also take Chemistry 1110-20-30, 3211-21-31, 3219-29-39, and 12
hours of an approved biological science.

Minor: A minor in physics consists of 24 hours of courses including 2318-28-38 and the remainder from physics courses numbered 3000 or above. Substitution provisions in the major statement apply also to the minor.

An Engineering Physics Curriculum is also offered. The program is described on page 141 and listed in tabular form on page 121.

1210-20-30 Introductory Physics (4, 4, 4) General course for students whose major falls outside the physical sciences. 3 credits. Coreq: Mathematics 1601 or 1602.


1231-28-38 Honors: Fundamentals of Physics: Electricity, Waves and Optics, Modern Physics (4, 4, 4) Honors course designed for selected students admitted on basis of performance in 1310-28-30, or Physics 5A. Aveq: Coreq: Math 2101, 2810-20, 3 hrs lecture-discussion, 2 hrs lab per week.

2510 Mechanics (5) Statics, kinematics, Newton's Laws, momentum, energy, rotation; 4 hours lecture-recitation, 3 hours laboratory-problem sessions. Prereq: Mathematics 1800-50-60 or equivalent. 2510 satisfies prerequisite for Physics 2310, although physics majors should also take Physics 1330 as a prerequisite to the major.

2310-20-30 Mechanics (3, 3, 3) 3210—Statics, kinematics, and dynamics of a particle; 3220—Statics, kinematics, and dynamics of systems of particles or rigid bodies; 3250—Lagrangian and Hamiltonian equations of motion. Must be taken in sequence. Prereq: 2320 and Math 2860.

2320 Heat and Thermodynamics (3) Concepts of temperature and heat; laws of thermodynamics; application of these laws to chemical problems. Prereq: 2320 or 3230 and calculus, 3210-20 or instructor's permission.


4510-20-30 Physical Measurements (3, 3, 3) Laboratory measurement of some physical quantities. Theory supplied where necessary. Prereq: 2310-20 or 2310-20-30, and calculus; 3510 for 3520 and 3530. 3 labs.

4610-20-30 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: 3610-20.

4640-50-60 Health Physics Practicum (3, 3, 3) Instrumentation legal aspects of practice of applied health physics program; organization, keeping and report writing. For students in health physics cooperative program.

4710-20-30 General Atomic and Nuclear Physics (3, 3, 3) 3710—Special relativity and early quantum physics and nuclear physics. Prereq: Math 2860 and Physics 2320 for 3710, 3730 or 3710 for 3720-30.

4990 Junior Seminar (1-3) Topic of current interest. May be repeated for credit with permission of department.


1140 Elementary Nuclear Physics (3) General properties of nuclei, two-nucleon systems, nuclear forces, nuclear models, nuclear reactions, nuclear disintegrations and beta-decay, nuclear spin and magnetism. Prereq: 3370 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 hypersonic ranges of frequencies. 3 hrs and 1 lab. Prereq: 3210-20-30 or equivalent.

4120-20-30 Electricity and Magnetism (3, 3, 3) Intermediate level electrostatics; steady and alternating currents; laws of electromagnetism; Maxwell's equations; radiation of electromagnetic waves; reflection and refraction; electromagnetic fields of moving charges. Must be taken in sequence. Prereq: 2320 or 2220 and Math 2830.

4230-40 Modern Optics (4, 4) 4230-Geometrical Optics. Reflection and refraction at a dielectric interface; paraxial theory of interfaces, lenses, and mirrors; thick lenses, lenses systems, ray tracing; polarization; imagery; laser light. 4240—Physical Optics. Mathematics of wave motion, superposition of waves, interference; Fraunhofer and Fresnel diffraction; Fourier optics, holography. Prereq: 4210 or permission of instructor. 3 hours lecture and 3 hours lab.


4540-50 Experimental Nuclear and Radiation Physics (4, 4) Interaction of charged particles and electromagnetic radiation with atomic, nuclear, and subatomic properties. 3 credits and characteristics of various detectors; statistics of counting, nuclear properties. Experiments illustrate recent techniques for detection and analysis of nuclear and radiation. 1 hr. lecture, 6 hrs. lab. Prereq: 2330.

4610-20-30 Nondestructive Testing (3) Detection and characterization of discontinuities in materials by non-destructive physical measurements. Ultrasonic, electromagnetic, holographic, and penetrative techniques are discussed. Prereq: 2310-20 or permission of instructor. (Same as Engineering Science and Mechanics 4580.)


Political Science (801)

Professors:
T.D. Ungs (Head), Ph.D. Iowa; R.S. Avery, 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. Plas; Ph.D. Utah; H.M. Robinson, Ph.D. Syracuse; O.H. Stephens, Jr., Ph.D. Johns Hopkins; D.M. Welborn, Ph.D. Texas.

Associate Professors:
R.E. Cunningham, Ph.D. Indiana; J.W. Dodd, Ph.D. Tulane; A.A. Elliott, Ph.D. Columbia; G.C. Evans, Ph.D. Columbia; A.H. Hopkins, Ph.D. Southampton; P.S. Kronenberg, Ph.D. Pittsburgh; S.J. Ososky, Ph.D. Columbia; R.L. Peterson, Ph.D. Yale; T.M. N. Simpson, Ill; Ph.D. Johns Hopkins, T.A. Smith, Ph.D. Ohio State.

Assistant Professors:
B.P. Greene, Ph.D. Indiana; W. Lyons, Ph.D. Oklahoma; C.P. Mauney, Ph.D. Tennessee; G.R. Rathjen, Ph.D. Michigan State; R.E. Robson, Ph.D. Maryland; B.D. Rogers, Ph.D. Indiana; P.R. Schulman, Ph.D. Johns Hopkins.

Instructors:

BUREAU OF PUBLIC ADMINISTRATION

Professors:
T.D. Ungs (Director), Ph.D. Iowa; H. Plas (Associate Director), Ph.D. Illinois.

Associate Professor:
P.S. Kronenberg (Associate Director, Nashville) Ph.D. Pittsburgh.

Assistant Professors:
B.P. Greene, Ph.D. Indiana; R.E. Robson (Assistant Director), Ph.D. Maryland; B.D. Rogers, Ph.D. Indiana.

Nashville.

UNDERGRADUATE

A major consists of forty 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. These thirty-two hours must include at least one course in each of four areas of the discipline: United States Government and Politics/Public Administration; Comparative Government and Politics; International Relations; and Political Theory and Methodology.

A minor consists of twenty-four 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) Sixteen hours in political science courses numbered at 3000 and above. Upper division courses on the triad list may be included.

Public Administration. See pages 77 and 176.

American Studies. See Cultural Studies.

Asian Studies. See Cultural Studies.

Latin American Studies. See Cultural Studies.

Russian and East European Studies. See Cultural Studies.

2020 Introduction to Political Science (4) A variety of the basic substantive concepts and concerns of political science.

United States Government and Politics/Public Administration

2510-20 United States Government and Politics (4, 4) 2510—Foundations: the Constitution, federalism, separation of powers, campaigns, and elections, parties, interest groups, the media, public opinion.

2520—Institutions: Executive, legislative, judiciary, and bureaucracy at national, state, and local levels.

2518-28 Honors: United States Government and Politics (4, 4) Honors course designed for students of superior ability and interest. Entrance into 2518 requires 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)

3545 United States Constitutional Law: Sources of Power and Restraint (4) Analysis of judicial review, constitutional powers of President and Congress, federalism, sources of regulatory authority, and constitutional protection of political rights. 2510-20 desirable as a preceding course.


3555 Minority Group Politics in the United States (4) Content varies from quarter to quarter. May be repeated up to a maximum of 8 hours credit with permission of department.

3656 Introduction to Public Administration Organization and Management (4) Organization and decision-making theory, line and staff services, politics of organization, leadership, personnel and fiscal management, administrative responsibility. 2510-20 desirable as preceding course. (Same as Water Resources Development 3585.)

3656 Public Administration and the Policy-Making Process (4) Public bureaucracies and the policy-making process, their political environments, administrative problems associated with policy making, 2510-20 are desirable as preceding courses.

3710 State Politics (4) Focus on formal and informal setting of state government: governors, courts, legislatures, and state administrators. Attention will be paid to the state government's role in formulating, enacting, and implementing state policy.

3720 State Government and Policy Making (4) Nature and functions of the institutions of state government: governors, courts, legislatures, and state administrators. Attention will be paid to state government's role in formulating, enacting, and implementing state policy.

3750 The Urban Polity (4) Analysis of political institutions and processes in metropolitan areas; urban problems and politics.

3760 The Urban Policy Process (4) Analysis of problems and policies in urban/metro areas.

3880 American Political Thought (4) Examination of role of selected political ideas, doctrines, and themes in America, emphasizing their development and relationships to diverse political interests.

4140 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.

4540-50 Presidency, Congress and Public Policy (4, 4) The Presidency and Congress within framework of policy-making 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 course.

4575 Special Topics in United States Government and Politics (4) May be repeated up to a maximum of 8 hours credit with permission 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.

4630 Problems in Public Management (3) Selected problems. Emphasis on internal and external communication and information systems in government and public access to information.

4740-50-60 Politics and Elections (3, 3, 3) 4740-50—Structure and function of party system; nominations and campaigns. 4750—Voting behavior of the electorate.

4940 Politics and the Environment (4) Examination of formulation and implementation of public policies relating to physical environment with emphasis upon water and air pollution control.

Comparative Government and Politics

3605 Political Change in Developing Areas (4) Characteristics and problems of political changes with primary focus on developing areas.

3615-16 Dynamics of Black African Politics (4, 4)

3621-22 Politics of Asian States (4, 4)

3625-26 Latin American Government and Politics (4, 4)

3631-32 Government and Politics of the Soviet Union (4, 4)

3635-36 Politics in Western Democracies (4, 4) Political culture, patterns, and institutions of Western democratic systems.

