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 they rest, the scale of their parts, and their 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 through 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 talent 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.

The college is committed to educating men and women to lead socially useful and personally meaningful lives. It endeavors to accomplish this mission by:

1. offering a comprehensive liberal studies program for liberal arts majors and for students in the other colleges of the university;
2. providing appropriate professional and graduate study in the arts and sciences;
3. conducting research and engaging in creative activity; and
4. serving the public interest in ways commensurate with the land-grant status of the University.

Through the programs which embody these activities, the college strives to encourage the intellectual, social, and personal development of each student in an academic community of students, faculty, and staff.

Association with the College

(See page 16.)

Programs of Study

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

Degrees Offered

(1) BACHELOR OF ARTS

The Bachelor of Arts represents 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 Basic Program is designed for most B.A. students is developed around the basic skills and distribution requirements 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 the same as 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 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, veterinary medicine, 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 SCIENCE

The Bachelor of Science degree, offered in selected departments and programs, is designed for those students who wish to pursue a more scientifically or professionally oriented program of study. Three programs leading to this degree are open to the student:
Basic Program—The Basic Program for the B.S. degree contains basic skills and distribution requirements similar to the Basic Program for the B.A. degree. It also includes a unique set of requirements for the major including additional requirements in mathematics, statistics, or laboratory sciences.

(b) Bachelor of Science in Chemistry—The Bachelor of Science in Chemistry is a professional degree designed in accordance with standards set by the American Chemical Society to train students to go directly into positions in the chemical industry or to enter graduate study. 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, and thus gain seven quarters of on-the-job experience while earning the degree.

(c) Bachelor of Science in Social Work—The program leading to the Bachelor of Science in Social Work is designed to prepare students for beginning professional social workers. The program conforms to Council on Social Work Education Accreditation Standards.

(3) BACHELOR OF FINE ARTS

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

(4) BACHELOR OF MUSIC

The program leading to the Bachelor of Music degree prepares students for graduate study and positions in which a professional degree is required. The degree is offered with concentrations in music theory, composition, electronic music, music history and literature, and applied music (vocals, piano, organ; wind or percussion, guitar; piano, organ; voice, piano, organ; church music—voice, piano, organ; literature—multiple keyboard instruments, strings, woodwind, brass, and percussion instruments; multiple woodwind instruments; studio music and jazz; Suzuki string pedagogy).

Program Planning

Each student's academic program is highly individualistic, reflecting that person's personal interests, goals, and aspirations. Usually it will reveal a growing intellectual sophistication and the development of particular motivations.

The importance of program planning can hardly be overstressed. A 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 potentialities is particularly important and they should develop their programs carefully and create in order that maximum flexibility in their ultimate decision making may be assured.

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

Advisors 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

GENERAL REQUIREMENTS: Bachelor of Arts and Bachelor of Science Basic Programs

Each student seeking a Bachelor of Arts or Bachelor of Science (excluding the Bachelor of Science in Chemistry) must develop a program which includes the following:

(1) All University degree requirements as stated in the front section of this catalog; (2) A minimum of 190 credit hours; (3) At least 60 credit hours in courses numbered 3000 or above; (4) Appropriate work to satisfy the basic skills requirements and the distribution requirements, counting no course in more than one area (not required in the College Scholars Program); (5) At least one major concentration (see below). Up to 8 hours in the major may also be used, where listed, to satisfy basic skills or distribution area requirements; (6) Students may take up to 30 hours of courses Satisfactory/No Credit in any area outside the major and minor, basic skills or distribution requirements; (7) Beginning in fall 1987, no credits earned for removal of association deficiencies may be used to satisfy requirements for graduation.

I. PROGRAMS LEADING TO BACHELOR OF ARTS AND BACHELOR OF SCIENCE DEGREES (excluding the Bachelor of Science in Chemistry).

The B.A. and B.S. degrees share the same program of Basic Skills and Distribution requirements, a segment where noted on pages 147 and 148.

Basic Skills

(1) English Composition

Purpose:

1. To gain and improve the skills necessary to write English expository prose coherently and concisely.
2. To improve reading skills;
3. To enhance critical and analytical abilities as applied to key issues and texts.

Requirement: Students may meet this requirement in one of the following ways:

1. By completing nine credit hours in English writing courses in one of the following series: (a) English 1010 or 1011, 1020, and three additional credits drawn from 1031, 1032, or 1033 (English Composition). Students who complete 1020 with a grade of A have the additional option to satisfy the remaining three credits in any 3000-level or 4000-level writing course offered by the department. (b) English 1018-28-38 (Honors: English Composition). Students who obtain a grade of A or B in 1028 have the additional option, with permission, to satisfy the remaining three credits in any 3000-level or 4000-level writing course offered by the department. (c) English 1431-41-51 (English Composition for Foreign Students).
2. By earning a score of 4 or 5 on the College Board Advanced Placement Test in English; or, with special permission, by earning a score of 3 on that examination and completing one 2000-level course in English at The University of Tennessee, Knoxville with a grade of B or better.
3. By earning a score of 25 or above on the English ACT exam and a composite ACT score of 25 or above and by passing a proficiency examination in writing administered by the Department of English in cooperation with the Committee on Writing Standards.
4. By obtaining CLEP credit for English composition (as described on page 22 of this catalog).

(2) Foreign Language

Purpose:

1. To learn the basic grammar, syntax, and vocabulary of a foreign language;
2. To be able to use a foreign language independently as a tool for oral communication and reading;
3. To acquire techniques of language learning;
4. To develop insight into the phenomenon of language;
5. To complement the study of certain aspects of a foreign culture or civilization.

Requirement: Completion of the intermediate level (for most languages, the 2000-level) sequence of a foreign language, or demonstration of competence on a waiver or proficiency examination. A student who has taken two or more years of a foreign language in high school and takes the introductory level sequence in the same language (usually the 1000-level sequence) may not use such credit to satisfy requirements for graduation. However, if students elect to take a foreign language in which they have had no previous training, both the elementary and intermediate level sequence may be counted for graduation. Students whose
native language is not English may meet this requirement by passing English 1431-41-51 and by passing two English language literature courses at the 2000-level. These literature courses may also be counted toward the Humanities distribution requirement. (Beginning Fall 1987, no credit for coursework completed in order to remove an assessment deficiency in foreign language may be used to satisfy graduation requirements.) Under the conditions stated above, the following courses may be used to satisfy the foreign language requirement:


German 1110-20-30 Elementary German; German 2110-20-30 Intermediate German; German 1518-2518-28 Honors: Elementary and Intermediate German.

Italian 1510-20 Elementary Italian; Italian 1110-20-30 Elementary Italian; Italian 2110-20-30 Intermediate Italian; Italian 2510-20 Intermediate Italian.

Portuguese 1510-20 Elementary Portuguese; Portuguese 2510-20 Intermediate Portuguese.

Russian 1110-20-30 Elementary Russian; Russian 2110-20-30 Intermediate Russian; Russian 1630-40-50 Elementary Serbo-Croatian; Russian 2631-41-51 Intermediate Serbo-Croatian.

Spanish 1110-20-30 Elementary Spanish; Spanish 1510-20 Elementary Spanish; Spanish 2110-20-30 Intermediate Spanish; Spanish 2510-20 (2518-28) Intermediate Spanish (Honors).

(3) Mathematics, Computer Science, or Logic

Purpose: 1. To develop the basic calculation skills necessary to fully appreciate the course of study at the university; 2. To understand the logical processes involved in the 2000 level. These are inductive or deductive reasoning, or computing; 3. To acquire the skills that will aid in the process of critical analysis, problem solving, and decision making.

Required: One course chosen from those listed below (total: 3 to 4 hours). Students with a Math ACT score of 24 or above, or those who pass a waiver or proficiency examination will be set by the appropriate department. Exemption from this requirement will also be granted to students who complete a three-course mathematics package under Divisional Distribution.

Under the conditions stated above the following courses fulfill this requirement:

Philosophy 1810 Introduction to Symbolic Logic; Mathematics 1140 Basic Mathematical Skills, 1700 Pre-calculus Mathematics. (Currently there are no Computer Science courses that fulfill this requirement.)

Distribution

(1) Divisional Distribution

Non-U.S. History

Purpose: 1. To acquire an appreciation for the richness of the past as a statement on human capability, aspiration, and achievement; 2. To develop an historical perspective on a civilization that differs from or serves as a foundation for studying one's own; 3. To develop the ability to explore continuity and change among historical events and movements, and to be able to assess them critically; 4. To learn to keep one's own place and time in proper perspective, and to appreciate it more fully because of an awareness of human creativity as revealed through a study of the past of a civilization; 5. To further develop writing skills.

Requirement: Completion of a two-course, writing emphasis, lower-division sequence in Non-U.S. History (total 8 hours). International students may fulfill this requirement with a U.S. History sequence. The following sequences satisfy this requirement:


Natural Science

Purpose: 1. To know and understand the basic vocabulary of at least one scientific discipline; 2. To learn the basic discoveries and their importance in one scientific discipline; 3. To be able to use the tools (i.e., mathematics, laboratory equipment, computers, etc.) of one scientific discipline; 4. To understand how to devise hypotheses and how to devise and perform experiments to test them; 5. To learn to apply the methods of at least one scientific discipline in a "hands on" laboratory experience; 6. To be able to analyze a situation on a college level from one particular scientific perspective.

NOTE: All Bachelor of Arts and Bachelor of Science students must satisfy Part I and Part II of the Natural Science requirement. All Bachelor of Science Programs incorporate an additional requirement of a three quarter mathematics or statistics package that includes at least two calculus courses. Also required in the B.S. major description is an additional three quarter lab science sequence. Courses taken to satisfy the additional B.S. specifications may not be used also to meet Natural Science distribution requirements. See major requirements in this catalog.

Requirement:

Part I: A three-course physical or biological science sequence that includes at least two quarters of laboratory experience (total: 12 hours). The following sequences satisfy Part I of this requirement:


Geography 1810-20-30 Geography of the Natural Environment. Geology 1010-20-30 General Geology I, II, III.


Part II: A three-course package in science, mathematics, and/or computer science (total 9 to 12 hours). The following course packages or any sequence listed in Part I will satisfy this requirement:


Social Science

Purpose: 1. To promote understanding of society and individual relationships; 2. To develop a critical understanding of one or more approaches, perspectives, or methodologies used in the social sciences; 3. To develop analytical skills relevant to
current social, economic, or political problems, their origins in society and individuals, and possible perspectives for their resolution.

Requirement: Four or five courses (total: 15-16 hours) selected from at least two departments or programmatic areas. The following courses satisfy this requirement:

- Afro-American Studies 2010 Introduction to Afro-American Studies

Anthropology 2520 Prehistoric Archaeology: Anthropology 2530 Human Cultures; Anthropology 3420 Linguistic Anthropology (same as Linguistics 3420); Anthropology 3670 Principles of Archaeology.

Botany 3060 Socio-economic Impact of Plants.

Economics 2510 Principles of Economics;
Economics 2520 Principles of Economics.

Geography 1610 Introduction to Geography;
Geography 1620 Introduction to Geography;
Geography 3000 Man, Location, and Behavior; Geography 3660 Cultural Geography.

Human Services 2690 Introduction to Human Services.


Music 3361 Introduction to Ethnomusicology; Music 3371 Introduction to Ethnomusicology.

Political Science 2020 Introduction to Political Science; Political Science 2510 U.S. Government and Politics; Political Science 2520 U.S. Government and Politics; Political Science 3110 Political Community.

Psychology 2500 (2518, 2528) General Psychology (Honors); Psychology 2520 Biological Foundations of Behavior; Psychology 2530 Psychology as a Social Science; Psychology 2540 Psychology of the Individual.

Religious Studies 3021 Religious Myth, Symbol and Ritual.

Sociology 1510 (1518) General Sociology (Honors); Sociology 1520 (1528) Sociology of Social Problems (Honors); Sociology 1530 Contemporary Social Change, Sociology 310 Social Psychology; Speech 1211 Communication and Society; Speech 1221 Introduction to Speech Communication; Speech 3031 Non-verbal Communication.

Women's Studies 200 Women in Society; Women's Studies 3150 Gender in Society (same as Sociology 3150).

Humanities

Purpose:

1. To learn to appreciate and interpret significant literary, philosophical, or religious texts by study and application of selected methods or traditions of thought;
2. To develop further abilities to reason critically, to construct arguments, to think creatively, to analyze objectively, to assess evidence, to perceive assumptions, and to respond to and appreciate various forms of expression;
3. To further develop writing skills;
4. To learn to manipulate symbols (i.e., words, sounds, images, body movements) in a variety of ways and to employ these symbols critically, affectively, and evocatively;
5. To develop abilities to participate as an enlightened observer or as an artist in a discipline within the visual, spatial, musical, theatrical, rhetorical, or written arts.

Requirement:

Part I: Literature or Philosophical Perspectives. A two- or three-course package in either literature or a philosophical perspective (total: 8-9 hours).

Part II: Arts, Literature or Philosophical Perspectives. Either two courses in the study of the arts or two courses in the practice of the arts; or a two-course package in literature if a philosophical perspectives package is chosen to meet Part I; or a two-course package in philosophical perspectives if a literature package is chosen for Part I (total: 6-8 hours).

Part I and II will be satisfied by selecting packages/courses from the following four lists in accordance with the instructions above.

The following course packages are designated as literature packages:

- Classics 2510-20 Greek Literature in English Translation—Roman Literature in English Translation.
- English 2510-20 English Masterpieces; English 2531 and either 2532 or 2533 American Masterpieces; English 2560-70-80 (2 out of 3 in chronological order) Literature of the Western World; English 2660-70-80 (2 out of 3) Introduction to Literature.
- French 2910-20-30 French Literature in English Translation.
- German 2210-20-30 German Literature in English Translation.
- Medieval Studies 2601-20-60 (2 of 3 in chronological order) Literature of the Middle Ages (11th-15th centuries).
- Russian 2210-20-30 Russian Literature in English Translation.
- Spanish 2910-20-30 Spanish and Spanish American Literature in English Translation.


The following course packages are designated philosophical perspectives packages:

2. Philosophy 1511-11 Value and Reality-Consciousness and Reality; 1611-21 Philosophy Antiquity to 1500-1500 to Early 20th Century.

Political Science 3801-02 Studies in Ancient Political Thought-Studies in Medieval Political Thought; Political Science 3803-04 Studies in Early Modern Political Thought-Studies in 19th and 20th Century Political Thought.

Religious Studies 2110-20 Founders of Religion; Religious Studies 2310-20 Criticism of Religion; Religious Studies 3370-80 The Christian Tradition; Religious Studies 3605-06 Professional Responsibility-Professionalism (same as Phil. 3605-06).

Women's Studies 3430-35 The Concept of Woman: Philosophy of Feminism (same as Phil. 3430-35).

The following are designated practice of the arts courses:

Art 1105 Introduction to Studio Art. English 2410 Creative Writing: Fiction and Poetry.

Music 1416 Music Performance. Speech & Theater 2031 Introduction to Oral Interpretation; Speech & Theater 3651 German Interpretation of Prose; Speech & Theater 3661 Literature and Oral Interpretation of Poetry.

The following courses are designated study of the arts courses:

Art 1815 Western Art I; Art 1825 Western Art II.

Classics 2320 Art and Archaeology of Ancient Greece; Classics 2330 Art and Archaeology of Etruria and Rome.


Theater 1302 Introduction to Theatre; Theater 1330 Introduction to Theatre; Theater 1340 Introduction to Theatre.

(2) Upper Level Distribution

Bachelor of Arts students must satisfy two of the following three options. Bachelor of Science students must satisfy one of the following three options. It is recommended that these requirements be fulfilled after the student has achieved upper-division standing (completion of 96 hours).

U.S. Studies Option

Purpose:

1. To develop an appreciation and knowledge of U.S. culture and civilization;
2. To provide a basis from which to discover the sources of values and traditions that constitute contemporary U.S. civilization;
3. To develop a critical understanding of the sources of values and traditions that constitute contemporary U.S. civilization;
4. To develop an understanding of the relations between individual and societal behavior;
5. To further develop writing skills.

Requirement: This option will be satisfied by taking any two of the following courses (total: 6-8 hours).

Afro-American Studies 4292 History and Philosophy of Afro-American Education (same as History 4292 and Educ. C&I 4292);
Afro-American Studies 4293 Contemporary Issues in Afro-American Education (same as Educ. C&I 3640); Afro-American Studies 4810 The Afro-American Family (same as Child & Family Studies 4810); Afro-American Studies 4830 Black Women in American Society (same as Women's Studies 4830);
Anthropology 3575 Afro-American Anthropology; Anthropology 3611 Archaeology of U.S. and Canada II; Anthropology 4740 Southern Appalachian Folk Culture;

English 3311 Women in American Literature; English 3320 Regional Identities in American Literature; English 3445 Film and American Culture; English 4640 Black American Literature and Aesthetics;
Geography 3920 Geography of the U.S. and Canada; Geography 3920 Geography of the American South; Geography 3940 Geography of Appalachia; Geography 4240 Historical Geography of the U.S.; History 3261 American Issues: Individualism & Community; History 3202 American Issues: War and the Peaceful Ideas; History 4841 America: Mind, Mood & Society (Colonial Period-1865); History 4851 America: Mind, Mood & Society (1865-present).
3. To develop a critical understanding of Chinese Culture; Asian Studies; African Politics; Political Science 3616 history.

To meet this requirement, Literature courses in English translation will be satisfied by Literature courses in Arabic, Chinese, French, German, Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, Sanskrit, or Spanish. (Literature courses in English translation will not meet this requirement.)

**Common Core**


History 3810 East Asia: History & Culture to 1600, History 3820 East Asia Since 1600. Political Science 3621 Government & Politics of the People’s Republic of China.

Religious Studies 3650 Philosophy and Religion in India (Same as Phil. 3650); Religious Studies 3660 Buddhist Philosophy and Religion (Same as Phil. 3660); Religious Studies 3671 Religion and Philosophy in China (Same as Phil. 3671); Religious Studies 3672 Religion in Japan (Same as Sociology 3672).

Europe

Clasics 3310 Art and Archaeology of the Aegean Bronze Age & Early Greece (Europe and the Middle East); Classics 3340 Cities of the Greek and Roman World (Europe-Asia-Africa); Classics 3810 Greek Civilization; Classics 3820 Roman Civilization.

English 3050 English Culture (Up to 1660); English 3051 English Culture (1660-Present); English 3920 Comparative European Literature; English 3930 Comparative European Literature.

History 3124 Modern Europe 1750-1900; History 3125 Contemporary Europe 1900-Present.

Medieval Studies 4010 Seminar in Medieval Studies.

Philosophy 3111 Ancient Western Philosophy; Philosophy 3121 Medieval Western Philosophy; Philosophy 3131 17th & 18th Century Philosophy; Philosophy 3141 19th Century Philosophy.

Political Science 3631 Government & Politics in the Soviet Union; Political Science 3632 Government & Politics in the Soviet Union; Political Science 3635 Politics of Western Democracies; Political Science 3636 Politics of Communist Systems; Political Science 3637 Economics of the People's Republic of China (Same as Economics 3637).

Russian 3710 Background and Main Currents of Russian Culture; Russian 3720 Background and Main Currents of Russian Culture.

Women's Studies 3240 Women in French Culture (Same as French 3240); Women's Studies 3830 Women in the Greek and Roman World (Same as Classics 3830).

**Latin America**

Anthropology 3580 Peoples and Cultures of Mesoamerica (Same as Latin American Studies 3580).

Economics 4231 The Political Economy of Latin America (Same as Latin American Studies 4231).

Geography 3790 Geography of Middle America (Same as Latin American Studies 3790); Geography 3800 Geography of South America (Same as Latin American Studies 3800).

History 3870 History of Latin America (to 1825) (Same as Latin American Studies 3870); History 3880 History of Latin America (1825-Present) (Same as Latin American Studies 3880).

Latin American Studies 4001 Cultural Plurality in Latin America; Latin American Studies 4002 Institutional Changes in Latin America.

**Capstone Experience Option**

Purpose:

1. To offer an intensive integrative experience which will substantially broaden the student's comprehension of the major;
2. To significantly increase an understanding of the ways in which the ideas, methods, and achievements in a major area of study have affected modern society;
3. To examine a major field of study from a value-oriented perspective;
4. To enhance student's mastery of prose communication within the professional context of their major.

Requirement: This option will be satisfied by taking six to eight upper-division hours chosen from the courses listed below. Consult with major department for additional approved courses. Course credits should be taken in the major area unless otherwise approved by the department. It is recommended that this option be satisfied during the senior year (within 45 credit hours of graduation).

Chemistry 4000 Topics in the Development of Chemistry; Chemistry 4811 Senior Seminar; Chemistry 4821 Senior Seminar; Chemistry 4831 Senior Seminar; Classics 4220 Seminar in Classical Studies.

History 4000 Reflections on History; History 4010 Colloquium in History.

Human Services 4500 Working within the System.

Mathematics 4910 Senior Topics; Mathematics 4940 Mathematical Modelling.

Physics 4010 Background in Physics; Physics 4020 Forefront in Physics. Psychology 4910 Senior Seminar: Great Ideas in Psychology.

**Areas of Concentration**

(1) Required Major

In many ways the most important part of
degrees. The Liberal Arts major may also be single or multiple minors may be recorded listed on the student's transcript. These students need complete only the tutons must complete at least 12 credit major. Students tranferring from other insti-
ment of additional majors becomes subject to the departmental or program . A major consists of 
student's program is the major, for it is 
satisfaction requirements, just as do those in the Basic 
ment limit the choices of supplementary 
II. Individualized Program 
The Basic Program described above will meet the educational needs of most of the 
Basic Program and Distribution requirement. This 
not coincide with the departmental or 
for admission to the respective colleges of The University of Ten-
IV. Preparation for the Health 
Pre-Cytotechnology 
Pre-Dental 
Pre-Dental Hygiene 
Pre-Medical 
Pre-Medical Record Administration 
Pre-Medical Technology 
Pre-Nursing 
Pre-Optometry 
Pre-Pharmacy 
Pre-Physical Therapy 
Pre-Veterinary Medicine 
Other Health Professions 
Pre-health professional programs are available for students who plan a career in one of the health professions. The programs preparing students for the study of medicine, dentistry, and pharmacy include the specified courses required for admission to the respective colleges of The University of Ten-
Lttle number of freshmen, entering transfer students with less than 60 credit 
hours and resident students with less than 90 credit hours are invited each year to enter this distinguished honors curriculum. Selection is based on previous academic record, test scores, recommendations, a written essay, and a personal interview. Admission is provisional for two quarters; continuation depends upon maintenance of a satisfactory record (normally 3.25 or above) and evidence of ongoing motivation and interest.

The College Scholars Program affords the highest degree of freedom to the student in developing a meaningful curriculum. Each program is worked out individually with a special 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 edu-
cation 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, required of all College Scholars. When College Scholars fulfill departmental requirements for addition-
al majors or minors, these will be recorded on the Scholars' transcripts. Scholars will not be required to meet Basic Skills or Distri-
6. of concentration is the same as for the major 
ocourse overlap among minors and majors or among minors and Basic Skills and Distribu-

elective courses. 

(4) Supplemental Elective Courses 

(1) Additional courses in the major field; 

(2) A related major course; 

(3) An area in the arts; 

(4) An off-campus quarter. 

Only the student's imagination and initia-
tive and the willingness to conceive and develop a totally meaningful academic pro-
gram limit the choices of supplementary elective courses. 

II. Individualized Program 

The Basic Program described above will meet the educational needs of most of the 
students enrolling in the college. Some, how-
never, 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 Indi-
individualized Program has been established as a means of attaining a closer correlation between student needs and academic pro-
grams. 

Students in the Individualized Program will satisfy the all Basic Skills and Distribution 
requirements, just as do those in the Basic 
Program. The greatest degree of individualization takes place, how-
ever, in the area of concentration. 

Although the quantitative aspect of the area of concentration is the same as for the major 

1 indicates B.S.
required for the Bachelor of Arts or Science degree in the College of Liberal Arts at The University of Tennessee, Knoxville. The two-year pre-professional program prepares students to undertake professional training during the third year of study at UT-Memphis. The Science 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. Other pre-health professional programs—dental hygiene, medical record administration, cytotechnology, nursing, 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 UT-Memphis but not to a degree from UT-K.

Admission to any program at UT-Memphis or Knoxville is at the discretion of that program's admissions committee. Admission to The University of Tennessee and completion of requirements may be obtained from 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 professions advisor in the Liberal Arts Advising Center (220 Ayres Hall) for more information about the programs outlined below. Specific requirements often change in the health professions programs. Bulletins describing the various pre-health professional programs, including a detailed statement on requirements, may be obtained from the Health Professions Office, 220 Ayres Hall.

PRE-DENTAL PROGRAM

The college offers both a three-year program leading to a Bachelor of Arts degree and a four-year program leading to a Bachelor of Arts or Science degree for students preparing for the study of dentistry. Both programs are based upon satisfactory completion of the first year of study at UT-Memphis. In the four-year program the degree is granted upon completion of 190 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 UT-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 UT-Memphis.

Although the B.A. or B.S. degree is not required for admission to the College of Dentistry at Memphis, most of the students accepted into the study of dentistry have the baccalaureate degree before admission. Therefore, pre-dental students are encouraged to complete all requirements for the B.A. degree before enrolling in the College of Dentistry.

Freshman

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>English 1010 or 1011; 1020-31-32-33</td>
<td>4</td>
</tr>
<tr>
<td>Chemistry 1110-20-30</td>
<td>4</td>
</tr>
<tr>
<td>Biology 1210-20-30</td>
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</tr>
<tr>
<td>Mathematics</td>
<td>4</td>
</tr>
<tr>
<td>Basic Skills B. Foreign Language</td>
<td>4</td>
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</tbody>
</table>

Sophomore

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemistry 3211-21-31 and 3219-29-39</td>
<td>4</td>
</tr>
<tr>
<td>Physics 2110-20-30</td>
<td>4</td>
</tr>
<tr>
<td>Divisional Distribution (A) Non. U.S. History</td>
<td>4</td>
</tr>
<tr>
<td>Divisional Distribution Humanities (D)</td>
<td>4</td>
</tr>
<tr>
<td>Electives</td>
<td>4</td>
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</tbody>
</table>

Junior

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Divisional Distribution Social Sciences</td>
<td>4</td>
</tr>
<tr>
<td>Divisional Distribution (D) Humanities Part 2</td>
<td>4</td>
</tr>
<tr>
<td>Upper Level Distribution (A) U.S. Studies (B) Foreign Studies or (C) Capstone Experience</td>
<td>4</td>
</tr>
<tr>
<td>Electives</td>
<td>4</td>
</tr>
</tbody>
</table>

Senior

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Completion of major program and B.A./B.S. requirements or completion of one year at UT-Memphis.</td>
<td>4</td>
</tr>
</tbody>
</table>

**Total Minimum Required: 190 hours**

1. Or equivalent honors courses.
2. Any student who has had two years of biology or one year of advanced study should take the proficiency tests for Biology 1210-20-30 to determine eligibility for going directly into Biology 3110 or 3120. Chemistry 1110-20-30 is a prerequisite to Biology 3110-20.
3. Math placement depends on high school courses and grades, ACT scores, and B.A./B.S. requirements. A math placement handbook is available in the Liberal Arts Advising Center, 220 Ayres Hall. Math 1840-50, 1550-60 or 1841-51 are prerequisites to Physics. All students must complete the Math Basic Skills requirements as outlined in the Liberal Arts curriculum.
4. This requirement assumes a student has had enough language background in high school to begin an intermediate language sequence at UT-K.
5. B.A. students must satisfy one of the three options. Consult with major departments for required Capstone courses.
6. Recommended courses in biology and zoology are genetics, cell biology, and comparative vertebrate anatomy.

PRE-DENTAL HYGIENE PROGRAM

A Bachelor of Science in Dental Hygiene is granted by UT-Memphis upon completion of a program which includes 96 hours of prescribed courses in the College of Liberal Arts and six quarters of study at UT-Memphis. Students interested in the pre-dental hygiene program are encouraged to consult with a health professions advisor in the Liberal Arts Advising Center for more information. Bulletins describing the pre-dental hygiene program and requirements in detail may be obtained from the Health Professions Office, 220 Ayres Hall.

**Total Minimum Required: 190 hours**

1. Or equivalent honors courses.
2. Math placement depends on high school courses and grades, ACT scores, and B.A./B.S. requirements. A math placement handbook is available in the Liberal Arts Advising Center, 220 Ayres Hall. Math 1840-50, 1550-60 or 1841-51 are prerequisites to Physics. All students must complete the Math Basic Skills requirements as outlined in the Liberal Arts curriculum.

**PRE-MEDICAL PROGRAM**

The college offers a three-year program leading to a B.A. degree and a four-year program leading to a Bachelor of Arts or Science degree 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 139 credit hours while enrolled in the college, and the B.A. degree is granted upon satisfactory completion of the first year of study at UT-Memphis. In the four-year program the degree is granted upon completion of 190 or more credit hours while enrolled in the college, including a major of 36 or more hours in addition to the courses outlined below. The requirements for a major are waived for those taking their fourth year at UT-Memphis. Students in either the three- or four-year program must complete the last 45 hours of credit in residence at UT-K before entering UT-Memphis.

Although the B.A./B.S. 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 complete all requirements for the degree before enrolling in the College of Medicine.

**Freshman**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>English 1010 or 1011; 1020, 1031 or 1032 or 1033 or equivalent</td>
<td>4</td>
</tr>
<tr>
<td>Biology 1210-20-30 or Zoology 1118-28-38</td>
<td>4</td>
</tr>
<tr>
<td>Chemistry 1110-29-30</td>
<td>4</td>
</tr>
<tr>
<td>Mathematics</td>
<td>4</td>
</tr>
<tr>
<td>Basic Skills B. Foreign Language (Intermediate Level Sequence)</td>
<td>4</td>
</tr>
</tbody>
</table>

**Sophomore**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemistry 3211-21-31 and 3219-29-39</td>
<td>4</td>
</tr>
<tr>
<td>Physics 2110-20-30</td>
<td>4</td>
</tr>
<tr>
<td>Divisional Distribution (A) Non. U.S. History</td>
<td>4</td>
</tr>
<tr>
<td>Divisional Distribution Humanities (D)</td>
<td>4</td>
</tr>
<tr>
<td>Electives</td>
<td>4</td>
</tr>
</tbody>
</table>

**Junior**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Divisional Distribution Social Sciences</td>
<td>4</td>
</tr>
<tr>
<td>Divisional Distribution (D) Humanities Part 2</td>
<td>4</td>
</tr>
<tr>
<td>Upper Level Distribution (A) U.S. Studies (B) Foreign Studies or (C) Capstone Experience</td>
<td>4</td>
</tr>
<tr>
<td>Electives</td>
<td>4</td>
</tr>
</tbody>
</table>

**Senior**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Completion of major program and B.A./B.S. requirements or completion of one year at UT-Memphis.</td>
<td>4</td>
</tr>
</tbody>
</table>

**Total Minimum Required: 143-151 hours**

1. Or equivalent honors courses.
2. Math placement depends on high school courses and grades, ACT scores, and B.A./B.S. requirements. A math placement handbook is available in the Liberal Arts Advising Center, 220 Ayres Hall. Math 1840-50, 1550-60 or 1841-51 are prerequisites to Physics. All students must complete the Math Basic Skills requirements as outlined in the Liberal Arts curriculum.

**PRE-DENTAL HYGIENE PROGRAM**

A Bachelor of Science in Dental Hygiene is granted by UT-Memphis upon completion of a program which includes 96 hours of prescribed courses in the College of Liberal Arts and six quarters of study at UT-Memphis. Students interested in the pre-dental hygiene program are encouraged to consult with a health professions advisor in the Liberal Arts Advising Center for more information. Bulletins describing the pre-dental hygiene program and requirements in detail may be obtained from the Health Professions Office, 220 Ayres Hall.

**Total Minimum Required: 190 hours**

1. Or equivalent honors courses.
2. Math placement depends on high school courses and grades, ACT scores, and B.A./B.S. requirements. A math placement handbook is available in the Liberal Arts Advising Center, 220 Ayres Hall. Math 1840-50, 1550-60 or 1841-51 are prerequisites to Physics. All students must complete the Math Basic Skills requirements as outlined in the Liberal Arts curriculum.

1. This requirement assumes a student has had enough language background in high school to begin an intermediate language sequence at UT-K.
2. The College of Medicine at E.T.S.U. requires two quarters of literature.
PRE-MEDICAL RECORD ADMINISTRATION PROGRAM

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

Students interested in the pre-medical record administration program are encouraged to consult with a health professions advisor in the Liberal Arts Advising Center for more information. Bulletins describing the medical records administration requirements and program in detail may be obtained from the Health Professions Office, 220 Ayres Hall.

PRE-MEDICAL TECHNOLOGY PROGRAMS

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

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

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

SCIENCE-MEDICAL TECHNOLOGY CURRICULUM

The Science-Medical Technology Curriculum is a three-year program consisting of a minimum of 140 credit hours in college. Students who complete this curriculum satisfactorily may apply for admission to the course of study in medical technology at The University of Tennessee Memorial Research Center and Hospital in Knoxville (UTMRC).

Successful completion of this course, which results in the granting of 50 credit hours, makes the student eligible for a Bachelor of Arts degree with a major in medical technology from The University of Tennessee, Knoxville. In addition, a Certificate of Laboratory Training will be awarded by UTMRC.

Students will then be eligible for examination by the Board of Registry of the American Society of Clinical Pathologists in order to be certified as registered medical technologists.

Freshman

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>English 1010 or 1011; 1020; 1031 or 1032 or 1033.</td>
<td>12</td>
</tr>
<tr>
<td>Biology 1210-20-30 or Zoology 1118-28-36</td>
<td>12</td>
</tr>
<tr>
<td>Chemistry 1110-20-30</td>
<td>12</td>
</tr>
<tr>
<td>Basic Skills (B) Foreign Language (Intermediate Level Sequence)</td>
<td>9</td>
</tr>
<tr>
<td>Mathematics</td>
<td>4</td>
</tr>
<tr>
<td>Elective</td>
<td>4</td>
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Sophomore

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
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</thead>
<tbody>
<tr>
<td>Chemistry 2230</td>
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<tr>
<td>Zoology 1118-20-30</td>
<td>8</td>
</tr>
<tr>
<td>Biology 3110-20-30</td>
<td>8</td>
</tr>
<tr>
<td>Divisional Distribution (C) Social Science</td>
<td>8</td>
</tr>
<tr>
<td>Microbiology 3200 and 3519</td>
<td>8</td>
</tr>
<tr>
<td>Divisional Distribution (D) Humanities Part 1</td>
<td>8</td>
</tr>
<tr>
<td>Divisional Distribution (A) Non-U.S. History</td>
<td>8</td>
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</table>

Total: Minimum 46-50 hours

Junior

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
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<tbody>
<tr>
<td>Microbiology 4320-29</td>
<td>5</td>
</tr>
<tr>
<td>Chemistry 3140-45 and</td>
<td>8</td>
</tr>
<tr>
<td>Biochemistry 3110</td>
<td>8</td>
</tr>
<tr>
<td>Microbiology 4270</td>
<td>3</td>
</tr>
<tr>
<td>Divisional Distribution (C) Social Science</td>
<td>7-8</td>
</tr>
<tr>
<td>Divisional Distribution (E) 2-1</td>
<td>8</td>
</tr>
<tr>
<td>Upper Level Distribution (A) U.S. Studies</td>
<td>6-8</td>
</tr>
<tr>
<td>(B) Foreign Studies or (C) Capstone Experience</td>
<td>12-16</td>
</tr>
</tbody>
</table>

Total: Minimum 41-48 hours

Senior

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical technology course of study at UT-Memphis</td>
<td>50</td>
</tr>
</tbody>
</table>

Total Minimum Required: 190 hours

*Or equivalent honors courses.