3641 Government and Politics of Middle East and North Africa (4)

3795 Contemporary Middle East (4) (Same as History 3795.)

4865-66 Policy Making in Democracies (4, 4) Comparative approach to theory and process of making public policies.

4875 Special Topics in Comparative Government and Politics (4) May be repeated up to a maximum of 8 hours credit with permission of department.

International Relations

3701-02 Introduction to International Relations (4, 4) 3701—Methodology and background. International processes and institutions including war, diplomacy, law and organization.

3712-22 U.S. Foreign Policy Processes (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.

3790 Contemporary Diplomatic and Military Problems (4) Analysis of current international events.

3796 Contemporary Problems of Soviet Foreign Policy (4)


4711 International Law (4)

4727 Politics of Inter-American Relations (4) Analysis of selected theoretical and policy issues concerning international relations in the Americas with emphasis upon imperialism, intervention, and the Cuban revolution, nationalism, foreign assistance, trade and economic integration.

Political Theory and Methodology

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.

4815 Contemporary Soviet Marxism-Leninism (4) Soviet applications of Marxist-Leninist theory.

4831-32-33 The Systematic Study of Politics (4, 4, 4) Scope, methods and procedures of analysis in political science; intended primarily for seniors intending to pursue graduate work and entering graduate students who have not had such a course.

4875 Special Topics in Political Thought (4) May be repeated up to a maximum of 8 hours credit with permission of Department.

Other

4101 Foreign Study (1-16) See page 177.

4102 Off-Campus Study (1-16) See page 177.

4103 Independent Study (1-16) See page 177.

4975 Proseminar in Political Science (4) Selected research for seniors; primarily for majors. May be repeated up to a maximum of 8 hours with permission of Department.

GRADUATE

The Master's Program
See requirements in the Graduate School Catalog.

The Doctoral Program
General requirements for the degree of Doctor of Philosophy are described in the Graduate School Catalog.

5000 Thesis

5002 Non-Thesis Graduation Completion (3)

5101 Foreign Study (1-12)

5102 Off-Campus Study (1-12)

5103 Independent Study (1-12)

5110-20 Seminar in World Political Theory (3, 3)

5140 Politics, Administration and Community in Non-metropolitan Areas (3)

5150 Internship in Political Science (3-9)

5210-20 Seminar in World Politics (3, 3, 3)

5211 Directed Readings in Political Science (3)

5250 Seminar in African Politics (3)

5270-80 Seminar in Politics of Development (3, 3)

5310-20-30 Seminar in Comparative Government (3, 3, 3)

5340-50-60 Seminar in Latin American Government (3, 3, 3)

5370-80 Seminar in Soviet Politics and Government (3, 3)

5410-20-30 Seminar in Public Law (3, 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)

5740 Seminar in Organizational Analysis (3)

5750 Seminar in Public Management (3)

5755 Seminar in Public Management (3)

5760 Seminar in TVA Public Personnel Management Practices (3)

5765-75 Law and the Administrative Process (3, 3)

5770 Practicum in Public Administration (3)

5780 Seminar in Fiscal Management (3)

5785-95 Seminar in Staff Functions (3, 3)

5810 The American Political Process (4)

5820 The American Political Process (4)

5850 Seminar in Comparative State Politics (3)

5910-20-30 Methodology and Bibliography (3, 3, 3)

6000 Doctoral Research and Dissertation

6210 Advanced Studies in International Politics (3)

6310 Advanced Studies in Political Theory (4)

6410 Advanced Studies in International Organization (3)

6430 Advanced Studies in Jurisprudence (3)

6440 Advanced Studies in Comparative Politics (3)

6510-20-30 Advanced Studies in American Constitutional Law (3, 3, 3)

6610-20-30 Advanced Studies in Public Administration (3, 3, 3)

6710 Directed Research in Political Science (3)

6810-20 Advanced Studies in the Political Process (3, 3)
Psychology (830)

Professors: W. H. Mitchell (Head), Ph.D. California (Berkeley); G. M. Burghardt, Ph.D. Chicago; J. G. Byrne, Ph.D. Pennsylvania; E. E. Curtiss (Emeritus), Ph.D. Chicago; J. E. Hagen, Ph.D. Pennsylvania, Ph.D. Syracuse, L. Handler, Ph.D. Michigan State; J. F. Lubar, Ph.D. Chicago; E. O. Milton (Director of Research Center), Ph.D. Michigan; K. R. Newton, Ph.D. Tennessee; H. R. Pollio, Ph.D. Michigan; J. M. Porter (Emeritus), Ph.D. Yale; N. L. Rasch, Ph.D. Pennsylvania; F. Samejima, Ph.D. Keio (Japan); R. R. Schader, Ph.D. Tennessee; W. S. Verplank, Ph.D. Brown; R. G. Wahrler, Ph.D. Washington; J. A. Wiberley, Ph.D. Syracuse.

Associate Professors: H. S. Bacon, Ph.D. Tennessee; C. P. Cohen, Ph.D. Kansas; L. F. Dogoleman, Ph.D. Catholic; H. R. Friedman, Ph.D. Pennsylvania; S. J. Handel, Ph.D. Johns Hopkins; M. G. Johnson, Ph.D. Johns Hopkins; A. McIntyre, Ph.D. Yale; J. C. Malone, Ph.D. Duke; W. G. Morgan, Jr., Ph.D. Pennsylvania; W. M. Simmons, M. S. S. W. Tennessee.


Instructor: E. H. Burt, M. S. Wisconsin.

UNDERGRADUATE

Major: (Concentration in General Psychology) Designed to give students a broad and current background in the science and application of psychological methods and principles. It is particularly suited for students who plan careers in areas such as business, law, and journalism, or who for other reasons desire a liberal education concentrating on psychology. Psychology 2500 and two courses from 2520-30-40 or 2518-28 are prerequisite to a major consisting of Psychology 3150 or 4150, at least 4 hours of laboratory, field or practicum courses, and 32 or more hours of upper division psychology courses.

(Concentration in Academic Psychology) Designed to prepare students for advanced work in the scientific, professional, and college level teaching areas of psychology. Prerequisites to the major include Psychology 2500, two courses from 2520-30-40 or 2518-28, Mathematics 1540-50-60 or 1840-50-60, and Biology 1210-20-30. The major consists of Psychology 3150 or 4150, 8 hours of laboratory, field, or practicum courses, and 28 or more hours of upper division courses, of which 12 hours must be in courses at the 4000 level.

Minor: A minor in psychology shall consist of Psychology 2500 and 20 additional hours from 3000 and 4000 level courses.

Honors Program in Psychology: A two-year (Junior-Senior) program leading to the B.A. degree. Objective of the Honors Program is to enable superior student to accelerate development of his grasp of science of psychology, and program encourages independent study.

Eligibility: Selection of participants is determined by departmental Undergraduate Honors Committee. The interested student should apply to the psychology department. Successful applicants usually have a G.P.A. of at least 3.0. Requirements: Psychology 2500 or 2518 and one other 2000 level course in psychology; 3150 and one quarter of laboratory or field experience. Honors students will complete Psychology 4948-58-68 and Psychology 4978-88-98. Completion of the Honors Program is dependent upon submission of an acceptable Honors research thesis and passing of a final Honors Examination.

2500 General Psychology (4) An introduction to psychology, with emphasis on the development, methods, and contributions of the major movements and ideas which define contemporary psychology.

2518-28 Honors: General Psychology (4, 4) First quarter an enriched survey of general psychology. Second quarter participation in psychological research, either individually or group arranged. Prereq. for 2518: Minimum ACT Composite 26; GPA 3.2. Prereq for 2528: admission by permission of department.

2520 Biological Foundations of Behavior (4) Survey of theories and research pertaining 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. 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, development and abnormal psychology. Recommended: 2500

3120 Social Psychology (4) General survey of theories, methods and research findings on individuals behavior in a social context. Prereq: 2500.

3129 Social Psychology Laboratory (2) Prereq 3120. Coreq: 3119.

3150 Psychological Statistics (4) Introduction to basic statistical methods used in behavioral sciences.

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. Coreq: 3319.

3220 Motivation and Emotion (4) Current theories, approaches and their development.


3319 Introduction to Research in Psychology (2) Basic techniques of research in behavioral science, including experimentation and naturalistic observation. Coreq. One of the following: 3129, 3219, 3559.

3550 Child Psychology (4) Origin and principles of behavior in childhood, social, intellectual, emotional, and language behavior of the normal child. 2540 recommended.


3616-26 Human Relations (0, 4) Experience and study of human interaction, dyads, small and large group situations. Primarily experiential. No credit until sequence is completed. Satisfactory-No Credit.

3650 Abnormal Psychology (4) Constitutional and environmental factors in abnormal behavior; neuropsychic and psychotic reactions; nontechnical discussion of diagnostic and therapeutic methods. 2540 recommended.

4101 Foreign Study (1-16) See page 177.

4102 Off-Campus Study (1-16) See page 177.

Psychology 4103 and 4109 are courses of independent study and research taken by permission of instructor only. Course work, 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 combined.

4103 Independent Study (1-16) May be repeated. Maximum credit 16 hours. Prereq: Permission of instructor.

4107 Experience in Individualized Instruction (1-6) May be repeated. Maximum credit 12 hours. Graded by letter grade only. Prereq: Permission of instructor.

4109 Undergraduate Research (1-16) May be repeated for credit to maximum of 16 hrs. Prereq: Permission of instructor.

4120 Topics in Social Psychology (4) Intensive analysis of selected research topics. Prereq 3120 or Sociology 3130. (Same as Sociology 4120.)

4150 Probability Models in Psychology (4) Introduction to use of probability models in theory of binary test items, differential psychology, comparison of different populations in specific psychological parameters, individual choice behavior, and testing of psychological hypotheses in human and animal behavior, reliability theory and regression theory. Prereq: Math 1560 or 1660 or permission of instructor.

4230 Sensory Processes and Perception (4) Survey of sensory and perceptual processes with emphasis on audition and vision. Prereq. 3150; 2520 recommended.

4239 Laboratory in Sensory Processes and Perception (2) Prereq or coreq: 4230.

4460 Organizational Industrial Psychology (3) (Same as Industrial Management 4460.)

4510 Personality Theories (4) Prereq: 3650 or 3660.

4519 Research in Personality (4) Discussion and demonstration of research on individual as it relates to major theoretical issues and to substantive areas of investigation. Prereq: 3150 or equivalent and senior standing.

4520 Personality and Social Systems (4) Prereq: 2540.

4610 Group Processes (3) Study and experience of theory and techniques of group processing and facilitation. Those participating in 4510 are expected to continue into 4620 and 4630. Prereq: 3616-26 and permission of instructor.

4620-30 Seminar in Group Processes (0, 6) Didactic and laboratory experience for those qualified for further training as group facilitators. Prereq: 4610 and permission. No credit given until sequence is completed.

4640 Psychological Tests and Measures (4) Theory and construction of individual and group measures; survey of various methods of assessment of intelligence, personality, special abilities, and educational achievement. Prereq: 3150.

4650 Symbolic Processes (4) Logic of signs and symbols; directed and associative thinking; memory, problem solving, and concept formation: nature, use, and development of language. Prereq: 3210 or permission of instructor.

4660 The Psychology of Language (4) Theories and descriptions of phonology, syntax, and semantics as applied to psychology and related disciplines. 4650 or linguistics background recommended.
5170-80-90 Proseminar in Organizational Psychology (3, 3, 3)
5210 Readings in Psychology (1)
5220 Readings in Psychology (2)
5230 Readings in Psychology (2)
5240 Readings in Psychology (4)
5250 Readings in Psychology (5)
5260 Special Problems in Psychology (1)
5270 Special Problems in Psychology (2)
5280 Special Problems in Psychology (2)
5290 Special Problems in Psychology (4)
5300 Special Problems in Psychology (5)
5319 Field Work in School Psychology: Level I (2)
5340 Group Dynamics (3)
5350-60-70 Seminar in Psychology (3, 3, 3)
5400 Psychophysics and Scaling Methods (3)
5420-30-40 Advanced Psychological Statistics (3, 3, 3)
5445 Advanced Correlational Methods (3)
5450 Human Problems in Administration (3)
5460 Personnel Research Seminar (3)
5500 Fundamentals of Psychometrics (4)
5510 Instrumentation for Psychological Research (3)
5520 Theory of Mental Measurement (3)
5530 Test Construction and Interpretation (3)
5550 Advanced Social Psychology (3)
5560-70 Seminar in Social Psychology (3, 3)
5580 Theories of Personality (3)
5581-92-93 Clinical Psychology I: Human Development and Personality (2, 2, 2)
5589 Psychological Techniques Laboratory (2)
5590 Psychodynamics (3)
5591-92-93 Clinical Psychology I: Patterns of Adaptation (2, 2, 2)
5600 Psychopathology (3)
5601-02-03 Clinical Psychology I: Behavioral Deviance and Psychopathology (2, 2, 2)
5610-20 Psychology of Learning (3, 3)
5650 Ethics and Professional Practices (1)
5670 Forensic Psychology (2)
5680 Neural Basis of Behavior (3)
5690 Psychopharmacology (3)
5713 Learning Modules for Techniques in Professional Psychology (1-4)
5750 Ethological Psychology (3)
5760 General Vertebrate Neuroanatomy (3)
5789 Advanced Techniques in Physiological Psychology (3)
5790 Seminar in Psycholinguistic Concepts in Speech Pathology (3)
5810-20 Techniques of Psychological Examination (3, 3)
5819-29 Practicum in Techniques of Psychological Examination (2, 2)
5840 Student Appraisal (3)
5850-60-70 Psychological Appraisal (3, 3, 3)
5859-69-79 Practicum in Psychological Appraisal (2, 2, 2)
5890 Counselling Techniques (3)
5950-69-70 Consultation in Human Development Settings (3, 3, 3)
5959-69-79 Practicum in School Psychology II (2, 2, 2)
6000 Doctoral Research and Dissertation
6050 Experimental Methods in Sociology and Social Psychology (3)
6100 Community Psychology (3)
6210-20-30 History, Systems, and Theories in Psychology (3, 3, 3)
6250-60-70 Seminar in Organizational Psychology (3, 3, 3)
6280-290-300 Factor Analysis (3, 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)
6340 Seminar in Developmental Psychology (3)
6350 Seminar in Thinking (3)
6360 Seminar in Sensation and Perception (3)
6370 Seminar in Theoretical Psychology (3)
6380 Seminar in Industrial Psychology (3)
6390 Seminar in Psychotherapy (2)
6395 Seminar in Assessment (3)
6400 Seminar in Changing Concepts in Clinical Psychology (3)
6405 Seminar in Psychopathology (3)
6410-20-30 Psychotherapy (3, 3, 3)
6411-12-13-14 Psychotherapy: Elective Concentration Learning Laboratory (2, 2, 2, 2)
6419-29-39 Psychotherapy Practicum (1-3, 1-3, 1-3)
6450-60 Advanced Psychometrics (3, 3)
6491 Field Placement in Clinical Psychology Level-1 (1-8)
6492 Field Placement in Clinical Psychology Level-2 (1-8)
6493 Field Placement in Clinical Psychology Level-3 (1-8)
6494 Field Placement in Clinical Psychology Level-4 (1-8)
6500 Seminar in Psychometrics (3)
6520 Experimental Design (3)
6550 Seminar in Advanced Social Psychology (3)
6560 Directed Readings in Clinical Psychology (2)
6575 Seminar in Mental Health Administration
6560-60-70 Systems Approaches in Psychological Services (3, 3, 3)
6659-69-79 Practicum in School Psychology III (2, 2, 2)
6710 Seminar in Physiological Psychology (3)
6720 Seminar in Comparative and Ethological Psychology (3)
6730 Methods of Ethological and Naturalistic Research (3)
6750 Group Psychotherapy (3)
6780 Advanced Psycholinguistics (3)
6840 Child Psychotherapy (3)
6870 Adult Psychotherapy (3)
6900 Field Work in Industrial Psychology
Religious Studies (863)

Professors: F.S. Lusby (Head), B.D. Colgate (Rochester); D.L. Dungen; Th.D. Harvard; R.V. Norman, Jr. (Associate Vice Chancellor for Academic Affairs), Ph.D. Yale.

Associate Professors: B.L. Daniels (assistant Dean of the College of Liberal Arts), Ph.D. Duke; W.L. Humphreys, Th.D. Union; D.E. Linge, Ph.D. Vanderbilt, C. Neyoh, Ph.D. Harvard.

Assistant Professors: J. Kim, Ph.D. Chicago; R. Lee, Ph.D. Harvard.


*On leave

UNDERGRADUATE

Major: Two options are available in religious studies. One religious studies 2000-level course is a prerequisite for either option, and Religious Studies 4850 is required in both options.

The basic option consists of 36 hours of courses at the 3000-level or above (including 4850) with a minimum of 12 hours selected from courses listed below under History and Literature of Religions and a minimum of 12 hours selected from courses listed below under Prolegomena of Religious Studies. 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 at 501 McClurq Tower, or from any member of the religious studies faculty.

HISTORY AND LITERATURE OF RELIGIONS

3061-71 History of Western Religious Thought and Institutions (4, 4) 3061—First Century to the Thirteenth Century. Survey of the eleventh to thirteenth century to 1900. (Same as History 3061-71.)

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 A.D. Later literature of Old Testament, Apocrypha, and Dead Sea Scrolls.

3210 Early Greek Mythology (3) (Same as Classics 3210.)

3220 Greek Mythology in the Classical Period (3). (Same as Classics 3220.)

3230 Roman Mythology (3) (Same as Classics 3230.)

3270 Russian Philosophical and Theological Thought (4) (Same as Russian 3270 and Philosophy 3270.)

3311-12 Images of Jesus (4, 4) Introduction to ancient and modern portrayals of Jesus, understood within their cultural milieux. Must be taken in sequence.


3340 Judaism in the Common Era. (3) Survey of literature and traditions of Judaism in the Common Era.

3411-12-13 Renaissance and Reformation (3, 3, 3) (Same as History 3411-12-13.)

3440 Religion of Primitive Peoples (3) (Same as Anthropology 3440.)

3490 African Religions (4) Examination of religions of the indigenous peoples of Africa, including 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 3480.)

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 examination of role played by religion in supporting and criticizing American racial injustice. (Same as Black Studies 3560.)

3560 Black Religion in America (4) Historical and critical examination of formation and development of black religious thought and institutions in America. (Same as Black Studies 3560.)

3650 Philosophy and Religion in India (4) (Same as Philosophy 3650.)

3660 Buddhist Philosophy and Religion (4) (Same as Philosophy 3660.)

3661 Religious and Philosophical Religion in China (4) (Same as Philosophy 3661.)

3670 Religion and Society in Japan (4) (Same as Sociology 3670.)

3680 Islam (4) Origin and early history, rapid spread as a world faith, development of Muslim theology and culture, interaction with modern cultures.

3710 Literature of English Bible (3) (Same as English 3710.)

3711 Literature of the English Bible (3) (Same as English 3711.)

3713 Religion in the Middle Ages (4) Study of medieval religion and its role in European culture between 590 and 1500.

3770 Zen Buddhism (3) Examination of historical, philosophical, and meditational materials of Zen. Special emphasis upon Zen thought—emptiness, no-mind, sudden enlightenment, and the Koan.

4210 Topics in Ancient Israelite and Ancient Near Eastern Religions (4) Prerequisite: 3110-20 or permission of instructor. May be repeated once for credit.

4310 Jesus and Paul Compared (4) Jesus' teaching and activity in context of first-century Palestine Judaism; analysis of what Apostle Paul made of the tradition of and about Jesus. 2610 or 2611 recommended.