Students who have had considerable background in biology in high school (e.g., two years of biology or an unusually good one-year course) and have completed general chemistry may be eligible to go directly into Biology 3110 or 3120. Consult the coordinator of the biology program for more information. Such students must include at least eight hours in biological science in their electives to satisfy the requirement for admission to the medical technology program.

This requirement assumes a student has had enough language background in high school to begin an intermediate language sequence at UT.

Students interested in the pre-medical technology programs are encouraged to complete an entire mathematics sequence (1500-60 or 1540-50). Calculus is required if graduate work is planned. Math placement depends on high school courses and grades, ACT scores, and B.A./B.S. requirements. A math placement handout is available in the Liberal Arts Advising Center, 220 Ayres Hall.

PRE-MEDICAL TECHNOLOGY PROGRAM

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

Students interested in the medical technology program of study at UT-Memphis are encouraged to consult with a health professions advisor in the Liberal Arts Advising Center for the specific requirements for admission.

Bulletins describing both pre-medical technology programs and requirements in detail may be obtained from the Health Professions Office, 220 Ayres Hall.

PRE-NURSING PROGRAM

The minimum requirements for admission to the College of Nursing at UT-Memphis is 90 hours of prescribed courses in the College of Liberal Arts. The program at Memphis is 7 quarters in length and leads to the degree of Bachelor of Science in Nursing from UT-Memphis, is two years in length.

Registered nurses who wish to work for a degree of Bachelor of Science in Nursing must complete 54 hours of prescribed courses to qualify for admission to the advanced standing program.

Students interested in the pre-nursing program are encouraged to consult with a health professions advisor in the Liberal Arts Advising Center for more information. Bulletins describing the pre-nursing program may be obtained in the Health Professions Office, 220 Ayres Hall.

Note: A degree program in nursing is also available at The University of Tennessee, Knoxville. Information may be obtained from the dean of the College of Nursing.

PRE-PHARMACY PROGRAMS

The college offers three programs preparing students for the study of pharmacy at UT-Memphis. The Doctor of Pharmacy (Pharm.D.) degree is conferred by UT-Memphis upon completion of four years of professional study at Memphis following any of the three programs. Bulletins describing the three pre-pharmacy programs in detail may be obtained from the Health Professions Office, 220 Ayres Hall.

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, 220 Ayres Hall.

The three-year program leading to a B.A. degree and the four-year program leading to either a B.A. or B.S. degree from The University of Tennessee, Knoxville, as well as to the professional degree in pharmacy from UT-Memphis, are based upon the program outlined below. In the three-year program, the student must complete at least 134 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 B.A. or B.S. degree is granted upon completion of 190 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 UT-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.

Freshman

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
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</thead>
<tbody>
<tr>
<td>English 1010 or 1011; 1020; 1031 or 1032 or 1033</td>
<td>12</td>
</tr>
<tr>
<td>Chemistry 1110-20-30</td>
<td>12</td>
</tr>
<tr>
<td>Mathematics</td>
<td>4</td>
</tr>
<tr>
<td>Basic Skills Foreign Language (Intermediate Level Sequence)</td>
<td>9</td>
</tr>
<tr>
<td>Divisional Distribution (A) Non-U.S. History</td>
<td>8</td>
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Sophomore

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biology 1210-20-30 or Zoology 1118-28-36</td>
<td>12</td>
</tr>
<tr>
<td>Chemistry 2230</td>
<td>4</td>
</tr>
<tr>
<td>Zoology 1118-20-30</td>
<td>8</td>
</tr>
<tr>
<td>Divisional Distribution (C) Social Science</td>
<td>8</td>
</tr>
<tr>
<td>Microbiology 3200 and 3519</td>
<td>8</td>
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<tr>
<td>Divisional Distribution (D) Humanities Part 1</td>
<td>8</td>
</tr>
<tr>
<td>Divisional Distribution (A) Non-U.S. History</td>
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Total: Minimum 46-52 hours

Junior

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<th>Course</th>
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<tbody>
<tr>
<td>Accounting 2100</td>
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<tr>
<td>Physics 2210-20-30</td>
<td>12</td>
</tr>
<tr>
<td>Divisional Distribution (C) Social Sciences</td>
<td>8-9</td>
</tr>
<tr>
<td>Divisional Distribution (D) Humanities Part 2</td>
<td>8</td>
</tr>
<tr>
<td>Upper Level Distribution (A) U.S. Studies, (B) Foreign Studies or (C) Capstone Experience</td>
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<tr>
<td>Electives</td>
<td>6</td>
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</table>

Total: Minimum 142 hours

Senior

<table>
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<tr>
<th>Course</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Completion of major program and B.A./B.S. requirements or completion of one year at the UT Center for the Health Sciences</td>
<td>46-52</td>
</tr>
</tbody>
</table>

Total Minimum Required: 190 hours

*Or equivalent honors courses.
math placement depends on high school courses and grades, ACT scores, and B.A./B.S. requirements. Math is a prerequisite for Physics. A math placement handbook is available at the Liberal Arts Advising Center, 225 Ayres Hall.

**Biology 1210-20-30 or Zoology 118-28-38**

- 12

**Chemistry 1110-20-30**

- 12

**English 1010 or 1011**

- 9

**Mathematics**

- 12

**Physics 2210-20-30**

- 12

**Speech 2311 or 2361 or 2351**

- 4

**Upper Level Distribution (A) U.S. Studies, (B) Foreign Language**

- 10

**Upper Level Distribution (D) Humanities**

- 4

**Upper Level Distribution (C) Social Science**

- 7

**Junior**

- Biochemistry 4110-20-30**

- 8

**Microbiology 3700-3199**

- 5

**Speech 2311 or 2361 or 2351**

- 4

**Divisional Distribution (C) Social Science**

- 8

**Divisional Distribution (D) Humanities**

- Part 1 and 2

- 14-17

**Senior**

- Completion of major program and B.A./B.S. requirements or

- Completion of one year at UT College of Veterinary Medicine

- Total Minimum Required: 190 hours

**Core Curriculum**

- The Studio Art core 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 provides an opportunity to become acquainted with the various artistic disciplines. This gives each student the understanding to plan a better program during the remaining two years. Unless otherwise stated the art core courses are non-sequential.

**I. Art Core**

- Hours Credit

- A. Art 1000**

- 2

- B. Art History**

- 1.

- 1. Art 1815, 1825, 1850

- 12

- 2. Additional hours

- 12

**II. Studio Electives**

- Additional hours in studio course electives to be completed in the Art Department or at our affiliated facility, Arrowmont School of Arts and Crafts.

- Students may also apply a maximum of 12 credit hours of approved studio courses from Architecture, Art Education, Broadcast Journalism, Computer Science, Vocational-Technical Education, Interior Design or Theatre.

- Subtotal: 27 hours

**IV. General Curriculum**

- A. English Composition

- 9

- B. Non-U.S. History/Social Science

- 8

- C. Natural Science/Mathematics

- 8

- D. Philosophy 3110

- 4

**Bachelor of Fine Arts**

- Two majors in the B.F.A. degree are available: B.F.A. Studio Arts and B.F.A. in Graphic Design/Illustration. Both majors require a similar prerequisite introductory art core. Majors must pass a portfolio review, usually at the end of the sophomore year, in order to be admitted into upper-division courses and concentrations. All studio courses require 3 hours per week attendance for each credit hour earned. Completing the B.F.A. program may take more than 12 quarters. Students are urged to seek departmental advisement each quarter to ensure proper scheduling.

- Transfer students are advised that a minimum of 28 hours in studio courses, and eight upper-division hours in art history must be earned at UTK. No grade below C in art courses may be applied to the B.F.A. major. A minimum of 2004 credit hours, 3000-level and above, must be earned prior to graduation.

**STUDIO ART MAJOR**

- The B.F.A. in Studio Art is a professionally oriented degree especially intended for those students planning careers or graduate study in the visual arts.

- Students may be accepted into advanced media concentration in (1) Ceramics, (2) Drawing, (3) Painting, (4) Printmaking, (5) Sculpture, (6) Wood/Woodcarving, (7) approved Inter-Area combinations, after passing the appropriate portfolio course.

---

**GRAPHIC DESIGN/ILLUSTRATION MAJOR**

- The Graphic Design/Illustration major is specifically designed to provide the basic
visual education for those persons who wish to pursue careers in the commercial application of art in fields such as advertising, art direction, package design, publications, television, etc. A minimum of 190 credit hours are required for graduation. Two options are available: graphic design or illustration. Students are advised that courses in Graphic Design/Illustration must be taken in sequence, and that successful completion of Art 3500 (Portfolio Review, S/NC) is required for admittance to all upper-division courses.

**GRAPHIC DESIGN OPTION**

I. Art Core

A. Art 1000

B. Art History

1. Art 1815, 1825, 1850
2. Electives
3. Studio
1. Art 1115, 1125, 1135
2. Art 2105, 2117, 2205 (or 2305)

Subtotal: 37 hours

II. Graphic Design

A. Art 3500 (S/NC)

B. Drawing: Art 2115 (6 hrs.), 4 hrs. electives

C. Photography: Art 2905

D. Art 1501, 2505, 2525, 2525, 3515, 3535, 3565, 4505, 4515, 4516 in sequence

E. Art 3555

F. Art 4502

Subtotal: 70 hours

III. Design Electives

Art 2506, 3516, 3517, 3525, 4506

Subtotal: 12 hours

IV. Studio Electives

A. Fiber-Fabric

B. Printmaking

C. Sculpture

Subtotal: 9 hours

V. Professional Electives

Advertising 3000, 3530, 4000; Broadcasting 4000; Marketing 3110

Subtotal: 7-8 hours

VI. General Curriculum

A. English Composition

B. Non-U.S. History/Social Sciences

C. Natural Science/Mathematics

D. Philosophy 3910

E. Liberal Arts Non-art electives

Subtotal: 34 hours

Subtotal: 190 hours

**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, electronic music, music history and literature, and applied music (voice; piano; organ; church music—organ or piano; church music—voice; piano—literature; strings; woodwind, brass, and percussion instruments; multiple keyboard instruments; multiple woodwind instruments; studio music and jazz; string pedagogy). The study is designed to prepare students for graduate study or for positions in music for which a professional degree is required.

Students who plan to work for this degree are assigned an advisor 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.

**Core Enrichment Courses**

25 hours in the following Liberal Arts areas are required for all students enrolled in the B.M. degree program.

I. 8 hours from:

- English Composition
- Social Science

II. 8 hours from:

- Humanities-Arts (non-music)
- Literature
- Philosophical Perspectives (can be sequential)

III. 9 hours Foreign Language

Distribution of Core Enrichment credit hours are designated in the course listing for each concentration.

**NOTE:** The Core Enrichment III (9 hours Foreign Language) requirement is in addition to the Liberal Arts College Association requirements.

Students may continue at the 2000-level a language begun in high school or elect to begin a new language at the 1000-level.

Students majoring in vocal performance must complete one year of each of two languages chosen from French, German and Italian.

Students majoring in music history and literature must complete two years of either French or German.

**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. (See page 194.)

**MUSIC THEORY**

Freshman

<table>
<thead>
<tr>
<th>Hours Credit</th>
<th>Double Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>English 1010 or 1111</td>
<td>9</td>
</tr>
<tr>
<td>Music 1111-21-31</td>
<td>9</td>
</tr>
<tr>
<td>Music 1133-23-33</td>
<td>9</td>
</tr>
<tr>
<td>Music 2300</td>
<td>3</td>
</tr>
<tr>
<td>Applied music</td>
<td>3</td>
</tr>
<tr>
<td>Ensemble</td>
<td>3</td>
</tr>
<tr>
<td>Core Enrichment I and II</td>
<td>16</td>
</tr>
<tr>
<td>Music 2000</td>
<td>0</td>
</tr>
<tr>
<td>Sophomore</td>
<td>9</td>
</tr>
<tr>
<td>Music 2111-21-31</td>
<td>9</td>
</tr>
<tr>
<td>Music 2133-23</td>
<td>9</td>
</tr>
<tr>
<td>Music 2350-30-40</td>
<td>9</td>
</tr>
<tr>
<td>Music 2599</td>
<td>6</td>
</tr>
<tr>
<td>Applied music</td>
<td>3</td>
</tr>
<tr>
<td>Ensemble</td>
<td>3</td>
</tr>
<tr>
<td>Liberal arts electives (not in music)</td>
<td>3</td>
</tr>
<tr>
<td>Music 2000</td>
<td>0</td>
</tr>
<tr>
<td>Core Enrichment III</td>
<td>9</td>
</tr>
<tr>
<td>Junior</td>
<td>9</td>
</tr>
<tr>
<td>Music 2310</td>
<td>9</td>
</tr>
<tr>
<td>Music 3112-23</td>
<td>9</td>
</tr>
<tr>
<td>Music 3133-23</td>
<td>9</td>
</tr>
<tr>
<td>Music 4350-30-40</td>
<td>9</td>
</tr>
<tr>
<td>Music 4599</td>
<td>6</td>
</tr>
<tr>
<td>Music 2000</td>
<td>0</td>
</tr>
<tr>
<td>Senior</td>
<td>9</td>
</tr>
<tr>
<td>Music 4100</td>
<td>3</td>
</tr>
<tr>
<td>Music 3199</td>
<td>3</td>
</tr>
<tr>
<td>Applied music</td>
<td>3</td>
</tr>
<tr>
<td>Ensemble</td>
<td>3</td>
</tr>
<tr>
<td>Music electives</td>
<td>3</td>
</tr>
<tr>
<td>Semester</td>
<td>Courses</td>
</tr>
<tr>
<td>----------</td>
<td>---------</td>
</tr>
<tr>
<td>Freshman</td>
<td>English 1010 or 1011; 1020; 1031 or 32 or 33 ...</td>
</tr>
<tr>
<td>Sophomore</td>
<td>Core Enrichment III (French, German or Italian)</td>
</tr>
<tr>
<td>Upperclassman</td>
<td>Core Enrichment III (French, German or Italian)</td>
</tr>
<tr>
<td>Senior</td>
<td>Core Enrichment III (French, German or Italian)</td>
</tr>
</tbody>
</table>

**Total: 180 hours**
College of Liberal Arts/Music Concentrations

Junior
Music 2010 ........................................ 3
Music 3113-23 .................................. 6
Principal applied study ........................................ 12
Ensemble ........................................ 3
Junior recital 3000 ........................................ 0
Foreign language (French, Italian, or German) ................. 9
Theatre 2111 ........................................ 4
Core Enrichment I ........................................ 4
Music 2000 ........................................ 0
Senior
Music 4046-47-48 ........................................ 6
Music 4012-22-32 ........................................ 3
Principal applied study ........................................ 12
Ensemble ........................................ 3
Senior recital 4000 ........................................ 0
Core Enrichment II ........................................ 8
Liberal arts electives ........................................ 5
Music 2000 ........................................ 0
Theatre 2121 ........................................ 4
Total: 182 hours

Sophomore
Core Enrichment I ........................................ 8
Ensemble ........................................ 3
Music 2000 ........................................ 0
Music 2310 ........................................ 3
Music 3113-23 ........................................ 6
Principal applied study ........................................ 12
Ensemble ........................................ 3
Senior recital 4000 ........................................ 0
Core Enrichment II ........................................ 8
Liberal arts electives ........................................ 5
Music 2000 ........................................ 0
Theatre 2121 ........................................ 4
Total: 183 hours

Freshman
CHURCH MUSIC (Organ or Piano)
Freshman Hours Credit
English 1010 or 1011; 1020; 1031 or 32 or 33 ............. 9
Music 1111-21-31 ........................................ 9
Music 2300 ........................................ 3
Principal applied study 1590 ........................................ 12
Ensemble ........................................ 3
Core Enrichment III ........................................ 3
Music 2000 ........................................ 0
Sophomore
Music 2310 ........................................ 3
Music 3113-23 ........................................ 6
Music 2071-81-91 ........................................ 3
Music 3121 ........................................ 3
Principal applied study 2590 ........................................ 12
Ensemble ........................................ 3
Junior recital 3000 ........................................ 0
Electives ........................................ 11
Liberal arts electives (not in music) ........................................ 3
Music 2000 ........................................ 0
Total: 180 hours

0916

CHURCH MUSIC (Voice)
Freshman Hours Credit
English 1010 or 1011; 1020; 1031 or 32 or 33 ............. 9
Music 1111-21-31 ........................................ 9
Music 3112 ........................................ 3
Music 4012-22-32 ........................................ 3
Music 3071-81-91 ........................................ 3
Principal applied study 4580/4590 ........................................ 3
Ensemble ........................................ 3
Core Enrichment III ........................................ 3
Music 2000 ........................................ 0
Sophomore
Music 2111-21-31 ........................................ 9
Music 2113-23-33 ........................................ 9
Music 2320-30-40 ........................................ 9
Principal applied study ........................................ 9
Ensemble ........................................ 3
Core Enrichment III ........................................ 3
Music 2000 ........................................ 0
Junior
Music 2310 ........................................ 3
Music 3113-23 ........................................ 6
Music 3112 ........................................ 3
Principal applied study ........................................ 3
Ensemble ........................................ 3
Senior recital 4000 ........................................ 0
Music 2000 ........................................ 0
Total: 181 hours

STRAINS
Freshman Hours Credit
English 1010 or 1011; 1020; 1031 or 32 or 33 ............. 9
Music 1111-21-31 ........................................ 9
Music 1113-23-33 ........................................ 3
Music 2300 ........................................ 3
Principal applied study ........................................ 12
Ensemble ........................................ 3
Core Enrichment I (Religious Studies) ........................................ 8
Liberal Arts Electives (not in Music) ........................................ 3
Music 2000 ........................................ 0
Sophomore
Music 2111-21-31 ........................................ 9
Music 2113-23-33 ........................................ 9
Music 2320-30-40 ........................................ 9
Principal applied study ........................................ 12
Ensemble ........................................ 3
Core Enrichment I (Religious Studies) ........................................ 8
Liberal Arts Electives (not in Music) ........................................ 3
Music 2000 ........................................ 0
Senior
Music 2310 ........................................ 3
Music 3112 ........................................ 3
Music 2113-23-33 ........................................ 3
Music 2300 ........................................ 3
Principal applied study ........................................ 12
Collateral applied study ........................................ 6
Music 1010-20-30 ........................................ 9
Ensemble ........................................ 3
Senior recital 4000 ........................................ 0
Music electives ........................................ 6
Liberal arts electives (not in music) ........................................ 3
Electives ........................................ 12
Music 2000 ........................................ 0
Total: 181 hours

MULTIPLE WOODWIND INSTRUMENTS
Freshman Hours Credit
English 1010 or 1011; 1020; 1031 or 32 or 33 ............. 9
Music 1111-21-31 ........................................ 9
Music 1113-23-33 ........................................ 3
Music 2300 ........................................ 3
Principal applied study ........................................ 12
Collateral applied study ........................................ 6
Music 1010-20-30 ........................................ 9
Ensemble ........................................ 3
Senior recital 4000 ........................................ 0
Music electives ........................................ 6
Liberal arts electives (not in music) ........................................ 3
Electives ........................................ 12
Music 2000 ........................................ 0
Senior
Music 2310 ........................................ 3
Music 3112 ........................................ 3
Music 2113-23-33 ........................................ 3
Music 2300 ........................................ 3
Principal applied study ........................................ 12
Collateral applied study ........................................ 6
Music 1010-20-30 ........................................ 9
Ensemble ........................................ 3
Senior recital 4000 ........................................ 0
Music electives ........................................ 6
Liberal arts electives (not in music) ........................................ 3
Electives ........................................ 12
Music 2000 ........................................ 0
Total: 181 hours

WINDWIND, BRASS, AND PERCUSSION INSTRUMENTS
Freshman Hours Credit
English 1010 or 1011; 1020; 1031 or 32 or 33 ............. 9
Music 1111-21-31 ........................................ 9
Music 1113-23-33 ........................................ 3
Music 2300 ........................................ 3
Principal applied study ........................................ 12
Collateral applied study ........................................ 6
Music 1010-20-30 ........................................ 9
Ensemble ........................................ 3
Senior recital 4000 ........................................ 0
Music electives ........................................ 6
Liberal arts electives (not in music) ........................................ 3
Electives ........................................ 12
Music 2000 ........................................ 0
Senior
Music 2310 ........................................ 3
Music 3112 ........................................ 3
Music 2113-23-33 ........................................ 3
Music 2300 ........................................ 3
Principal applied study ........................................ 12
Collateral applied study ........................................ 6
Music 1010-20-30 ........................................ 9
Ensemble ........................................ 3
Senior recital 4000 ........................................ 0
Music electives ........................................ 6
Liberal arts electives (not in music) ........................................ 3
Electives ........................................ 12
Music 2000 ........................................ 0
Total: 181 hours

TOTAL: 180 hours

Hours Credit

1015 or 1016, 1031 or 32 or 33 ............. 3
Music 1055 or 1015 ........................................ 3
Music Educ. 4420 ........................................ 3
Music Educ. 3130 ........................................ 3
Music Educ. 4510 ........................................ 3
Music Educ. 3112 ........................................ 3
Music 3121 ........................................ 3
Music 3003-04-05 ........................................ 9
Music 3071-81-91 ........................................ 3
Principal applied study 4580/4590 ........................................ 3
Ensemble ........................................ 3
Core Enrichment I (Religious Studies) ........................................ 8
Liberal Arts Electives (not in Music) ........................................ 3
Music 2000 ........................................ 0
Sophomore
Music 2111-21-31 ........................................ 9
Music 2113-23-33 ........................................ 9
Music 2320-30-40 ........................................ 9
Principal applied study ........................................ 12
Ensemble ........................................ 3
Core Enrichment I (Religious Studies) ........................................ 8
Liberal Arts Electives (not in Music) ........................................ 3
Music 2000 ........................................ 0
Senior
Music 2310 ........................................ 3
Music 3112 ........................................ 3
Music 2113-23-33 ........................................ 3
Music 2300 ........................................ 3
Principal applied study ........................................ 12
Collateral applied study ........................................ 6
Music 1010-20-30 ........................................ 9
Ensemble ........................................ 3
Senior recital 4000 ........................................ 0
Music electives ........................................ 6
Liberal arts electives (not in music) ........................................ 3
Electives ........................................ 12
Music 2000 ........................................ 0
Senior
Music 2310 ........................................ 3
Music 3112 ........................................ 3
Music 2113-23-33 ........................................ 3
Music 2300 ........................................ 3
Principal applied study ........................................ 12
Collateral applied study ........................................ 6
Music 1010-20-30 ........................................ 9
Ensemble ........................................ 3
Senior recital 4000 ........................................ 0
Music electives ........................................ 6
Liberal arts electives (not in music) ........................................ 3
Electives ........................................ 12
Music 2000 ........................................ 0
Total: 181 hours

Theatre 2121 ........................................ 4
Total: 180 hours

Total: 183 hours

Total: 181 hours

Total: 180 hours

Total: 181 hours

Total: 183 hours

Basic Major substitute: Music 4035-36-37-38 (8), Music 4055-56-57 (8), Music 3041 (1).

Piano Majors substitute: Music 4035.36-37-38 (8), Music 4055-56-57 (8), Music 3041 (1).

Total: 180 hours

Total: 181 hours

Total: 183 hours

Total: 180 hours

Total: 181 hours

Total: 183 hours

Total: 180 hours
Bachelor of Science in Chemistry/College of Liberal Arts

STUDIO MUSIC AND JAZZ

Freshman
English 1010 or 1011; 1020; 1031 or 1032 or 1033
9
Music 1111-21-31
3
Music 1113-23-33
3
Music 2310
3
Music 2390
3
Music 2810-20-30
3
Music 1141
2
Principal applied study
6
Ensemble
3
Liberal arts elective
9
Music 2000
0
Sophomore
Music 2111-21-31
9
Music 2133-23-33
3
Music 2320-30-40
9
Music 3052-33
3
Principal applied study
9
Jazz Ensemble
3
Core Enrichment I
8
Music 2000
0
Junior
Music 2310
3
Music 3112
3
Music 3113-23
3
Applied Music
3
Ensemble
3
Senior recital 4000
0
Core Enrichment II
9
Electives
6
Music 2000
0
Senior
Music Education 4430
3
Principal applied study
6
College applied study
6
Ensemble
3
Senior recital 4000
0
Core Enrichment I or II
4
Liberal arts electives (not in music)
12
Electives
12
Music 2000
0
Total: 181 hours

ELECTRONIC MUSIC

Freshman
English 1010 or 1011; 1020; 1031 or 1032 or 1033
9
Music 1111-21-31
3
Music 1113-23-33
3
Music 2310
3
Music 2390
3
Music 2810-20-30
3
Music 1141
2
Principal applied study
6
Ensemble
3
Liberal arts elective
9
Music 2000
0
Sophomore
Music 2111-21-31
9
Music 2133-23-33
3
Music 2320-30-40
9
Music 3052-33
3
Principal applied study
9
Jazz Ensemble
3
Core Enrichment I
8
Music 2000
0
Junior
Music 2310
3
Music 3112
3
Music 3113-23
3
Applied Music
3
Ensemble
3
Senior recital 4000
0
Core Enrichment II
9
Electives
6
Music 2000
0
Senior
Principal applied study
12
Ensemble
3
Senior recital 4000
0
Core Enrichment II
9
Electives
6
Music 2000
0
Total: 180 hours

COOPERATIVE PROGRAM IN CHEMISTRY

A cooperative program is available to students in the B.S. in Chemistry curriculum. After the freshman year the student alternates a quarter in school with a quarter in a job in a chemical industry. The program normally requires five years and involves a total of seven work quarters and twelve school quarters. Students are required to have at least a 2.5 average to enter and remain in the program. Some opportunity exists for students to enter the program later than the end of the freshman year. Students interested should make application to the head of the Chemistry Department at least one quarter in advance of the beginning of the first work period. Further information will be supplied on request.

CURRICULUM REQUIREMENTS

Freshman
Chemistry 1310-20-30 (or 1110-20-30 or 1118-28-38)
12
Chemistry 1325-35
2
Mathematics 1840-50-60 or 1848-58-68
12
1Foreign Language (Intermediate level sequence)
9
English Composition (3 course sequence)
9
2Divisional Distribution A, C, or D
4
Sophomore
Chemistry 3211-21-31, 3219-29-39
12
Chemistry 2140-49
4
Physics 2510, 2310-20
11
2Divisional Distribution A, C, or D
4
Junior
Chemistry 3410-20-30, 3429-39
12
Chemistry 4210-19, 4220-29
10
Computer Science 3150
3
2Divisional Distribution A, C, or D
4
Senior
Chemistry 4110-19
5
Chemistry 4610 and 4710
6
Chemistry 4420
3
Chemistry 4811-21-31
3
Electives
9
1Must be chosen from German, French, or Russian; a stu-
Preparation for Other Professions

Law
Students who plan to study law should consult the statement regarding admission to the College of Law in the Graduate Catalog and discuss their programs with advisors 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 52 or consult the Director of the Graduate School of Library and Information Science.

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

Public Administration
Students majoring in political science who wish to prepare for an administrative career in the public service may select courses to fit that objective. The concentration appearing below is suggested for students with public service career interests. For further information, see page 52 or consult the Department of Political Science.

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

Social Work
Students who wish to prepare for graduate professional training in social work will find a brief description of the program of the College of Social Work on page 214. Detailed information about courses and curricula, as well as requirements for admission, will be found in the catalog of the College of Social Work.

Teaching
Students in the College of Liberal Arts who wish to be certified for secondary school teaching must satisfy state certification requirements as well as all degree requirements of the College of Liberal Arts and must be recommended for certification by the College of Education. The College of Education is approved by the National Council for Accreditation of Teacher Education (NCATE); recommendation for certification by the college, therefore, in effect certifies the student in 30 states.

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

One quarter during the senior year must be reserved for student teaching (Education C & I 4710-20). Application for student teaching must be filed not later than January 1 of the year preceding the academic year in which the student teaching will be undertaken. Those planning to student teach during the 1966-67 academic year must apply by January 1, 1966.

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

Note: The same course may be applied both to certification requirements and to Basic Skills, Distribution or major requirements of the College of Liberal Arts.

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

General Information

Assistance with the College
For information regarding association with 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 18, exclusive of elective work in ensemble music and physical education. Exceptions to this rule will require approval by the Associate Dean for Student Academic Affairs (220 Ayres Hall).

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

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

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

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

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

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

5) A transfer student with S/NC or equivalent credit earned for or toward admission to The University of Tennessee, Knoxville, in a course which satisfies Basic Skills or Distribution 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 instructor and student are both motivated, and if so, 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 advisors possible limitations on exercise of the S/JNC 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 the prior approval of the faculty member and the department concerned. It may include certain kinds of work experiences, community involvements, working in political campaigns, etc. Credit per quarter will vary from 1-16 hours. Up to 24 hours of credit earned in this way may be applied toward a degree in the college, although individual departments may limit the number of hours which may be applied toward a specific major.

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

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

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

Office of African and Afro-American Studies
The Office of African and Afro-American Studies, 802 Volunteer Blvd., Suite 416, cooperates with the various departments and colleges of the University with respect to the development of curricular changes and innovations which incorporate the Black experience into academic and extracurricular programs of the institutions supplies information on financial assistance for Black students, and serves as the focal point for the coordination and development of an improved and expanded African and Afro-American Studies Program at the University.

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

Psychological Clinic
The Psychological Clinic is an outpatient psychodiagnostic and treatment center established by the University within the Department of Psychology. 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 proscenium and open staging and for film productions, and, in a separate Studio Theatre, for laboratory productions. Carousel Theatre is designed for arena staging and can be converted for open-air performances in the summer.

Instructional Facilities
The college carries out its varied teaching and research activities in more than two dozen principal buildings in two areas of the campus, as well as in a number of converted residences which provide office, studio, or clinical space. The older of the two clusters of buildings is on "The Hill," and includes Ayres Hall (mathematics and computer science), Austin Peay (psychology), Hasler (botany), Walters Life Science (biochemistry, biology, microbiology, and zoology). The Nielson Physics Building (physics and astronomy), Geology-Geography (geology and geography), Dabney and Buehler (chemistry and ecology), and South Stadium Hall (audiology and speech pathology and anthropology). 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, philosophy, political science, religious studies, sociology, and speech and theatre), the Music Building (music), and the Hearing and Speech Center (audiology and speech pathology), Alumni Hall (human services) and the Art and Architecture Building (art). In this area also are the McClung Museum and the Clarence Brown and Carousel Theatres, as well as the Undergraduate Library.

College Offices
The College Administrative Office is in 226 Ayres Hall. The Liberal Arts Advising Center is in 220 Ayres Hall.

Departments of Instruction

Afro-American Studies
See Cultural Studies.

American Studies
See Cultural Studies.

Ancient Mediterranean Civilizations
See Cultural Studies.

Anthropology (122)

Professors:
W. M. Bass (Head), Ph.D. Pennsylvania; C. H. Fauleker, Ph.D. Indiana; R. L. Jantz, Ph.D. Kansas; P. W. Parmalee, Ph.D. Texas A & M; M. C. Wheeler, Ph.D. Yale.

Associate Professors:

Assistant Professors:
B. J. Howell, Ph.D. Kentucky; J. F. Simek, Ph.D. SUNY-Binghamton; P. S. Willey, Ph.D. Tennessee.

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

*Alumni Distinguished Service Professor.
UNDERGRADUATE

A B.A. major in anthropology shall consist of 42 hours of which 12 of which are to be in the introductory 2500-level courses, of the remaining 30 hours, 3333, 4480 and six hours are required in each of these cultural subfields: (a) Cultural; (b) Physical; and (c) Archaeology. 

(a) Cultural: 3410, 3420, 3440, 3450, 3530, 3540, 3580, 3700, 4200, 4240, 4250, 4400, 4420, 4440, 4550, 4560, 4740, 4741; (b) Physical: 2910, 2920, 2930, 3070, 3900, 4530, 4940, 4950, 4960; (c) Archaeology: 3610, 3611, 3620, 3630, 3660, 3670, 4400, 4800, 4810, 4840. At least 24 of these hours must be at the 3000-level or above. Students with senior standing may also substitute appropriate 5000-level courses with permission of the appropriate instructor. 

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

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

2520 Prehistoric Archaeology (4) Survey of prehistoric cultures of the Americas from the perspective of the biological sciences. Prereq: 2510.

2550 Principles of Cultural Anthropology (3) Basic concepts and their application in cultural anthropology. Prereq: 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.

3460 Alcohol, Health and Culture (3) Socio-cultural perspectives and consequences of alcohol use/abuse in various cultural groups.

3530 African Religions (4) (Same as Religious Studies 3440 and Africana Studies 3430.)

3560 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. (Same as Afro-American Studies 3530.)

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


3550 Cherokee Ethnology (3) Survey of sociopolitical aspects and recent changes and external relationships from first European contact to present. Emphasis on 18th and 19th centuries.

3575 Afro-American Anthropology (3) Anthropological perspective of blacks in New World: examination of Afro-American via anthropological theories and methodology. (Same as Afro-American Studies 3575.)

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 prereq: 2530. (Same as Latin American Studies 3580.)

3610 Archaeology of United States and Canada I (3) Intensive study of prehistoric American Indian. Special emphasis on theory and field techniques. Prereq: 2520 or consent of instructor. (Same as Afro-American Studies 2530.)

3611 Archaeology of United States and Canada II (3) Historic archaeology of Euro-American, Afro-American, and Asian American cultures in the United States and Canada from the 15th to the 20th centuries.

3630 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.

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

3760 Principles of Archaeology (3) Research strategies in archaeological excavation, interpretation, and explanation. Prereq: 2520 or consent of instructor.

3760 Farm of Folklore (3) Introduction to anthropological study of folklore.

3811 Introduction to Mesoology (3) (Same as Art 3611.)

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

4101 Foreign Study (1-18) See page 161.

4102 Off-Campus Study (1-16) See page 161.

4103 Independent Study (1-16) See page 161.

4111 Non-Western Education: Anthropological Approaches (3) Analysis of traditional educational practices among non-western peoples and problems encountered from application of western models of education among those peoples. Particular attention is paid to American Indians, African tribal groups, and Asian cultures. (Same as Education C & A 4111.)

4240 Applied Cultural Anthropology (3) Applications of anthropological theory, method, and findings in programs of community and national development, public health, international aid, and military assistance. Examination of roles of anthropologists, missionaries and ethnics in intervention schemes, and organization of planned change in applied programs. Intensive analysis of selected case studies. Prereq: 2530.

4250 Medical Anthropology: Lecture (3) Survey of medical anthropology. Classification of non-Western cultural aspects of health, disease, treatment, death, and related concepts. Focus on analyses and descriptions of anthropological fieldwork.