4450 Topics in American Religion (4) Prerequisite: One of the following: 3510, 3520, 4410; or permission of instructor. May be repeated once for credit.

4460 Topics in Early Christianity and Hellenistic Religions (4) Selected figures, ideas and institutions. Seniors and graduate study students only, except by permission of Department. Prerequisite: 3560-3570. May be repeated for credit to a maximum of 12 hours.

4670 Topics in Eastern Religions (4) Selected figures, ideas, and institutions. Seniors and graduate study students only, except by permission of Department. Prerequisite: 3560-3570. May be repeated for credit to a maximum of 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 interrelation of myths, symbols, and rituals among preliterate peoples through a specific motif, such as solar, lunar, and communal.

3600-10 Religious Ethics (4, 4) Historical and critical survey of religious ethics; basic theories and their application in social problems.

3611 Religious and Philosophical Issues in Medical Ethics (4) Explores ethical issues in medicine such as abortion, euthanasia, human experimentation, fairness in health care delivery and the doctor-patient relationship. (Same as Philosophy 3611.)

3620 Topics in Religious Ethics (4) Examination of particular theoretical issues and social problems from perspectives of religious ethics. May be repeated once for credit.

3690 Philosophy of Religion (4) (Same as Philosophy 3690.)

3715 Religious Thought in the Nineteenth Century (4) Major problems and themes in European and American religious thought between 1800 and the beginning of World War I.

3720 Contemporary Religious Thought (3) Major themes, issues, and thinkers.

3740 Issues in Science and Religion (3) Relation of religion to history, methods, and theories of science.

3750 Theology and Literature (3) Exploration of issues raised for religious inquiry by phenomenon of literature. Relation of religious and moral considerations to problems of literary criticism. Relation of religious language to certain forms of human expression (symbol, metaphor, myth, image) identified in study of literature.

3760 Eastern Religions and Western Thought (3) Critical consideration of influences of Hindu and Buddhist philosophy on Western thinkers.

3780 The Literature of Dissent (3) Critique of rationalist, Western Enlightenment, atheism, rebellion, and revolution in such thinkers as Lucretius, Spinoza, Voltaire, Feuerbach, Marx, Nietzsche, Russell, and Camus.

4101 Foreign Study (1-16) See page 177.

4102 Off-Campus Study (1-16) See page 177.
Romance Languages

Professors:

Associate Professors:

Assistant Professors:
M.H. Handelsman, Ph.D. Florida; K.D. Levy, Ph.D. Kentucky; C.R. Pinsky, Ph.D. California (Berkeley); F. Wilhite, Ph.D. Tennessee.

Instructors:
C.L. Almeida, M.A. Middlebury; C.G. Cox, M.A. Tennessee; M.T. Rabot, Cert. de Lic.; Politi; M. Sanders, Ph.D. Minnesota; S.F. Seiman, M.A. Tennessee; P.A. Wilson, M.A. Turks.

Placement Examination: Students who have had two or more years' work in French, Italian, or Spanish in high school or one year's work in another college should register in French, 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, residence in foreign countries, or the like should initiate a request for a proficiency test in the Office of the Dean of Admissions. 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 with more than 20 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 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 C or better in the current examination in French, Italian, or Spanish 2520.

All majors must take upper division courses under more than one instructor, and must have an acceptable pronunciation and an adequate reading knowledge of the language.

Latin American Studies. See Cultural Studies.
Certification for Teaching
French or Spanish in Tennessee
Consult Certification Clerk, Room 212 Claxton Education Building.

Arabic (127)

1510-20 Spoken Arabic (4, 4) Must be taken in sequence. Dialect will vary depending on instructor. Class meetings and 2 laboratory periods.

2510-20 Elementary Modern Standard (4, 4) Must be taken in sequence. 4 class meetings and 2 laboratory periods.

3510-20 Intermediate Modern Standard (4, 4)
3610 Islamic Literature in English Translation (4) Survey from origins to modern period of major Islamic literatures, especially Arabic, Persian and Turkish. Readings include The Rubaiyat of Omar Khayyam and Gibran's The Prophet.

4101 Foreign Study (1-16) Note page 177.

GRADUATE
5070-80-90 Hispano-Arabic Literature and Culture (3, 3, 3)
5101 Foreign Study (1-12)
5102 Off-Campus Study (1-12)
5103 Independent Study (1-12)

French (4055)
Major: Consists of 36 hours in courses numbered 3410 or above. Students whose primary interest is literature must have the following courses (or their equivalent, with permission of the department): 3510-20 or 3610-20 (aspects or survey of literature, 8 hours); 3410 or 3420 or 3430 (intermediate composition and conversation, 3 hours); 4210 (phonetics, 3 hours); 4220 or 4230 (advanced grammar, 3 hours); 4210 (intermediate composition and conversation, 3 hours); 4220-30 (advanced grammar 3 hours); 6 hours selected from courses 3410-20-30 (intermediate composition and conversation), 4220-30 (advanced grammar), or 4250-60-70 (linguistics); 6 hours of literature at the 4000-level; 7 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 permission of the department): 3510-20 or 3610-20 (aspects or survey of literature, 8 hours); 3410 or 3420 or 3430 (intermediate composition and conversation, 3 hours); 4210 (phonetics, 3 hours); 4220 or 4230 (advanced grammar 3 hours); 6 hours selected from courses 3410-20-30 (intermediate composition and conversation), 4220-30 (advanced grammar), or 4250-60-70 (linguistics); 6 hours of literature at the 4000-level; 7 additional hours selected from courses in literature, language, or civilization. With either of the above options, students may substitute Foreign Study (4101) for certain courses; students with special interests, such as comparative literature, may make certain substitutions with permission of the department.

Minor: Consists of 24 hours in courses numbered 3410 or above, including the following: 3510-20 or 3610-20 (aspects of survey of literature, 8 hours); 3410 (intermediate composition and conversation, 3 hours); 4210 (phonetics, 3 hours); 10 additional hours selected from courses in literature, language, or civilization. Students pursuing a minor are strongly advised to consult with a departmental adviser.

Courses in French and Italian taught in English translation may not be counted toward either a major or a minor.

1510-20 Elementary French (4, 4) Must be taken in sequence. 4 class meetings and 2 laboratory periods.

1518-28 Honors: Elementary French (4, 4) Honors course for students of superior ability. 1518 not open to students who have taken French in high school. Freshmen are advised to plan their schedules to ensure registration in this course. Students need not have completed the ACT or AP French examination. Students may receive transfer credit.
normal French program for the first year, but will be enriched whenever possible. Students will be expected to spend only the normal amount of time in preparation. Those who find the course too difficult may easily transfer to a regular class. Potential majors and minors in French are urged to take this course.

1510-20 Intermediate French (4, 4) Must be taken in sequence. 4 class meetings and 2 laboratory periods.

2518-28 Honors: Intermediate French (4, 4) Honors course for students of superior ability in French. Incoming freshmen are admitted on the basis of a diagnostic test, high school average, and performance in the ACT. This class will be held to a maximum of 15 so that each student may receive more attention. Students will follow an enriched program with continuing emphasis upon speaking ability with special emphasis on reading, including literary selections. Must be taken in sequence. Students who earn an A or B in 2528 automatically receive credit for French 3000. Prereq: French 1510-20, 1518-28, or equivalent.

2610-20 Panorama of French Culture (4, 4) 2610: Topics include cultural forces which produced the French nation; art, literature, architecture, music under Francis I; emergence of classicism; and the cinema. Deals with arts in Age of Reason and trends in French culture during the Revolution and Age of Romanticism, in bourgeois art of nineteenth century, and in modern movements of surrealism, dadaism, and existentialism.

3000 French Translation (3) Development of linguistic skills necessary for satisfactory work in courses in French. Recommended for students who feel they would benefit from additional training beyond 2520 in basic skills of reading, speaking and writing French.

3010-20-30 Elements of French for Upper Division and Graduate Students (3, 3) Elements of language, elementary and advanced readings. Open to graduate students preparing for language examinations, and upper division students desiring reading knowledge of the language. Undergraduate credit only. No credit for those having had 1510-20 or equivalent.

3210-20-30 French Literature in English Translation (3-4) 3-4, 3-4) 3210—From the Origins through the Renaissance: Life of St. Alexia, Song of Roland, Romance of the Rose, Rabelais, Du Bellay. 3220—The Classical Period and the Age of Reason: The great dramatists, La Prince des Cieux, Voltaire, Rousseau. 3230—The Nineteenth and Twentieth Centuries: Balzac, Flaubert, Proust, Camus. No change in credit hours after add deadline. Option of 4 hours permitted appropriate amount of extra work above that required for 3 hours.

3240 Women in French Culture (4) Involuntary role of women in shaping French history and culture. Feminists (George Sand); royal mistresses (Mme. de Macaire); intellectuals (Mme. de Staël); actresses (Sarah Bernhardt); scientists (Marie Curie) will be among the important figures studied.

3250 Masterpieces of French Fiction in English Translation (4) Among works studied are Romance of Tristan and Isolde, Eugenie Grandet, Swann’s Way, The Wanderer, and short stories of Madame de Staël, Voltaire.

3410-20-30 Intermediate Composition and Conversation (3, 3, 3) Grammatical analysis of modern French prose; review of grammatical principles and their application in translation; English to French, both written and oral; exercises in free composition. Prereq: 2130.

3510-20 Aspects of French Literature (4, 4) Prereq: 2520 or equivalent. Recommended for literature majors.

3610-20 Survey of French Literature (4, 4) May be taken in place of 3510-20. Prereq: 2520 or equivalent.

4010 Masterpieces of French Literature in English Translation (3) No foreign language credit.

4020 Masterpieces of French Drama in English Translation (3) No foreign language credit.

4101 Foreign Study (1-16) See page 177.

4110-20-30 French Literature of the Seventeenth Century (3, 3, 3) Prereq: 2130 or equivalent.

4150 Theatrical French (1-3) Performance in one or more French plays. May be repeated for credit with permission of the department. Prereq: 2130 or equivalent. Permission of the instructor.