4300 Readings in Anthropology (1-8) Intensive reading, problem oriented. For anthropology majors with senior standing. Others by consent of instructor. May be repeated to a maximum of 9 credit hours.

4304 Field Work in Archaeology (3-9) Practicum work surveying, excavating, processing, and analyzing data; intensive reading. Prereq: 2510-20-30 and consent of instructor. May be repeated to a maximum of 9 credit hours.

4400 Cultural Ecology (3) Survey of concepts and methods in studying dynamic interaction between cultures and their environments. Topics include ecological theory, methods of analysis, and application from selected case studies. Prereqs: 2520 or 3410, or consent of instructor.

4420 Dynamics of Culture (3) Culture change: innovation, diffusion, and acculturation; cultural continuity and stability. Prereq: 2530 or consent of instructor.

4440 Urban Anthropology (3) Survey of theoretical and methodological issues anthropologists encounter researching cross-cultural urban settlements. Focus is on anthropological perspective and urban problems and planning. Prereq: 3450 or consent of instructor. (Same as Urban Studies 4440.)

4480 Current Trends in Anthropology (3) Analytical integrative review in symposium of current debates, research directions, theories, fieldwork methods, and general assumptions of the four subfields of anthropology: archaeology, physical anthropology, linguistics, and cultural anthropology. Required of anthropology majors in senior year. Prereq: Senior standing.

4550 Indians of the Southeastern United States (3) Survey of Southeastern Indian cultures; emphasis on aboriginal adjustment to environment; lifeways of Southeastern American groups prior to Euro-American contact. Prereq: 2530, 3540, or consent of instructor.

4580 Cherokee Ethnology (3) Intensive survey of cultural development, material culture, and historical phases of Cherokee culture existing at time of first European contact.

4600 Method and Theory in American Archaeology (3) Historical development of New World archaeology with emphasis on theory and field techniques. Prereq: 2520 or consent of instructor.

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

4640 Zoarchaeology (3) Basic osteological studies of vertebrate classes; emphasis on aboriginal man's utilization of native animals in his subsistence and culture. Identification and description of archaeologically derived molluscan and vertebrate remains.

4650 Archaeology of Southeastern United States (3) Intensive study of prehistoric American Indian. Special emphasis on Tennessee prehistory. Prereq: 3450 or consent of instructor.

4720 American Folklore (3) Anthropological perspectives on folklore of geographical regions and ethnic groups of the United States. Prereq: 3700 or consent of instructor.

4740 Southern Appalachian Folk Culture (3) A survey of the settlement history and economic development
of southern Appalachia in relation to its traditional culture: technology and economics, social organization, beliefs and values, oral traditions, and customs. Consent of instructor.

4741 Research in Southern Appalachian Folk Culture (3) Research-oriented course dealing with a wide range of traditional culture in southern Appalachia: settlement patterns, folk housing, economy, clothing, beliefs, speech, art, song, dance, and oral traditions and customs. Prereq: 4740. May be repeated. Maximum 5 hrs.

4750 Italian Folklore (3) Same as Romance Languages 4750.

4930 Physical Growth and Constitution (3) Comparative growth patterns throughout the life cycle of man; skeletal and dental maturation; sex differences in growth; human constitutional types. Prereq: 2510 or consent of instructor. Biology 2110 strongly recommended.

4940 Biology of Native Americans (3) American Indian origins and evolution from standpoint of skeletal remains and morphology and genetics of living populations. Emphasis on North American Indians. Prereq: 2510 or consent of instructor.

4950 Primate Studies (3) Survey of field and laboratory investigations of comparative anatomy and non-human primate behavior. Prereq: 2510 or consent of instructor.


GENERAL REQUIREMENTS FOR THE MASTER'S DEGREE

A. General requirements for the master's and doctoral degrees, as well as the course description, are given in the Graduate Catalog. See Cultural Studies.

Art (140)

Professors:


Associate Professors:


Assistant Professors:


Instructor:

D. Wilson, M.F.A. California (San Diego).

The Department of Art serves the University both generally and specifically: exhibitions are initiated within the Art and Architecture Building and across campus; students from the various colleges enroll in art courses for personal enrichment and to fulfill requirements; and the Department offers undergraduate and graduate majors in the visual arts.

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

Studio courses within the Department of Art require 3 hours of class time for each credit hour earned. The Department reserves the right to acquire student studio work.

UNDERGRADUATE

B.F.A. Majors: see page 155.

B.A. Major: Art History: Prerequisites Art 1815, 1825, and 1835 (12 hrs.); art history courses 2000 and above, which may include Greek and Roman art and archaeology (25 hrs.); studio courses 2000 and above (9 hrs.); Philosophy 3910 (4 hrs.); Museology 3611 and 3621 (8 hrs.). Undergraduate work in art history is enhanced by knowledge of at least one foreign language and by studio art experience. Graduate work normally requires reading knowledge of at least two foreign languages, usually German, French, and any other language appropriate to an area of specialization.

Students anticipating possible careers in the museum or gallery field are advised that elective hours in Art 4811 Museum Internship should be considered.

B.A. Minor: Art History—Consists of 24 hours in art history: courses numbered 2000 and above. Art 1815 and 1825 are prerequisites to the minor.

B.A. Major: Art (Concentration in Studio)—Art 1000, 1115, 1125, 1135, 1850, and eight additional hours of art history are prerequisites to a major of 36 hours of courses numbered 2000 and above, including a minimum of 21 hours in upper-division courses.

B. A. Minor: Art (Concentration in Studio)—Art 1115, 1125, 1135, and 1815, 1825, 1850 are prerequisite to a minor of 24 hours which includes a minimum of 8 additional upper-division hours. Certain prerequisite courses may be in Ceramics, Drawing, Fiber-Fabric, Painting-Watercolor, Printmaking, Sculpture or a combination from these areas.

1000 The Visual Artist (2) Lecture course with guest artists for art majors and non-art majors. Role of visual artist. Language of art and design. Materials and processes of art disciplines (painting, sculpture, graph- ics, craft, photography, and architecture). Major issues and concerns in visual arts and career opportunities. Must be taken freshman year.

1050 Extension to Studio Art: Various Media (3) Introduction to individual studio media. Individual sections for various artistic disciplines. For non-majors only. Course may be repeated, medium may not be repeated. Maximum 12 hrs.

1115 Studio Fundamentals (2) Development of observational skills and perception of reality. Fundamental aspects of drawing—line, tone, space, form, and composition. Primarily for art, architecture, interior design, and art education majors.

1125 Studio Fundamentals (2) Surface composition and color. Primarily for art, architecture, interior design, and art education majors.

1135 Studio Fundamentals (2) Real space and volume. Primarily of art, architecture, art education, and interior design and housing majors.

1501 Orientation to Graphic Design/ Illustration (2) Lecture/discussion of the field, history, social impact and economics. Prereq: 1115, 1125.

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

1815 Western Art I (4) Survey of major monuments in Western art with an emphasis on the art of Europe from prehistory through the Middle Ages.

1825 Western Art II (4) Survey of major monuments in Western art with an emphasis on Europe and American from 1400 to the early 20th century.

1835 Asian Art (4) Art of Central and Southeast Asia, India, China, Korea and Japan from prehistoric through Buddhist and Confucian forms, and into modern media.


2006 Special Topics (2) Student or instructor initiated course offered at convenience of department. Prereq: Determined by department. May be repeated. Maximum credit 12 hours.

2105 Survey of Drawing (3) Further exploration and refinement of fundamental aspects of drawing with more emphasis on composition and techniques. Prereq: 1115.

2106 Special Topics in Drawing (3) Student or instructor initiated course offered at convenience of department. Prereq: Determined by department. May be repeated. Maximum credit 12 hours.

2115 Life Drawing (3) Further development of drawing and observational skills with special emphasis on structure and dynamics of human figure and of the figure in environment. Prereq: 2105. May be repeated. Maximum 6 credit hours.

2117 Intermediate Design and Color (3) Prereq: 1115.

2205 Introduction to Painting (3) Capabilities of oil and acrylic painting on canvas and panel. Prereq: 1115, 1125, 1135 for art majors; none for non-art majors.

2206 Special Topics in Painting (3) Student or instructor initiated course offered at convenience of department to enhance and expand the painting curriculum. Does not substitute for basic program. Prereq: to be determined by department. May be repeated. Maximum credit 12 hours.

2215 Painting II (3) Techniques of expression in oil and/or acrylic. May be repeated. Maximum credit 8 hours. Prereq: 2205 for art majors, none for non-art majors.

2256 Special Topics in Painting and Fibrics (3) Student or instructor initiated course offered at convenience of department. Prereq: Determined by department. May be repeated. Maximum credit 12 hours.

2260 Fabric: Painting and Dyeing (3) Survey of painting and dyeing processes in the development of surface design on fabric. Includes printing, direct dyeing, and/or other related approaches.

2265 Fiber: Three-Dimensional Non-woven Structures (3) Development of three-dimensional structures through non-woven fiber techniques. Crochet, half-stitch knotting, and/or coiling.


2275 Fiber: Woven Structures (3) The woven structure as a two-dimensional pictorial surface. Tapestry, knotted pile, wrapped weave techniques in the development of imagery, color structures and textural surface.


2285 Fiber: Woven Wall Works (3) Fabrication of woven forms on vertical surfaces with emphasis on experimental use of fiber media in the development of architecturally scaled wall works.

2305 Introduction to Watercolor (3) Capacities of transparent watercolor. Prereq: 1115, 1125, 1135 for art majors; none for non-art majors.
2315 Watercolor II (3) Further study of the capacities of transparent watercolor with attention to individual expression, surface, space and concept. Prereq: 2305. May be repeated. Maximum 6 credit hours.

2405 Sculpture: Clay and Plaster (3) Problems in clay modeling, construction, and basic plaster casting techniques. Prereq: Determined by department. May be repeated. Maximum 12 credit hours.

2407 Sculpture: Mixture Media (3) The use of two or more materials, and a variety of sculptural techniques including one or more dimensional form. Possibilities include carving, modeling, molding, construction and found objects. May be repeated. Maximum 12 credit hours.

2408 Special Topics in Sculpture (3) Student or instructor initiated course offered at convenience of department. Prereq: Determined by department. May be repeated. Maximum 12 credit hours.

2525 Wood Sculpture I (3) Development and extension of skills and techniques begun in 2450. May be repeated. Maximum 6 credit hours. Prereq: 2405.

2415 Sculpture: Plaster and Clay II (3) Development and extension of skills and techniques begun in 2450. May be repeated. Maximum 6 credit hours. Prereq: 2405.

2416 Sculpture: Life Modeling (3) Modeling techniques in clay and wax, working from figure. Possibilities of expression with human figure as subject. Emphasis on modeling process both as observational and material handling technique. Students desiring to cast their works are advised to do so in 2415 or 3415 taken after this course. Prereq: 1115, 1125, 1135, or consent of instructor. May be repeated. Maximum 6 credit hours.

2450 Introduction to Wood Sculpture (3) Exploration of wood as sculptural medium. Possibilities include use of hand and power tools, carving and construction. Prereq: 1115-25-35 for arts majors, none for non-art majors.

2460 Wood Sculpture II (3) Development and extension of skills and techniques begun in 2450. May be repeated. Maximum 6 credit hours.

2500 Individual Projects in Graphic Design/Illustration (4) May be repeated for a maximum of 12 credit hours. Prereq: consent of instructor.

2505 Lettering and Typography (4) Use of designer tools and equipment. Forms of letters and type for the designer. Hand lettering, hot and cold type, copy fitting. Prereq: 1115, 1125, 1150 or consent of instructor.

2506 Special Topics in Graphic Design/Illustration (3) Student or instructor initiated course offered at convenience of department. Prereq: Determined by department. May be repeated. Maximum 12 credit hours.


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


2500 Special Topics in Printmaking (3) May be repeated. Maximum 12 credit hours.

2615 Intaglio (3) Metal plate intaglio printing in traditional and experimental techniques of etching, drypoint, mezzotint, aquatint, and photostiching. May be repeated. Maximum 6 credit hours.

2616 Lithography (3) Exploration of stone and aluminum plate lithography applying traditional and contemporary printmaking techniques. May be repeated. Maximum 6 credit hours.

2617 Screen Printing (3) Creative explorations of a variety of screen printing techniques. May be repeated. Maximum 6 credit hours.

2640 Papermaking Workshop (3) Exploration of papermaking as a medium for two and three-dimensional art. Includes: basic techniques of construction, embossing, pulp dyeing, lining, casting and other related techniques. Emphasis upon development of personal style. Prereq: consent of instructor. S/NC only.

2655 Introduction to Metal Design (3) Basic techniques of jewelry and metals working. Prereq: 1115, 1125, 1135 for art majors, none for non-art majors. May be repeated. Maximum 6 credit hours.

2665 Metal Design II: Jewelry (3) Additional jewelry and metals working techniques including casting, stonework, and forming. Prereq: 2655. May be repeated. Maximum 6 credit hours.

2675 Metal Design II: Enameling (3) Exploration of vitreous enamel as individual art form and in combination with other materials. Prereq: 2655. May be repeated. Maximum 6 credit hours.

2706 Special Topics in Art History (4) Student or instructor initiated course offered at convenience of department. Prereq: determined by department. May be repeated. Maximum 12 credit hours.

2725 Black Art (4) Black art history in America. 15th century to contemporary trends. (Same as Afro-American Studies 2725.)

2905 Introduction to Photography (3) Introduction to the art of black and white photography. Field and studio shooting, developing, printing, basic developing and enlarging techniques.

2906 Special Topics in Photography (3) Student or instructor initiated course offered at convenience of department. Prereq: determined by department. May be repeated. Maximum 12 credit hours.

2935 Film Design (3) Introductory theory and practice of film making. Emphasis on graphic elements through use of motion picture camera.

2950 Introduction to Ceramics (3) Exploration of ceramics, Designing and constructing pottery forms using pinch, coil, slab, and wheel techniques. Prereq: 1115-25-35 for art majors, none for non-art majors.

2956 Special Topics in Ceramics (3) Student or instructor initiated course to be offered at convenience of department. Prereq: Determined by department. May be repeated. Maximum 12 credit hours.

2990 Ceramics II: Handbuilding Techniques (3) Prereq: 2950.

2970 Ceramics II: Wheel Techniques (3) Prereq: 2950.

3000 Inter-Area Portfolio Review (1) A review of prior work in printmaking. Successful completion required prior to registration for junior and senior courses. Prereq: consent of department. S/NC only.

3100 Drawing Portfolio Review (1) A review of prior work in drawing. Successful completion required prior to registration for junior and senior courses. Prereq: consent of department. S/NC only.

3115 Drawing III (4) Development of personal drawing techniques and concepts through class problems. May be repeated. Maximum credit 12 hours. Prereq: 2115.

3200 Painting Portfolio Review (1) A review of prior work in painting. Successful completion required prior to registration for junior and senior courses. Prereq: consent of department. S/NC only.

3215 Painting III (4) Individual expression with varied media on canvas. May be repeated. Maximum credit 12 hours. Prereq: 8 hours of credit in 2215 for art majors; consent of instructor for non-art majors.

3270 Fabric: Individual Class Projects (4) Prereq: 8 hours from 2201-2900 and consent of instructor. May be repeated. Maximum 12 hours.

3300 Watercolor Portfolio Review (1) A review of prior work in watercolor. Successful completion required prior to registration for junior and senior courses. Prereq: consent of department. S/NC only.

3315 Watercolor III (4) Individual expression with varied water-based media on paper. May be repeated. Maximum credit 12 hours. Prereq: 8 hours in 2315 for art majors; consent of instructor for non-art majors.

3400 Sculpture Portfolio Review (1) A review of prior work in sculpture. Successful completion required prior to registration for junior and senior courses. Prereq: consent of department. S/NC only.

3405 Sculpture: Intermediate Clay Modeling (4) Further problems in clay and wax modeling construction and casting. Prereq: 2405 or consent of instructor.

3407 Sculpture: Intermediate Mixed Media (4) Further problems in the sculptural use of two or more distinctive materials. Prereq: 2407 or consent of instructor.

3408 Sculpture: Intermediate Metal Casting (4) Further exploration of casting methods for bronze and aluminum. Prereq: 2408 or consent of instructor.

3409 Sculpture: Intermediate Welding and Metal Fabrication (4) Further exploration of construction in steel and other metals. Prereq: 2409 or consent of instructor.

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

3416 Sculpture: Advanced Life Modeling (3-4) Advanced modeling techniques in clay and wax, working from figure. Four credit hours includes casting a minimum of one piece. Prereq: 2415 or consent of instructor. May be repeated. Maximum 8 credit hours.

3500 Graphic Design/Illustration Portfolio Review (1) A review of prior work in graphic design illustration. Successful completion required prior to registration for junior and senior courses. Prereq: 2526 or consent of instructor. S/NC only.

3500 Line Illustration (4) Study of black and white media and techniques as applied to product and editorial illustration. Prereq: 2525.


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

3519 Half-tone Illustration (4) Continuous tone and limited-color media and techniques as applied to product and editorial illustration. Prereq: 2506.

3525 Visual Communications Concepts (4) Advanced pictorial perception; a broad range of concepts, methods, and techniques for designer/illustrator. Prereq: 3500.

3529 Full Color Illustration (4) Process color media and techniques as applied to product and editorial illustration. Prereq: 3519.

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

3545 Corporate Design (4) Concepts of corporate graphics. Problems include all areas of graphic design and illustration. Prereq: 3535.

3555 Visual Communications Seminar (2) Political, social, economic, and ethical problems of contemporary designer. Sessions with outside guest speakers and field trips are employed. For Graphic Design/Illustration majors only. S/NC.

3590 Printmaking Portfolio Review (1) A review of prior work in printmaking. Successful completion required prior to registration for junior and senior courses. Prereq: consent of department. S/NC only.

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

3616 Lithography III (4) Color lithography from stone or plates. Extra techniques—stone engraving, acid
3811. Museology II (4) Museum legal procedures, grant writing. Exhibition concept development. Prereq: 3811 or consent of instructor. May be repeated. Maximum 12 credit hours.

3821. Museum Development and Design (4) Practical exhibition preparation and installation, publicity production, shipping and storage procedures. Prereq: 3821 or consent of instructor.

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


3949. Ceramics Portfolio Review (1) A review of prior work in ceramics for students wishing to enroll in Honors Ceramics. S/NC.

3950. Glazes (4) Prereq: 2970.


3968. Honors Ceramics III: Individual Class Projects (4) Prereq: 3905, 3950 and consent of instructor. May be repeated. Maximum 8 credit hours.

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

4006. Special Topics II (2-4) Student or instructor initiated course offered at convenience of department. Prereq: Determined by department. May be repeated. Maximum credit 16 hours.

4008. Honors: Advanced Art (4-6) Intensified study for the exceptional student. May be repeated for a maximum of 24 credit hours.

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

4019. Foreign Study (1-16) See page 161.

4020. Off-Campus Study (1-16) See page 161.

4033. Independent Study (1-8) See page 161.

4046. Special Topics in Drawing (3) Student or instructor initiated course offered at convenience of department. Prereq: Determined by department. May be repeated. Maximum 16 credit hours.

4115. Drawing IV (6) Individualized pursuit of personal drawing techniques and concepts, supplemented by individual and group critiques as well as weekly life drawing sessions. May be repeated. Maximum 18 credit hours. Prereq: 12 hours of 3155.

4206. Special Topics in Painting (3) Student or instructor initiated course offered at convenience of department to enhance and expand the painting curriculums. Does not substitute for basic program. Prereq: to be determined by department. May be repeated. Maximum 12 credit hours.

4215. Painting IV (6) Advanced painting stressing individual concepts and personal expression with varied medias. Prereq: 12 hours in 3215. May be repeated. Maximum 18 credit hours.

4256. Special Topics in Fiber and Fabrics (3) Student or instructor initiated course to be offered at convenience of department. Prereq: Determined by department. May be repeated. Maximum 12 credit hours.

4270. Fabric: Advanced Projects (4-8) Prereq: 8 hours of 3275 or consent of instructor. May be repeated. Maximum 12 hrs.

4275. Fiber: Advanced Projects (4-8) Prereq: 8 hours of 3275 or consent of instructor. May be repeated. Maximum 12 credit hours.

4315. Watercolor IV (6) Advanced painting with water-based media on paper stressing individual concepts and personal approaches. Prereq: 12 hours in 3315. May be repeated. Maximum 18 credit hours.

4406. Special Topics in Sculpture (3) Student or instructor initiated course offered at convenience of department. Prereq: Determined by department. May be repeated. Maximum 12 credit hours.

4415. Advanced Sculpture IV (4-8) Individual development of sculptural problems and techniques. May be repeated. Maximum 18 credit hours.

4502. Graphic Design/Illustration Practicum (1-16) Practical work experience in the design or illustration field only by prearrangement with the department. Prereq: Senior standing and consent of instructor. May be repeated. Maximum 16 credit hours.

4505. Advanced Graphic Design (4) Advanced projects in conceptual and applied design for printed materials; publications, posters, advertisements. Prereq: 3545.

4506. Special Topics in Graphic Design/Illustration (3) Student or instructor initiated course offered at convenience of department. Prereq: Determined by department. May be repeated. Maximum 12 credit hours.

4509. Product Illustration (4) Advanced media, techniques, styles and concepts as applied to illustration of products for printed reproduction. Prereq: 3529 or consent of instructor.

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

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

4519. Editorial Illustration (4) Advanced study of conceptual approaches in Editorial Illustration for printed reproduction. Prereq: 4509 or consent of instructor.

4506. Special Topics in Printing (3) Student or instructor initiated course offered at convenience of department. Prereq: Determined by department. May be repeated. Maximum credit 16 hours.

4515. Intaglio IV (4-6) Photographic, collage techniques; combine printing with other print media. May be repeated. Maximum 18 credit hours.

4516. Lithography IV (4-6) Extensive use of aluminum plates, color combine printing, photographic techniques. May be repeated. Maximum 18 credit hours.

4517. Screen Printing IV (4-6) Traditional hand cut and photographic stencils; combine printing on paper and other surfaces. May be repeated. Maximum 18 credit hours.

4665. Metal Design IV: Advanced Projects (4-6) Prereq: 3665. May be repeated. Maximum 18 credit hours.
4705 Special Topics in Art History (4) Student or instructor initiated course offered at convenience of department. Prereq: determined by department. May be repeated. Maximum 16 credit hours.

4730 History of Printmaking (4) Survey of prints from the fifteenth century to the present. Emphasis on the twentieth century in Europe and the U.S. Prereq: Art 1815, 1825.

4811 Museum Internship (1-16) Prereq: 8 hours from 3811-21-31 and consent of instructor. May be repeated. Maximum 16 credit hours.

4855 Studies in Art History (2) Concentration in selected areas. Prereq: 16 hours of art history and consent of instructor. May be repeated. Maximum credit 6 hours.

4905 Advanced Photography (4) Individual development of photographic problems and techniques. Prereq: 3905, 3915, 3925. May be repeated. Maximum 12 credit hours.

4906 Special Topics in Photography (3) Student or instructor initiated course offered at convenience of department. Prereq: determined by department. May be repeated. Maximum 16 credit hours.

4956 Special Topics in Ceramics (3) Student of instructor initiated course offered at convenience of department. Prereq: Determined by department. May be repeated. Maximum 12 credit hours.

4960 Ceramics IV: Advanced Projects (4-6) Prereq: 3960. May be repeated. Maximum 18 credit hours.

4968 Honors Ceramics IV: Advanced Projects (4-6) Prereq: 3960, 3960, and consent of instructor. May be repeated. Maximum 18 credit hours.

4975 History of Ceramics Seminar (4) A survey of historical and contemporary ceramics, dealing with clay sculpture, architecture, and pottery. Oriented, Ancient Greek, Pre-Columbian, and American ceramics. Will not apply to art history requirements. Prereq: 2950, 2960, and 2970.

PI BETA PHI ARROWMONT SCHOOL OF ARTS AND CRAFTS

Director:
S. J. Blain, M.F.A. Wisconsin.

Instructors, spring/summer 1984:
R. Adams; D. Bailey; P. Baldwin, J. Bassier; W. Bates; L. Bjorklund; B. Bobick; K. Borgeson; T. Carson; N. Crow; R. Daehnert; P. Dufour; E. Eagle; H. Easterwood; D. Ellsworth; C. Evans; F. Fenster; W. Florini; M. Ford; J. Francis; R. George; M. Goldenstein; L. Goldsmith; P. Grayson; J. Hall; S. Hogbin; W. Hylec; E. Iveron; F. Jacobs; E. Kalke; E. Kochansky; L. Koscianski; M. Kotoski; G. Kraft; S. Kristoferson; C. Kumeta; E. Lambert; T. Lang; R. Laskin; R. Nash Law; B. Lee; M. Lenderman; J. D. Liles; M. Lloyd; R. McGough; S. J. McGough; R. Miller; P. Milat; T. & G. Marsh; R. Mawdsley; T. & C. McClorey; D. Millard; M. Monroe; J. Myers; D. Nelson; D. Nish; W. Nottingham; J. Odegard; R. Osozki; J. Ors; N. Putnam; N. Quagliatti, Sr.; R. Rovar; T. Riesing; B. Roberson; H. Sadov; R. Smiler; D. Smith; S. Stephenson; E. Streeterman; J. Troy; F. Woell; K. Woell; C. Yearborgh.

Arrowmont, located 40 miles from the UTK campus, is a visual arts complex which functions as a regional and national cultural center. In 1954, Pi Beta Phi Fraternity established an affiliation with the University of Tennessee and with the Department of Art in 1978. The program currently includes spring and summer one and two week media workshops, special weekend conferences, and community classes. Media offerings include: clay, fiber, fabric, metal, wood, stained glass, leather, papermaking, drawing, painting, graphics and photography. Students may receive audit, undergraduate or graduate credit for spring and summer classes through The University of Tennessee, Department of Art. Facilities include well equipped studios, on campus book and supply store, a large auditorium, art library, and resident accommodations. The Arrowmont Gallery presents changing juried, invitational, theme or media oriented exhibitions. The Gallery and Library are open to the public Monday-Saturday, 8:30-4:30 p.m. Arrowmont receives financial support from chapters of the Pi Beta Phi Fraternity, alumni clubs, and individual members. The following courses are offered periodically ONLY at the Pi Beta Phi Arrowmont School of Arts and Crafts, Gatlinburg, Tennessee. Content varies with faculty. Students should check specific course content as printed in the Arrowmont timetable published each spring.

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

2104 Drawing (1-4) Beginning to intermediate. May be repeated.

2204 Painting (1-4) Beginning to intermediate. May be repeated.

2264 Fiber Processes (1-4) Beginning to intermediate. May be repeated.

2264 Fiber Constructions (1-4) Beginning to intermediate. May be repeated.

2274 Fabric Surface Design (1-4) Beginning to intermediate. May be repeated.

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

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

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

2504 Graphic Design/ Illustration (1-4) Beginning to intermediate. May be repeated.

2604 Printmaking (1-4) Beginning to intermediate. May be repeated.

2654 Metal Design (1-4) Beginning to intermediate. May be repeated.

2664 Enameling (1-4) Beginning to intermediate. May be repeated.

2704 Photography (1-4) Beginning to intermediate. May be repeated.

2704 Enameling (1-4) Beginning to intermediate. May be repeated.

2704 Printing (1-4) Beginning to intermediate. May be repeated.

2704 Drawing (1-4) Intermediate to advanced. May be repeated.

2744 Fabric Construction (1-4) Intermediate to advanced. May be repeated.

2744 Fabric Surface Design (1-4) Intermediate to advanced. May be repeated.

2804 Enameling (1-4) Intermediate to advanced. May be repeated.

2904 Photography (1-4) Intermediate to advanced. May be repeated.

2954 Ceramics (1-4) Intermediate to advanced. May be repeated.

GRADUATE

The degree of Master of Fine Arts is offered with concentrations in ceramics, drawing, fiber-fabric, graphic design, illustration, painting, printmaking, sculpture, watercolor and inter-area. In addition to meeting the requirements of the Graduate School, applicants must have an undergraduate major in art or outstanding proficiency. Examples of work will be requested. For additional information regarding these programs, write to the head of the department.

The department reserves the right to acquire student studio work.

Consult the Graduate Catalog for listing of graduate level courses.

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. A. Wisp, Ph.D. Ohio State; P. J. Carrier, Ph.D. Iowa; D. M. Lipscomb, Ph.D. Washington; I. V. Nabelek, Ph.D. Czech Technical (Prague); H. A. Peterson, Ph.D. Illinois; B. Silverstein, Ph.D. Purdue.

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

Assistant Professors:
A. D. Diefendorf, Ph.D. Washington, A. J. Ferrell, M.A. Tennessee; E. I. Hamby, Ph.D. Iowa.

Instructors:

UNDERGRADUATE

General Information. The Department of Audiology and Speech Pathology offers course work in the scientific study of human communication sciences and disorders. The two undergraduate majors (audiology and speech pathology) are pre-professional; that is, they are preparatory to graduate work and to professional certification in some aspect of speech, language and hearing disorders. The master's degree is required for most professional certificates and employment positions. Information about the audiologv and speech pathology programs may be obtained from the departmental office, 457 So. Stadium Hall, and students are strongly encouraged to consult with the undergraduate advisors in the department as early as possible in their programs. Suggested electives for non-departmental majors include 3010, 3040, 3050, 3200, 3710, 4070, and 4720.

A B.A. major in speech pathology consists...
4210 Language Development of the Hearing Impaired (3) (Same as Special Education 4220.)

4220 Language Development of the Hearing Impaired (3) (Same as Special Education 4210.)

4250 Introduction to the Psychology and Education of the Hearing Impaired (3) (Same as Special Education 4250.)
Basic analytical and biochemical procedures in biochemistry and molecular biology. 6 hours of upper-division minimum requirement, at least 2 hours in course work in molecular biology. Prerequisites to the minor must present an undergraduate major in biochemistry and molecular biology. pH titrations, spectral analysis, chromatography, electrophoresis, sedimentation and enzyme assays. Prereq or coreq: 4110 or equivalent. F, S.

1429 Cellular and Comparative Biochemistry Lab (2) Includes: proteins, coenzymes, nucleic acids and membranes/organelles. Chromatography, kinetics, hybridization, sequencing, sedimentation, radiotracer biochemical analysis. Prereq or coreq: 4110-20 or 4119. W.

130 Selected Topics in Biochemistry and Molecular Biology (3) Selected topics of current research interest (e.g., recombinant DNA, monoclonal antibodies, signal transduction, biochemistry with emphasis on original literature and the experimental basis of current knowledge). Historical background, impact on society, the making of moral and ethical judgments, and future development of the technologies will also be discussed. Written reports required. Prereq: 4110-20. S.

4210 20 Introduction to Physical Biochemistry (3, 3) 4210—Introduction to thermodynamics; phase stability and phase change; chemical potential; osmotic pressure; activity and the Debye-Huckel model; electrophoresis and membrane permeability. 4220—Elements of Statistical mechanics, diffusion, collision theory; chemical kinetics; and transition state theory; higher order kinetics; specialized kinetics of enzymatic processes; some bicyclic considerations. Prereq: Mathematics 1840-50-60, Chemistry 3211-21-31 and 3219-29-39, and an introductory course in biochemistry.

4230 Introduction to Physical Biochemistry (3) Physical chemistry of macromolecules: polarized light, absorption and fluorescence, sedimentation and transport, hydrodynamics, electrohydrodynamic light scattering, and structural x-ray crystallography of proteins and nucleic acids. Prereq: 4220 or Chemistry 3430, or equivalent.

4500 Independent Research in Biochemistry (1-6) Special topics in biochemistry, as defined by staff member. Limited to undergraduates and by consent only. May be repeated for credit. Prereq or coreq: 4110-20, 4119.

Graduate The B.A. major in biology may be obtained by completing one of the following concentrations:

A. Concentration in Cell Biology, Consists of Biology 3110-20-30, Chemistry 3211-21-31, 3219-29-33, Biochemistry 4110-20, and 12 hours of upper-division courses from: Biochemistry 4119, 4500; Botany, any 3000 or 4000-level courses (except 3050, 3070, 3090); Microbiology 3200, 3700, 3519, 4110-10-20, 4270-79, 4420, 4900; Zoology 3000, 3060, 3080, 3150, 3320, 4010, 4050, 4110-20-30, 4250, 4280, 4369, 4380, 4450. In meeting upper-division minimum requirement, not more than 8 hours may be credited from any one biological science department, and not more than 4 hours of research courses may be credited. Prerequisites to this concentration must be an undergraduate major in biology, chemistry, or biochemistry.

B. Concentration in Molecular and Systems Biology, Consists of Biology 3110-20, 4110-20, 4119, 4500; Botany, any 3000 or 4000-level courses, including 3010-20-30, 3050, 3070, 3090; Microbiology, any 3000 or 4000-level courses; Zoology, any 3000 or 4000-level courses except 3010-20-30 and 3050. In meeting upper-division minimum requirement, not more than 12 hours may be credited from any one biological science department, and not more than 4 hours of research courses may be credited. Prerequisites to this concentration must be an undergraduate major in biology, chemistry, or biochemistry.

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 must be an introductory biology course (Biology 1210-20 or Botany 1110-20 or 1118-28 or Zoology 1118-28 and Chemistry 1110-20-30). Corequisites are a 3-course math package as described under Concentration A above, or 1550-60, plus 3000; Physics 1210-20 or 2110-20, and 1220-20.

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

Placement in General Biology: Biology 1210-20-30 is an introductory course which presumes no high school or college background in the sciences. Students who have completed more than one year of high school biology should inquire about the possibility of earning college credit for part or all of Biology 1210-20-30 by use of proficiency exams. The courses 1225-35 are interchangeable with 1220-30 respectively. Students with exceptional interest in biology are encouraged to inquire about access to those invitational courses.

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

1225-35 General Biology (5,5) A special version of 1220-30 augmented by guest lecturers, field trips, etc. Enrollment by invitation based on superior performance in The General Biology sequence. In all situations calling for study in General Biology, 1225 may be substituted for 1210-20-30, 1220 and 1235 for 1230.

3110 General Genetics (4) Classical and modern principles of heredity. Prereq: 1210-20-30 or Botany 1110-20 or equivalent of 2 years of high school biology and satisfactory ACT scores; Chemistry 1110-20-30. 3 hours and 1 additional class meeting. May be taken in any sequence or combination with 3120 and 3130. E.

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

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

Botany (198) Professors: K. W. Hughes (Head), Ph.D. Utah; J. D. Caponetti, Ph.D. Harvard; E. E. C. Olebsch, Ph.D. Duke; H. P. Do, Ph.D. Purdue; J. L. Riesz, M.S. Georgia Institute of Technology; William F. McDonald, Ph.D. North Carolina State University; W. A. B. Anderson, Ph.D. University of California, Berkeley.


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

[Alumni Distinguished Service Professor.]

UNDERGRADUATE The undergraduate program offers a basic liberal arts degree with optional concentrations in cellular and molecular, and organismal botany. The curriculum design ensures strong grounding in the sciences with primary emphasis in Botany. A minimum of 9 credit hours must be taken to fulfill the major, 26 credit hours for a minor. The undergraduate degree in Botany is designed
to furnish necessary experience in academic and practical skills to prepare graduates for immediate entry into the job market or for continuing graduate education in pure or applied biological sciences.

A B.A. major consists of Biology 3110-20-30; Botany 3010-20-30, 3210, 1 hour from Botany 3300-20-30, 2 hours from Botany 4000 or 4410-20-30, 4 additional hours of upper-division Botany (not more than 3 hours allowed from Botany 3050-70-90) and 4 hours of upper-division courses from related biological sciences (zoology, microbiology, biochemistry, entomology and plant pathology, forestry, ornamental horticulture and landscape design, plant and soil science, or other with approval of undergraduate coordinator and department head).

Prerequisite: Prerequisites to this major are Botany 1110-20-30 or 1118-28-38 or Biology 1210-20-30 and Chemistry 1110-20-30.

Corequisites: Math 1550-60, 1840-50 or 1841-51; Chemistry 3211-21-31, 3219-29-39; and Physics 1210-20 (or 2210-20), or Geology 1410-20. (See Note.)

Options for Concentrations consists of Organismal Botany and Molecular Botany. Concentration requirements will be individualized and must be approved in writing by the undergraduate coordinator. Consult the departmental lists of recommended courses for concentration.

A. Organismal Botany—At least 8 hours beyond the major of 3000-level or above from Botany or related Biological Sciences.

B. Cell and Molecular Botany—At least 8 hours beyond the major of 3000-level or above from Botany or related Biological Sciences. (Biochemistry 4110-20 is recommended to complete this requirement.)

A minor consists of Biology 3110-20-30, 10 hours of upper-division in Botany (not more than 3 hours from 3050, 3070, 3090) and 4 hours of upper-division courses in related biological sciences (as described under the major). Prerequisites to the minor are Botany 1110-20-30 or 1118-28-38 or Biology 1210-20-30.

Note: Students who anticipate continuing beyond the Bachelor's level into graduate studies in Botany or related sciences should consult a Botany advisor for direction and design of coursework.

1110-20-30 Fundamentals of Botany (4,4,4) Nature and development of plants, including processes, structure, life histories, inheritance, ecology, and importance to man. Enrollment in sequence is desirable. Two 1-hour discussions and approximately 3 hours audio-tutorial laboratory per week. Students may not receive credit for both Botany 1110-20-30 and Biology 1210-20-30. 1110-F, SU, 1120-W, SU, 1130-S.

1118-28-38 Honors: Fundamentals of Botany (4,4,4) Honors course designed for superior students in beginning botany courses. Open for areas of a score of 27 or better on natural science section of SAT; and sophomores who have a cumulative GPA of 3.25 (or 3.5 in the sciences) or who are approved through interview with a member of botany faculty. Students receiving a grade of C or D in 1118 must transfer to 1120. Three 2-hour lecture-lab-discussion and 2 hours field lab be taken in sequence. Students may not receive credit for both Botany 1118-28-38 and Biology 1210-20-30. F, W, S.

1119-29 Laboratory in Fundamentals of Botany (0,0) Students who have already taken Botany 1118-28-38 also may take this course and receive credit for the 0,0 indicated. 1119-F, W, S.

1139 Laboratory in Selected Topics in General Botany (0) Students must also register for 1130.

3010-20 Plants in Evolution (4,4) Monera to angio-

3011 Plants and People (2) Botany of domesticated food plants from prehistoric times to the present with consideration of their origin, spread and relationship to development of human culture. Not for botany graduate credit. Prereq: 6 hours in biological sciences. F, W.

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

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

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

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

3130 Introductory Plant Pathology (4) (Same as Entomology and Plant Pathology 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: 6 hours in chemistry and one biological science. F, S, SU.

3300 Biological Oceanography (3) Distribution of abiotic factors in the sea and their effect on plankton growth; composition of zooplankton and processes affecting each; food webs in the sea; role of hyperproductive regions (estuaries, upwellings). Prereq: Chemistry 1110-20-30 and either Biology 1210-20-30 or Botany 1119-20 or Geology 2710. S.

3710-20-30 Junior Seminar (1,1,1) At least 1 hr. is required for a Botany major. Prereq: Junior standing.

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

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

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

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

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

4045 Aquatic Vascular Plants (3) Field experience on identification of aquatic vascular plants. Frequent field trips emphasizing field recognition of species and habitats. Laboratory sessions for discussion and practice with techniques and literature for accurate identification. Prereq: 6 hours of botany. Recommended: Botany 3010-20. A-A.

4050 Synanthropology (3) Field experience on identification of composite. Frequent field trips emphasizing field recognition of species and habitats. Laboratory sessions for discussion and practice with techniques and literature for accurate identification. Prereq: 6 hours of botany. Recommended: Botany 3010-20.


4075 Botanical Photography (3) Emphasis on photograph of natural history subjects and achievement of technical skill and aesthetic skill and knowledge to produce illustrations for class, seminar, or public lecture. Landscape, habitat, close-up, and small object photography, in color, using 35 mm format equipment. Limited shared equipment available. Student encouraged to own equipment. Film and processing costs paid by student. Photos processed and criticized in class. Prereq: 6 hours of botany. Recommended: Botany 3010-20.

4080 Field Pteridology (3) Field experience on identification of ferns and fern allies. Frequent field trips emphasizing field recognition of species and habitats. Laboratory sessions for discussion and practice with techniques and literature for accurate identification. Prereq: 6 hours of botany. Recommended: Botany 3010-20.

4120 Plant Anatomy (4) Comparative structure of vascular plants. Prereq: 1110-20. S.

4140 Paleobotany (4) (Same as Geology 4240.)

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

4410-20-30 Undergraduate Research Participation (2,2,2) Experience in active research projects under supervision of staff members. Open for areas of a score of 27 or better on natural science section of SAT; and sophomores who have a cumulative GPA of 3.25 (or 3.5 in sciences) or who are approved through interview with a member of botany faculty. Students receiving a grade of C or D in 1118 must transfer to 1120. Three 2-hour lecture-lab-discussion and 2 hours field lab be taken in sequence. Students may not receive credit for both Botany 1118-28-38 and Biology 1210-20-30. F, W, S.

4830 Field Measurements in Plant Ecology (3) Practice in the use of field and laboratory instruments for the measurement of environmental factors, plant functions and characteristics. Data collection will be followed by analysis and interpretation of data. Visits to highly instrumented field sites will be included. Prereq: Botany 3030 or equivalent. 1 year of physics and chemistry recommended. F.
GRADUATE
Consult the Graduate Catalog for listing of graduate level courses.

Chemistry (235)

Professors:
G. Mamantov (Head), Ph.D. Louisiana State; J. E. Bloor, Ph.D. Manchester (England); S. N. Bowman (Emeritus), Ph.D. Princeton; C. A. C. Buehler, Ph.D. Ohio State; W. E. Bull, Ph.D. Illinois; J. Q. Chambers, Ph.D. Kansas; J. A. Dean (Emeritus), Ph.D. Michigan; F. J. F. Eastman, Ph.D. California (Berkeley); W. H. Fletcher (Emeritus), Ph.D. Minnesota; G. W. Kabalka, Ph.D. Purdue; D. C. Kleinleiter, Ph.D. Princeton; M. H. Lieftzke, Ph.D. Wisconsin; R. M. Magid, Ph.D. Yale; R. M. Pagni, Ph.D. Wisconsin; J. R. Peterson, Ph.D. California (Berkeley); G. K. Schweitzer¹, Ph.D. Illinois; D. A. Shirley (Emeritus), Ph.D. Iowa; W. T. Smith (Emeritus), Ph.D. Ohio State; W. A. Van Hook, Ph.D. Johns Hopkins; E. L. Wehry, Ph.D. Purdue; T. F. Williams¹, Ph.D. London (England); J. H. Wood (Emeritus), Ph.D. North Carolina.

Associate Professors:
J. L. Adcock, Ph.D. Texas; F. A. Grimm, Ph.D. Cornell; J. M. Harris, Ph.D. Texas (Austin); J. D. Kovac, Ph.D. Yale; C. A. Lane, Ph.D. California (Berkeley); L. J. Magid, Ph.D. Tennessee; F. M. Schell, Ph.D. Indiana; C. Woods, III, Ph.D. North Carolina State.

Assistant Professors:
S. D. Alexandratos, Ph.D. California (Berkeley); C. E. Barnes, Ph.D. Stanford; J. E. Bartmess, Ph.D. Northwestern; K. D. Cook, Ph.D. Wisconsin; C. S. Feigerle, Ph.D. Colorado; M. J. Sepaniak, Ph.D. Iowa State.

¹Alumni Distinguished Service Professor.

UNDERGRADUATE
For information regarding the Bachelor of Science in Chemistry degree and the cooperative program in chemistry, see page 159.

For students wishing to major in chemistry and desiring a more flexible course of study than the B.S. in Chemistry, there are two programs: the B.S./Concentration A and the B.S./Concentration B. Because these two concentrations are designed for students with different career goals, the following paragraphs should be carefully considered before selecting courses.

A student who decides to major in chemistry should ask the Liberal Arts Advising Center for assignment of a faculty advisor in the Chemistry Department. For further information, contact the Head of the Chemistry Department, 575 Buehler Hall.

The B.S./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, geology, and mathematics. This program has student failure regarding to the degree of Bachelor of Science in Chemistry (page 159), but with greater opportunity for selection of electives outside the department and outside of science. Unlike the Bachelor of Science in Chemistry, the B.S./Concentration A degree is not approved by the Committee on Professional Training of the American Chemical Society.

Prerequisites to the major are Chemistry 1110-20-30 or (preferably) 1310-20-30, Mathematics 1325-35, and Mathematics 1840-50-60. Corequisites to the major are Mathematics 2840-50 and Physics 2510-25, 2310-20. The major requires Chemistry 2140, 2149, 2311-21-31, 3216-29-39, 3410-20-30, 3429, either 4210-19 or 4220-29, 4811-21-31, and 6 hours of additional upper-division work in chemistry (no more than 4 hours of Chemistry 4710 may be applied to this requirement).

Up to 4 hours of upper-division courses may be applied to the 6-hour requirement: Biochemistry 4110, 4210-20-30, Geology 4610, Chemical Engineering 3610-20, Metallurgical Engineering 4510, Polymer Engineering 4910-20-30-40. Appropriate honors courses may be substituted for the specified courses in the major. Although not required, certain courses are highly recommended for students planning careers as chemists: Mathematics 2860, Computer Science 3150, Chemistry 4310 and 4420, and various offerings by the Department of Chemical, Metallurgical, and Polymer Engineering.

Because professional chemists need a reading knowledge of German, French, and Russian, the B.S./Concentration B is intended for students who have career objectives in fields other than those for which a major in chemistry has direct application such as medicine, dentistry, pharmacy, business, and ecology. This program, supplemented by appropriate courses from other areas, is suitable for students planning careers in these fields. The B.S./Concentration B degree is specifically designed to provide more elective hours for preparing for one of the above-mentioned careers; this course of study is not appropriate for students intending to become professional chemists.

Because of the more flexible requirements in the B.S./Concentration B degree, a student in one of these programs will commonly combine it with a second major in one of the biological sciences.

Prerequisites to the major are Chemistry 1110-20-30 or (preferably) 1310-20-30, Chemistry 1325-35, Mathematics 1840-50 or 1841-51, Mathematics 1860 or 3861 or Computer Science 1510 or 1610. Corequisite to the major is Physics 2210-20-30. The major consists of Chemistry 2140, 2149, 3211-21-31, 3216-29-39, and 10 hours of additional upper-division work in chemistry including at least one of the following courses: Chemistry 4210, 4220, 4310, 4510, 4550. (Up to 6 hours of Biochemistry 4110-20-30 may be applied to the 10-hour requirement.)

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

Placement in Freshman Sequences: The sequences which meet all requirements of a year of general chemistry and which serve as prerequisite for upper-division courses are 1110-20-30 and 1310-20-30; chemistry majors are strongly encouraged to take the latter sequence and are required to elect 1325-35. The 1510-20-30 sequence has more limited applications; it emphasizes organic and biochemistry and may be used as prerequisite only for 2230 and 3810.

It is possible to move from one sequence to another if permission for substitution is obtained. A student who finds a need to complete the 1110 series after having completed 1510 may substitute 1510 for 1110 with approval of the chemistry department and may then take 1120 followed by 1130. However, no single quarter of the 1500 sequence may be substituted for 1120 or 1130. Credit may be received for only one of the courses 1110, 1310, or 1510.

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

Chemistry 1118-28-38 is an honors course designed for the student who has already made considerable progress in science.

Class size may be limited to promote faculty-student interaction. Selection is based on ACT scores, high school chemistry grade, and if necessary, performance on a placement examination to be given during the first class meeting. A student receiving a passing grade below B in 1118 will complete the worker's year taking 1120-20-30 or 1310-20. A student receiving a passing grade of C or D in 1118 will not be eligible for 1130 and must take 1130 or 1330 to get the full 12 hours of credit.

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

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

1118-28-38 Honors: General Chemistry (4,4,4) (See description above), 3 hours and 1 lab. 1118-F; 1128-W; 1138-S.

1310-20-30 General Chemistry (4,4,4) A general chemistry course for chemistry majors. Subject matter similar to Chemistry 1110-20-30. Must be taken in sequence. 3 hours and 1 lab. 1310-F; 1320-W; 1330-S.

1325-35 Chemical Programming (1,1) A course in which the computer is utilized in solving problems encountered in general chemistry. Required of and limited to chemistry majors. 1325-35; 1328 or 1330 for 1325; 1130, 1136, or 1330 or 1335.

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

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

1510-20-30 Introductory General, Organic and Biochemistry (4,4,4) Introductory course with emphasis on topics relating to living systems. 1510—Bonding and molecular structure, gas laws, liquid and solid state, solutions, coordination complexes, octets and bases, oxidation and reduction, kinetics and equilibria. Introduction to organic chemistry, alkanes, unsaturated and aromatic hydrocarbons, 1300-2000 and reactions of various organic functional groups. Introductory bio-
One year of 2000-level physics and Math 1860, 2840-50, or equivalent; coreq: analytical chemistry. 3410-F, 3420-W, 3430-F, S.

4310 Introductory Polymer Chemistry (3) Fundamental concepts leading to an understanding of inorganic chemistry; quantum theory of the atom, principles of molecular structure, and elementary nuclear chemistry. Prereq: 3410-20-30. W.

4320 Intermediate Inorganic Chemistry (3) Application of theoretical concepts to inorganic elements, their chemical states, and their reactions. Prereq: 4220. S.

4510 Organic Qualitative Analysis (3) Identification of compounds and mixtures using advanced instrumental techniques as well as classical chemical approaches. Prereq: 3221-39; 3 labs. (Not open to students who have completed 4610.) F.


4610 Advanced Chemical Experimentation (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 student study using advanced instrumental techniques. Prereq: 3221-39 or 3231-39 or 3430-39. 4220. Students who receive credit for 4510 may not also receive credit for 4510. W.

4840 Chemical Instrumentation (4) Principles of chemical instrumentation; practice in the design and construction of chemical instruments. 2 hours and 2 labs. Prereq: 2140-49.

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

4811-21 Seminar: Senior Seminar (1,1) Discussion by faculty and students of current research and topics from the recent literature which illustrate the role of chemists and the impact of chemistry in confronting present-day issues. (Course content varies each year; e.g., energy, water, medicine and health, warfare, etc.) Oral and written reports required. All chemistry majors are encouraged to attend. Prereq: Senior standing in chemistry.

4815-16-30 Biophysical Chemistry (3,3) Physico-chemical 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; equilibria. 4920—Solution chemistry; electrochemistry; kinetics; nuclear chemistry. 4930—Elementary quantum chemistry; optical and magnetic spectroscopy; light scattering; macromolecular properties. Prereq: 3231-39, Math 1560-50 or equivalent. 4910-F; 4920-W; 4930-S.

4929 Biophysical Chemistry Laboratory (2) Experiments in the physical chemistry of biologically important systems. Coreq. 4920. Not open to students in 3410-20-30-29-39. S.

GRADUATE

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

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

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

Chinese

See Cultural Studies (Asian Studies).

Classics (257)

Professors: H. C. Ruttledge (Head), Ph.D. Ohio State; G. C. Gesell, Ph.D. North Carolina (Chapel Hill).

Associate Professor: J. E. Shelton, Ph.D. Vanderbilt.

Assistant Professors: C. P. Craig, Ph.D. North Carolina (Chapel Hill); S. D. Martin, Ph.D. Michigan; D. W. Tandy, Ph.D. Yale. The Classics major consists of two tracks: Greek and Latin. The Classics major concentrating in Greek may take a minor concentration in Latin. The Classics major concentrating in Latin may take a minor concentration in Greek.

Greek

UNDERGRADUATE

A.B. major concentration in Greek consists of 36 hours distributed as follows: 30 hours of Greek language courses numbered above 2000, and including 6 hours of Classics 4220 (senior seminar): 9 hours
chosen from Classics 2110-20-30, 3310, 3340, 3350, 4101 (maximum of 6 hours with approval of department), History 3121. The student majoring in Classics is strongly encouraged to have as background History 3121 before taking the senior seminar. The student concentrating in Latin is encouraged to begin (or take some advanced work) in Latin.

The Greek minor consists of 24 hours distributed as follows: (a) 18 hours of Greek language courses courses numbered above 2000; (b) 6 hours chosen from Classics 2210-20-30, 3310, 3340, 3350, History 3121. The student minoring in Classics is encouraged to take 3 hours of Classics 4220 (senior seminar).

1210-230 Beginning Greek (3,3,3) Must be taken in sequence. F, W, S.

2610 Intermediate Greek: Grammar Review and Selected Readings (3) F.*

2620 Intermediate Greek: Homer (3) W.*

2630 Homer: Iliad (4)

2640 Intermediate Greek: New Testament (3) Prereq: 2610 or consent of instructor. S.

2650 Readings in Hellenistic Greek (4) Reading and discussion in religious and secular literature of Hellenistic Greek (koine). Prereq: Classics 1210-20-30. May be repeated. Maximum credit 6 hours. (Same as Religious Studies 2650.) A.

3010 Plato (3) A.

3200 Herodotus (3) A.

4020 Aeschylus, Sophocles (3) A.

4040 Aristophanes (3) A.

4050-60-70 Directed Readings in Greek (3.3,3) F., W, S.

Latin UNDERGRADUATE

A B.A. major concentration in Latin consists of 39 hours distributed as follows: 30 hours of Latin language courses numbered above 2000, and including 6 hours of Classics 4220 (senior seminar) 9 hours chosen from Classics 2210-20-30, 3310, 3340, 3350, 4101 (maximum of 6 hours with approval of the department), History 3121. The student majoring in Classics is strongly encouraged to have as background History 3121 before taking the senior seminar. The student concentrating in Latin is encouraged to begin the study of Greek.

The Latin minor consists of 24 hours distributed as follows: a) 18 hours of Latin language courses numbered above 2000; b) 6 hours chosen from Classics 2210-20-30, 3310, 3340, 3350, History 3121. The student minoring in Classics is encouraged to take 3 hours of Classics 4220 (senior seminar). Placement Examination: Students who transfer to UTK from other colleges and students who enter with high school units in Latin should register for the courses in which they would normally be placed on the basis of such credits. During the first week of the quarter a placement test will be given, and students will be advised if a change in registration is indicated by the results.

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


1110-230 Beginning Latin (3,3,3) Must be taken in sequence. 1110-F, W, 1120-W, S; 1130-S.

2511 Intermediate Latin: Grammar Review and Prose Reading (3) For students who have had at least two years of high school Latin, or equivalent. F.

2515 Intermediate Latin: Prose Readings (3) Prereq: Classics 2511 or demonstration of proficiency at that level. W.

2521 Intermediate Latin: Vergil's Aeneid (3) Prereq: Three years of high school Latin (without Vergil) or Classics 2515 (or demonstration of proficiency at that level). S.

3140 Cicero (3) Prereq: 3 or 4 years of high school Latin or 2521. F.

3150 Plutus and Terence (3) Prereq: 3 or 4 years of high school Latin or 2521. S.

3160 Catullus and Horace (3)

1210 Horace, Satires and Epistles (3) A.

1410 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. A.

410 Selected Readings from Latin Literature (3) A.

4230-30 Selected Readings from Latin Literature (3,3) May be repeated for credit. A.

4540 Horace, Odes (3) A.

4350 Tacitus (3) A.

4360 Lucretius (3) A.

4370 Readings in Medieval Latin (3) A.

GRADUATE

Consult the Graduate Catalog for a listing of graduate level courses.

GENERAL COURSES

2210 Early Greek Mythology (3) Comprehensive study of Greek myths with an emphasis on how they reflect the ancient Greek vision of the universe and man's place in it. Original research is a requirement of Greek myths and the concurrent rise of organized religion. The symbolic use in later cultures of Greek mythic figures and events will be a persistent emphasis. In time the course goes from Bronze Age to about 500 B.C.

2220 Greek Mythology in the Classical Period (3) The use of myth in literature, history, religion, philosophy and art of Greece from about 500 B.C. to the death of Alexander the Great, with emphasis on new myths and new uses for old myths that reflect the proud confidence of the Classical Greeks.

2230 Roman Mythology (3) Myths created by the Romans; the gods of the state and the gods of the home. Contribution to Roman culture is considered. Roman perception of man's relationship to divinity. Although the first century B.C. is its temporal focus, the course spans from the first century B.C. to about 500 B.C. and includes the Greek and Roman world with emphasis on development of Roman law by conceptualization of man's relationship to divinity. The evidence from literature, modern paintings, and other arts is examined from the age of Homer to the second century A.D., with emphasis on the fifth century B.C. to about 500 B.C. (Same as Ancient History 3630.)

4101 Foreign Study (1-16) See page 159. E.

4230 Seminar in Classical Studies (3) Intended to conclude the Classics major, the course surveys the major works of the centuries B.C., and 1st century A.D. (Same as Women's Studies 3630.)

4610 Special Topics in Classical Civilization (3) Topics in Latin literature, study, and language. May be repeated to a maximum of three times with department approval. A.

4610 Special Topics in Classical Language (3) Topics in Greek literature, study, and language. May be repeated to a maximum of three times with department approval. A.

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

4620 Latin Literature (3) Development of Latin literature by the jurists; relationship of Roman law to Roman economy, society; relationship of Roman law to American jurisprudence. Case-book format.
For Computer Science majors who have taken at least three computer science courses at UTK, grades in all Computer Science courses from UTK will be averaged. If a course is repeated, all grades received for the course will be counted.

A student must have a Computer Science grade point average (as described above) of 2.50 or better to graduate with a major in Computer Science. If a student's Computer Science average as described above falls below 2.5, the grade will be given without a warning. If after one more quarter's grades have been received the student's computer science average has not risen to 2.5, the student will not be allowed to graduate with a major in Computer Science.

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

The policy applies to all computer science courses taken during or after Winter Quarter, 1982. This policy will be enforced by the Department of Computer Science. This policy will be in place until a present method of recording grades and grade point averages on the student’s permanent academic record maintained in the records office.

Introductory and Service Courses

1410 Introduction to Business Oriented Programming (3) Computer science courses as tools in the business environment with emphasis on learning FORTRAN programming. Not for Computer Science majors. Students may not receive credit for both 1410 and 1510. Intended primarily for students in College of Business Administration.

1510 Introduction to Programming—FORTRAN (3) The computer as a tool of varied uses in modern world; emphasis on basic programming in FORTRAN. Problem-solving process; organization and characteristics of digital computers. Survey of applications of computers in various disciplines. Students may not receive credit for both 1410 and 1510.


2215 Discrete Structures I (3) Introduction to discrete structures useful in computer science. Sets, set logic, Relations, functions. Proof techniques, induction, logic. Graphical representations and algorithms. Prereq: 1620 and Math 1850. (Same as Math 2215.)

2510 Programming Techniques (3) Problem formulation and solution. External devices and direct access input and output. For students who have programming background in a higher level language. Prereq: 1610-20.

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

3025 Computers and Society (3) History of computing and computer systems; capabilities of a computer: applications in artificial intelligence, humanities, social sciences, sciences and engineering; computing in foreign countries; assist design; future advances in computing; careers in computing. Prereq: Consent of instructor. (Same as Sociology 3025.)

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 or coreq: Math 2860. (Same as Math 3150.)

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

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

4310 Statistical Data Processing (3) FORTRAN language for organization and analysis of scientific data. SPSS and SAS programs for standard statistical analyses such as frequency distributions, percentiles, data reduction correlation and regression, analysis of variance. Not for credit for computer science majors. Prereq: Statistics 2100 or equivalent.

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

Intermediate and Advanced Courses

3155 Introduction to Numerical Algorithms (3) Roots of equations, systems of linear equations, least-squares data fitting, numerical integration, numerical methods for ordinary differential equations. 3150 and 3155 may not both be taken for credit; students with no knowledge of FORTRAN should take 3150. Prereq: 1510 or 1610 or consent of instructor. Prereq or coreq: Math 2860. (Same as Math 3155.)

3180 Logic Design of Digital Systems (3) Introduction to Boolean algebra and design of combinational circuits. Present gates and flipflop characteristics. Design of clocked sequential circuits and other systems containing memory. Introduction to minicomputer architecture and system components to include basic structure and languages of assembly, statistical analysis, output, and control systems. Instruction set capabilities and machine language programming. Prereq: EE 2000 or equivalent. (Same as Elec. Eng. 3180.)

3215 Discrete Structures II (3) Continuation of CS/M 2215. Partially ordered sets, lattices, Boolean algebra. Propositional and predicate calculus. Trees and operators on trees, concise and concise-free probability. Prereq: 2215. (Same as Math 3215.)


4235 Numerical Solution to Equations and Numerical Approximations (3) (Same as Math 4225.)

4235 Numerical Methods for Ordinary Differential Equations (3) (Same as Math 4235.)

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

4470 Programming Languages (4) Comparison and analysis of programming languages, design, fea-
Approved Area Courses

Anthropology 3530 Peoples and Cultures of Africa (3)

Anthropology 3930 Biology of the Races of Man (3)

Art 2725 Black Art (4)

CFS 4310 The Afro-American Family (3)

English 2540 The Literature of Black America (4)

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

Geography 3830 Geography of Africa (3)

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

History 2950 Introduction to Afro-American History (3)

Music 3350 Introduction to Afro-American Music (4)

Music 4270 Evolution of Jazz (3)

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

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

Psychology 4880 Afro-American Psychology (4)

Religious Studies 3560 Black Religion in America (4)

Religious Studies 3585 Religion and Racism in America (4)

Religious Studies 3580 Black Religion in America (4)

Sociology 3330 Race, Class, and Power (4)

Sociology 3340 Sociology of Poverty and Inequality (4)

Sociology 4820 American Minority Ethnic Groups (4)

Recommendations for the concentration and minor:

(a) Those with a concentration in Afro-American Studies are encouraged to take a second major, with which an individually designed program in Afro-American Studies can be correlated.

(b) Students should seek academic advising from the Chairperson of Afro-American Studies program for courses for the concentration or the minor which relate to career plans, preparation for graduate study, and relationship to the second major.

(c) Those with a concentration and a minor are strongly encouraged to combine classroom and experiential learning through a careful selection of courses, e.g., Afro-American Families 4810 and/or Afro-American Studies 4102.

American Studies (145)

The American Studies concentration consists of 40 credit hours from the upper-division courses of American Studies and approved departmental offerings. 20 of the hours must be taken from courses listed within one of the four geographical-cultural areas (Islamic World; South Asia; China; Japan), and no more than 12 of those 20 hours can come from one sub-division. Sub-division A includes: Art, Asian Cultures, Literature, Music, Philosophy, and Religious Studies; Sub-division B includes: Anthropology, Economics, Geography, History, Political Science, and Sociology. Two of the Asian Studies culture courses (Asian Studies 3310-20-30-40) must be taken as part of the concentration. Prerequisite to the concentration is Asian Studies 2510-20. Corequisite to the concentration is competence in a major Asian language of the area of concentration (at the level attained by successful completion of the intermediate level sequence of that language or by demonstration of the equivalent competence.)

The Asian Studies minor consists of Asian Studies 2510-20 and 16 credit hours taken from courses listed within one of the four geographical-cultural areas.

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

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

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

3445 Film and American Culture (3) Examines American film as both works of art and social documents. By placing a range of films in their historical context and analyzing their explicit or implicit cultural values, students explore the relationship between the medium of film and American culture in the twentieth century. (Same as English 3445.)

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

Asian Studies (145)

The Asian Studies concentration consists of 40 credit hours from the upper-division courses of Asian Studies and approved departmental offerings. 20 of the hours must be taken from courses listed within one of the four geographical-cultural areas (Islamic World; South Asia; China; Japan), and no more than 12 of those 20 hours can come from one sub-division. Sub-division A includes: Art, Asian Cultures, Literature, Music, Philosophy, and Religious Studies; Sub-division B includes: Anthropology, Economics, Geography, History, Political Science, and Sociology. Two of the Asian Studies culture courses (Asian Studies 3310-20-30-40) must be taken as part of the concentration. Prerequisite to the concentration is Asian Studies 2510-20. Corequisite to the concentration is competence in a major Asian language of the area of concentration (at the level attained by successful completion of the intermediate level sequence of that language or by demonstration of the equivalent competence.)

The Asian Studies minor consists of Asian Studies 2510-20 and 16 credit hours taken from courses listed within one of the four geographical-cultural areas.

For further information consult the chairperson of the American Studies Committee, Dr. Yen-ping Hsu.

2431-32-33 Elementary Modern Standard Arabic I, II, III (5,5,5) Five class meetings a week and 2 hours of lab exercises per week. Prereq: 2431-32-33 or equivalent or consent of instructor. Must be taken in sequence.

2531-32-33 Intermediate Chinese (5,5,5) Five class meetings a week. Prereq: 2531-32-33 or equivalent or consent of instructor. Must be taken in sequence.

2550-60 Chinese Literature in Translation (4,4) A two-semester introduction to the major genres of Chinese literature. 3550 presents masterpieces of classical prose and poetry (to approx. 1200 A.D.); 3560 concentrates on vernacular fiction and drama literature of dynasties and includes an introduction to twentieth century Chinese literature.

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

3631-32-33 Intermediate Japanese (5,5,5) Five class meetings a week and 2 hours of lab exercises per week. Prereq: 2631-32-33 or equivalent or consent of instructor. Must be taken in sequence.

2650-65 Japanese Literature in English Translation (4,4,4) Survey from origins to modern period of major Islamic literatures, especially Arabic, Persian, and Sanskrit. Must be taken in sequence. Prereq: 2650-65 or equivalent.

3731-32-33 Persian literature, based on chronological development, that presents the masterpieces of classical literature of Iran from the early court and military aristocracies (approx. 400 A.D. to 1300 A.D.), the masterpieces of traditional literature of Japan of the feudal ages (approx. 1300 A.D. to 1900 A.D.), and the masterpieces of modern Japanese literature of the twentieth century.

3760 Islamic Literature in English Translation (4) Survey from origins to modern period of major Islamic literatures, especially Arabic, Persian, and Sanskrit. Must be taken in sequence. Prereq: 2650-65 or equivalent.

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

4000 Common Seminar (4) Interdisciplinary seminar conducted by members of the Asian Studies Committee for faculty students in the concentration. Relationship of Asian values to Western scholarship.

4010-20-30 Readings in Asian Culture (4,4,4) Prereq: American Studies 2510-20 or equivalent. Taped and/or live classes and meetings a week and 2 hours of lab exercises per week. Prereq: 2510-20 or equivalent or consent of instructor. Must be taken in sequence.

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


4434-35 Spoken Lebanon/Palestinian Arabic I, II (4,4) Aural-oral introduction to a central dialect of the Arabic-speaking world. Prereq: Asian Studies 2431-32-33 or consent of instructor.

4531-32-33 Advanced intermediate Chinese, II, III (4,4,4) Prereq: 2531-32-33 or equivalent or consent of instructor. Must be taken in sequence.

4631-32-33 Advanced Japanese (4,4,4) Class will include conversation, drill, and composition practice with native speaker. Must be taken in sequence. Prereq: 2631-32-33 or equivalent.

Asian Language and Literature

ARABIC (127)

2431-32 Spoken Arabic I, II (4,4)

2431-32-33 Elementary Modern Standard Arabic (4,4,4)
Asian Studies 3531-32-33 Intermediate Modern Standard Arabic (4,4,4)  
Asian Studies 3570 Islamic Literature in English Translation (4)  
4101 Foreign Study (1-16) See page 161.  
4431-32-33 Advanced Modern Standard Arabic I, II, III (4,4,4)  
4434-35 Spoken Lebanese/Palestinian Arabic I, II (4,4)  
5101 Foreign Study (1-12) See page 161.  
5102 Off-Campus Study (1-12) See page 161.  
5103 Independent Study (1-12) See page 161.  
CHINESE(234)  
Asian Studies 2531-32-33 Elementary Chinese I, II, III (5,5,5) Must be taken in sequence.  
Asian Studies 3531-32-33 Intermediate Chinese I, II, III (5,5,5) Prereq: 2531-32-33 or equivalent or consent of instructor. Must be taken in sequence.  
Asian Studies 4531-32-33 Advanced Chinese I, II, III (4,4,4) Prereq: 3531-32 or equivalent or consent of instructor. Must be taken in sequence.  
HEBREW (458)  
Asian Studies 2631-32-33 Elementary Modern Hebrew I, II, III (4,4,4) Taped language program. Must be taken in sequence.  
Asian Studies 3631-32-33 Intermediate Modern Hebrew I, II, III (4,4,4) Taped language program. Prereq: 2631-32-33 or equivalent or consent of instructor. Must be taken in sequence.  
JAPANESE (589)  
Asian Studies 3631-32-33 Intermediate Japanese I, II, III (5,5,5) Prereq: 2631-32-33 or equivalent or consent of instructor. Must be taken in sequence.  
PERSIAN (744)  
Asian Studies 2731-32-33 Elementary Persian I, II, III (4,4,4) Taped language program. Must be taken in sequence.  
Asian Studies 3731-32-33 Intermediate Persian I, II, III (4,4,4) Class will include conversation, drill, and composition practice with native speaker. Must be taken in sequence. Prereq: Asian Studies 2731-32-33 or equivalent.  
SANSKRIT (885)  
4740-50-60 Elementary Sanskrit (4,4,4) (Same as Religious Studies 4940-50-60.)  
4770-80-90 Intermediate Sanskrit (4,4,4) (Same as Religious Studies 4770-80-90.)  
Approved Area Courses  
(a) Art, Asian Cultures, Literature, and Music  
Art 3775 Art of Indian Asia (4)  
Art 3776 Chinese Art (4)  
Art 3777 Japanese Art (4)  
Asian Studies 3310 Indian Culture (4)  
Asian Studies 3320 Chinese Culture (4)  
Asian Studies 3330 Japanese Culture (4)  
Asian Studies 3340 Islamic Culture (4)  
Asian Studies 3550-60 Chinese Literature in Translation (4,4,4)  
Asian Studies 3610 The Literature of India in English Translation (4)  
Asian Studies 3650-55-60 Japanese Literature in English Translation (4,4,4)  
Asian Studies 3670 Islamic Literature in English Translation (4)  
Asian Studies 4010-20-30 Readings in Asian Literature (4,4,4)  
Music 2460 Introduction to Ethnomusicology (3)  
Music 4260 The Political Economy of Asian Development (3)  
Geography 3870 Geography of Asia (4)  
History 3780-90 History of the Middle East (3,3)  
History 3790 Contemporary Middle East (4)  
History 3800 North Africa since 1830 (3)  
History 3810-20-30 History of East Asia (3,3,3)  
History 4791 Modernization of the Middle East (3)  
History 4792 Historical Writers in Islamic History (3)  
History 4811-21 History of Japan (4,4)  
History 4870 Cultural History of China (3)  
History 4880 History of Modern China (3)  
History 4890 History of Contemporary China (3)  
Political Science 3621 Contemporary China and Japan (4,4)  
Political Science 3641 Government and Politics of Middle East and North Africa (4)  
Political Science 3795 Contemporary Middle East (4)  
(c) Anthropology, Philosophy, Religious Studies, and Sociology  
Philosophy 3650 Philosophy and Religion in India (4)  
Philosophy 3660 Buddhist Philosophy and Religion (4)  
Philosophy 3671 Religion and Philosophy in China (4)  
Religious Studies 3650 Philosophy and Religion in India (4)  
Religious Studies 3660 Buddhist Philosophy and Religion (4)  
Religious Studies 3671 Religion and Philosophy in China (4)  
Religious Studies 3672 Religion and Society in Japan (4)  
Religious Studies 3680 Islam (4)  
Religious Studies 3750 Eastern Religions and Western Thought (3)  
Religious Studies 3770 Zen Buddhism (3)  
Religious Studies 4670 Topics in Eastern Religions (4)  
Religious Studies 4960 Tradition, Change and Modernity in Asia (4)  
Sociology 3672 Religion and Society in Japan (4)  
Cinema Studies  
Minor: Consists of English 2690 and Art 2935 plus sixteen additional hours of approved area courses. It is strongly recommended that English 2690 and Art 2935 be taken before selection of electives provided for in the minor.  
For further information consult the chairperson of the Cinema Studies Committee.