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 hrs of courses on 3000-level.

4210-20-30 Phonetics and Advanced Grammar (3, 3, 3) Prereq: 2130 or equivalent.

4250 Introduction to Descriptive Linguistics (3) Phonetics and phonemics, morphology and syntax. Types of languages, linguistic groups, dialects and dialect geography. Application of descriptive linguistics—field linguistics, dialect, study; its practical use in learning languages and in language teaching. Introduction to transformational grammar. Prereq: 9 hrs 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 no knowledge of these languages), or permission of the department. (Same as Spanish, German, and Russian 4250.)

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

4270 Romance Linguistics (3) Development of classical Latin through vulgar Latin into major Romance languages. (Same as Spanish 4270.)

4310-20-30 French Literature of Eighteenth Century (3, 3, 3) Prereq: 2130 or equivalent.

4350-60-70 Medieval French Literature (3, 3, 3) Medieval works in modern French texts. Prereq: 2130 or equivalent.

4410-20-30 French Civilization (3, 3, 3) Prereq: 2130 or equivalent.

4510-20-30 French Literature of Nineteenth Century (3, 3, 3) Prereq: 2130 or equivalent.

4610-20-30 Readings in French Literature (3, 3, 3) 4618-28 Honors: Readings in French Literature (3, 3) For students who have completed 3130 or equivalent and have at least 3.0 on all university work. No credit for those having had 2130 or grade lower.

4640-50-60 French Literature of the Eighteenth Century (3, 3, 3) Prereq: 2130 or equivalent.

4710-20-30 French Literature of Twentieth Century (3, 3, 3) Prereq: 2130 or equivalent.

GRADUATE The Master’s Program See Graduate School Catalog for requirements.

5000 Thesis

5002 Non-Thesis Graduation Completion (3)

5011 Techniques in Literary Analysis (2)

5101 Foreign Study (1-12)

5102 Off-Campus Study (1-12)

5103 Independent Study (1-12)

5110-20-30 Old French (3, 3, 3)

5121 College Teaching of Romance Languages (3)

5151-61-71 Bibliography and Methods of Research (1, 1, 1)

5210-20-30 French Literature of Sixteenth Century (3, 3, 3)

5310-20-30 French Directed Readings (3, 3, 3)

5350-60-70 The Philosophes (18th Century) (3, 3, 3)

5410-20-30 The French Novel (3, 3, 3)

5450-60 Lyric Poetry of Nineteenth Century (3, 3)

5470 Baudelaire and the Symbolists (3)

5510-20-30 The French Drama (3, 3, 3)

5610-20-30 Trends in Contemporary French Literature (3, 3, 3)

5650-60 Advanced Syntax and Stylistics (3, 3)

5670 Problems in Romance Linguistics (3)

5710-20-30 Seminar in French Literature (3, 3, 3)

5910 Literary Criticism: Foundations of Romance Criticism (3)

Italian (584)

UNDERGRADUATE Major: Consists of 36 hours in courses numbered 3210 or above, to include the following (or equivalents, with permission of the department): 3410-20-30 (advanced grammar, composition and conversation, 9 hours); 3510-20 (aspects of Italian literature, 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 permission of the department.

Minor: Consists of 24 hours in courses numbered 3210 or above, to include the following: 3410-20-30 (advanced grammar, composition, and conversation, 9 hours); 3510-20 (aspects of Italian literature, 8 hours); 7 additional hours selected from courses in literature, language, or civilization.

Courses in Italian literature in English translation may not be counted toward either a major or a minor.

1510-20 Elementary Italian (4, 4) Must be taken in sequence. 4 class meetings and 2 laboratory periods.

2510-20 Intermediate Italian (4, 4) Must be taken in sequence. 4 class meetings and 2 laboratory periods.

2610-20 Panorama of Italian Culture (4, 4) 2610—Survey of Italian culture from Roman era through the 17th Century. 2620—Survey of Italian culture in the 18th, 19th, 20th Centuries.

3000 Italian Translation (3) Development of linguistic skills necessary for satisfactory work in courses above 3000. Recommended for students who feel they would benefit from additional training beyond 2520 in basic skills of reading, speaking and writing Italian.

2510-20-30 Civilization and Culture (3, 3, 3) Prereq: 2130 or equivalent.

3310-30 Italian Literature in English Translation (3-4, 3-4, 3-4) 3310—Sicilian School, the Florentine School, Dante, Petrarca, Boccaccio, Machiavelli, the Baroquete. 3320—From the Baroque through Nineteenth century, commedia dell’arte Vico Leopardi. 3330—Twentieth century, Carducci, Pirandello, Quasimodo, D’Annunzio, the Croce, Moravia. No change in credit hours after add deadline. Option of 4 hours credit must present appropriate amount of extra work above that required for 3 hours.

3410-20-30 Advanced Grammar, Composition, and Conversation (3, 3, 3) Selected work, drills, and tapes.) Prereq: 2130 or equivalent.

3510-20 Aspects of Italian Literature (4, 4) Prereq: 2520 or equivalent. Recommended for literature majors.
4010-20 Italian Drama in English Translation (3-4, 3-4) — La commedia dell’arte and major works of Machiavelli, Metastasio, Affieri, Goldoni. 4020—Twentieth-century theatre: operatic drama, the Grotesco, Pirandello, De Filippo, Frati. No change in credit hours after add deadline. Option of 4 hours credit must present appropriate amount of extra work above that required for 3 hrs.

4050-60-70 Dante and Medieval Culture (3, 3, 3) Readings and lectures in English for students majoring or minoring in other departments. Readings, reports, and term papers in Italian for students majoring or minoring in Italian. (Same as Comparative Literature 4050-60-70.)

4101 Foreign Study (1-16) See page 177.

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 hrs of courses on 3000 level.

4220 Petrarch (3) Prereq: 3130 or equivalent.

4230 Boccaccio (3) Prereq: 3130 or equivalent.

4330 History of Italian Language (3) Prereq: 3130 or equivalent.

4410-20-30 Literature of the Rinascimento (3, 3, 3) From Pulci to Tasso, the Quattrocento and the Cinquecento. Prereq: 3130 or equivalent.

4530 The Modern Novel (3) Prereq: 2130 or equivalent.

4540 The Modern Theatre (3) Prereq: 2130 or equivalent.

4610 Contemporary Theater (3) Prereq: 2130 or equivalent.

4620 Contemporary Poetry (3) Prereq: 2130 or equivalent.

4630 Contemporary Prose (3) Prereq: 2130 or equivalent.

GRADUATE See Graduate School Catalog for requirements.

5011 Techniques in Literary Analysis (2)

5101 Foreign Study (1-12)

5102 Off-Campus Study (1-12)

5103 Independent Study (1-12)

5151-61-72 Bibliography and Methods of Research (1, 1, 1)

5160-20-30 Readings in Italian Literature (3, 3, 3)

5170-20-30 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.

4150-20 Elementary Portuguese (4, 4) Must be taken in sequence. 4 class meetings and 2 laboratory periods.

4150-20-30 Directed Readings in Brazilian and Portuguese Literature (3, 3, 3) May be repeated with permission of instructor.

4160-20 Intermediate Portuguese (4, 4) Must be taken in sequence. 4 class meetings and 2 laboratory periods.

4150-20-30 Aspects of Portuguese Literature (4, 4) Prereq: 2520 or equivalent. Recommended for literature majors.

4160-20 Foreign Study (1-16) See page 177.

4310-20-30 Directed Readings in Brazilian and Portuguese Literature (3, 3, 3) May be repeated with permission 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 3510 or above. Students whose primary interest is literature must have a minimum of 8 hours chosen from the following sequences: 3510-20, 3610-20, or 3710-20 (aspects of survey of Spanish literature, or aspects of Spanish American literature, 8 hours); 3410 plus 3420 or 3430 (composition and conversation, 6 hours); 4210 (phonetics, 3 hours); 9 hours of literature at the 4000-level; 3 hours of civilization; sufficient additional hours selected from courses in literature, language, or civilization to fulfill the major requirement. Students whose primary interest is language must have a minimum of 8 hours chosen from the following sequences: 3510-20, 3610-20 or 3710-20 (aspects of survey of Spanish literature, or aspects of Spanish American literature, 8 hours); 3410 (composition and conversation, 3 hours); 4210 (phonetics, 3 hours); 9 hours selected from courses 3420-30 (composition and conversation), 4220-30 (advanced grammar), or 4250-60-70 (linguistics); 3 hours of literature at the 4000-level; 3 hours of civilization; sufficient 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 permission of the department.

Minor: Consists of 24 hours in courses numbered 3410 or above, including a minimum of 8 hours chosen from the following sequences: 3510-20, 3610-20, or 3710-20 (aspects of survey of Spanish literature, or aspects of Spanish American literature, 8 hours); 3410 (composition and conversation, 3 hours); 4210 (phonetics, 3 hours); sufficient additional hours selected from courses in literature, language, or civilization to fulfill the minor requirements. Students pursuing a minor are strongly advised to consult with a departmental adviser.

Courses which are the equivalents of the foregoing may be substituted with permission of the department; but courses in Spanish literature in English translation may not be counted toward either a major or a minor.

1510-20 Elementary Spanish (4, 4) Must be taken in sequence. 4 class meetings and 2 laboratory periods.

1518-28 Honors: Elementary Spanish (4, 4) Honors course for students of high ability. 1518 not open to students who have taken Spanish in high school. Freshmen are admitted on the basis of a diagnostic test or courses with the instructor, high school average, and performance on the ACT. This class will be held to a maximum of 15 so that each student may receive more attention. This class will cover the normal Spanish program for the first year, but will be enriched whenever possible. Students will be expected to spend only the normal amount of time in preparation. Those who find the course too difficult may easily transfer to a regular class. Potential majors and minors who are required to take the Spanish course. Students who pass 1510 with a grade of B or higher may take 1526 instead of 1520.