Dr. Charles Maland, English Department. Other related courses in such departments as history, philosophy or sociology may be approved through consultation with Dr. Maland and petition.  
Approved Area Courses  
Art 3935 Film Design (4)  
Broadcasting 3870 TV Film News (3)  
Broadcasting 4030-40 Television Production (3,3)  
Comparative Literature 4032 Topics in Film and Literature (3)  
English 3440 Literature and Film (3)  
English 3445 Film and American Culture (3)  
English 4030 Topics in Film Study (3)  
Comparative Literature (260)  
A concentration in comparative literature consists of 39 hours including Comparative Literature 4010, 4012-22-32, 9 hours of literature in a foreign language in courses numbered 3000 and above, and Classics 4510. The remaining 12 hours should include literature courses, either in English or in a foreign language, numbered 3000 and above, from at least two of the following departments: English, Germanic and Slavic Languages, Religious Studies, Romance Languages (certain courses in Philosophy and Speech and Theatre may be substituted with the approval of the chairperson of the Comparative Literature Program). Students concentrating in comparative literature are strongly encouraged to acquire a working knowledge of a second foreign language, especially if they hope to pursue comparative literature on the graduate level.  
A minor in comparative literature consists of 24 hours including Comparative Literature 4010, two courses from Comparative Literature 4012-22-32, 6 hours of literature in a foreign language in courses numbered 3000 and above, and 9 hours of literature courses numbered 3000 and above, either in English or in a foreign language, from at least two of the following departments: Classics (4510), English, Germanic and Slavic Languages, Religious Studies, and Romance Languages (certain courses in Philosophy or Speech and Theatre may be substituted with the approval of the chairperson of the Comparative Literature Program). Minors in comparative literature are strongly encouraged to continue their study of a foreign language beyond the minimum requirement.  
For further information, consult the chairman of the Comparative Literature Committee, Dr. Harry C. Rutledge.  
2010 Introduction to Comparative Literature (4) Basic knowledge, techniques, and sources necessary to compare literatures of various cultures, ages, and nationalities.  
2010 Computer Techniques for Literary Study (3) Introduces students to the growing field of computer research in literary study. Students will learn to write programs in BASIC which have literary research applications. Students will study the specific kinds of literary study for which a computer is a useful tool. Projects include the following: indexing and bibliography, concordances, syntactic analysis, content analysis, authorship attribution, textual editing, and stylistic analysis. No previous computer knowledge or background is assumed or required.  
3236-37 Special Themes in Literature (3,3) (Same as English 3236-37.)
Approved Area Courses

Classics 2210-20-30 Greek and Roman Mythology (3,3,3)
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 Folktore (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 4049 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 4610 Masterpieces of French Literature in English Translation (3)
Romance Languages 4620 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 4040-60-70 Dante and Medieval Culture (3,3,3)

Ancient Mediterranean Civilizations

The concentration in Ancient Mediterranean Civilizations consists of Classics 3810, Classics 3820, Religious Studies 2611, and 28 additional hours from the following list, distributed in such a way that no more than 20 hours are in any one of the three divisions:

(a) Ancient Near Eastern Cultures: History 3751, 3752; Religious Studies 3110, 3120, 4210.
(b) Greek Culture: Classics 2210, 2220, 3310, 2320, 3340, 3350, 4010, 4220 (where applicable), 4320 (where applicable); History 3760; Philosophy 3111, 4410, 4420; Political Science 3801.
(c) Roman Culture: Classics 2230, 2330, 3340, 4220 (where applicable), 4510; History 3770; Religious Studies 3311-12, 3330, 4310, 4640. Courses of variable content, topics courses, reading and research, off-campus, or foreign study in the Departments of Art, Classics, History, Philosophy, or Religious Studies can be applied to the three divisions as appropriate.

Students are encouraged to satisfy the Foreign Language requirement with Greek, Latin, or Hebrew.

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

Latin American Studies (600)

Concentration consists of 36 hours including Spanish 3110-20-30 or Portuguese 3510-20, History 3870-80, Political Science 3625-26, and Geography 3800 or 3790 and 9-10 additional 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, or Senior Seminar 4970.

Two years of Spanish or Portuguese or a practical working knowledge acquired independently are a prerequisite.

Minor: Consists of 24 quarter hours selected (Same as Romance Languages 3310-20-30, History 3870-80-90, Political Science 3625-26, Spanish 3310-20-30 or Portuguese 3510-20, and the Latin American studies sequence 2510-20 or Independent Research 4010.

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

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

2910-20-30 Spanish and Spanish-American Literature in English Translation (3,3,3) Masterpieces of classical Spanish literature: Cervantes, realism and the picaresque novel, religious mystics, Golden Age Theatre. 2920—Masterpieces of 20th-century Spanish literature: Unamuno, Lorca, Baroja, Omega. 2930—Contemporary Spanish American fiction: Marquez, Borges, Fuentes, Asturias. No change in credit hours after add deadline. Option of 4 hrs. credit must present an appropriate amount of extra work above that required for 3 hrs. (Same as Romance Languages Spanish 2910-20-30.)

3310-20-30 Aspects of Spanish-American Literature (3,3,3) Study (not usually chronological) of various periods of the literature; emphasis upon the genres (poetry, novel, drama) varies. May be taken in place of 3110-20-30 or 3610-30. Prereq: 2130, 2520 or equivalent (Same as Romance Languages Spanish 3310-20-30.)

3510-20 Aspects of Portuguese Literature (4,4) Prereq: 2520 or equivalent. Recommended for literature majors. (Same as Romance Languages Portuguese 3510-20.)

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 ethnographic techniques and post-conquest changes in Indian cultures. Emphasis upon analysis of rural small communities using modern ethnographic survey as source materials. Recommended prerequisite: 2530. (Same as Anthropological Research 2530.)

3625-28 Latin American Governments and Politics (4,4) (Same as Political Science 3625-28.)

3790 Geography of Middle America (4) Covers Mexico, Central America, and the West Indies. (Same as History 3790; Philosophy 3111, 4410, 4420; Political Science 3801. This course will be offered in the fall only.)

3800 Geography of South America (4) Not open to students who have taken 3760, 3770, or 3780. (Same as Geography 3800.)

3870-80 History of Latin America (3,3) 3870—Exploration, conquest, settlement, and colonial life to 1880. 3880—Major countries of Latin America, 1880—present. (Same as History 3870-80.)

Latin American Civilizations (3,3) Study (not usually chronological) of various periods of the literature; emphasis upon the genres (poetry, novel, drama) varies. May be taken in place of 3110-20-30 or 3610-30. Prereq: 2130, 2520, or equivalent. (Same as Romance Languages Spanish 4420-30.)

4461 Quantitative Analysis of Language (3) (Same as English 4461.)

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, or economic integration. (Same as Political Science 4727.)

4810-20-30 Topical Survey of Spanish American Literature (3,3,3) 4810—Prose fiction: major examples from the short story and novel. 4820—Poetry: landmark figures of past and present. 4830—Drama and essay. The modern period. (Same as Romance Languages 4810-20-30.)

4840 History of Mexico (3) (Same as History 4840.)

4850 History of the Caribbean (3) Regional history from discovery and colonization to contemporary times. (Same as History 4850.)

4970 Latin American Studies Seminar (2-4) Selected topics in Latin American studies. May repeated. Maximum 8 credit hours.

Linguistics (623)

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

Corequisites

(a) A 3000-level sequence or its equivalent of a foreign language. (The following languages offer sequences appropriate for this requirement: French, German, Italian, Portuguese, Russian, and Spanish.)

(b) Two quarters of an Indo-European
4260 Introduction to Historical and Comparative Linguistics (3) (Same as French, German, Russian, and Spanish 4260.)
4270 Introduction to Romance Linguistics (3) (Same as French and Spanish 4270.)
4271 Introduction to Slavic Linguistics (3) (Same as Russian 4271.)
4440 Sociolinguistics (3) (Same as English 4440.)
4460 Special Topics in English Linguistics (3) (Same as English 4460.)
4461 Quantitative Analysis of Language (3) (Same as English 4461.)
4471-81 English as a Second or Foreign Language (3,3) (Same as English 4471-81.)

Medieval Studies (674)
A concentration in Medieval Studies focuses upon culture and society from the collapse of the Roman Empire to the 16th century. Such a concentration offers the opportunity to deepen one's self-awareness and broaden one's view of the range of human possibilities by studying a very different human past—one that 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 26 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 or emphasize a single area of interest, such as the arts or history. Each student's program, major or minor, must be approved in advance by the Medieval Studies Coordinating Committee, chairperson Dr. Paul Barrette.

Latin is the most appropriate language for students in the Medieval Studies concentration 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 religious studies, art and architecture, language and literature, social and political history.
2601 Literature of the Dark Ages (5th-10th Centuries) (3-4) Critical analysis and interpretation of selected classical works from the medieval period. Focuses on texts representing the major genres of the early Middle Ages (e.g., religious, meteorological, lyric, episcopal, biographical). Readings include St. Gregory's Life of St. Benedict, Augustine's Confessions, the life of Charlemagne, etc. Students registering for four credit hours will be assigned additional work to satisfy the fourth credit hours.
2602 Literature of the Later Middle Ages (3-4) Critical
Italian 4000-60-70 Dante and Medieval Culture (3,3,3) (readings in English or Italian)
Italian 4330 History of Italian Language (3) (readings in Italian)

Category #3 The Arts
Architecture 4130 Seminar in Medieval Architecture (4)
Art 3704 History of Medieval Art (4)
Art 3705 Northern European Painting, 1350-1600 (4)
Art 3715 Early Italian Renaissance Art, 1300-1500 (4)
Music 4200 Independent Study in Music History and Literature (1-3) (when subject is part of medieval culture and society)
Music 4230 The Mass to 1600 (3)
Music 4230 Gregorian Chant (3)
Theatre 2325 History of the Theatre (4)

Russian and East European Studies (887)
Prerequisites to the major are the completion of Russian 2110-20-30 and Russian 3710-20. The major consists of 42 hours distributed as follows: Geography 3880; six hours from History 3470-80-90; Philosophy 3550; Political Science 3531 and four additional hours from Political Science 3632, 3796, 4815, and 5370; Russian 3110-20-30; Russian 4010 (Selected Topics in Russian and East European Studies); and any eight additional hours in courses numbered 3000 or above from the list 'Approved Area Courses' which can be obtained from the chairperson of the Russian and East European Studies Committee, Dr. Donald Fire.

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

Urban Studies (985)
A concentration in urban studies consists of 40 quarter hours, including Urban Studies 2500 and 3000, at least 4 hours of Urban Studies 4000, and 28 hours from the urban studies curriculum provided below. The urban studies minor consists of 24 quarter hours, including Urban Studies 2500 and 3000 plus 16 hours from the urban studies curriculum provided below. For further information consult the chairperson of the Urban Studies Committee, Dr. Samuel E. Wallace.

2000 Human-Environment Systems (4) (Same as Interior Design 2000)
2500 Interdisciplinary Urban Studies (4) Fundamental perspectives of various disciplines toward the city, urbanism as a way of life, and urbanization as an ongoing process. Stresses the multidimensional nature of urban studies.
3000 Selected Topics in Urban Studies (4) May be repeated with consent of the committee. Maximum credit 12 hours.
3420 Urban Problems (4) (Same as Sociology 3420)
3760 The Urban Polity (4) (Same as Political Science 3760)
3760 Urban Policy Process (4) (Same as Political Science 3760)
3800 Introduction to Real Estate (3) (Same as Business Administration 3800)
4000 Directed Field Work (1-16) Participant observation and other directed field research in selected sites and organizations. May be done in a concentrated manner, such as a summer, or over the course of an academic year. Minimum of four credits required for a concentration in urban studies. May be repeated. Maximum credit 18 hours.
4100 Survey of Planning (3) (Same as Planning 4100)
4330 Urban Ecology (4) (Same as Sociology 4330)
4440 Urban Anthropology (3) (Same as Anthropology 4440)
4510 Passenger Transportation (3) (Same as Transportation 4510)
4670 Cities and Urbanization in American History (4) (Same as History 4670)
4830 Problems of Urban Development (3) (Same as Finance 4830)

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

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

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

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

Planning:
4100 Survey of Planning (3)

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

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

Women's Studies (944)
The Cultural Studies major with a concentration in Women's Studies has eight hours of prerequisites: one of the Images of Women in Literature courses (either 2010 or 2015) and Women in Society (2020). A total of 36 upper-division hours are required: The Emergence of the Modern American Woman (3010), at least three hours of independent study (4103), and at least one course from each of the three major areas: Women's Heritage (3240, 3430, 3830, 4280, 4290, 4560, 4830); Contemporary Issues (3150, 3435, 4110, 4430, 4870); and Literature and the Arts (3095, 3310, 3311). As its content varies, 4000 may be included in any of these areas. Students are encouraged to take at least 12 hours in one of the three areas. The Women's Studies minor consists of one of the Images of Women in Literature courses (either 2010 or 2015), Women in Society (2020), and an additional 18 hours of upper-division Women's Studies courses.
For further information contact the chairperson of the Women's Studies Committee, Dr. Marther Lee Osborne, at the Women's Studies Office, 2012 Lake Avenue, 974-2409, or in the Philosophy Department, 807 McChung Tower, 974-7212 or 974-3255.


2015 Images of Women in Literature: Fiction, Poetry, Drama (4) An introduction to the study of women through the roles and stereotypes portrayed in a variety of literary genres (fiction, poetry, and drama), including from diverse historical periods and cultures.

2020 Women in Society (4) An examination of the role played by women in various societies during different historical periods, a study of the factors which have limited women's participation in society, and an assessment of social scientists' assumptions about women.

2120 Sex Roles and Marriages (3) (Same as Child and Family Studies 2120)

3010 Emergence of the Modern American Woman (3) An examination of the role of women in the development of American civilization and values. Major topics include women's legal and political status, the emergence and development of feminism, women and the creative arts, and women's roles in industrial and post-industrial American society.

3095 Women in Music (3) (Same as Music 3095)
3150 Gender in Society (4) (Same as Sociology 3150)
3240 Women in French Culture (4) (Same as French 3240)
3310 Women Writers in England and America (3) (Same as English 3310)
3311 Women in American Literature (3) (Same as English 3311)
3430 The Concept of Woman (4) (Same as Philosophy 3430)
3435 Philosophy of Feminism (4) (Same as Philosophy 3435)
3830 Women in the Greek and Roman World (3) (Same as Classics 3830)
4000 Topics in Women's Studies (4) Content varies. May be repeated.
4103 Independent Study (1-16) Registration by consent of the Women's Studies Committee Chair.
4110 Psychology of Sex Role Development (3) (Same as Psychology 4115 and Educational Counseling and Psychology 4110)
4280 Women in European History (4) (Same as History 4280)
4290 Women in American History (4) (Same as History 4290)
4430 Women's Health (3) (Same as Health 4430)
4560 Rhetoric of the Women's Rights Movement (4) (Same as Speech 4560)
4830 Afro-American Women in American Society (4) (Same as Afro-American Studies 4830)
4870 Contemporary Research in the Behavior of Women (4) (Same as Psychology 4870)

Cultural Studies (270)
1000 Selected Topics (2-4) May be repeated. Maximum credit 12 hours.
4000 Selected Interdisciplinary Cultural Topics (1-12) Acceptable for credit in any cultural studies course.
The graduate program in ecology offers Master of Science and Doctor of Philosophy degrees. This interdepartmental program provides advanced courses in contemporary ecology for students from undergraduate programs in basic and applied biology, agriculture, social sciences, mathematics, and engineering. Research opportunities in both fundamental and applied ecology are intended to prepare students for academic careers as well as professional positions in industry or government. The Environmental Sciences Division of the Oak Ridge National Laboratory, the Tennessee Valley Authority, and the National Park Service provide advisors and research facilities. The Great Smoky Mountains, Cumberland Plateau, valley and ridge topography, TVA lakes, and wild rivers provide locally a spectrum of natural habitats and consequent biological diversity which is truly unique. In addition, faculty research programs provide opportunities for student research elsewhere on this continent and abroad.

GRADUATE

Consult the Graduate Catalog for listing of graduate level courses.

ECONOMICS (283)

See faculty list, page 82.

UNDERGRADUATE

The program in economics combines a broad liberal education with the rigorous study of current issues of the day such as employment, inflation, poverty, wealth, and the benefits and costs of economic growth. Courses offered in the Department of Economics of the College of Business Administration provide opportunity for a major or minor in economics in the College of Liberal Arts. See page 82 for description of the courses available.

Requirements for a B.A. major in economics consist of: (1) Economics 2510, 2520, or equivalent honors courses; and (2) a minimum of 33 additional hours in upper-division economics courses. Economics 3110 (3111 and 3112) and 3120 are required as part of the upper-division work and should be taken as early in the upper-division program as possible. A minor consists of (1) Economics 2510, 2520; and (2) 15 additional hours in economics at the upper-division level. Minors are encouraged to include Economics 3110 and 3120.

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

GRADUATE

See page 81 in the College of Business Administration. The department offers the following baccalaureate degrees: A.M. and Ph.D. Also the MBA degree with a concentration in economics is offered.
specific course descriptions below and departmental advisors.

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

Concentration in Literature: Thirteen English courses at the 3000-4000 level including:

(1) English 3042;
(2) at least five courses in periods or major figures before 1900, including at least three before 1800;
(3) at least two courses concerned with approaches other than literary, such as literary forms or modes, theories of criticism, or other unifying approaches or ideas;
(4) a total of three courses in writing or the English language may be counted towards the literature concentration but may not be substituted for requirements 1, 2, or 3 above.

Concentration in Creative Writing: Thirteen English courses at the 3000-4000 level including

(1) a two-course sequence in expository, creative, or technical writing;
(2) four other courses in creative writing at either the 3000 or 4000 level;
(3) four courses in literature;
(4) three additional English courses selected in consultation with the advisor.

Concentration in the English Language: Twelve English courses at the 3000-4000 level including:

(1) English 3330, English 3331;
(2) four courses in linguistics and the English language selected from among those offered by the English department and, with English advisor approval, one of the following: Anthropology 3420, Psychology 4660, or Linguistics 4000;
(3) two additional courses in language, literature, or writing;
(4) four courses in literature.

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

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

Internship in Technical Writing and Editing: A limited number of part-time positions in University offices may be available on a competitive basis for senior English majors who have completed the appropriate writing courses. Details are available through the Director of Undergraduate Studies.

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

Certification for Teaching: Students planning to teach English in the public schools should consult the Certification Clerk, Room 212, Claxton Education Building.
3445 Film and American Culture (3) Examines American film as both works of art and social documents. By placing a range of films in their historical context and analyzing them in terms of explicit cultural values, students explore the relationship between the medium of film and American culture in the twentieth century. (Same as American Studies 3445.)

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

3470 Writing Poetry (3) Introduction to writing poetry.

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

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

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

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.)

3721 Introduction to Folklore (3) Essential terms and concepts in modern folklore-studies literature. Emphasis on North American material: folklore, folktale, myth, legend, proverb, riddles, superstitions, dance, games, and architecture.

3740 Advanced Writing (3) Strategies of writing on personal and academic subjects. Discussion of student and professional writing. Conferences on individual student's goals and problems. Open to sophomores with instructor's consent. F, W, S.

3850 Persuasive Writing (3) Exploration of persuasive techniques through essays written by students and professionals. Examination of strategic rhetorical stances and effective logical and emotional appeals. Conferences on individual student's goals and problems. Open to sophomores with consent of instructor.

3860 Special Topics in Writing (3) Original writing integrated with reading, usually taught by professional author. Topics vary. May be repeated. Maximum credit 9 hours.

3870 Writing the Screenplay and the Television Play (3) Advanced, specialized course in dramatic writing. Completion of English 3450-60-70 is desirable, but students with active interest in the medium are invited to seek consent to enroll.

3910 Comparative Literature (3) 3910—Ancient, 3920—Medieval and Renaissance, 3930—Modern.

3920 Comparative European Literature (3) Selected medieval and Renaissance masterpieces, in translation, by such authors as Dante, Machiavelli, and their influence on English literature. English 3910 is not a prerequisite.

3930 Comparative European Literature (3) Selected masterpieces of Continental literature, in translation, and British literature from the Enlightenment to the present, with emphasis on the interdependence of national literatures and ideas. English 3910, 3920 are not prerequisites.

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 Henry IV, Twelfth Night, and Hamlet. 4020—Later plays, 1601-1613, with emphasis upon tragedies and dramatic romances.

4042-43 Topics in Mode and Genre (3,3) Content varies. Special topics in principal forms and modes of British and American literature, e.g., comedy, tragedy, epic, lyric, satire, etc. May be repeated with consent of department. Maximum credit 6 hours each.

4045 Topics in Literary Theory and Criticism (3) Content varies. Special topics in theoretical approaches to British and American literature. May be repeated with consent of department. Maximum credit 6 hours.

4047 Special Topics in Literature: Major Authors (3) Content varies. Studies in major British and American Writers. May be repeated once with consent of department.

4050-60-70 American Novel (3,3) 4050—From earliest sentimental novels by Cooper, Irving, Cooper, and Kennedy, and major figures to 1875. 4060—Henry James and Mark Twain through early works of Faulkner and Hemingway, 1914-40. 4070—Early themes to present. Emphasis on North American materials: folktale, folktale, myth, legend, proverb, riddles, superstitions, dance, games, and architecture.

4090 Topics in Film Study (3) Content varies. In-depth study of particular director, film genres, national cinema movements, or other topics. May be repeated with consent of department. Maximum credit 6 hours.

4101 Foreign Study (1-16) See page 161.

4102 Off-Campus Study (3-12) See page 161.

4103 Independent Study (1-12) See page 161.

4118-28 Honors: Senior (3,3,3) Admission by consent of department.

4120-30 Foundations of Linguistics Science, Development of Methodology, Contemporary Theory (3) Historical and methodological foundations of linguistics science. Changes in linguistic interest brought about by Saussure's Course and the growing impact of other disciplines on linguistics science. (Same as Linguistics 4120-30.)

4140 Advanced Technical Writing (3) For students planning careers in business, industry, education, and government who need technical writing skills after they graduate. The writing of definitions, process descriptions, sets of instructions, descriptions of mechanisms, recommendation reports, abstracts, proposals, and technical reports. Emphasis on North American materials: folktale, folktale, myth, legend, proverb, riddles, superstitions, dance, games, and architecture.

4150 Professional Writing (3) The writing of articles, theses, and dissertations in which data are marshaled and analyzed. The writing of abstracts, varieties of documentation styles, proper use of visuals, guidelines and procedures for manuscript submission, and the process of editorial review. Prereq: 4140 or consent of instructor.

4160 Technical Editing (3) Primary emphasis is on the techniques and language skills necessary for technical editing. Formats, graphics, layout methods, and mechanics of published productions are also discussed. Prereq: Successful completion of either 4140 or 4150, or permission of instructor.

4250 Advanced Fiction Writing (3) Further development of skills acquired in basic writing fiction course. Prereq: 4350 and consent of instructor.

4254 Writing the Detective and Mystery Story (3) Instruction and writing cover entire crime field—suspense, police procedural, private eye, spy, and adventure fiction. Prereq: 3450-60-70 or consent of instructor.

4256 Writing Science Fiction and Fantasy (3) Survey of general development and basic texts of science fiction, speculative fiction, and fantasy. Exercises in writing science fictions, in accordance with techniques learned in basic fiction writing course.

4270 Advanced Poetry Writing (3) Further development of skills acquired in basic poetry writing course. Prereq: English 3470 or consent of instructor.

4310-30-40 The British Novel (3,3,3) 4310—Defoe to Jane Austen. 4320—Scott to Thackeray. 4330—George Eliot to Galsworthy. 4340—James Joyce to present.

4440 Sociolinguistics (3) The study of language in relation to society. Empirical and theoretical study. Emphasis both on individuals and on large-scale social units such as tribes, nations, and social classes. Prereq: 3330 or Linguistics 2000 or consent of instructor. (Same as Linguistics 4440.)
Associate Professors: L. W. Brinkman, Jr., Ph.D. Wisconsin; J. R. Carter (Associate Professor and Chair); C. W. Minkel, Ph.D. Georgia; B. A. Raison, Ph.D. Northwestern; J. B. Rehder, Ph.D. Louisiana State.

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

UNDERGRADUATE
B.A. Major: A minimum of eight hours at the 1000 or 2000 level is required as an introduction to a major. Geography 3700, 4100, 4210, and 4990 are also required, along with an additional 28 hours selected from courses at the 3000 and 4000 levels. At least one course must be selected from each of groups A, B, C, D, and E below:

a. Physical Geography: 3510, 3520, 3530, 4550;
b. Economic Geography: 3410, 3430, 3490, 4075;
c. Cultural Geography: 3000, 3450, 3560, 3610, 3660, 4240;
d. Regional Geography of the United States: 3101, 3100, 3330, 3490;
e. Regional Geography of Foreign Areas: 3790, 3800, 3830, 3840, 3870, 3880. Students in the 3/2 program are encouraged to take 12 of their 28 upper-division credit hours from Group B. For those pursuing a program leading to professional employment or graduate study in geography, 4210 and/or a senior project under 4103 are strongly recommended.

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

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

1610-20 Introduction to Geography (4,4,4) Selected problems or situations of contemporary interest are studied in depth, illustrating geographical points of view and techniques. Need not be taken in sequence. 1610-E; 1620-W, S.

1810-20-30 Geography of the Natural Environment (4,4,4) Characteristics and processes of earth's surface and lower atmosphere; their interaction to produce weather and climate. Need not be taken in sequence. 1810-F, W; 1820-F, W, S.

1910 Introductory Cultural Geography (4) Basic concepts of cultural patterns and distributions of cultural phenomena including geography of languages, religions, cultural regions, population, settlements, and forms of economy.

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

3000 Man, Location, and Behavior (4) Types of human spatial behavior, such as shopping patterns, commuting, residential behavior, and local movement; implications of spatial behavior.


3430 Urban Geography (4) Concepts and theories concerning development and significance of systems of cities and internal morphology of cities.

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 on energy and metallic resources.

3510 Meteorology (4) Introduction to dynamic atmosphere and resulting weather events. Nature of interchange between earth's surface and atmosphere, and analysis over time and space.

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

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

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

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

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

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

3790 Geography of Middle America (4) Covers Mexico, Central America, and the West Indies. (Same as Latin American Studies 3790.)

3870 Geography of Asia (4) A survey of the physical, cultural, and ethnic characteristics of Asia excluding the Soviet Union. (Same as Afro-American Studies 3830.)

3890 Geography of South America (4) Same as Latin American Studies 3800.

3880 Geography of Africa (4) Survey of major physical, economic, and social characteristics of Africa with particular emphasis on the area to the south of the Sahara. (Same as Afro-American Studies 3830.)

3910 Regional Geography of the United States and Canada (4) Physical, economic, and social distributions as they relate to distinctive characteristics of the countries of the United States and Canada.

3920 Geography of the American South (4) Geographical appraisal of the southern United States, including physical environment and human resources.
### Geographical Sciences

**Professors:**
- K. R. Walker (Head), Ph.D. Yale; H. J. Kipper (Emeritus), Ph.D. Ohio State; O. C. Kopf, Ph.D. Columbia; K. C. Misra, Ph.D. Western Ontario; R. E. McCaughey, Ph.D. Tennessee; L. A. Taylor, Ph.D. Lehigh; J. G. Walls (Emeritus), Ph.D. North Carolina.

**Associate Professors:**

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

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

#### Undergraduate

**B.S. Major:** Prerequisites: Geology 1010, 1020, 1030. Students who have less than one year of high school biology must take Biology 1210, 1220; it is recommended that a student who has had one or more years of high school biology should take any two of the following courses: Biology 1230; Botany 1110, 1120; Zoology 1118, 1128; Biology 3130. Chemists who utilize earth scientists; and (2) those who seek a general knowledge of geography and its relationship to the other sciences, engineering, business, law, and other disciplines.

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

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The requirements set forth below are designed to provide geography majors with a broad base from which qualified students may proceed into advanced study in one or more of the branches of geography or related minor fields. Because a wide range of elective courses is available, it is essential that each student be guided in planning the program by a departmental advisor. A list of advisors is available in the departmental office.
morphic rocks, processes which produce them, and their environments in which they form. Prereq: 3180, 3190, or consent of instructor.

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

3360 Stratigraphy-Sedimentation (4) Introductory study of stratigraphic principles and practices and of sedimentary processes and interpretation of depositional environments. Prereq: 1020 and 3180. 3 hours and 1 lab or field period.

3370 Structural Geology (4) Introductory discussion of structural theory in context such as folds, faults, joints, cleavage, and primary structures. Laboratory work includes depth and thickness problems. Structure sections, structure contour maps, etc. Prereq: 1020, Math 1840-50 or equivalent. 3 hours and 1 lab.

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: 1020. 3 hrs. and 1 lab. Coreq: 3190. 4101 Principles of Economic Geology (4) Ore-forming processes, classification of mineral deposits, survey of different types of mineral deposits with examples. 3 hrs. and 1 lab. Prereq: 3180, 3190, 3310 or equivalents. Recommended: 4610.

4115 Elementary Applied Geophysics (4) Basic principles of electrical, seismic, gravity, and magnetic surveying. Recommended: 1020, Physics 2220 or 2220. 3 lectures and 1 lab.

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

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

4240 Paleobotany (4) Survey of fossil record of plants and particular emphasis on (1) comparative morphology and evolutionary trends in major plant groups and (2) chronological succession and geographic distribution of past flora on earth. Prereq: 1420 or 3215; Botany 3010-20 or consent of instructor. 3 hours and 1 lab or field period. (Same as Botany 4240.)

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

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

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

4307 Introduction to X-Ray Methods (1) An introduction to the generation and Nature of X-Ray as applied to X-Ray Diffraction, X-Ray Fluorescence and Electronic Probe Analysis. Prereq: 3310 or consent of instructor.

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

4320 Introductory Environmental Geology (4) Applications of the geological sciences toward a comprehension of the effects of geologic processes on humans and the effects of human activities on the earth environment. Prereq: 1010-20-30. 3 lectures and one 2 hr. lab or field period.

4330 Regional Geology of the United States (3) Evolution of various geologic provinces within the U.S. with emphasis on the integration of several types of geologic data. Prereq: completion of core courses in the major or equivalent.

4331 Quaternary Geology of North America (4) Quaternary geology, stratigraphy, sedimentology, and geochronology of glaciated and unglaciated North America and oceans. Prereq: 1010 or consent of instructor. Two 2-hour lectures.

4332 Quaternary Paleocology (4) Study of pollen and plant macrofossils of characteristic vegetation and climate change during Quaternary. Prereq: Consent of instructor. Two 2-hour lectures.

4333 Quaternary Field and Lab Techniques (4) Techniques for environmental characterization and reconstructions, including pollen and plant macrofossil identification, description of site stratigraphy, and sedimentology. Prereq: 1010 or consent of instructor. 2 lectures and 2 labs.

4370 Tectonic Styles (4) The tectonic evolution of structures and their associations with metamorphism, plate motions, and stratigraphic assemblages as determined through case study examination of different orogenic belts. 3 lectures and 1 seminar or lab. Prereq: 3370 or consent of instructor.

4440 Field Geology (5) Five weeks' field course, first term summer quarter. Advanced undergraduates or first-year graduate students in geology. Emphasizes entire time of students. Field techniques are demonstrated, practiced and applied to the solution of geologic problems. Prereq: 12 hours of previous hours of geology and consent of instructor.

4501 Principles of Geomorphology (4) Gradational processes acting at earth's surface and landforms produced. Prereq: 1010-20-30. 3 hours and 1 lab.

4520 Process Geomorphology (4) Gradational processes operate on and near the earth's surface, applied geomorphology, and field work in geomorphology. Prereq: 1530 and 4510. 3 hours and 1 lab or field period.

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

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


4710 Petrophysics (3) Fluid, heat, electric current, and ion flow through rock masses in a potential field. Stress-strain behavior of rock as a function of tectonic environments in which they form. Prereq: 3180, 3190, or consent of instructor.

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

GRADUATE
The general requirements for master's and doctoral degree as well as course descriptions are given in the Graduate Catalog.

Germanic and Slavic Languages


Associate Professors: D. M. Fene, Ph.D. Indiana; N. A. Lauckner, Ph.D. Wisconsin; G. E. St. John, Ph.D. Indiana; C. J. Mellor, Ph.D. Chicago; U. C. Ritzenhoff, Ph.D. Connecticut.

Assistant Professor: C. Hodges, Ph.D. Chicago; J. Kolodziej, Ph.D. Indiana.

Instructors: M. H. Harris, M.A. Illinois; A. Rashkovsky, M.A. Tartu.

UNDERGRADUATE
Placement Examination: Students who have had previous work in German or Russian either in high school or in another college should register for the course in which they place. For 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 the limited number of hours in courses. Superior students are encouraged to proceed as rapidly as their achievement permits. Students who omit any course in a sequence may receive credit for it by passing a proficiency examination.

Foreign Study: Students are encouraged to study abroad. The department is prepared to recommend summer study programs and junior year abroad programs for students who are interested in foreign study. Credits from recognized foreign study programs can readily be transferred to UTK. For qualified students, the department also offers German 4101 Foreign Study and Russian 4102 Foreign Study. See page 161. Students should consult the department before registering for the foreign study course.

German B.A. Major: Majors in German should carefully prepare their programs in consultation with a departmental faculty advisor. German 2110-20-30 or its equivalent is a prerequisite to the major. The major shall consist of at least 36 hours of German courses numbered above 3000 (excluding courses in English translation), and usually including German 3110-20-30. It is recommended that German majors also take History 1510-20 or 3710-20-30 and 8 hours of sophomore English. Majors are also strongly urged to consider a minor in some other area of the humanities. German 2110-20-30 or its equivalent is a prerequisite to the minor. The minor shall consist of at least 24 hours of German courses numbered above 3000, which normally include German 3110-20-30 (or 3410-20-30), and 15 additional hours of German courses numbered above 3000, excluding 3010-20-30 and courses in English translation.