2510-20 Intermediate Spanish (4, 4) Must be taken in sequence. 4 class meetings and 2 laboratory periods.

2518-28 Honors: Intermediate Spanish (4, 4) Honors course for students of superior ability in Spanish. Incoming freshmen are admitted on the basis of diagnostic test results and high school average, and performance on the ACT. This class will be held to a maximum of 15 so that each student may receive more attention. Students will follow an enriched program with continuing emphasis upon speaking ability and with special emphasis on reading, including literary selections. Must be taken in sequence. Students who earn an A or B in 2528 automatically receive credit for Spanish 3000. Prereq: Spanish 1510-20, 1518-28, or equivalent.

2610-20 Panorama of Hispanic Culture (4, 4) 2610—Peninsular Spain from Roman invasion through 19th Century, including Colonial period in Latin America. 2620—Highlights of 20th-Century culture in both Latin America and Spain.

3000 Spanish Translation (3) Development of linguistic skills necessary for satisfactory work in courses above 3000. Recommended for students who feel they need additional training beyond 2520 in basic skills of reading, speaking and writing Spanish.

3010-20-30 Spanish and Spanish American Literature in English Translation (3-4, 3-4, 3-4) 3010—Masterpieces of Classical Spanish Literature: Cervantes, realism and the picareque novel, religious mysteries, Golden Age Theatre. 3020—Masterpieces of Twentieth-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.

3410-20-30 Intermediate Composition and Conversation (3, 3, 3) Not offered for graduate credit.

3510-20 Aspects of Spanish Literature (4, 4) Prereq: 2520 or equivalent. Recommended for literature majors. Not offered for graduate credit.

3610-20 Survey of Spanish Literature (4, 4) May be taken in place of 3510-20 or 3710-20. Prereq: 2520 or equivalent.

3710-20 Aspects of Spanish American Literature (4, 4) May be taken in place of 3510-20 or 3610-20. Prereq: 2520 or equivalent.

4030 Masterpieces of Spanish Literature in English Translation (3) No foreign language credit.

4040 Spanish Drama 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 177.

4110-20-30 Spanish Literature of the Golden Age (3, 3, 3) The picareque novel; Cervantes, the Comedia.

4150 Theatrical Spanish (1-3) Performance in one or more Spanish plays. May be repeated with credit for permission of department. Prereq: 2130 or equivalent and permission of instructor.

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 hrs of courses on 3000 level.

4210-20-30 Phonetics and Advanced Grammar (3, 3, 3) Prereq: 2130 or equivalent.

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

The Master's Program
See Graduate School Catalog for requirements.

5000 Thesis

5002 Non-Thesis Graduation Completion (3)

5011 Techniques in Literary Analysis (2)

5070-80-90 Hispano-Arabic Literature and Culture (3, 3, 3)

5101 Foreign Study (1-12)

5102 Off-Campus Study (1-12)

5103 Independent Study (1-12)

5110-20-30 Old Spanish (3, 3, 3)

5121 College Teaching of Romance Languages (3)

5151-61-71 Bibliography and Methods of Research (1, 1, 1)

5211-21 Don Quijote (3, 3)

5212-22-32 Golden Age Prose (3, 3, 3)

5231 The Exemplary Novels, Persiles y Sigismunda (3)

5250-60 The Generation of '98 (3, 3)

5270 The Contemporary Novel (3)

5310-20-30 Directed Readings (3, 3, 3)

5311-21-31 Special Topics in Spanish or Spanish American Literature (3, 3, 3)

5340 Problems in Hispanic Culture (3)

5510-20-30 Spanish Theatre After the Golden Age (3, 3, 3)

5550-60-70 Golden Age Theatre (3, 3, 3)

5610 Spanish American Prose to 1900 (3)

5611-21 Spanish American Lyric Poetry (3, 3)

5620-30 The Modern Novel in Spanish America (3, 3)

5631 Spanish American Essay (3)

5632 The Spanish American Short Story (3)

5633 Twentieth-Century Latin American Theatre and Film (3)

5640 Latin American Women Writers (3)

5650-60 Advanced Syntax and Stylistics (3, 3)

5670 Problems in Romance Linguistics (3)

5810-20-30 Spanish Lyric Poetry (3, 3, 3)

5910 Literary Criticism: Foundations of Romance Criticism (3)

6000 Doctoral Research and Dissertation

6210-20-30 Seminar in Spanish Literature (3, 3, 3)

6310-20-30 Seminar in Latin American Literature (3, 3, 3)

Russian

See Germanic and Slavic Languages.

Russian and East European Studies

See Cultural Studies.

Sociology (915)

Professors:
J.A. Black (Chair), Ph.D. Iowa; D.J. Champion, Ph.D. Purdue; W.E. Cole (Emeritus), Ph.D. Cornell; E.L. Dotson, Ph.D. Vanderbilt; L. Ebersole (Vice Chancellor for Planning and Administration), Ph.D. Pennsylvania; W.B. Jones (Emeritus), Ph.D. Vanderbilt; J.B. Knox (Emeritus), Ph.D. Harvard.

Associate Professors:
D.M. Betz, Ph.D. Michigan State; D. Cieлад, Ph.D. Michigan State; D.W. Hastings, Ph.D. Massachusetts; T.C. Howard, Ph.D. Duke; N.E. Shover, Ph.D. Illinois (Urbana); S.E. Wallace, Ph.D. Minnesota.

Assistant Professors:
S. Kurth, Ph.D. Illinois (Chicago); S.E. Norland, Ph.D. Iowa; R.G. Perrin, Ph.D. British Columbia; A.N. Sheskin, M.A. Boston; T.J. Weir, Ph.D. Wisconsin (Madison).

Instructor:
D. Harris, M.A. Tennessee.

UNDERGRADUATE

Major: Consists of 36 upper-division hours in sociology. Eight lower-division hours in sociology are prerequisite to a major. The minor shall consist of 24 upper-division hours. Eight lower-division hours in sociology are prerequisite to a minor.

Social Work

Students contemplating entrance into the field of professional social work will have an opportunity to plan their upper division programs to this end. Suggested course offerings for students planning a social work career can be obtained from the Graduate School of Social Work catalog. The address and general information on the School are given on page 45.

Students who contemplate professional training in social work should discuss their upper division programs with the Knoxville campus representatives of the School of Social Work.

American Studies. See Cultural Studies.

Latin American Studies. See Cultural Studies.

1510 General Sociology (4) Social origins, structures, forces, processes, and products.

1520 Sociology of Social Problems (4)

3010 Collective Behavior (4) Processual analysis of such collective phenomena as crowd behavior, social epidemics, fads, fashions, popular crazes, and mass movements; nature of the public, functional analyses of public opinion; problems of democracy as viewed from standpoint of organizing collective action.

3030 Political Sociology (3) Sociological analysis of American political system. Attention given to consideration of concept of power, elitist-pluralist controversy, end-of-ideology debate, and related topics.

3130 Social Psychology (4) Social basis of human behavior; socialization; social status and social roles; personality; social adjustment.

3140 Deviance and the Social Order (4) Examination of relations between deviance and social order. Various types of social deviance considered, with focus on their structure, social factors related to process of becoming deviant, and consequences of deviant conduct.

3150 Sociology of Sex Roles (4) Sociological examination of the structure of current American sex roles utilizing varied theoretical perspectives, e.g., role theory and bargaining. Development and effects of organized reactions to sex role expectations and social movements such as feminism are considered.

3160 Sociology of Medicine (4) Introduction to sociological approach to study of health and medicine. Emphasis on relationships of demographic characteristics to prevalence of disease, organization of health care facilities and staff-patient relationships.

3220 The Family (4) Origin and ethnology of the family; background of modern American family; the normal family; social changes and the family; social pathology of the family; reorganization and future of the family system.

3320 Sociology of Mass Communication (4) Sociological dimensions of mass communication and mass media, nature of mass communications organizations as bureaucratic structures, and effects of mass communication on social behavior are examined.

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

3340 Sociology of Poverty and Inequality (3) Factors contributing to conditions 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 includes: 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 displiant 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.
study and have grade point averages of at least 3.0 in the College of Liberal Arts and 3.2 in the Department. Prereq: Senior standing.

GRADUATE

Standards for graduate majors and minors are prescribed by the Graduate School and by the Department. Students who do not have adequate preparation in sociology may be required to take additional courses at the undergraduate level prerequisite to graduate study.

The Master's Program

The general requirements for the Master's degree are given in the Graduate School Catalog. A detailed statement of requirements is given in the Department's graduate manual.

The Doctoral Program

General requirements for the degree of Doctor of Philosophy are described in the Graduate School Catalog. A detailed statement of requirements is given in the Department's graduate manual.