Russian B.A. Major: Russian majors should carefully prepare their programs in consultation with a departmental faculty advisor. The
major in Russian shall consist of at least 45 hours of Russian courses, including Russian 3110-20-30: 3610-20-30: 9 hours from Russian 2210-20-30, 2270, 3220, 3221, 3240, 3250, 3260, 3280, 3281, or 3710-20; and 9 hours of courses numbered above 4000. It is recommended that majors also take History 3470/3480-36 hours and 3 hours of any two other courses in the field of the humanities. Majors are urged to consider a minor in some other area of the humanities.

**Minor:** Russian 2110-20-30 is a prerequisite to the minor. The minor itself consists of 2110-20 or 1110-20-30 and 2110-20-30, 2210-20-30, 2270, 3220, 3221, 3240, 3250, 3260, 3280 and 18 hours to be taken from Russian 3110-20-30, 3610-20-30, and courses numbered 4000 and above.

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

Certification for Teaching German and Russian in Tennessee
Consult Certification Clerk, Room 212
Claxon Education Building.

**German (433)**

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

1518-2518-28 Honors: Elementary and Intermediate German (6,6,6) Honors course for students of superior ability. Freshmen are admitted on the basis of high school average and performance on the American College Testing Program. Underclass students must have a B average. A grade of C or above must be received in order to continue with German 2518. A student obtaining a grade of D or better in 1518 may continue with German 1520. This sequence is equivalent to 1510-20 or 1110-20-30 and 2110-20-30 and its completion allows the student to enter all 3000-level German courses. 2110-20-30 Intermediate German (3,3,3) Must be taken in sequence.

2210-20-30 German Literature in English Translation (3,3,3) Survey of German literature from earliest times to the present. No foreign language credit. Writing-emphasis courses. The three-package course fulfills Divisional Requirement in the Humanities, Part 1 (or any two quarters fulfill the two-package requirement of Part 2 for students who choose philosophical perspectives for Part 1.)

3010-20-30 Elements of German for Upper-Division and Graduate Students (3,3,3) 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 students having completed 1510-20 or 1110-20-30.

3300 Elementary Dutch (3) Prereq: Reading knowledge of German. Primarily for graduate students in German. No graduate credit allowed.

3110-20-30 Introduction to German Literature (3,3,3) Prereq: 2130 or equivalent. Need not be taken in sequence.

3150 Readings in German (3,3,3) Selected topics in German literature from the first contact with the Romans to the present. Readings in English. No foreign language credit. A writing-emphasis course. Fullfills Upper Level Distribution Requirement for Foreign Languages. Students or student groups are encouraged to suggest topics for future courses. May be repeated with approval of department. Maximum 6 credit hours.

3610-20-30 Culture of the German-Speaking Peoples (3,3,3) Studies in the culture and life-style of German-speaking peoples from their first contact with the Romans to the present. Readings in English. No foreign language credit. A writing-emphasis course. Fullfills Upper Level Distribution Requirement for Foreign Languages. Students or student groups are encouraged to suggest topics for future courses. May be repeated with approval of department. Minimum 6 credit hours.

3610-20-30 Conversation and Composition (3,3,3) Prereq: 2130 or equivalent.

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**ADVANCED UNDERGRADUATE AND GRADUATE**

4101 Foreign Study (1-16) See page 161.

4102 Off-Campus Study (1-16) See page 161.

4103 Independent Study (1-16) See page 161.

4110-20-30 Studies in Classical and Modern Writers (3,3,3) Prereq: 2130 or equivalent or consent of department. 9 hours of 3000 courses (exclusive of 3010-20-30, or courses in English translation) or equivalent.

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

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

4210-20-30 Studies in German Literary Types (3,3,3) 4210—Lyric poetry. 4220—Drama. 4230—Narrative prose. Prereq: 9 hours of 3000 courses (exclusive of 3010-20-30, 3210-20-30, 3310) or equivalent.

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

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

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

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

4810-20-30 Advanced Conversation and Composition (3,3,3) Prereq: 3810-20-30 or equivalent or consent of department.

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

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

3270 Modern German Novel in English Translation (3) From 1900 to present. Remarque, Hesse, Mann, Kafka, Frisch, Boll, Grass. 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.

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

**GRADUATE**

The Department of Germanic and Slavic Languages offers two advanced degrees. They are Master of Arts (M.A.) in German and Doctor of Philosophy (Ph.D.) in German Languages and Literatures. May be repeated for credit. Requirements for these degrees as well as course descriptions are in the Graduate Catalog.

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**Russian (886)**

1110-20-30 Elementary Russian (4,4,4) Must be taken in sequence.

2110-20-30 Intermediate Russian (4,4,4) Must be taken in sequence.


2270 Russian Philosophical and Theological Thought (3) 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. A writing emphasis course; no knowledge of Russian required.

3110-20-30 Russian Composition and Conversation (3,3,3) Practice in writing and speaking; grammar review and vocabulary building. Prereq: Completion of 2110-20-30.

3610-20-30 Introduction to Russian Literature (3,3,3) 3610—Russian poetry. 3620—Russian short stories. 3630—Russian short novels. Prereq: 2130 or equivalent. Need not be taken in sequence.

**ADVANCED UNDERGRADUATE AND GRADUATE**

4101 Selected Topics in Russian and East Europe (3) Survey of selected topics on selected topics using comparative approach.

4101 Foreign Study (1-16) See page 161.

4103 Independent Study (1-16) See page 161.

4110-20-30 Studies in Major Russian Writers (3,3,3) Content varies. Pushkin, Lermontov, Gogol, Turgenev, Dostoevsky, Gorki. Prereq: 9 hours from 3110-20-30 or 3610-20-30 or equivalent. May be repeated for credit.

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

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

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

4510-20-30 Senior Seminar (3,3,3) A course for majors in Russian; minors admitted at the discretion of the instructor. Intensive and integrated study of language, culture, literary style, and literary criticism based on selected texts.

**GENERAL COURSES**

3220 Works of Leo Tolstoy in English Translation (3-4) War and Peace, Anna Karenina, and other works.

3221 Works of F. M. Dostoevsky in English Translation (3-4) Crime and Punishment, Brothers Karamazov and other works.

3260 Russian Folklore in English Translation (3-4)

3280 Special Topics in Russian Literature in English Translation (3-4) Topics vary and are announced in advance. Student suggestions for topics are welcome. No foreign language credit. May be repeated.

3710-20 Background and Main Currents of Russian Culture (3,3) 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. A writing-emphasis course. Fullfills Upper Level Distribution Requirement for Foreign Culture.

**Greek**

See Classics.
Honors Program: The Department of History offers honors sections of the Western Civilization and United States history survey courses. Students entering freshman year and interested to participate; other interested students may apply. These survey courses are open to non-majors. An honors major requires successful completion of three special courses and the junior seminar. A junior thesis (4018-4028). The honors major consists of 50 hours, including 41 hours as outlined above, plus 3008-38-48. All rising juniors who have completed history courses with a grade of C or better and an overall GPA of at least 3.0 are invited to join the Junior-Senior Honors Program. Students interested in honors work should consult the department's honors coordinator.

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

American Studies. See Cultural Studies.
Asian Studies. See Cultural Studies.
Latin American Studies. See Cultural Studies.
Russian and East European Studies. See Cultural Studies.

1510-20 Development of Western Civilization (4,4)
1510—Ancient World to 1715. 1520—1715 to present.

1518-28 Honors: Development of Western Civilization (4,4)
Consent of department required. 1518—F; 1528—W.

1610-20 A History of World Civilization since 1450
(4,4) Interaction of Western World and non-Western peoples since the 15th century. 1610—ca. 1450. 1620—1800. 1820—1800 to present. 1610—F; 1820—W.

1950-60 Afro-American History: An Introduction (4,4)
Survey of the Afro-American experience to 1890. 1950—Traditional African societies from which Afro-Americans emerged; evolution of prejudice and racism in America; the institution of slavery; free Negroes; Civil War and Reconstruction. 1950—The Afro-American struggle for political, civil, and social equality; leaders of the struggle; their philosophies and programs, responses of Black Americans to their circumstances; the challenges of the 20th Century; the rise of the urban ghettos; the Civil Rights and Black Power movements.

2020 The City in Europe, ca. 1200-1900 (3) Survey of European urban growth, with comparative analysis of major periods of urbanization of 13th and 19th centuries. Emphasis on functional analysis of cities and political and cultural development.

2015 Historical Issues (3) Introduction to broad, thematic issues in historical perspective. A lecture-discussion course in which the content will change from quarter to quarter. Especially suitable for non-majors; also open to majors. May be repeated. Maximum credit 9 hours.

2350 U.S. and World Crisis, 1899 to Present (4) Presenting a comprehensive overview of the major crises and conquests of the 20th century. Intended for non-history majors and may not be used to satisfy history major requirements. Consent of department required.

2510-20 History of the United States (4,4) 2510—Settlement to 1865. 2520—1865 to present. E.

2511-21 Readings in United States History (1,1)
Directed readings in aspects of national past. Only for students who have not yet met Tennessee Legislature requirements in American history, or for transfers who enter liberal arts with credits, but fewer than eight, in an American history sequence. 2511—Settlement to 1865. 2521—1865 to present. Prereq: Consent of department; prereq or coreq: 2510 or 2520. May not be taken as 1 hour elective. Will not be offered during summer sessions. F, W, S.

2515-25 United States History for International Students (4-5) 2515-Settlement to 1865. 2525—1865 to present. F, W.

2518-28 Honors: History of the United States (4,4)
Consent of department required. 2518—F; 2528—W.

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

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

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

3050 The West and the Third World Since 1870 (3) Examination of the relationships between the West and Africa, Asia, and Latin America since 1870 across a broad spectrum of critical issues. Includes economic interdependence and underdevelopment, ideologies in conflict with non-Western world views, and the search for individual identity in circumstances of cultural disruption.

3051 Revolutions in Historical Perspective (3) Comparative history of major revolutions which have formed political, social, and economic structures and values, such as those in France, Russia, China, Mexico, and Iran. Contrasts and common patterns in their causes, phases, and outcomes. Relations between leaders and masses. Major theories of revolution.

3060-70-80 History of Western Religious Thought and Institutions (3,3,3) Game as Religious Studies 3060-70-80.)

3121 Ancient History to 500 A.D. (3) The cultural foundation of western civilization. Considers such topics as the rise of the Greek poleis, classical Greek culture and philosophy, Alexander the Great and the Hellenistic era, the rise and fall of the Roman Empire, the origins of Judaism and Christianity.

3122 Medieval Europe, 500-1500 (3) The emergence of a distinctive western European civilization from classical, Christian, and Germanic roots. Considers such topics as the barbarian migrations, feudalism, state-making in England and France, the social and spiritual power of the church, the rise of cities, the Black Death and earlier plagues, the development of the early universities, the rise of the middle class and the masses, major theories of revolution.

3123 Early Modern Europe, 1450-1750 (3) The transition from medieval to modern society. Considers such topics as the Renaissance, Reformation, religious wars and the civil wars, the spread of European contacts with the non-European world, population fluctuation, preindustrial economic growth, the rise of modern states, the Scientific Revolution, witchcraft.

3124 Modern Europe, 1750-1900 (3) The political, industrial and intellectual revolutions against traditions. Considers such topics as the modern population explosion, urbanization, the political emergence of the middle class and the masses, nationalism, imperialism, rationalism and Romanticism in social thought and politics.

3125 Contemporary Europe, 1900-1950 (3) The transformation from industrial to post-industrial society and the decline of the European nation-state. Considers such topics as war and depression and consequent political and social instability; the Russian Revolution; Nazism, decolonization; the impact of Freud and Einstein; welfare states; European reconstruction.

3140-59-60 History of England (3,3,3) 3140—To 1660. 3150—1660 to 1832 through Reform Bill of 1832. 3160—1832 to present. Medieval state, church, and society; origins of Anglo-American law, the monarchy and parliamentary government, the Reformation, 17th Century revolutions, commercial, agricultural and industrial revolutions; class conflict, empire, the welfare state, world wars, economic crisis.
3201 American Issues: Individualism and Community (3) Emphasis on the evolution the dual tendency among Americans to express abhorrence of war and imperial conquests and, at the same time, to engage in wars and colonial enterprises to gain political dominion over other peoples. Topics include the relationship between leaders and followers, patterns of dissent, motivations, and structures of political authority.

3210 History of Sports in United States (3) Analysis of development of sports and their significance in American life from colonial period to present. Emphasis on social, economic, cultural, and political impact of both spectator and participatory sports in 20th century.

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

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

3411 The Renaissance (3) (Same as Religious Studies 3411.)

3412 The Reformation (3) The Reformation, Counter Reformation, and Wars of Religion. (Same as Religious Studies 3412.)

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

3431-32 Nineteenth Century Europe (3,3) 3431- French and industrial revolution to 1848. The milieu of ferment for conflictting economic, social and political ideas, culminating in a mass revolutionary movement. 3432- Maturity and Challenges (1848-1890). Industrial and capitalist maturity in an era of intense national rivalry; triumph of the bourgeoisie, the intellectual climate of realism, socialism, and materialism.

3445-46 History of France (4,4) 3445- Emergence of Modern France (1715-1789). Social, intellectual and economic changes in the Ancien Regime; era of experimentation as revolutionary and traditional France confront one another. 3446- Since 1871.

3470-80 History of Russia (3,3,3) 3470-18th century. 3480-19th century. 3490-20th century.

3610-20 History of Latin America (3,3,3) Emphasis on major themes rather than chronological coverage of the years 1500-1879. Changing historical interpretations of European colonialization, political economy, race and politics, the causes, character, and consequences of the American Revolution; and the nature of the Federal Constitution of 1787.


3680 Indian-White Relations in United States History (3,3,3) Emphasis on Indian groups and questions existing side by side: background and formulation of official Indian policy; understanding of policies by frontier circumstances; Indian wars and campaigns; and present-day relationships. Not for graduate credit.

3710-20 History of Germany (3,3,3) 3710- Germany to 1700. The First Reich's fortune and fall. The development of the German Imperial state from medieval greatness to baroque age weakness, disastrous dynastic and religious struggles, rise of powerful princes, economic and cultural decline, and decline. 3720- Germany 1700-1750: The Quest for Nationhood. The Austrian-Prussian rivalry in the closing stages of the Ancien Regime and the drive toward modern statehood; the French Revolution and Napoleon; the effects of absolutism, the Enlightenment, romantism, revolution, reaction, and industrial economies.

3730-70 The Ancient World (3,3,3) 3730- Greece. 3760- Rome. 3770-90 History of the Middle East (3,3,3) Rise and spread of Islamic civilization to the 16th century. 3790-16th-17th century in the Middle East from the 16th century to World War I.

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

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


3870-80 History of Latin America (3,3,3) 3870- Colonial and Independence, 1530-1825. 3880- National Development, 1825 to present. (Same as Latin American Studies 3870-90.)


3921 The United States, 1914-1945 (4) American experience during World War I, the Great Depression, The New Deal, and World War II. Emphasizes domestic history but includes military and foreign policy.

3931 The United States History, 1945 to the Present (3) Demobilization and Cold War after World War II followed by wars in Korea and Vietnam: attempts to find labor peace, national prosperity, and full equality for minorities. From Truman's administration to the present.

3950 African History to 1940 (3) Focuses on the ethnic groups of the southern and western regions of sub-Saharan Africa and the conflict and change occurring there from the era of the slave trade through the period of European colonial rule. (Same as Afro-American Studies 3950)

3961 African History Since 1940 (3) Examines the dynamics of African independence: the achievement of independence by west African nations and the failure of Africans in the south to achieve that goal. Also includes issues of urbanization, industrialization, and formation of a national identity within the twentieth century African context. (Same as Afro-American Studies 3961)

4000 Reflections on History (3) Comprehensive approach to the study of history, focusing on the implications and "uses" of history. Emphasis on such topics as values and history, the interaction of historians and their times, the grand models of history, and the relationships between the study of history and patterns of modern thought and behavior. Recommended for seniors. History 3001-XX: Junior Honors) may substitute for History 400 to fulfill the Capstone Experience requirements. Recommended but not required that History 4000 and 4010 be taken in sequence.

4010 Colloquium in History (3) Examination of a historical theme or problem; emphasis on questions and skills. Special reference to historical writing, including critical analysis of both primary and secondary sources. Recommended for seniors. Recommended but not required that History 4000 and 4010 be taken in sequence.

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

4018-28 Honors: Senior Paper (9-6) Required of students working for honors in history.

4040 History Behind the News (4) The contemporary analysis and the historical background of selected newsworthy events in North and South America, Europe, and the non-Western world as students develop a fuller understanding of their significance. May satisfy history major requirements (except those of geographical distribution). Non-majors may repeat once for credit.

4101 Foreign Study (1-16) See page 161.

4102 Off-Campus Study (1-16) See page 161.

4103 Independent Study (1-16) See page 161.

4130 History of Colonialism and Imperialism (3,3) 19th century to the present.

4250-60-70 European Intellectual and Cultural History (3,3,3) 4250- From Reformation to Scientific Revolution (1500-1700). 4260- From Enlightenment to Age of Reason (1700-1870). 4270- From Subjectivism to Relativism (1870-present).

4280 Women in European History (4) Comparative analysis of role and image of women in Medieval, Renaissance, and Reformation in Europe. Emphasis on individuals, their thoughts and actions, given to parallel changes in structure of family as well as relationships between Western culture and women's protest movements. (Same as Women's Studies 4280.)

4290 Women in American History (4) Approaches of History applied to American society. (Same as Women's Studies 4290.)

4292 History and Philosophy of Afro-American Education (4) (Same as Afro-American Studies 4292 and Educ. C & 4292.)


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

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

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

4410-20-30 Europe in the Twentieth Century (3,3,3) 4410-1919 to 1919. 4420-1919 to 1939. 4430-1939 to present.

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

4480 Russian Intellectual History (3) Russian intellectual history from 18th century to present, emphasizing problems of Westernization, nationalism, and revolutionary tradition.

4490 Soviet Foreign Policy (3)

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

4510-20 Tudor-Stuart England (3,3) 4510- Emphasis on such topics as the Renaissance and Reformation in England and the persons and events such as Thomas More, Elizabeth I, and Mary, Queen of Scots. 4520—
Human Services/College of Liberal Arts

Human Services (532)

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

Graduates of the program are employed in a wide variety of settings, including child and family service agencies, community centers, school systems, mental health centers, hospitals, court systems, family planning clinics, extended care facilities, and state human service departments. Many of our graduates enter the professions. The program is approved by the Council for Standards in Human Service Education (CSHSE).

The curriculum of the program includes required courses, elective courses, advising, and supervised experiences in two human service agencies or organizations. A B.A. major in human services may be obtained by completing the following: H.S. 2690, 3100, 3300, 3900, 4220, 4221, 4400, 4401, and one course from each of the four lists of courses:

1. Psychology 3650 (4)
2. Political Science 3565 (4), Political Science 3566 (4), or Sociology 4560 (4).
3. Psychology 3120 (4) or Sociology 3130.

Total Credit Hours

| 55-56 |

2690 Introduction to Human Services (4)

3200 Peoples and Problems of Appalachia (4)

3300 Thinking about People (4)

3900 Information Assessment and Interpretation (4)

The knowledge and skills of information gathering and assessment for human services are examined in depth in relation to human services practice. Emphasis is placed on formulating questions, identifying relevant data, using related resources, interpreting information and applying this information in a practical setting. F, S.

4101 Foreign Study (1-16) See page 161.

4102 Off-Campus Study (1-16) Application filed no earlier than third week of the quarter prior to the quarter of enrollment. For additional information, see page 161.

Human Services

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

Associate Professor: P. A. McClam, Ph.D. South Carolina: M. R. Woodside, Ed.D. VPI & B.U.

Assistant Professors: T. McClam, Ph.D. South Carolina; J. D. McLean, Ph.D. Chicago.

Emphasis on such topics as Puritanism, the English Civil War, the Restoration, the Glorious Revolution and the Scottish Revolution, and on such figures as the Stuart kings, Oliver Cromwell, Milton, Hobbes, and Locke.

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

4570 Twentieth-Century Britain (3) The emergence of the Welfare State, the political impact of the Labour movement, World War and Depression, chronic economic crisis, the persistence of class.

4610-20-30 The American Frontier and Westward Movement I, II, III (3.3.3) Settlement and development of the "frontier" throughout American history. 4910- From the Atlantic to the Mississippi. 4920-30-The Trans-Mississippi West.

4641-51 America: Mind, Mood and Society (3.3) Surveys social and cultural history and thought from mythology behind colonization to the major beliefs and values which form the foundation of present-day life in the United States. 4641-Colonial period to 1695. 4651-1695 to present.

4661 Studies in American Social and Cultural History and Thought (3) An intensive examination of specific themes, problems, or ideas.

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. (Same as Urban Studies 4670).

4680 History of Knoxville (3) Knoxville, Tennessee as a historical case study to analyze the interplay of tradition and change in urban America in general and urban South in particular. Economic growth and development, population changes, and political, social, and cultural conflicts over issues connected with change and modernization.

4710-20 Medieval History (3,3.3) 4710-Age of Heroes, 500-1000. The pattern of early medieval heroism, its cultural conflicts over issues connected with change and modernization.

500-1000. The pattern of early medieval heroism, its social and intellectual assumptions, the individuals who exemplify it, and the continuing harsh environment of the early Middle Ages. 4720-Age of Chivalry: 1000-1300. The emergence of chivalry—from the heroes of the feudal epics of the 11th century to the questing knights of later times.

4741 Italian City-States, 1250-1500 (3) Evolution of urban civilization in northern and central Italy in medieval and Renaissance periods. Architectural and townscape forms studied in socioeconomic as well as cultural contexts. Florence is primary focus, but urban civilization in northern and central Italy is also included.

4770 Austria to 1850: Habsburgs and the Heartland (3) German and Catholic Austria's growth from a frontier state to its imperial mission, its relation to the Holy Roman Empire, and its neighbors and assertive nationalities. Also includes Maria Theresa, Metternich, unity versus diversity, and Vienna's cultural contributions.

4780 Austria Since 1848: Trials and Transformations (3) The search for identity during the drastic changes from a great multinational empire to a truncated republic, to an exploited Third Reich province, to an Allied occupation zone, and finally, to a free neutral nation at the crossroads of Europe.

4811-21 History of Japan (4,4)

4840 History of Mexico (3) (Same as Latin American Studies 4840).

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

4870-90 History of China (3,3,3) 4870—Cultural History of China. Chinese high culture from Confucius to Mao-Tse-tung. Traditional religion, philosophy, fine arts, and literature (including a novel); cultural legacy under communism; similarities and differences between Chinese and Western cultures. 4880—To 1912. Behind the myths and local legends of the era, the Chinese in historical context: Imperialism, revolution, nationalism, communist movement, Maoism, and China in today's world. No previous knowledge of China required.

4910-20-30 History of the South (3,3.3) 4910-1607-1840. 4920-1840-1870. 4930—Since 1870.

4940 Local and Regional History (3) Investigates the history of the concept of regionalism, the applicability of regionalism, and an analysis and study of United States regional models. May not be taken for graduation credit. May not receive credit for both 4940 and 5940.

4950 The Afro-American Experience to 1865 (3) Examines the acculturation of blacks in early America, the legal, social, and cultural implications of slavery before the Civil War, and the related plight of free blacks in the context of the slave trade, the American Revolution, westward migration, and the genesis of sectionalism. (Same as Afro-American Studies 4960.)

4960 The Afro-American Experience Since 1865 (3) African attempts to realize the freedom and equality promised to them at the end of the Civil War are examined in the context of Reconstruction, the Harlem Renaissance, the Great Depression, two world wars, and the Civil Rights Movement. (Same as Afro-American Studies 4960.)

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.

General requirements for the Master of Arts and doctoral degrees as well as course descriptions are found in the Graduate Catalog.

Non-Departmental

Director: Dr. Harry Jacobson

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 the basis of undergraduate standing. 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. Other major city-states are also included.

3018-28-38 College Scholars Seminar (1,1,1) Sequence (in any order) limited to and required of all College Scholars each year. 3018—humanities, 3028—sciences, 3038—social sciences. May be repeated. Maximum 12 hrs. S/NC grading only.

4101 Honors: Foreign Study (1-16) See page 54 and Director of Special Programs. Primarily for College Scholars Seminar.

4102 Honors: Off-Campus Study (1-16) See page 54 and Director of Special Programs. Primarily for College Scholars Seminar.

4103 Honors: Independent Study (1-16) See page 54 and Director of Special Programs. Primarily for College Scholars Seminar.

4996 Honors: College Scholars Studies (2-16) Designed for College Scholars whose work is too extensive, too specialized, too large, or too personal to fit into the regular program. Project, or performance. May be repeated for a total of 24 credit hours.

Assistant Professors: T. McClam, Ph.D. South Carolina; J. D. McLean, Ph.D. Chicago.
later than the first week of the quarter prior to the quarter of enrollment. For additional information, see page 161.

4103 Independent Study (1-16) Independent Study (1-16) Application filed no later than the first week of the quarter prior to the quarter of enrollment. For additional information, see page 161.

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

4221 Human Service Methodologies II (4) A continuation of HS 4220 with emphasis on general helping skills essential to the administration and delivery of human services. Prereq: HS 4220.

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

4300 Working Within the System (6) A survey of the context within which the need for human services arises and an analysis of the process by means of which such services are provided. Prereq: senior standing.

4400 Human Services Field Work (8) 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 function of social services; to provide some direct services in a supervised learning situation. For majors only. Must be taken for 8 hours Fall and Spring Quarters. S/NC. Prereq: 4220, 4221. F, S.

4401 Human Services Field Work II (8) 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 to and involved in the roles and function of social services; to provide some direct services in a supervised learning situation. For majors only. Must be taken for 8 hours Winter and Summer Quarters. S/NC. Prereq: 4220, 4221, 4400. W, SU.

Italian
See Romance Languages.

Japanese
See Cultural Studies (Asian Studies).

Latin
See Classics.

Latin American Studies
See Cultural Studies.

Linguistics
See Cultural Studies.

Mathematics (641)

Professors: J. S. Bradley (Head), Ph.D. Iowa; G. E. Albert (Emeritus), Ph.D. Wisconsin; J. H. Carruth, Ph.D. Louisiana State; C. E. Clark, Ph.D. Louisiana; R. E. Cline, Ph.D. Purdue; R. J. Daverman, Ph.D. Wisconsin; D. J. Dessart, Ph.D. Maryland; D. E. Dobbs, Ph.D. Cornell; E. D. Kines (Emeritus), Ph.D. Texas; H. Frandsen, Ph.D. Illinois; J. A. George, Ph.D. Stanford; T. G. Hallam, Ph.D. Missouri; D. G. Hinton, Ph.D. Tennessee; A. S. Householder (Emeritus), Ph.D. Chicago; L. H. Husch, Ph.D. Florida State; G. S. Jordan, Ph.D. North Carolina State; H. Korfhage, Ph.D. Purdue; R. M. McConnell, Ph.D. Duke; D. D. Miller (Emeritus), Ph.D. Illinois; K. C. Reddy, Ph.D. Polytechnic Institute; W. P. Schaefer, Ph.D. Maryland; S. M. Serbin, Ph.D. Cornell; K. Soni, Ph.D. Oregon State; F. W. Stallmann, Ph.D. Georgia Institute of Technology; R. W. Wade, Ph.D. California (Riverside); C. G. Wagner, Ph.D. Duke; J. J. Walsh, Ph.D. SUNY (Binghamton).

Associate Professors: V. Alexides, Ph.D. Delaware; N. Alikakos, Ph.D. Brown; D. F. Anderson, Ph.D. Chicago; V. A. Dougall, Ph.D. Harvard; J. Dybvik, Ph.D. Warsaw (Poland); S. I. Haranathan, Ph.D. Carnegie-Mellon; K. F. Kimble, Ph.D. Ohio State; Y. Kuo, Ph.D. Cincinnati; B. A. Kupershmidt, Ph.D. Massachusetts Institute of Technology; J. Rosinski, Ph.D. Wroclaw University; W. H. Row, Jr., Ph.D. Wisconsin; R. J. Rowlett, Ph.D. Virginia; J. Smith, Ph.D. California (Berkely); G. A. Sor, Ph.D. California (Berkeley); R. P. Soni, Ph.D. Oregon State; H. Simpson, Ph.D. California Institute of Technology; K. R. Stephenson, Ph.D. Wisconsin; C. Sundberg, Ph.D. Wisconsin.

Assistant Professors: L. Beles, Ph.D. Cornell; L. Barker, Ph.D. Florida State; S. Eliner, Ph.D. Cornell; L. J. Gross, Ph.D. Cornell; O. Karkashian, Ph.D. Harvard; S. Lenhart, Ph.D. Kentucky; Ph.D. Michigan State; S. Mullay, Ph.D. Purdue; B. K. Soni, Ph.D. Texas; R. Sivisky, Ph.D. John Hopkins.

Instructors: C. G. Doss, M.A. Tennessee.

1Space Institute, Tullahoma.

UNDERGRADUATE Removal of Entrance Deficiencies: Entrance deficiencies in mathematics can be removed by taking courses in the evening, or by correspondence. Additional fees are required. For details, contact the Evening School or, for correspondence courses, The Center for Extended Learning. The appropriate courses are as follows:

Deficiency | Evening Correspondence Courses | Course
---|---|---
Algebra I | Math 1000 | Math 1H-2H
Algebra II | Math 1000-20 | Math 1000-11
Geometry | Math 1030-40 | Math 5H-6H
Trigonometry | Math 1050 | Math 1050
Placement Information for Freshman Courses: In selecting their first mathematics courses, students should bear the following points in mind:

1. Entrance deficiencies must be removed before any of the courses carrying college credit can be taken. (It is acceptable to take 0150 at the same time a 1700 or 1840, but it is preferable to take trigonometry in high school.)

2. The department reserves the right to exclude or remove from its courses students who do not meet the prerequisites listed.

3. Fewer than half of the students presenting mathematics ACT scores below 16 are able to complete Math 1540 successfully. Such students should take 0120 (in the Evening School) before attempting 1540. Fewer than half of the students presenting mathematics ACT scores between 16 and 22 are able to complete Math 1700 successfully. Such students should complete 1540 before attempting 1700. Fewer than half of the students presenting mathematics ACT scores between 22 and 26 are able to complete Math 1840 successfully. Such students should take 1700 before attempting 1840.

4. Due to crowded conditions in most freshman-level courses, it is usually not possible to change courses after the start of the quarter. Therefore, courses should be chosen carefully, with attention to degree requirements, prerequisites, and ACT scores.

5. Math 1550-60 does not substitute for 1840-50-60 in curricula requiring the latter, nor is 1550 an appropriate preparation for 1840. Students who need to take a course preparatory to 1840 should take 1700 (preceded by 1540 if necessary). Placement of Well-Prepared Students: Students in curricula requiring 1540-50-60 should skip 1540 and begin with 1550 if they have a mathematics ACT score of 24 or above and grades of A or B in high school Algebra II.

Students in curricula requiring 1840-50-60 are urged to consider taking the Honors sequence 1848-58-68 if they have mathematics ACT scores of 32 or higher, and a high school average of 3.0 or above.

Students who took calculus in high school may qualify for advanced placement in the 1840 sequence, and should consult an advisor in the Mathematics Department. Basic Skill Requirement for Liberal Arts Students: Many students are exempt from this requirement; see page 148 of this catalog for a complete description. Either 1140 or 1700 can be taken to satisfy the requirement. Students who plan to take 1840 (or 1841 or 1842), and who must satisfy the requirement, need to take 1700, not 1140. Note that 1540 does not satisfy the requirement.

Credit Restrictions: No student who has earned a grade of C or better in any course numbered 1550 or higher may subsequently receive credit for 1140. No student who has earned a grade of C or better in 1550 may subsequently receive credit for 1540. No student who has earned a grade of C or better in 1540 may subsequently receive credit for 1550. No student who has earned a grade of C or better in 1840 may subsequently receive credit for 1841 or 1842. No student who has earned a grade of C or better in 1840-50-60 may subsequently receive credit for 1550. No student who has earned a grade of C or better in 1840-50-60 in sequence, fall-winter-spring, each year. In addition to these regularly offered honors courses, an honors version of any course in the department whose number has zero as the last digit may be offered in any quarter. In this case, the last digit will be changed to eight and the title will be preceded by the word "Honors," both in the Timetable and on the student's transcript. These honors courses may be offered upon the initiative of interested faculty, students, or the department head (in all cases subject to the approval of the department head).

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

The Mathematics Department also awards...
credit on the basis of the Advanced Placement (AP) exams offered in some high schools. For the calculus BC exam, students scoring 3 or 4 are awarded credit for Math 1840-50; those scoring 4 are awarded credit for Math 1848-58. For the calculus BC exam, students scoring 3 or 4 are awarded credit for Math 1848-58 and at least 12 hours of advanced mathematics courses, as defined above, students scoring 3 or 4 are awarded credit for Math 1848-58. The calculus BC exam, students scoring 3 or 4 are awarded credit for Math 1848-58.

Advanced Mathematics Courses: Include 3090 and all courses numbered 3140 or above, except 3220, 3510, and 3861.

B.S. Major: Before beginning a mathematics major, a B.S. candidate must complete 1840-50-60 (or honors versions) and have programming skill sufficient to take 3155. The major requirements are:

1. 2840-50-60 (or honors version) and 3155.
2. 3550-60. Students who complete 2848-58-68 may substitute six hours of advanced mathematics courses (as defined above) for this requirement.
4. Four additional hours of advanced mathematics courses as defined above. In satisfying this requirement a student may substitute not more than six hours of courses from the following list, for advanced mathematics: Computer Science 4510, 4710; Educational Curriculum 3751, 3752; Physics 3210-20, 4110-20. Statistics 3460.
5. 4910 and 4940. (These two courses constitute a capstone experience for mathematics majors.)
6. Honors Program:
   Mathematics majors who fulfill the preceding five requirements may qualify for an honors degree if their program includes at least 27 hours of 4000-level mathematics courses (except 4710), at least 6 hours of which are honors courses (course numbers with final digit is 8). The grade point average, computed on the aforementioned 27 hours, will determine the honors category as follows: G.P.A. at least 3.4—Honors; G.P.A. at least 3.6—High Honors; G.P.A. at least 3.8—High Honors in Mathematics, respectively.

In exceptional cases, other courses of similar level may replace the six hours of honors courses.

Note: For an honors degree must apply to the Chair of the Departmental Honors Committee the quarter before they expect to graduate in (the spring, if graduation is to be in December). Their applications should list the courses comprising the required 27 hours, including the required honors courses, or proposed substitutes. Students with credit for more than 27 hours of qualifying courses may select 27 hours to be used in completing their 24-credit requirements for the B.S. degree in mathematics. The credit for the major will be granted after the student has completed 27 hours. Students with credit for Mathematics 191 will receive credit for Mathematics 1840.

Minor: Consists of 2840-50-60 (or 2848-58-68) and at least 12 hours of advanced mathematics courses, as defined under the heading, Advanced Mathematics Courses. Program Planning for Majors:

Mathematics majors have considerable freedom in determining how they will meet the requirements of the major. This is necessary, since mathematics majors may select courses appropriate to prospective careers. In order to meet this diversity of needs, the mathematics faculty has designed a variety of sample programs which majors may wish to follow. Programs are available to prepare students for:

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

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

1501 Trigonometry (0) Plane trigonometry with emphasis on identities and other analytic aspects used in calculus. Prerequisites: No student who has received a grade of C or better in high school trigonometry. 3 hours per week. No college credit.

1140 Basic Mathematical Skills (4) Sets, elementary deductive logic, problem solving, elementary probability and statistics. Satisfies the Basic Skills Requirement for students whose intended major is in an area of the life sciences. Functions, graphs, differentiation and integration of algebraic, logarithmic, exponential functions, applications of the derivative and definite integral, growth curves. Taylor polynomials, nonlinear scaling, first order linear differential equations, probability and statistics. Satisfies the Basic Skills Requirement for students in the life sciences. Must be taken in sequence. NOTE: Credit will not be given for both 1840 and 1841.

1841-51 Calculus for Biological Sciences (4,4) Course for students whose intended major is in an area of the life sciences. Functions, graphs, differentiation and integration of algebraic, logarithmic, exponential functions, applications of the derivative and definite integral, growth curves. Taylor polynomials, nonlinear scaling, first order linear differential equations, probability and statistics. Satisfies the Basic Skills Requirement for students in the life sciences. Must be taken in sequence. NOTE: Credit will not be given for both 1840 and 1841.

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


2840-30-30 Structure of the Number System (3,3,3) Development of theory of the principal number systems. Inverses, order properties, rational numbers. 2130—Elementary number theory, rational and irrational numbers. Euclidean geometry. Must be taken in sequence. Prereq: 1 year of high school algebra and at least sophomore standing in elementary education, College of Education, or consent of instructor.

2215 Discrete Structures (3) Prereq: 1620 and Math 1850. (Same as Computer Science 2215.)


2849-59-69 Microcomputer Lab for Multivariable Calculus (1,1,1) Microcomputer is utilized in illustration of concepts discussed in the corresponding course. Math 1840-50-60. Coreq: 2840-50-60. Prereq: programming experience.


Prerequisites. If specific courses are listed as prerequisites, equivalent preparation satisfactory to the instructor will be accepted. An adequate standing is prerequisite to enrollment in courses numbered above 3000. Undergraduates working toward a major in mathematics are expected to take the core courses. Students who have completed work are strongly advised to include 4510-20 and 4510-60 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 departments. Treats basic topics in probability and statistics with an emphasis on applications to problems in the social and life sciences.

3050 Elementary Probability and Statistical Analysis (4) Probability of elementary events; sample spaces; random variables; and distributions; application of derivatives, maxima and minima. Indeterminate infinite series, definition of definite integral, Fundamental Theorem of Calculus, applications of the definite integral, logarithmic, exponential, and trigonometric functions and their derivatives. Techniques of integration, plane analytic geometry. Not to be taken in sequence. NOTE: No student who has received credit for Math 1840 with a grade of C or better may subsequently receive credit for Math 1540 or 1700. Credit will not be given for both 1840 and 1841. Prereq: Two years of high school algebra, one year of geometry, and one semester of trigonometry, or equivalent.
ability theory; random variables and their distribu-
tions; sampling; convergence to probability distri-
butions. Prereq: 1550-60 or equivalent. Does not satisfy the requirements of a major or minor in mathematics.

3060 Elementary Statistical Analysis (3) Elementary probability distributions; sampling theory; confidence intervals; tests of hypotheses; least squares and linear regression. Prereq: 3050 or consent of instructor. Does not satisfy the requirements of a major or minor in mathematics.

3090 Polynomials and Rings (3) An introduction to abstract algebra, beginning with study of integers fol-
lowed by the more general notions of rings, integral domains, and fields. Emphasis is given to certain ring theoretic properties shared by integers and polyno-
mial rings over fields. Prereq or coreq: Math 3100 or consent of instructor.

3100 Logic and Sets (3) Elements of mathematical logic; elementary algebra of sets. Primarily for stu-
dents in the College of Education. Prereq: 1 year of college mathematics. Does not satisfy the require-
ments of a major or minor in mathematics.

3110 Real Number System (3) Laws of arithmetic; rational and irrational numbers; fields. Primarily for
students in the College of Education. Prereq: 1 year of college mathematics. Does not satisfy the require-
ments of a major or minor in mathematics.

3150 Introduction to Numerical Algorithms and Programming (3) (Same as Computer Science 3150.)

3155 Introduction to Numerical Algorithms (3) (Same
as Math 3155.)

32 1 Discrete Structures II (3) (Same as
Computer Science 3215.)

3220 History of Mathematics (3) Survey of develop-
ment of mathematics, from ancient to modern times. Not acceptable for satisfying requirements for a major or minor in mathematics. Prereq: Math 1860 or 2550 or equivalent.

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

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

3330 Transformational Geometry (3) Fundamental
concepts in Euclidean geometry. Classification of isometries and similarities; symmetry of a poly-
gen. Prereq: One year of college mathematics.

3510 Intermediate Analysis for Teachers (3) Primar-
ily for students in secondary mathematics education. Course covers elementary calculus from an advanced view point with the aid of the ideas and methods of basic theo-
rem. Topics covered include limits of sequences and functions, continuous functions, derivatives, definite integral, and fundamental theorem of integral calcu-
lus. Prereq: 1550-60 and 1860. Does not satisfy the requirements for a major or minor in mathematics.

3550-60 Intermediate Analysis (3,3) Real number system, functions, sequences, limits, continuity, uni-
ty and uniform convergence. Partial differentiation and maxima and minima for functions of several vari-
able. Lagrange multipliers. Prereq: 3550.

3560 Partial Differential Equations (3) Fourier series; orthogonal functions; the vibrating string; solution by series; heat flow, Bessel functions. Prereq: 3860; 4510 or 4710 recommended.

4102 Off-Campus Study (1-16) See page 161.

4120 Linear Algebra (3) Abstract vector spaces, linear transformations and their matrices, systems of linear equations and determinants, inner products, and diag-
osi onalization of symmetric matrices. Prereq: 2860 or 4060.

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

4225 Numerical Solution to Equations and Numeri-
cal Approximations (3) Introduction to computation, instabilities, rounding errors. Solution of a single non-
linear equation by various methods such as the secant method, bisection method, or the secant method. Prereq: 3100 or 3155. (Same as Computer Science 4225.)

4226 Numerical Methods for Ordinary Differential
Equations (3) Introduction by polynomials and piece-
wise polynomials, quadrature; singlestep and multistep methods for differential equations. Stability, consist-
cy, and convergence. Current algorithms, variable step and order; stiff systems. Boundary value prob-
lems. Prereq: 3150 or 3156 and 4610 or 4225. (Same as Computer Science 4239.)

4245 Numerical Linear Algebra (3) Review of vec-
tor and matrix operations, direct and iterative methods for solving linear equations. Iterative methods for large, sparse prob-
lms. Orthogonal decompositions, least squares, and eigenvalues and eigenvectors. Prereq: 3150 or 3156. (Same as Computer Science 4245.)

4250-50 Introduction to Complex Analysis (3,3) 4250-
Complex numbers, Cauchy-Riemann equations, Cauchy’s theorem, Taylor and Laurent series, resi-
dues and their applications. 4250—Conformal mapping; Schwarz-Christoffel transformations, the Dirichlet prob-
lem, applications (steady temperatures, electrostatics, fluid flow), additional topics in complex function theo-
rem. Must be taken in sequence. Prereq: 2860; one 4000-level mathematics course recommended.

4260 Elementary Statistical Analysis (3) Fundamental operations, basic concepts, distributions, sampling
theory, estimation, hypothesis testing, correlation, regression, and statistical independence; foundations of sampling theory; significance tests. Must be taken in sequence. Prereq: 2860.

4710 Vector Analysis (3) Fundamental operations, basis vectors, components of vectors, operations of dot and cross products, directional deriv-
atives, divergence and curl of vector fields, line and surface integral divergence, theorem of Gauss, Stokes theo-
rem. NOTE: Credit will not be given for both 4530 and 4710.

4740 Probability Theory (3,3) 4740—Elementary combinatorial analysis, probability in discrete sample spaces, conditional probability and stochastic independence, binomial, Poisson, hyper-
geometric, and normal distributions. 4760— Expectation, conditional expectation, and character-
istic function of random variables, infinite sequences of random variables, the weak and strong laws of large numbers, and the central limit theorem. 4770— Markov chains: limiting probabilities, steady-state and stationary distributions; Stochastic processes; Pois-
son, birth and death processes; Kolmogorov equations. Prereq: Math 2840-50-60.

4760-60 Introductory Probability Theory (3,3) 4750—Elementary combinatorial analysis, probability in discrete sample spaces, conditional probability and stochastic independence, binomial, Poisson, hyper-
geometric, and normal distributions. 4760— Expectation, conditional expectation, and character-

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

4910 Senior Topics (3) Topics vary. Assignments will include library research and oral and written reports. May be repeated once for credit. Prereq: 2850-60; senior standing, and consent of instructor.

4940 Mathematical Modeling (3) Survey of construc-
tion and development of mathematical models used in science and industry. Models studied may draw upon many fields such as optimization, graph theory, or differential and integral equations. Mathematics developed contribute to understanding of the model and associated scientific problem that it approxi-

4980 Readings in Mathematics (1-3) Open to superior students with consent of department head. Indepen-
dent study with faculty guidance. May be repeated. Maximum credit 6 hours. Prereq: Math 2860;

4990 Studies in Mathematics (1-6) Credit deter-
mation. Implementation of representation of moti
des. Prereq: Math 2860 and pro-

4510-20-30 Introduction to Analysis (3,3,3) Real number system, fuctions, sequences, limits, continuity, uni-
form continuity, differentiation, integration, functions of several variables, implicit function theorem, multiple integration, definite and indefinite simple and complex inte-
grations, uniform convergence, Taylor series. Should be taken in sequence. NOTE: Credit will not be given for both 4530 and 4710.

4529 Finite Sets and Functions of Several Variab-
les (3) General theory, power series and Taylor’s
formula, uniform convergence. Partial differentiation and maxima and minima for functions of several vari-

4550 Partial Differential Equations (3) Fourier series; orthogonal functions; the vibrating string; solution by series; heat flow, Bessel functions. Prereq: 2860; 4510 or 4710 recommended.


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

4910 Senior Topics (3) Topics vary. Assignments will include library research and oral and written reports. May be repeated once for credit. Prereq: 2850-60; senior standing, and consent of instructor.

4940 Mathematical Modeling (3) Survey of construc-
tion and development of mathematical models used in science and industry. Models studied may draw upon many fields such as optimization, graph theory, or differential and integral equations. Mathematics developed contribute to understanding of the model and associated scientific problem that it approxi-

4980 Readings in Mathematics (1-3) Open to superior students with consent of department head. Indepen-
dent study with faculty guidance. May be repeated. Maximum credit 6 hours. Prereq: Math 2860;

4990 Studies in Mathematics (1-6) Credit deter-
mation. Implementation of representation of moti
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 in mathematics or a major in mathematics. The Master of Mathematics degree is intended primarily for teachers of high school mathematics. Applicants for admission to these programs must take the Graduate Record Examination and must have either (a) certification for teaching secondary mathematics, (b) a major in mathematics, or (b) successful elementary or secondary school teaching experience. The Doctor of Philosophy degree program presupposes a bachelor's or master's degree with a strong major in mathematics. This program is intended to train professional mathematicians for a career of teaching and scholarly work in colleges and universities or in industry. Further details on all of these programs and course descriptions are in the Graduate Catalog.

Medieval Studies

See Cultural Studies.

Microbiology

Professors: A. Brown (Head), Ph.D. Chicago; R. W. Beck, Ph.D. Wisconsin; J. M. Becker, Ph.D. Cincinnati; T. C. Montie, Ph.D. Maryland; W. S. Riggsby, Ph.D. Wisconsin; J. M. Woodward (Emeritus), Ph.D. Kansas; C. J. Wust, Ph.D. Indiana.

Associate Professors: D. Berms, Ph.D. Cornell; D. A. Brian, Ph.D., D.V.M. Ph.D. Michigan State.

Assistant Professors: R. N. Moore, Ph.D. Texas-Austin; K. M. Sirotkin, Ph.D. Michigan State; B. T. Rouse, Ph.D. Guelph (Canada), B.V.Sc., C.J. Wust, Ph.D. Indiana.

UNDERGRADUATE

B.A. Major: Consists of Biology 3110, 3120, Biochemistry 4110, 4120, Microbiology 3200, 3519, 3700, and 16 hours of upper-division courses in microbiology of which 4 hours must be laboratory courses. Prerequisites to the major are Biology 1210-20-30 and Chemistry 1110-20-30. Corequisites are Chemistry 3211-21-31, 3219-29-39; and Mathematics 1841-51 or 1540-50-60. Students intending to do post-graduate work should take a calculus sequence and Physics 2210-20-30.

Microbiology (684)

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

2910 General Microbiology (3) General properties of bacteria, viruses, and fungi including study of pathogenesis, immunity, and applied bacteriology. The combination of 2910-2911 or 2910-2919 meets the need for students planning to take a one-quarter course in microbiology. Coreq: 2911 or 2919.

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

2919 Laboratory in General Microbiology (2) Laboratory exercises designed to accompany 2910. Open only to students in the College of Nursing, preveterinary students intending to do postgraduate work in industry. Further details on all of these programs and course descriptions are in the Graduate Catalog.

Medical Technology (659)

Courses in this major are open only to qualified students who have completed the first three years of the Science-Medical Technology Curriculum, described on page 154, and who have been approved by the Pre-Medical Advisory Committee.

4021-22 Clinical Chemistry (6,6) Clinical aspects of analytical procedures, specimen collection and handling, significance of results, and quality assurance. Includes blood gas analysis, including radioimmunoassay, and analysis of blood and other body fluids for enzymes, hormones, and other substances of clinical interest, utilizing both automated and manual techniques.

4031-32 Hematology and Clinical Microscopy (5,5) Principles, theories, and instrumentation related to the qualitative and quantitative evaluation of cellular elements of blood and other body fluids; factors of hemostasis, qualitative chemical analysis of urine, and renal function studies. Emphasis is placed on microscopic identification of cells and the significance and correlation of laboratory data.


4043 Clinical Serology and Immunology (2) Performance and interpretation of broad range of clinical serological and immune serum tests, 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 prepa-
ration of tissues 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 hos-
pital community and clinical laboratory. Introduction
to medical terminology, ethics, and health team con-
cept. Orientation to basic techniques of methods of
study include procedures for collection and handling of
specimens, principles of operation of many labora-
tory instruments, review of laboratory methods, and
introduction to quality control procedures. Portions of
course extend over entire clinical year.

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

Music (698)

Professors:
J. J. Meacham, Head, M.M. Northwestern;
G. C. Blit, M.M. Converse; J. P. Brock, M.M. Ala-
bara; W. J. Carter (Emeritus), D.M.A. Eastman;
J. Coker, M.A. Sam Houston; F. M. Combs, M.A.
Missouri; G. F. DeVine (Emeritus), Diploma, Schurz
(Chicago); W. J. Dorn, M.A. Columbia; H. W. Fred,
Ph.D. (Card) (Emeritus), M.M. Northwestern;
C. R. Huber, Ph.D. North Caro-
line; D. M. Pederson, Ph.D. Iowa; W. J. Starr
(Emeritus), M.M. Eastman; D. Van Vactor (Emeri-
tus), M.M. Northwestern.

Associate Professors:
W. Bommelje, M.M. Tuluč; M. C. Frailey, B.M.
Oberlin Conservatory; P. M. Horodysy, M.M. Man-
hattan School of Music; D. H. Hough, M.M.
Tennessee; J. A. Jacobs, D.M.A. Texas; A. E. John-
ton, D.M.A. Stanford; J. A. Lannen, D.M.A.
Michigan; D. K. McCleland, M.A. Columbia;
L. W. Michalopolos, M.A. Columbia; D. B. Northing-
ton, D.M.A. Yale; W. P. Scarlett, M.M. Louisiana
State; S. R. Searle, M.M. Tennessee; D. D. Stutzen-
berger, D.M.A. Maryland; J. C. Teachey, D.M.A.
Florida State; S. E. Young, Ph.D. North Carolina.

Assistant Professors:
W. w. Hawthorne, Ph.D. Cincinnati; P. H. Hightill,
M.M. Illinois; W. S. Macommon, M.M. Wisconsin;
J. C. Plondike, M.M. Northwestern; E. Schroeder,
Ph.D. Stanford; G. M. Sperli, M.M. Indiana.

Instructors:
T. Guilt, M.M. Yale; C. F. Leach, M.M. New Mexico.

The Department of Music offers curricula leading
to the Bachelor of Music degree, which is designed
to prepare students for graduate study and for profes-
sional positions, and the Bachelor of Arts degree with
a major and minor in Music, designed for those students
who have a strong interest in music, but desire a com-
prehensive liberal studies program. Information regard-
ing requirements for the B.M. degree may be
found on page 156.

B.A. Degree/Music Requirements:

<table>
<thead>
<tr>
<th>Prerequisites</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Music Theory 1111-21-31</td>
<td>9</td>
</tr>
<tr>
<td>Music Ear Training 1113-23-33</td>
<td>3</td>
</tr>
<tr>
<td>Applied Study (1060 level)</td>
<td>3</td>
</tr>
<tr>
<td>Courses toward the major</td>
<td>9</td>
</tr>
<tr>
<td>Music Theory 2111-21-31</td>
<td>9</td>
</tr>
<tr>
<td>Music History 2300-10-20-30-40</td>
<td>15</td>
</tr>
<tr>
<td>Electives (above, maximum 2 t.rs. per quarter)</td>
<td>9-12</td>
</tr>
<tr>
<td>Ensemble</td>
<td>3</td>
</tr>
<tr>
<td>Courses selected from Aesthetics of Music: 5400; Recital 5000; Independent Study 4100; 4200: Lecture recital 5054</td>
<td>3-6</td>
</tr>
<tr>
<td>Electives</td>
<td>0-6</td>
</tr>
<tr>
<td>Solo class (required when taking 2 lessons per week)</td>
<td>0-15</td>
</tr>
</tbody>
</table>

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

The Bachelor of Science in Music Educa-
tion, designed for preparation for institutional
teaching, is administered by the Department
of Music Education. See page 99 for require-
ments.

GENERAL

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

1010-20-30 Class Piano (1,1,1) Must be taken in
sequence. Course may be waived by successful com-
pletion of Piano Competency Examination. Waived
courses must be substituted with an equivalent number
of quarters of study in Music 1580 or above.

1015 Class Voice (1) Development of basic vocal
skills. May be repeated for credit.

1025 Class Voice (1) Prereq: Consent of instructor.
May be repeated for credit.

1080 Studio Guitar Styles (2) Introductory survey of
guitar styles in jazz, rock, country, and blues idiom.
Prereq: consent of instructor.

1085-55 Class Guitar (1,1) Must be taken in sequence.
Prereq: Consent of instructor.

1146 Music Performance (3) An individualized course
of study combining participation in a University musi-
cal ensemble with collateral study of an instrument or
voice. One hour of applied study (Music 1500-1595)
and ensemble rehearsals as scheduled. (Music 3600-
3650). Must be repeated once for credit. Requires
payment of Applied Music fee. For non-majors only.
Prereq: Performing ability on an instrument or voice.

2000 Solo Class (0)

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

2015 Fundamentals of Opera Acting (6) Analysis of
women, film, television, and opera. Prereq: Consent
of instructor.

2020 Vocal Techniques in Popular Music (1) Devel-
opment of performance techniques in Broadway and
other contemporary musical styles. Prereq Consent of
instructor. May be repeated for credit.

2040-50-50 Class Piano (1,1,1) Must be taken in
sequence. Music and Music Education students may
waive courses numbered 1500-1599. Waived courses
must be substituted with an equivalent number of quarters
of study in Music 1580 or above.

2055-55-75 Diction for Singers (2,2,2) Sounds by
phonetic symbols and word songs used for examples.
Performance practice.

2071-81-91 Church Service Playing (1,1,1) Practical
skills applicable to the use of the organ in church
services, including keyboard harmony, improvisation,
hymn playing, and accompanying on the organ. Prereq:
1311 and 6 hours in organ.

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

2810-20-30 Jazz Piano (1,1,1) Harmonic language of:
jazz: interpretation of chord symbols, formule for
voicing chords, chord progressions, and fundamen-
tal harmony and improvisation for right hand. Must
be taken in sequence. Prereq: 1010-20.

3000 Junior Recital (0)

3014-24 Woodwind Literature (2,2) Prereq: Consent
of instructor.

3015 Percussion Literature (1) Prereq: Consent of
instructor.

3016 String Literature (2) May be repeated. Max-
imum credit 6 hrs. Prereq: Consent of instructor.

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

3052-53 Jazz Improvisation (3,3) Study and applica-
tion of principles of improvisation, including
nomenclature, chord progressions, chord-scales, pat-
tens, melodic development, and free form devices.
Prereq: 1141.

3044-54 Brass Literature (2,2) Prereq: Consent of
instructor.

3100 Opera Production (1-3) Supervised work on opera
productions. May be repeated for credit. Prereq: Con-
sent of instructor.

3071-81-91 Church Service Playing II (1,1,1) Continuation
of Music 2071-81-91, which is prereq.

3095 Women in Music (3) The history of women in
music from the Middle Ages to present as com-
posers, performers, educators and patrons. (Same as
Women's Studies 3095).

3199 Electronic Music Techniques (3) Introduction
to taped and live electronic music. Historical back-
ground, theoretical concepts, tape and synthesizer
usage. Prereq: Consent of instructor.

4000 Senior Recital (0)

4002 Suzuki Piano Method (2) Study of the psycholo-
gy, procedures, and literature of the Suzuki piano
method. Prereq: Consent of instructor.

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

4100-20-29 Piano Techniques (1,1,1) Problems of
piano playing: development of piano technique; style
and interpretation; program building. Prereq: Consent
of instructor.

4102-22-32 Principles of Vocal Pedagogy (1,1,1)
Examination and evaluation of concepts and approach-
es to teaching singing (past and present) and related
teaching materials: Collaborative laboratory experiences
accompany the study. Prereq: Consent of instructor.

4036-37-38 Advanced Piano Literature (2,2,2) Piano
music from preclassical period to present. Prereq: Consent
of instructor.

4040 Special Topics in Pedagogy (1-3) Prereq: Consent
of department head. May be repeated. Maximum 6
credit hours.

4041 Styles in Opera Acting (3) Study and practice
of styles in opera acting based on historical and na-
tional characteristics. Prereq: 3015 or consent of instructor.

4045 Projects in Opera Theatre (1-3) May be repeat-
ed for credit. Prereq: Consent of instructor.

4046-47-48 Song Literature (2,2,2) Study of literature
from 1750 to present including performance. Prereq:
Consent of instructor.

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

4056-56-57 Elementary and Intermediate Piano Pedagogy (2,2,2) Examination and study of piano methods and materials designed for teaching precollege level students. Prereq: Consent of instructor.

4060 Advanced Choral Conducting I (3) Development of refinement of conducting techniques; including chant and changing meters. Prereq: Music Ed. 4510 or equivalent.

4074 Music in Christian Worship (3) History and philosophy of church music; liturgies and liturgical music; music in non-liturgical worship. Prereq: Consent of instructor.

4084 Church Music Methods and Administration (3) Prereq: Consent of instructor.

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

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

4174 Hymnology (3) A survey of Christian hymns from Biblical times to the present.


4400 Jazz Directing (1) Rehearsal techniques of jazz ensembles; special conducting techniques, repertoire, improvisation, and supervised laboratory experience in rehearsing university jazz ensembles. Prereq: Enrollment in applied music with jazz emphasis or consent of instructor.

4480 Jazz Pedagogy (1) Methods and materials relating to teaching of jazz and administrating of jazz program. Prereq: Enrollment in applied music with jazz emphasis or consent of instructor.

4860 Advanced Improvisation (2) Emphasis on further development of individual skills and solving individual problems in jazz improvisation. Prereq: Music 3052-53.

MUSIC THEORY AND COMPOSITION

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

1123-33-33 Sight Singing and Ear Training (1,1,1) Should be taken concurrently with 1111-21-31. Must be taken in sequence. 2 hours per week.

1141 Jazz Theory (2) Fundamentals of the jazz language, including terminology, chord symbols, chord/ scale relationships, and chord progressions. Prereq: 1111 or consent of instructor.

1400 Analysis of Jazz Styles (2) Individual improvisatory styles through analysis of their transcribed solos. Training and function of ear in music. Transcription of solos from recordings and preparation of analyses. Prereq: Music 1141.

2111-21-31 Theory II (3,3,3) Materials of music with emphasis on literature of Romantic and contemporary periods. Exercises in writing and analysis. Must be taken in sequence. Prereq: 1131 or 1138 or consent of instructor.

2123-23-33 Advanced Ear Training (1,1,1) Should be taken concurrently with 2111-21-31. Must be taken in sequence. 2 hours per week.

3041 Keyboard Harmony (1) Melody harmonization, figured bass realization, and improvisation. Prereq: 1131-33 and keyboard proficiency at the 2000 level.

3062-63 Sight Reading at the Piano (1,1) Prereq: Consent of instructor.

3111 Modal Countertop (3) Countertop techniques of 16th century focus on emphasis on the style ofPalestina. Prereq: 2131.

3112 Instrumentation (3) Basic techniques in scoring for voices, brass, woodwind, and string choirs; and percussion. Prereq: 2131.

3113 Analysis I (3) Study and practice in analysis of structures of music from smallest structural units to large compound forms. Emphasis on macroanalytic techniques. Prereq: 2131.

3121 Tenal Countertop (3) Countertop techniques of 18th century with emphasis on works of J. S. Bach. Prereq: 2131.

3122 Orchestration (3) Advanced techniques in instrumental writing with emphasis on scoring for the concert orchestra. Prereq: 3112 or consent of instructor.

3123 Analysis II (3) Continuation of Analysis I with emphasis on micro and linear analytic techniques. Prereq: 3113.

3131 Fugue (3) Countertop techniques of 18th century with emphasis on the fugal works of J. S. Bach. Prereq: 3121.

400 Independent Study in Music Theory (1-3) May be repeated for credit. Prereq: Consent of department head.

4101 Foreign Study (1-16) See page 161.

4113 Pedagogy of Music Theory (3) Techniques, methods and materials involved in college-level theory programs. Prereq: Consent of instructor.

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

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

4134 Concert Band Arranging (3) Study and application of techniques employed in scoring for concert band. Prereq: 3112 or equivalent.

4150 Survey of Music Theory (3) Theory of music with emphasis on harmonic practice of Baroque, Classic, and Romantic periods. Exercises in writing and analysis. Recommended as review course for graduate students. Prereq: Consent of instructor.

4542 Composition for Media (1-3) May be repeated for credit. Maximum 6 credit hours. Prereq: Consent of instructor.

4850 Jazz Composition (2) Prereq: Consent of instructor.

4870-75 Stage Band Arranging (2,2) Analysis of scores and scoring for the stage band. Prereq: 3112 and 4850 and consent of instructor. Must be taken in sequence.

MUSIC HISTORY AND LITERATURE

1210-20 Orientation in Music Appreciation (3,3) 1210—Developing perceptive listening skills through study of materials of music, musical styles, and musical aesthetics. Illustrative examples selected from 4th through 20th centuries. 1220—Introduction to musical compositions from 1600 to present. For non-music majors. Prereq: 1210 or 1220 or consent of instructor.

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

2300 Introduction to Music Literature (3) Acquaintance with major works of music and musical works through chronological approach. For music minors and majors only.

2310-30-40 History of Music (3,3,3) 2310—To 1600. 2320—1600-1800. 2330—1800-1900. 2340—1900 to present. Requires musical background. Prereq: Consent of instructor.

3212 Orientation in Music: Music for the Theatre (3) Study of selected, representative music composed for Broadway stage, films, operetta, and opera. Prereq: 1210 or consent of instructor.

3240 The Symphony (3) Survey of symphonic literature from precursors of classical symphony to present.
Undergraduate students seeking entrance to applied music courses must be concurrently registered for no less than three credit hours in academic courses. Graduate students must be concurrently registered for no less than six credit hours in academic courses. Exceptions to these requirements may be made with the approval of the department head if applied music registration is necessary to completion of degree requirements.

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, repertoire, and solo classes, and to perform at least once each quarter as partial fulfillment of applied music credit requirements.

**Applied Music Fees:** $30 per quarter for half-hour lesson (1 credit hour) $60 per quarter for hour lesson (2-4 credit hours)

Computer registration and applied music fee payment must be verified in the Department of Music office no later than the end of the second day of classes of the fall, winter, and spring quarters and the first day of the summer terms in order to be accepted for applied music study.

Applied music fees are not refundable after lessons have been scheduled.

- **1500-2500-3500-4500-5500 Flute (1-4) May be repeated for credit.**
- **1505-2505-3505-4505-5505 Oboe (1-4) May be repeated for credit.**
- **1510-2510-3510-4510-5510 Bassoon (1-4) May be repeated for credit.**
- **1515-2515-3515-4515-5515 Clarinet (1-4) May be repeated for credit.**
- **1520-2520-3520-4520-5520 Saxophone (1-4) May be repeated for credit.**
- **1525-2525-3525-4525-5525 Horn (1-4) May be repeated for credit.**
- **1530-2530-3530-4530-5530 Trumpet (1-4) May be repeated for credit.**
- **1535-2535-3535-4535-5535 Trombone (1-4) May be repeated for credit.**
- **1540-2540-3540-4540-5540 Baritone (1-4) May be repeated for credit.**
- **1545-2545-3545-4545-5545 Tuba (1-4) May be repeated for credit.**
- **1550-2550-3550-4550-5550 Percussion (1-4) May be repeated for credit.**
- **1555-2555-3555-4555-5555 Voice (1-4) May be repeated for credit.**
- **1560-2560-3560-4560-5560 Violin (1-4) May be repeated for credit.**
- **1565-2565-3565-4565-5565 Viola (1-4) May be repeated for credit.**
- **1570-2570-3570-4570-5570 Cello (1-4) May be repeated for credit.**
- **1575-2575-3575-4575-5575 String Bass (1-4) May be repeated for credit.**
- **1577-2577-3577-4577 Electric 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: Consent of instructor.**
- **3597-4597-5597 Composition with Electronic Media (1-3,1-3,1-3,1-3) May be repeated for credit. Prereq: 3199 and consent of instructor.**

**ENSEMBLES**

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

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 Chamber Music Ensemble (1,1) May be repeated for credit. Maximum 12 credit hours.**
- **3601-5601 Woodwind Choir (1,1) May be repeated for credit.**
- **3602-5602 Brass Choir (1,1) May be repeated for credit.**
- **3603-5603 Small Jazz Ensembles (1,1) May be repeated for credit. Maximum 12 credit hours.**
- **3604-5604 Jazz Ensemble (1,1) May be repeated for credit.**
- **3605 Studio Orchestra (1) May be repeated. Maximum 12 credit hours.**
- **3606-5606 Trombone Choir (1,1) May be repeated for credit.**
- **3607 Tubas Ensemble (1) May be repeated for credit.**
- **3610-5610 Percussion Ensemble (1,1) May be repeated for credit.**
- **3611-5611 Marimba Choir (1) May be repeated for credit.**
- **3612-5612 Baroque Ensemble (1) May be repeated for credit.**
- **3620-5620 UT Singers (1,1) May be repeated for credit.**
- **3630-5630 Chamber Singers (1,1) May be repeated for credit.**
- **3632-5632 Collegium (1,1) May be repeated for credit.**
- **3634-5634 Saxophone Choir (1,1) May be repeated for credit.**
- **3640-5640 Opera Theatre (1,1) May be repeated for credit.**
- **3642-5642 Opera Workshop (1,1) May be repeated for credit.**
- **3650-5650 Concert Band (1,1) May be repeated for credit.**
- **3652-5652 Campus Band (1,1) May be repeated for credit.**
- **3654-5654 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.**
- **3672 Chamber Orchestra (1) Coreq. Registration in University Symphony. May be repeated.**
- **3680-5680 Concert Choir (1,1) May be repeated for credit.**
- **3682-5682 University Chorus (1,1) May be repeated for credit.**
- **3687-5687 Women's Chorale (1,1) May be repeated for credit.**
- **3699-5699 Accompanying (1,1) May be repeated for credit.**

**GRADUATE**

The Department of Music offers the Master of Music degree in performance, composition, music theory, choral conducting, instrumental conducting, string pedagogy, and the Master of Arts degree in musicology and music theory. See the Graduate Catalog for admission and degree requirements, and for graduate course listings.

**Organizational Psychology Program**

See Graduate School.

**Philosophy (745)**

**Professors:**
J. W. Davis (Head), Ph.D. Emory; R. E. Aquila, Ph.D. Northwestern; G. G. Brenchert, Ph.D. Michigan; L. B. Gebik, Ph.D. Nebraska; R. B. Edwards, Ph.D. Emory; G. C. Graber, Ph.D. Michigan; B. C. Postow, Ph.D. Yale; D. Van de Vate, Ph.D. Yale.

**Associate Professors:**
J. O. Bennett, Ph.D. Tuane; S. M. Cohen, Ph.D. Northwestern; K. A. Emmett, Ph.D. Ohio State; J. E. Nott, Ph.D. Ohio State; M. L. Osborne, Ph.D. Tennessee

**Assistant Professors:**
D. R. Cumminskey, Ph.D. Michigan; H. P. Hamlin, Ph.D. Georgia; E. R. Jones III, Ph.D. Chicago; M. Lavin, Ph.D. Stanford.

Philosophy seeks to understand humans, the world, their relations. It involves (1) use of logical and scientific methods, (2) appreciation of all values, (3) history of ideas, (4) philosophical systems.

Philosophy is an appropriate major for students wishing a broad education and for those students preparing for careers as writers (whether journalistic or literary), lawyers, ministers, or teachers, or for positions in various types of political and government service or for non-technical positions in business or industry.