5000 Thesis

5040 Methodological Issues in Social Research (3)

5050 Seminar in Political Sociology (3)

5060-70 Special Social Investigation (3, 3)

5200 Seminar in Collective Behavior and Social Movements (3)

5210, 5420-30 Social Theory (3, 3, 3)

5220 Social Control (3)

5230 Seminar in Sociology of Medicine (3)

5240 Theory and Research in Human Migration (3)

5250 Selected Topics in Migration Research (3)

5310 Seminar in Methods of Sociological Research (3)

5320-30 Social Statistics (3, 3)

5520 Crime, Law, and Social Control (3)

5530 Seminar in Community (3)

5550 Seminar in Community Power (3)

5560-70 Field Research in Deviance (3, 3)

5580 Sociology of Mental Disorders (3)

5590 Social Differentiation and Stratification (3)

5620-20 Seminar in Occupations (3, 3, 3)

5640 Social Structure and Personality (3)

5670 Social Organization (3)

5720 Small Group Theory and Research (3)

5730 Seminar in Research Problems in Intergroup Relations (3)

5810 Seminar in Race and Culture (3)

5910 Urban and Regional Sociology (3)

5920 Seminar in Social Attitudes (3)

5940 Delinquency and the Social Structure (3)

5950 Seminar in Population Theory (3)

5960 Demographic Techniques (3)

5970 Sociology of Development and Modernization (3)

6000 Doctoral Research and Dissertation

6040 Experimental Research (3)

6050 Experimental Methods in Sociology and Social Psychology (3)

6070 Problems in Field Research (3)

6080 Research Problems in the Study of Social Groups (3)

6090-6100 Survey Design and Analysis (3, 3)

6120 Selected Topics in Deviance and Law (3)

6130 Seminar in Mass Behavior and Related Topics (3)

6140 Advanced Reading in Sociological Theory (4)

6150 Advanced Reading in Sociological Methods (4)

6160 Advanced Special Social Investigation (4)

6170 Cross-cultural Aspects of Human Fertility (3)

6180 Theory and Method in Human Ecology (3)

6190 Advanced Special Social Investigation (4)

6510 Advanced Issues in Criminological Theory (3)

6520 Sociology of Deviance (3)

6530 Sociology of Law (3)

6540 Readings in Criminology and Deviance (3)

6550 Advanced Studies in Community (3)

6610 Seminar in Formal Organization (3)

6710 Seminar in Class and Status (3)

6810 Advanced Studies in Social Psychology (3)

6840-50 Social Change (3, 3)

6940 Advanced Studies in Urban Sociology (3)

Spanish

See Romance Languages.

Speech and Theatre

Professors: R. C. Allen (Head), D. F. A. Yale, T. P. Cooke, Ph.D., Florida State; R. M. Cotterman, Jr., Ph.D., Pittsburgh; N. W. Henshaw, Ph.D., Pittsburgh; P. L. Soper (Emeritus), Ph.D., Cornell; G. A. Yeomans, Ph.D., Louisiana State.

Associate Professors: R. C. Field, M. A. Miami (Ohio); J. F. Fields, M. A. Ohio State; R. W. Glenn, Ph.D., Northwestern; A. J. Harris, Ed.D., Tennessee.

Assistant Professors: R. S. Ambler, Ph.D., Ohio State; J. E. Buckley, Ph.D., Northwestern; R. L. Conville, Ph.D., Northwestern; N. C. Cook, M. A. Alabama; M. Custer, M. A. Wisconsin; B. V. Daniels, Ph. D., Cornell; S. L. Ford, Ph.D., Southern Illinois; J. W. Lester, Ed.D., Tennessee; R. R. Masburn, M. A., Tennessee.


UNDERGRADUATE

Major: The major, speech and theatre, offers three areas of concentration as follows:

Concentration in Speech: Eight hours from Speech 1211-21, Speech and Theatre 1441 are prerequisite to a concentration which consists of eight hours from Speech 2021, 2311, (or 3551 by permission), 2331, 2331; thirty additional hours in speech courses numbered 2000 and above, twelve hours of which may be cognate areas approved by the department and twenty-four of which must be in courses numbered 3000 and above.

Concentration in Theatre: Theatre 1520-30 is prerequisite to a concentration which consists of Theatre 2111, 2211-21, 2321, 3252-53, 54, twenty-four additional hours of theatre
coding of nonverbal behavior, research strategies and theoretical approaches.

3410-20-30 Intercollegiate Forensics (1, 1, 1) Continuation of 2410-20-30 Prereq: Permission of instructor.

3541 Rhetorical Theory and Criticism (4) Survey of Western rhetorical theory; contemporary approaches to criticism of public address. Recommended: 1211.

3551 Advanced Public Speaking (4) Speech forms; principles and practice of speech composition.

4222 Advanced Argumentation and Debate (4) Prereq: 2331 or permission of instructor.

4481 Quantitative Research Methods in Speech Communication (4) Designing experiments; planning field studies; using statistical analysis.

4551 Southern Oratory (4) Historical and critical study of public address in the South.

4560 Rhetoric of the Women's Rights Movement (4) Historical and critical study of public address in campaign for women's rights from the 1830's to the present.

4571 British Oratory (4) Historical and critical study of British public address.

4582 Public Discussion of Race (4) History and criticism of racial advocacy in America.

4591 Persuasive Uses of Imaginative Literature (4) Topics in social and political uses of novels, plays, and poems.

4811 Advanced Phonetics (4) Phonetic aspects of contemporary dialects of the English language. Prereq: Permission of instructor.

4811-21 Colonial History of American Public Address (4, 4) Colonial period to 1865-4921-1866 to present.

4999 Colloquium in Speech Communication (1) May be repeated for credit.

GRADUATE

5140 Communications Theory (3)

5210 Topics in Group and Interpersonal Communications (3)

5220 Quantitative Projects in Speech Communications (3)

5430 Studies in Tennessee Oratory (3)

5440 Organizational Communication (3)

5450 Studies in Collection and Use of Recorded Discourse (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)

1510 Introduction to Theatre (4) Theatre as experience, materials and techniques.

1520-30 Fundamentals of Play Production (4, 4) 1520—Play analysis and arts of performance (acting and directing); 1530—Arts of performance and physical production.

2111-21 Acting (4, 4) Rehearsals, improvisations, and scene study; voice and movement for the stage; basic rehearsal techniques. Prereq: permission of instructor for 2121.

2211-21 Stagecraft (4, 4) Techniques of scenery construction; 2221—Fundamental methods of stage lighting. Crew assignments on major productions.

2231 Basic Stage Costuming (4) Costume history and its application to the stage; basic techniques in costume construction.

3121-22 Advanced Acting (4, 4) Prereq: permission of instructor.

3511-52 Major Productions (1-4, 1-4) Supervised work on departmental productions. Available for credit only to theatre majors or with consent of Department. Prereq: permission of instructor.

3513 Outdoor Repertory Productions (4) Supervised work on productions at Hunter Hills Theatre. Available only to members of summer company by permission of instructor.

3221-22 Introduction to Scene Design (4, 4) Designing sets for a range of productions. Emphasis on the relationship of stage to three-dimensional design; theatrical graphic standards; problems in stage design with reference to lighting, movement, scale, and style. Prereq: 2211-21 or permission of instructor. Must be taken in sequence.


3682-83 History of the American Theatre (4, 4) Development of the theatre as social institution in American life. 3682—From its beginnings to 1900. 3683—From 1900 to present.

3231-22 Introduction to Lighting Design (4, 4) Mechanics of stage lighting; elementary theory; problems in basic lighting practice. Must be taken in sequence. Prereq: 2211-21 and permission of instructor.

3451-52 Play Directing (4, 4) Must be taken in sequence. Prereq: 2211.

3511-12 Introduction to Costume Design (4, 4) Costumes as expression of character on stage; the application of costume history to specific design projects. Prereq: 2231 or permission of instructor.

4133-34 Special Problems in Acting (4, 4) Advanced exercises in voice and movement; preparation of major role under performance conditions. Prereq: 3121-22 and permission of instructor.

4511-52 Major Productions (1, 1-4, 4-4) Continuation of 3151-52. Available for credit only to theatre majors. Prereq: permission of instructor.

4153 Outdoor Repertory Productions (4) Continuation of 3153. Available only to members of summer company by permission of instructor.

4241-42 Advanced Scene Design (4, 4) Play interpretation through scenic means; setting as environment for dramatic action. Must be taken in sequence. Prereq: 3251-22 and permission of instructor.

4341-42 Advanced Lighting Design (4, 4) Relationship of light to setting in creating stage environment. Must be taken in sequence. Prereq: 3321-22 and permission 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 permission 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 (4, 4) 4750: From Aristotelian to Lessing. 4760: From Goethe to Sartre.

4951-52 Playwriting (4, 4) Prereq: permission of instructor.

GRADUATE

5250 Seminar in Playwriting (3)

5310 Studies in European Theatre History (3)

5320 Studies in American Theatre History (3)

5620 Projects in Lighting Design (3)

5630 Projects in Play Directing (3)

5640 Projects in Scene Design (3)
Zoology (995)

Professors: J.C. Daniel, Jr. (Head), Ph.D. Colorado; D.L. Bunting, Ph.D. Oklahoma State; J.G. Carlso, Ph.D. Pennsylvania; A.C. Cole (Emeritus), Ph.D. Wisconsin; H.L. Evert, Ph.D. Minnesota; N. Gregon, Ph.D. Wisconsin; R.F. Grell, Ph.D. Tennessee; B. Hochman, Ph.D. California; R.H. Slonaker, Ph.D. Cornell; K.W. Jeon, Ph.D. London (England); A.W. Jones, Ph.D. Virginia; L.N. Liles, Ph.D. Ohio State; L.E. Roth (Vice Chancellor for Graduate Studies), Ph.D. Chicago; C.A. Shive, Ph.D. Michigan State; J.T. Tanner, Ph.D. Cornell; S.R. Tipton (Emeritus), Ph.D. Duke; G.L. Whiston, Ph.D. Iowa.

Associate Professors: H.M. Abernathy III, Ph.D. Cornell; R.M. Bagby, Ph.D. Illinois; K.D. Burnham, Ph.D. Iowa; D.A. Ehler, Ph.D. Minnesota; J.T. Kennedy, Ph.D. Iowa; M.C. Whitehead, Ph.D. Indiana.

Assistant Professors: P.B. Couelson, Ph.D. Illinois; A.C. Echtnehmer, Ph.D. Kansas; D.J. Fox, Ph.D. Johns Hopkins; M.A. Handel, Ph.D. Kansas State; A.M. Jungreis, Ph.D. Minnesota; J.A. MacCabe, Ph.D. California (Davis); M.L. Pan, Ph.D. Pennsylvania; S.E. Flecher, Ph.D. Wisconsin; G.L. Vaughan, Ph.D. Duke.

*Alumni Distinguished Service Professor.

UNDERRADUATE

Prerequisites to upper division courses: Biology 1210-20-30 is a prerequisite for all upper division courses, with the exception of 3090 and 4940. Additional prerequisites are included with course descriptions. Courses numbered in the 4000's are no more advanced than those in the 3000's except as may be indicated by prerequisites.

Major: Consists of Biology 3110, 3120, 3130, 16 hours upper division zoology courses (except 3010-20-30), and 3 quarters of chemistry or biochemistry at the 2000 level or above. Of the 18 hours of upper division zoology courses a minimum of 6 hours must be at the 4000 level, including at least one laboratory or field course. Prerequisites to this concentration are: Biology 1210-20-30 or Zoology 1118-28 (Zoology 2920-30 may be substituted for Zoology 1118 or Biology 1220), and Chemistry 1110-20-30 or equivalent (20 or 21 hours altogether) must be completed by all zoology majors.

Minor: Consists of 24 hours of zoology, or zoology and biology, courses. Zoology courses must be at the upper division level; but 2000-level biology courses may be used, e.g. Biology 2110, 2120, 2120.) Prerequisites to this concentration are Biology 1210-20-30 or Zoology 1110-20-30 or 1119-28 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 regarding lower division course is to be obtained is available in the Department Office.

Women's Studies

*See Cultural Studies.

1118-28-38 Honors: General Zoology (4, 4, 4)

Designed for selected students admitted on basis of performance on American College Testing Program (freshmen) or grade point average of 3.2 (seniors, grades 118—Unity of Life Diversity of Life. 1128—Continuity with change; Ecology. 1138—Special Topics (offered only on demand). Biology 1230 should be substituted for Zoology 1128 by students who earn less than a B in 1118. A year sequence will be completed with addition of Biology 1210. 2 hrs and 2 labs.

2460-70-80 Human Anatomy and Physiology for Nurses (3, 3, 3) Fundamentals of human anatomy and physiology. 2 hrs and 1 lab.

2461-71-81 Human Anatomy and Physiology for Nurses (3, 3, 4) Same as 2460-70-80 except 2 hrs and 2 labs.

2510-20 Human Biology (5, 5) Human biology for non-majors. Not available for major credit in zoology and biology. 2510—Human Physiology. 2520—Human genetics and embryonic development with emphasis on applied aspects of embryology and genetics. Does not satisfy a laboratory course requirement.

2920-30 Human Physiology (4, 4) Fundamentals of biology; principles of human physiology and anatomy. Must be completed in sequence. Offered one year of college chemistry. 2 hrs and 2 labs.

3040 Natural History of the Vertebrates (5) Behavior, life history, phylogeny, and classification. 3 hrs and 2 labs or field periods.

3050 Comparative Vertebrate Embryology (5) Developmental morphology of selected vertebrates. 2 hrs and 3 labs.

3060 Comparative Vertebrate Anatomy (4) Anatomy of organ systems. Dogfish shark and cat used in laboratory. 2 hrs and 2 labs.

3071 Immunology (3) (Same as Microbiology 3071)


3090 Biology and Human Affairs (3) (Same as Botany 3090)

3110 General Entomology (5) Introduction to insects; basic structure, development, behavior, classification of insect orders and representative families; interpretation of economic aspects. Prereq: Biology 3130, or permission of instructor. 3 hrs and 2 labs.

3150 Invertebrate Zoology (5) Biology of invertebrates (except insects) with emphasis on ecology and behavior. Prereq: Biology 3130. 3 hrs and 2 labs.

3220 Physiology of Reproduction (3) (Same as Animal Science 3220)

3230 Histology (4) Study of animal tissues. Prereq: Biology 3120. 2 hrs and 2 labs.

3410 Bioethics (3) Relationship between biological discoveries and human values, with discussion of selected dilemmas arising from new knowledge about medicine, behavior, resources, and technology.

3920 Hormones and Endocrine Function in the Human (4) Basic course in human endocrinology with emphasis on the practical diagnosis of hormone levels for analysis of glandular function and treatment of endocrine abnormalities. 3 lectures and 1 discussion. Prereq: A course in physiology.

4007-4010-11-12-13-14-15-16-17 Minicourse in Zoology (2, 2, 2, 2, 2, 2, 2, 2, 2) Selected, advanced topics in zoology, concentrated in time and subject matter. Consult departmental listing for actual topics offered. Prereq: As posted. May be repeated for credit.

4050 Developmental Biology (4) Experimental morphogenesis, fertilization, cellular interactions, hormonal effects and related topics with examples drawn primarily from invertebrates and vertebrates. Prereq: 3050. 2 hrs and 2 labs.
4110-20-30 Undergraduate Research Participation (2, 2, 3) Experience in active research projects under supervision of staff members. Prereq: Junior or senior standing and prior permission of instructor.

4140 Practicum in Zoology (1-3) Participation in practical application of zoology in community institutions, government organizations and industry. Approximately 5 hours involvement per week. Prereq: Biology 3110, 3120, 3130 and senior standing.

4190 Mammalogy (4) Classification, evolution, distribution, reproduction, populations, and behavior. 2 hrs and 2 lab or field periods. (Not open to students with credit for 3190.)

4200 Ichthyology (5) Classification, collection and identification, distribution, life histories, and economic importance of fishes. Prereq: Biology 2130, or permission of instructor. 2 hrs and 2 lab or field periods. (Not open to students with credit for former 3200.)

4210 Cell Physiology (5) Development of modern concepts in cell physiology from point of view of information and 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; intraspecific relations; problems and methods. Prereq: Biology 3130. 2 hrs and 2 labs.

4250 Comparative Animal Physiology, I (3) Environmental physiology. Survey of physiological mechanisms and their relation to ability of animals to survive in diverse physical environments. Prereq: Biology 3120-30, 2 years of chemistry. 3 hours.

4259 Comparative Animal Physiology Laboratory, I (1) Coreq: 4250. 1 hr.

4260 Comparative Animal Physiology II (3) Sensory, effecter and integrative physiology. Prereq: 3080.

4269 Comparative Animal Physiology Laboratory, II (1) Prereq: 3080 and permission of instructor. Coreq: 4260.

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 and species. Prereq: 3080 or 3920. 3 hrs and 1 (3 hr.) lab.

4290 Herpetology (4) Classification, distribution, life histories, collection and identification of amphibians and reptiles, primarily of local species. 2 hrs an 2 lab or field periods. (Not open to students with credit for 3210.)

4300 Ornithology (4) Morphology, physiology, behavior, reproduction, populations, evolution, field identification. 2 hrs and 2 labs or field periods. (Not open to students with credit in 3230.)

4310 Animal Cytology (4) Structure and function of cells and their components; emphasis on mitosis and meiosis. 2 hrs and 2 labs. Recommended: Biology 3110.

4320 Microtechnique (4) 3320 recommended. 2 hrs and 2 labs.

4369 General Genetics 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.


4410 General Parasitology (4) Morphology, taxonomy, and ecology of parasitic worms and protozoa, with emphasis on host-parasite relationships. 3 hrs and 1 lab. Prereq: Biology 3130 or permission of instructor.

4430 Medical Entomology (4) Distinctive morphological features, distribution, life histories, and control of arthropods that parasitize man or serve as vectors of human pathogens. Prereq: Agricultural Biology 3210 or Biology 3130. (Not open to students with credit for 3430.)

4450 Protozoology (4) Morphology, taxonomy, and physiology of protozoa in relation to fundamental biological concepts. Recommended: Biology 3120. 2 hrs and 2 labs.

4610-20 Comparative Animal Pathology (2, 2) Abnormal morphological changes and their causes. 4610—Cell and tissue changes, 4620—Organ, organ system, and organism changes. Recommended: 3080, 3320, 3060.

4619-29 Comparative Animal Pathology (2, 2) 4619—Cell and tissue changes. 4629—Organ, organ system, and organism changes. Coreq: 4610-20.

4660-70 Limnology (4, 4) 4660—Effects of origin, age, and location of lakes on their physical and chemical nature. 4670—Lake communities, productivity and pollution. Prereq: Chemistry 1110-20-30 and Biology 3130, Botany 1110-20-30 and Physics 1210-20-30 recommended. 2 hrs and 2 labs (4660); 3 hrs and 1 lab (4670). Must be taken in sequence, except with permission of instructor. Not open to students with credit in 3650 or 4650.

4700 Arachnology (4) Biology of spiders, mites, scorpions, and relatives. Prereq: 3110 or 3150. 2 hrs and 2 labs.

4720 Comparative Animal Behavior (4) Methods and principles. (Same as Psychology 4720.)

4729 Comparative Animal Behavior Laboratory (4) Laboratory and field studies. Coreq: 4720 (Same as Psychology 4729.)

4810-20-30 Insect Morphology and Taxonomy (4, 4, 4) 4810—Internal morphology of both generalized and specialized forms. 4820—Taxonomy of major orders. 4830—Taxonomy of minor orders and immature forms. Prereq for 4820-30: 3110, or permission of instructor. 2 hrs and 2 labs.

4940 Physiology of Exercise (4) Functions of body in muscular work; physiological aspects of fatigue, training, and physical fitness. Prereq: 2920-30 or 3080. 3 hrs and 1 lab. (Not open to students with credit for 3940.)

GRADUATE

5000 Thesis

5080 Graduate Research Participation (3)

5110-20-30 Special Problems (2, 2, 2)

5150 Zoological Bibliography (1)

5180 Fresh-Water Invertebrates (4)

5210 Plant Parasitic Nematodes (4)

5220-30-40 Advanced Vertebrate Physiology (4, 4, 4)

5260 Physiology of Hormones (4)

5270 Advanced Neuromuscular Physiology (5)

5280 Insect Physiology (4)

5290 Quaternary Problems (4)

5310-20 Seminar in Teaching of College Zoology (2, 2)

5350 Biometry (3)

5410 Advanced Parasitology (4)

5430 Advanced Medical Entomology (3)

5550 Advanced Ornithology (4)

5570 Animal Populations (3)

5610-20 Foundations of Radiation Biology (4, 4)

5630 Methods of Experimentation with Laboratory Mammals (3)

5660 Physiology of Development (3)

5670 Cellular Immunology (4)