A major in philosophy implies a balanced program in the humanities, natural and social sciences. Graduate students should read French or German, preferably both; other ancient or modern languages are useful and necessary for some advanced work.
### UNDERGRADUATE

**B.A. Major:** Majors' programs must include: 1. at least one prerequisite course in logic, normally 1710 or 1810; 2. at least one course in modern philosophy, normally 3131. Majors' programs must include 36 hours in courses numbered 2000 and above. Majors should discuss their programs with a member of the Philosophy faculty.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>1510</td>
<td>Introduction to Philosophy: Human Nature and Values (4) E.</td>
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<tr>
<td>1511</td>
<td>The Human Condition: Value and Reality (4)</td>
<td>The meaning of life, the existence of God, freedom of the will, human nature and value.</td>
</tr>
<tr>
<td>1520</td>
<td>Introduction to Philosophy: Consciousness and Reality (4)</td>
<td>May be taken before 1510. E.</td>
</tr>
<tr>
<td>1521</td>
<td>The Human Condition: Consciousness and Reality (4)</td>
<td>The place of mind in a material universe and the nature and possibilities of human knowledge. May be taken before 1511.</td>
</tr>
<tr>
<td>1600</td>
<td>Topics in Philosophy (4)</td>
<td>May be repeated once for credit.</td>
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<tr>
<td>1611</td>
<td>Foundations of Western Thought: Antiquity through 1500 (4) Plato, Late Antiquity and the Medieval period.</td>
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<tr>
<td>1621</td>
<td>Foundations of Western Thought: 1500 through Early Twentieth Century (4) Development of Rationalism and Empiricism: Early, Nineteenth Century and early Twentieth Century philosophy. May be taken before 1611.</td>
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<tr>
<td>1710</td>
<td>Informal Reasoning (4) Arguments, informal fallacies, uses of language, definitions.</td>
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<tr>
<td>1810</td>
<td>Introduction to Symbolic Logic (4) Formal deductive reasoning; propositions, arguments in natural language, symbolization, truth and validity, propositional logic, predicate logic.</td>
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<tr>
<td>2310</td>
<td>Elementary Ethics (4) Theories of ethical values. E.</td>
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<tr>
<td>2410</td>
<td>Art and Experiences (4) Introduction to various understandings of art.</td>
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<tr>
<td>2510</td>
<td>Elementary Logic (4) Introduction to deductive logic, including truth tables and elementary formal proofs. E.</td>
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<tr>
<td>2520</td>
<td>Elementary Logic (4) Inductive reasoning, elements of scientific method, and statistical inference.</td>
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<tr>
<td>3000</td>
<td>Special Topics (4) May be repeated for credit one time.</td>
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<tr>
<td>3100</td>
<td>Socrates (4) An attempt to delineate the philosophical tenets of the historical Socrates in the context of the views of the character Socrates depicted in Plato's dialogues, in Xenophon's Socratic works, and in Aristophanes' The Clouds.</td>
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<tr>
<td>3111</td>
<td>Ancient Western Philosophy (4) E.</td>
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<tr>
<td>3121</td>
<td>Medieval Philosophy (4)</td>
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<tr>
<td>3131</td>
<td>Seventeenth- and Eighteenth-Century Philosophy (4)</td>
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<tr>
<td>3141</td>
<td>Nineteenth-Century Philosophy (4)</td>
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<tr>
<td>3151</td>
<td>Contemporary Philosophy (4) Survey of recent movements in philosophy.</td>
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<tr>
<td>3270</td>
<td>Russian Philosophical and Theological Thought (4) Same as Russian 3270 and Religious Studies 3270.</td>
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<tr>
<td>3311-12</td>
<td>American Philosophy (4,4) 3311—Colonial to late 19th century; 3312—Late 19th century to present.</td>
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<tr>
<td>3320</td>
<td>Philosophy of Law (4) Nature, sources, function of law.</td>
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<tr>
<td>3330</td>
<td>Philosophy of History (4) Speculative and critical aspects of philosophy of history.</td>
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<tr>
<td>3410</td>
<td>Philosophical Ideas in Literature (4) Philosophic assumptions and implications in major literary works.</td>
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<tr>
<td>3420</td>
<td>Philosophy of Literature (4) Study of the nature, functions, value, and epistemic principles of literary arts.</td>
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<tr>
<td>3430</td>
<td>The Concept of Woman (4) An inquiry into the nature of woman as it has been conceived by major western philosophers from Plato to Simone de Beauvoir. (Same as Women's Studies 3430.)</td>
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<tr>
<td>3435</td>
<td>Philosophy of Feminism (4) An examination of various feminist theories and their application to social issues of concern to women today. (Same as Women's Studies 3435.)</td>
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<tr>
<td>3510</td>
<td>Existentialism (4)</td>
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<tr>
<td>3550</td>
<td>Marxism as Philosophy (4)</td>
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<tr>
<td>3570</td>
<td>Philosophical Foundations of Democratic Society (4) Philosophy of political problems relating to nature and justification of the central values, principles, and concepts of democratic society.</td>
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<tr>
<td>3580</td>
<td>War and Morality (4) The moral justification for war; legal and moral constraints in war.</td>
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<tr>
<td>3590</td>
<td>Business Ethics (4) Ethical problems as they confront both business as a social institution and individuals in business.</td>
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<tr>
<td>3605-06</td>
<td>Professional Responsibility (4,4) 3605—Critical analysis of selected classic texts from philosophy, religious studies, and social sciences dealing with the nature of responsibility, the nature of professionalism, and the application of concepts of responsibility to professional activity, illustrations will be drawn from a variety of professional fields of practice. 3606—Application of the theoretical principles of an analytic skills developed in 3605 to selected case studies and other detailed descriptions of professional practice from the following professional fields: Engineering/Architecture; Business/Accounting; and at least one of (a) Law/Politics (b) Helping Professions (Social Work, Human Services, Religious Ministry); (c) Teaching. (Same as Religious Studies 3605-06.)</td>
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<tr>
<td>3611</td>
<td>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 Religious Studies 3611.)</td>
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<tr>
<td>3650</td>
<td>Philosophy and Religion in India (4) (Same as Religious Studies 3650.)</td>
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<tr>
<td>3660</td>
<td>Buddhist Philosophy and Religion (4) (Same as Religious Studies 3660.)</td>
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<tr>
<td>3671</td>
<td>Religion and Philosophy in China (4) (Same as Religious Studies 3671.)</td>
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<tr>
<td>3690</td>
<td>Philosophy of Religion (4) Analysis of basic issues of religion. (Same as Religious Studies 3690.)</td>
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<tr>
<td>3740-50</td>
<td>Conceptual History of Science (4,4) 3740—The Scientific Revolution: historical evolution of thought in astronomy, mechanics, and philosophy of nature up to Newton. 3750—The development and decline of Newtonian science: historical evolution of thought on the nature of matter and of light, and on that of life. Prereq: 8 hours of physical science or consent of instructor.</td>
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<tr>
<td>3770</td>
<td>Introduction to Philosophy of Science (4) Standard topics in philosophy of science: scientific methods; history of nature and mind, and modern inquiry, definition, explanation, measurement. No background in logic is presupposed.</td>
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</tbody>
</table>

### 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, 3810 Symbolic Logic (4) Techniques for formal analysis of deductive reasoning (propositional logic and quantification theory). Prereq: 1810 or 2510 or consent of instructor.  
- 3910 Contemporary Aesthetics (4) Philosophical discussion of contemporary art.  
- 4000 Special Topics (4) A student- or instructor-initiated course to be offered at convenience of department. Subject matter to be determined by mutual consent of students and instructor with approval of department. Prerequisites to be determined by department. May be repeated for credit.  
- 401 Foreign Study (1-16) See page 161.  
- 402 Off-Campus Study (1-16) See page 161.  
- 403 Independent Study (1-16) See page 161.  
- 4111-21 Modern Religious Philosophies (4,4) (Same as Religious Studies 4111-21.)  
- 4200 Classical Indian Systems of Philosophy: The Moksha Tradition (4) (Same as Religious Studies 4200.)  
- 4310 Intermediate Ethics (4) Topics in meta-ethics or ethics.  
- 4370 Theoretical Issues in Medical Ethics (4) 4370—Prereq: 2310 or 3611 or consent of instructor. (Same as Religious Studies 4370.)  
- 4410 Plato (4) Prereq: 8 hours of philosophy or consent of instructor.  
- 4420 Aristotle (4) Prereq: 8 hours of philosophy or consent of instructor.  
- 4450 Continental Rationalism (4) Prereq: 8 hours of philosophy or consent of instructor.  
- 4460 British Empiricism (4) Prereq: 8 hours of philosophy or consent of instructor.  
- 4470 Kant (4) Prereq: 8 hours of philosophy or consent of instructor.  
- 4480 Advanced Topics in Existentialism and Phenomenology (4) Prereq: 8 hours of philosophy or consent of instructor.  
- 4511 Advanced Topics in Logic (4) Prereq: Consent of instructor. May be repeated for credit.  
- 4620 Philosophy of Mind (4) Problems of mind and body in relation to consciousness and personal identity. Prereq: 8 hours of philosophy or consent of instructor.  
- 4630 Philosophy of Language (4) Prereq: 8 hours of philosophy or consent of instructor.  
- 4710 Philosophy of Natural Science (4) Consideration of standard topics pertinent to natural science including reduction of theories and 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 of social sciences. Prereq: 3770 or two years of social science.  
- 4810 Contemporary Metaphysics and Epistemology (4) Prereq: 8 hours of philosophy or consent of instructor.  

**GRADUATE** Consult the Graduate Catalog for listing of graduate level courses.
Astronomy (150)

1510-20-30 Introductory Astronomy (4,4,4) Introduction to astronomy and astrophysics. Components of solar system are described from viewpoint of interplanetary exploration. Evolution and properties of stars are studied. Galactic structure is examined and models of universe are discussed. Observational techniques and their interpretation in terms of astrophysics are emphasized in accompanying lab. 3 hrs. lecture, 2 hrs. lab. Coreq: Math 1840 or 1550 or equivalent.

1610-20-30 Introductory Astronomy with Laboratory (4,4,4) Introductory course with accompanying laboratory, surveying structure and dynamics of universe. Members and components of solar system are introduced and discussed, incorporating results from space mission exploration. Stellar evolution is treated as a chain of events. Characteristics of galaxies are examined and evolution of universe is viewed in light of modern astrophysics. May be taken in sequence unless instructor consents otherwise. 4 hrs. lecture—demonsstration. Only one of three sequences Astronomy 1510-20-30, 1610-20-30, 2118-28-38 may be taken for credit.

2118-28-38 Honors: Introductory Astronomy (4,4,4) Introduction to astronomy and astrophysics. Components of solar system are described from viewpoint of interplanetary exploration. Evolution and properties of stars are studied. Galactic structure is examined and models of universe are discussed. Observational techniques and their interpretation in terms of astrophysics are emphasized in accompanying lab. 3 hrs. lecture, 2 hrs. lab. Coreq: Math 1840 or 1550 or equivalent. Only one of three sequences Astronomy 1510-20-30, 1610-20-30, 2118-28-38 may be taken for credit.

4110-20-30 Astrophysics (3,3,3) Physics of stars and interstellar matter, planets and interplanetary matter; atmospheres, interiors, and evolution; nebulae, quasars, pulsars, black holes; observational data and their determination. Current developments. Approach will be interdisciplinary. Acceptable for major credit in physics. Prereq: Physics 2330 and consent of instructor.

Physics (773)

UNDERGRADUATE

B.S. Major: The B.S. major in physics is designed to give the student a broad background in the fundamental principles of classical and modern physics and in the applications of these principles to the physical world. It also serves as preparation for graduate study in the research fields of modern physics. A major in engineering physics, shown in tabular form on page 122 and described on page 128, is also offered.

Physics 1318-28-38 and Math 1840-50-60 are prerequisite to the major in Physics. The major includes the following courses: Math 2840-50-60; Physics 2318-28-38, 3110-20 (Mechanics), 3230 (Thermodynamics), 4310-20 (Electricity and Magnetism), 4110-20-30 (Quantum Mechanics), at least six hours of physics electives from 3130, 4340, 4140, 4160, 4220-40-60, 4550, 4660-70, and at least six hours of physics lab electives from 3610-20-30, 4230-40, 4510-20-30, 4540-50. Physics 4010-20 may be taken to satisfy the upper-level distribution requirement for a capstone experience.

Physics 1310-20-30 and Basic Engineering 1310-20-30 may be substituted for 1318-28-38. Transfer students from other schools and departments may substitute 1318-28-38 for 1310-20. Students who do not expect to pursue graduate studies may substitute 3710-20-30 for 4110-20-30.

Minor: A minor in physics shall consist of Physics 2310-20-30 or 2318-28-39 and 15 hours from physics and astronomy courses numbered 3000 and above. Substitution of courses in the major statement also apply to the minor.

1210-20-30 Introductory Physics (4,4,4) A general course for students whose principal interest is in the physical sciences. Concepts of physics are developed by observation of phenomena and logic, using a minimum of formula memorization. Properties of matter and motion, effect of forces on mechanical systems, use of conservation laws to solve physical problems, and a brief introduction to the early history of modern society. 1220—Electricity and magnetism, wave phenomena including sound and light, with applications to current technologies. 1230—Modern physics; 1310—The Seventieth Century: microscopic systems including atoms, molecules, nuclei and applications such as lasers and energy technologies; also physics of particles moving at extremely high speeds. Should be taken in sequence. 4 hrs. lecture and demonstration.

1310-20-30 Fundamentals of Physics: Mechanics and Heat (4,4,4) First course in physics for engineers and liberal arts majors in mathematics and the physical sciences. Basic Engineering 1310-20-30 is equivalent for graduation purposes. Must be taken in sequence. Coreq: Math 1549-50-60. 3 hours of lecture, 2 hours of lab.

1318-28-38 Honors: Fundamentals of Physics: Mechanics and Heat (4,4,4) Honors course designed for physics and engineering physics majors and for qualified students from other disciplines. Coreq: Math 1549-50-60. 3 hours of lecture, 2 hours of lab.

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

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

1610 Physics of Music (4) Production, transmission, and reception of sound waves. Harmonics. Basic physics principles and applications required in pre-medical, pre-dental, pre-pharmacy, and pre-veterinary programs. Must be taken in sequence. 3 hours of lecture and 3 hours of lab.

2210-30-30 Elements of Physics (4,4,4) 2210—Mechanics, properties of light, heat and magnetism, sound waves. 2230—Optics, atomic and nuclear physics, radiation protection. Basic physical principles and applications required in pre-medical, pre-dental, pre-pharmacy, and pre-veterinary programs. Must be taken in sequence. Coreq: Math 1550-60 or Math 1840-50 (or equivalent honors courses). 3 hours of lecture and 3 hours of lab.

2240-50-60 Elements of Physics for Architects (4,4,4) Basic physical principles with emphasis on architectural applications. 2240—Statics, dynamics, principles of mechanics; coreq: Math 1840 or 1550, 2250—Properties of fluids, heat and thermodynamics, wave and acoustic phenomena, optics; coreq: Math 1850 or 1650. 2270—Introduction to wave motion, Stellar evolution, and magnetism, alternative energy topics. Should be taken in sequence. 3 hrs. lecture, 3 hrs. lab.

2310-20-30 Fundamentals of Physics: Electricity, Waves and Optics (4,4,4) 2310—Electricity and magnetism, sound, and optical phenomena. 2320—Modern physics. Must be taken in sequence. Coreq: Math 1549-50-60 or Math 1840-50. 3 hours of lecture, 2 hrs. laboratory and recitation per week.

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2510 Mechanics (5) Statics, kinematics, Newton's laws, momentum, energy, rotation. 4 hour of lecture-recitation, 3 hours of laboratory-problem sessions. Prereq: Math 1840-50 or equivalent. 2510 satisfies prereq for Physics 2310, although physics major should also take Physics 1320 as a prereq to the major.


3230 Heat and Thermodynamics (3) Concepts of temperature and heat; laws of thermodynamics; applications of laws to simple physical and chemical problems. Prereq: 2320 or 2330 and calculus; 3110-20 or instructor's consent.

3610 Electronics (3,3) Electronic components and circuits of interest to physicists. Prereq: 2316-20-30 or 2210-20-30 and calculus. 3 labs.

3630 Nuclear Electronics Laboratory (3) Elementary circuits of interest to nuclear instrumentation are designed and built, and their characteristics are tested as a function of various parameters. Prereq: 3610-20.

3710-20-30 Introduction to Atomic and Nuclear Physics (3,3,3) 3710—Special relativity and early quantum theory; 3720—Atomic and molecular physics; 3740—Nuclear physics. Prereq: Math 2860 and Physics 2320 for 3710; 2338 or 3710 for 3720-30.

3990 Junior Seminar (1-3) Topic of current interest. May be repeated for credit with consent of department.

4010 Background of Physics (3) Survey of historical development and philosophical foundations of natural science. Classical theories of gravitation, electromagnetism, and relativity. Unifying mathematical principles underlying physical applications. Assignments will include readings from important original papers, thought-provoking problems and order-of-magnitude calculations combining different fields of classical physics, and written report on some independent study. Prereq: Senior standing in physics or consent of instructor.

4200 Forefront of Physics (3) Survey of modern developments in physics, including various forms of quantum mechanics, relativistic field theories, recent theoretical advances, and applications in other fields, with final oral report and term paper. Prereq: 4010 or consent of instructor.

4500 Foundations of Physics (3) Selected topics from history and philosophy of classical and modern physics. Prereq: One year of general physics and consent of instructor. NOTE: No student who has received a grade of C or better in Physics 4010-20 may subsequently receive credit for Physics 4500.

4110-20-30 Introduction to Quantum Mechanics (3,3,3) 4110—Introduction to fundamental principles of quantum mechanics and methods of calculation. Application of atomic, molecular, and nuclear physics. Prereq. 2330 or equivalent; Math 240-25.

4140 Elementary Nuclear Physics (3) General properties of nuclei, two-nucleon systems, nuclear forces, nuclear models, nuclear reactions, nuclear disintegration and beta-decay, nuclear spin and magnetism. Prereq: 3730 or 4120.

4160 Physical Acoustics (4) Considerations fundamental to detailed investigation of any branch of acoustics; propagation of acoustic waves in the infrasonic, the audible, the ultrasonic, and the hyperasonic ranges of frequencies. 3 hours and 1 lab. Prereq: 3110-20, 3230.

4230-4 Modern Optics (4,4) 4230-1 Geometric optics: reflection and transmission of light at a dielectric interface; paraxial theory of interfaces, lenses, and mirrors; thick lenses, lens systems, ray tracing; polarization; imagery; laser technology. 4230-2—Physical optics: matric elements of wave motion, superposition of waves; interference; Fraunhofer and Fresnel diffraction; Fourier optics; holography. Prereq: 3310 or consent of instructor. 3 hours of lecture and 3 hours of lab.

4310-20-30 Electricity and Magnetism (3,3,3) 4310—Electrostatics in vacuum and material media. 4320—Magnetism, coupled electric and magnetic fields. 4330—Maxwell's equations, electromagnetic waves. Must be taken in sequence. Prereq: 2320 and Math 2860.

4510-30-30 Atomic Physics Laboratory (3,3,3) Experiments in fundamental particle properties, photoelectricity, conduction of electricity through gases, atomic and molecular spectroscopy, X-ray. Prereq or coreq: 3710-20-30 3 labs.

4540-50 Experimental Nuclear and Radiation Physics (4,4) Interaction of charged particles and electromagnetic radiation with matter; theory and characteristics of various detectors; statistics of counting, nuclear properties. Experiments illustrate recent techniques for investigating the nucleus and nuclear radiation. 1 hour of lecture, 6 hours of lab. Prereq: 2330.

4580 Principles of Non-Destructive Testing (3) Detection and characterization of discontinuities in materials by non-destructive physical measurements. Ultrasonic, electromagnetic, holographic, and penetrating radiation techniques. Prereq: 2310-20-30 or consent of instructor. (Same as Engineering Science and Mechanics 4580.)

4590 Magnetic Induction Phenomena (3) Theory and application of magnetic induction phenomena. Includes non-destructive testing with eddy currents, induction heating, magnetic levlation, forming, pumping, and flow measurement, includes lab. Prereq: 3320 or equivalent.

4640 Kinetic Theory (3) Emphasis is placed on transport properties. Includes discussion of scattering theory and the classical distribution functions. Prereq: 3230 or equivalent.

4650 Statistical Mechanics (3) Elementary methods of statistical mechanics are applied to model systems to derive the thermodynamic relations. Classical and quantum distribution functions are discussed. It is recommended that 4640 and 4650 be taken in sequence. Prereq: 3320.

4650-70 Solid State Physics (3,3) 4660—Symmetry and crystal structure, lattice dynamical specific heat. 4670—Electron band theory, transport properties, optical properties. Must be taken in sequence. Prereq: 3230 or equivalent.

4710-20-30 Introduction to Health Physics (3,3,3) Radioactivity, interaction of electromagnetic radiation with matter, radiation quantities and units, point kernel and extended sources, X-rays and gamma rays, neutron activation, interaction of charged particles with matter, stopping power, range-energy relations, counting statistics, shielding, dosimetry, waste disposal, critically of radiation, radiation biology, and ecology. Prereq: 3730.

4918-28-48 4928-68 4938-78-88 Honors: Research and Independent Study (1 hour each) Designed for excellent undergraduate majors. Provides opportunity for research and independent study with faculty guidance. Special consent of department required. Maximum credit 5 hours.

4990 Senior Seminar (1-3) Topic of current interest. May be repeated for credit with consent of department.

Graduate General requirements for the master's degree and doctoral program as well as course descriptions are found in the Graduate Catalog.
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/Public Administration; and Political Theory and Methodology.

To graduate with Honors in Political Science, the student must have a GPA of at least 3.3 in Political Science, and a cumulative GPA of at least 3.0.

Public Administration. See page 80 and page 160.

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.

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 scholarship and interest. Entrance into 2518 requires a B average; selected entering freshmen will be accepted on the basis of placement scores and high school record. A grade of B in 2518 is necessary for entrance into 2528.

2530 Tennessee Government and Politics (4)

2550 Governments in Knox County (4) Analysis of political institutions and processes in Knox County.

United States Government and Politics/Public Administration

3110 Political Community (4) The course examines a variety of value systems and social and political structures related to political community.

3130 Political Culture and American Politics (4) Popular culture as it relates to American politics and government focusing on the role of film, television, fiction, music, drama, art and sports.

3390 Contemporary Issues in American Public Policy (4) Examination of selected public policy issues confronting the nation, including the background, nature, and effects of present policies, and options for the future.

3415 Law in American Society (4) Law as a process through which social problems are addressed in the United States. Examples are drawn from case law, legislation, and administrative regulation.

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.

3546 U.S. Constitutional Law: Civil Rights and Liberties (4) Emphasis on judicial interpretation of 1st Amendment, the equal protection clause of the 14th amendment and the right of privacy.

3547 U.S. Constitutional Law: The Criminal Process (4) The rights of the accused, convicted and incarcerated: search and seizure, right to counsel, self-incrimination, trial by jury, right to appeal, prisoners' rights, etc.

3555 Minority Group Politics in the United States (4) Content varies from quarter to quarter. May be repeated up to a maximum credit of 8 hours with consent of department. (Same as Afro-American Studies 3555.)

3565 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 courses.

3566 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 desirable as preceding courses.

3710 State Politics (4) Focus on formal and informal setting of state government. State government's role in formulating, enacting, and implementing state policy.


3750 The Urban Polity (4) Analysis of political institutions and processes in metropolitan areas. (Same as Urban Studies 3750.)

3760 Urban Policy Process (4) Analysis of urban problems and policies in metropolitan areas. (Same as Urban Studies 3760.)

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.

4110 Law and the Administrative Process (4) Power of, procedures of, controls over administrators.

4533-36 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-process.


4545 The Judicial Process (4) The study of courts as components of political systems, and public policy formulation through judicial decision making. 2510-20 desirable as preceding courses.

4550 Congress (4) Nature, functions, and processes of the U.S. Congress.

4575 Special Topics in United States Government and Politics (4) May be repeated to a maximum credit of 8 hours with consent of department.

4610 Budgetary Process (4) Fiscal planning, budget and expenditure processes in government, their policy and administrative implications.

4620 Public Personnel Administration (4) Development of the merit system in government, career systems, public personnel management functions, organization for personnel management.

4740 Political Parties and Elections (4) Analysis of party systems and electoral process.

4750 Political Campaigns (4) Coverage includes all aspects of campaign process.

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) (Same as Afro-American Studies 3615-16.)

3621 Government and Politics of the People's Republic of China (4) Examination of the Chinese political setting, political structures, participation and selected policy areas.

3625-26 Latin American Government and Politics (4,4) (Same as Latin American Studies 3625-26.)

3631-32 Government and Politics of the Soviet Union (4,4)

3635-36 Politics in Western Democracies (4,4) Political institutions, 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.)

4060 Revolution (4) Examination of characteristics, theories, and consequences of revolution, with particular focus on left-wing revolutions and movements.

4655-66 Policy Making in Democracies (4,4) Comparative approach to theory and process of making public policies.

4675 Special Topics in Comparative Government and Politics (4) May be repeated for a maximum credit of 8 hours with consent of department.

International Relations

3701-02 Introduction to International Relations (4,4) 3701—Basic elements on international politics: major conflicts; problems of peace and security. 3702—Impact of population, resources and economic problems on international politics. International law and organizations particularly the U.N.

3712-22 U.S. Foreign Policy Process (4,4) Processes whereby U.S. foreign policies are made and implemented, focusing on interaction within federal bureaucracy and roles of the President, Congress, the press, and public opinion.

3750 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. (Same as Latin American Studies 4727.)

Political Theory and Methodology

3800 Introduction to Political Analysis (4) Introduction to nature, character, and functions of research design, data collection, and statistical techniques used in study of politics.

3801 Studies in Ancient Political Thought (4) Classical Greek and Roman political thought.

3802 Studies in Medieval Political Thought (4) From Augustine to Luther: Emphasis on problems and theories of religion and politics.

3803 Studies in Early Modern Political Thought (4) Machiavelli through the Enlightenment.

3804 Studies in 19th- and 20th-Century Political Thought (4) Political theories of industrial and technological societies; 19th and 20th century.

4831-32 The Systematic Study of Politics (4,4) Scope, methods, and procedures of analysis in political science; intended primarily for seniors intending to pursue graduate work and entering graduate students who have not had such a course.

Other

3918-28-38 Junior Honors Seminar (4,4,4) Required of honors majors; admission with consent of Department.

4101 Foreign Study (1-16) See page 161.

4102 Off-Campus Study (1-16) See page 161.

4103 Independent Study (1-16) See page 161.

4918-28-38 Senior Honors Thesis and Seminar (0-12) Required of honors majors; admission with consent of Department. Maximum credit 12 hours.

GRADUATE

General requirements for the master's degree and doctoral degree as well as
Psychology (830)


Associate Professors: J. M. Bartow, Ph.D. Tennessee; N. W. Dye, Ph.D. Tennessee; E. A. Elliott, M.S. Tennessee; D. S. Freeman, Ph.D. Tennessee; M. G. Johnson, Ph.D. Johns Hopkins; J. Kandlikar, Ph.D. Tennessee; K. A. Lawler, Ph.D. North Carolina; S. Lokens, Ph.D. Tennessee; J. W. Lounsbury, Ph.D. Michigan State; A. Molt, Ph.D. Morgan, Jr., Ph.D. Tennessee; M. J. O'Connell, Ph.D. Tennessee; R. S. Saudargas, Ph.D. Florida State; C. B. Travis, Ph.D. California (Davis).

Assistant Professors: J. W. Erickson, Ph.D. Tennessee; D. S. Freeman, Ph.D. Tennessee; S. R. Friedlander, Ph.D. Georgia State.

1Honorary
2Alumni Distinguished Service Professor

UNDERGRADUATE

B.A. Major: (Concentration in General Psychology) Designed to give students a broad and current background in the science and application of psychological methods and principles. Psychology 2500 and two courses from 2520-30-40 or 2518-28 are prerequisite and current background in the science and psychology. Designed to give students a broad

2520 Biological Foundations of Behavior (3) Survey of theories and research pertaining to the biological foundations of behavior. Psychology 2500 recommended. E.

2530 Psychology as a Social Science (3) Introduction to individual and group processes in psychology in a social context. Psychology 2500 recommended.

2540 Psychology of the Individual (3) Study of individuals, their behavior, and the progressive changes in behavior that occur in natural environments; introduction to experimental and abnormal psychology. Psychology 2500 recommended. E.

3120 Social Psychology (3) General survey of theories, methods, and research findings on individual behavior in a social context. Prereq: 2500. E.

3129 Social Psychology Laboratory (2) Prereq: 3120; recommended prereq: 3319.

3140 Environmental Psychology (3) Influence of physical surroundings on individual experience, interpersonal relations, and social systems. Includes such topics as noise, temperature, crowding, air pollution, urban settings. Prereq: 2500 or equivalent recommended.

3150 Psychological Statistics (4) Introduction to basic statistical methods used in behavioral sciences. Not open to students with credit in Statistics 2100, Mathematics 3000, Sociology 3920, or equivalent. Prereq: 2 years of high school algebra or one course in college algebra. E.

3210 Learning and Thinking (3) Study of theoretical and empirical basis of learning and thinking. Prereq: 2500. E.

3218 Laboratory in Learning and Thinking (2) Prereq: 3210; recommended prereq: 3319.

3220 Motivation and Emotion (3) Current theories, approaches, and their development. Prereq: 2500. E.

3240 Psychology of Music (3) Introduction to psychological study of musical sounds and instruments; theories of rhythm, melody, and their relation to the psychology of spoken language. Prereq: 2520.

3319 Introduction to Research in Psychology (3) Basic techniques of research in behavioral science, including experimentation and naturalistic observation.

3550 Child Psychology (3) Origin and principles of behavior in infancy and childhood; physical, intellectual, social, emotional, and language behavior of the normal child. Prereq: 2500 or equivalent; 2540 recommended. E.

3559 Laboratory in Child Psychology (2) Field and laboratory studies of child development. Prereq: 3550 and recommended prereq: 3319.

3570 Psychological Problems in Childhood (3) Functional and developmental psychopathologies occurring in infancy and childhood, e.g., infantile autism, fears and phobias, and learning problems. Major contemporary theories and empirical research. Prereq: 3550.

3616-26 Human Relations (3,3) The study of interpersonal relations and communication through structured small group experience.

3650 Abnormal Psychology (3) Constitutional and environmental factors in abnormal behavior; neuropsychiatric reactions; non-technical discussion of diagnostic and therapeutic methods. Prereq: 2500; 2540 recommended. E.

3720 Ethology and Sociobiology (3) Basic concepts of the evolutionary approach to behavior with special reference to man, especially in nonhuman animals. Prereq: 2500 or equivalent.

4101 Foreign Study (1-16) See page 161.

4102 Off-Campus Study (1-16) See page 161.

Psychology 4103, 4107, 4109, and 4110 are courses of independent study and research taken by consent of instructor only. Course requirements, meeting times, and grading procedures are established by agreement between the student and a member of the psychology faculty. For each credit hour, a student may expect to spend from two to three hours per week for the quarter. No more than 24 credit hours may be earned in courses 4103, 4107, 4109, and 4110 combined.

4103 Independent Study (1-12) May be repeated. Maximum 12 credit hours. See note above. Prereq: Consent of instructor.

4107 Experience in Individual Instruction (1-4) Experiential learning as a supplement to individualized instruction. Prereq: Consent of instructor. May be repeated. Maximum 6 hrs.

4192 Undergraduate Research (1-12) May be repeated. Maximum 12 credit hours. See note above. Prereq: Consent of instructor.

4110 Undergraduate Participation in Community Research (1-12) May be repeated. Maximum 12 credit hours. See note above. Prereq: Consent of instructor.

4115 Psychology of Sex Role Development (3) Same as Educational and Counseling Psychology 4110.

4120 Topics in Social Psychology (3) Intensive analysis of selected research topics. Prereq: 3120 or Sociology 3130. (Same as Sociology 4120.)

4200 Topics in Health Psychology (4) May be repeated. Maximum 8 hrs.

4230 Sensory Processes and Perception (3) 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) Cannot be taken for credit by students who have credit for Management 4460. (Same as Management 4460.)

4510 Personality Theories (3) Survey of major approaches to understanding human personality and its development. Prereq: 2540; 3950 or 3960.

4510 Group Processes (3) Study and experience of theory and techniques of group processing and facilitating. Those participating in 4610 are expected to continue into 4620 and 4630. Prereq: 3616-26 and consent of instructor.

4520-30 Seminar in Group Processes (3,3) Didactic and laboratory experience for those qualified for further training as group facilitators. Prereq: 4610 and consent of instructor.

4640 Psychological Tests and Measures (3) 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 (3) Logic of signs and symbols; directed and associative thinking; memory, problem solving, and concept formation; nature, use, and development of language. Prereq: 3210 or consent of instructor.

4660 The Psychology of Language (3) Theories and descriptions of phonology, syntax, and semantics as applied to psychology and related disciplines. 4650 or linguistics background recommended.

4670 Cognitive Development (3) Theory and research on development of language and thinking in children and adolescents. Prereq: 3210 or 3950.

4710 Physiological Psychology (4) Nervous system and physiological correlates of behavior. Prereq: One year of Biology or Zoology and Psychology 2520.

4719 Physiological Psychology Laboratory (4) Laboratory studies of nervous system and physiological correlates of behavior. Coreq. 4710.

4720 Comparative Animal Behavior (4) Methods and principles. (Same as Zoology 4720.)

4729 Comparative Animal Behavior Laboratory (4) Laboratory and field studies. Coreq. 4720. (Same as Zoology 4720.)
4770 Psychology and the Law (4) Psychological aspects of the legal system. Prereq.: Junior Standing.

4780 Psychology and Current Issues (3) Research and theory relevant to selected contemporary issues. 4 class hours per week. Prereq.: Consent of instructor. May be repeated. Maximum 6 credit hours.

4830 History and Systems of Psychology (3) Evolution of the field of psychology, focusing on classic schools of thought and recent developments. Prereq.: 9 hours of upper-division psychology.


4860 Programmed Learning (3) (Same as Educ. C & I 4860.)

4870 Contemporary Research in Behavior of Women (3) Study of interaction of cultural and biological factors in determining the behavior of women, with emphasis on physiological mechanisms involved. (Same as Women's Studies 4870.)

4880 Afro-American Psychology (3) Review and analysis of psychological literature on Afro-Americans. Prereq.: Consent of instructor. (Same as Black Studies 4880.)

4910 Senior Seminar on Great Ideas in Psychology (3) Review of key ideas in psychology that have shaped the field of psychology, focusing on classic schools of thought and recent developments. Prereq.: 9 hours of the field of psychology, focusing on classic schools of thought and recent developments. Prereq.: 9 hours of credit.

1010 Living Religions of the World (4) Introduction to religious traditions in a variety of cultural settings.

1020 Current Themes in Religious Studies (1) Introduction to the study of religion through consideration of selected contemporary themes, problems or controversies. Variable consent. May be repeated for a maximum of 3 credit hours.

2110-20 Founders in Religion (4,4) Introduction to religious figures such as: Moses, Confucius, Socrates, Joseph Smith and Buddha. 2120—Religious figures such as: Muhammad, Lao Tze, Krishna, Jesus and Nichiren. Prereq. for 2110: 2110.

2130-21 Criticism of Religion (4,4) Classical and contemporary forms of criticism of Western religious thought. 2310—Forms of criticism in their classical presentations (as in Voltaire, Spinoza, Nietzsche, Marx, Durkheim, Freud, Sarre, Russell). 2320—Contemporary issues involving critical perspectives on religion such as feminist, environmental: ethnic (Afro—American, American), liberation movements.

2610 Introduction to Religion (4) Introduction to the study of religion through selected historical traditions, East and West.

2611 Introduction to Ancient Near Eastern Religions (4) Introduction to study of religion through selected ancient Near Eastern and Mediterranean traditions.

2612 Issues in Religious Studies (4) Introduction to study of religion through selected religious problems and alternatives. 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.

3060-70 History of Western Religious Thought and Institutions (3,3,3) 3060—First century to 5th century. 3070—6th century to 18th century. 3080—16th century to 1800. (Same as History 3060-70-80.)

3110 Ancient Israel's Historical and Religious Traditions (4) Historical, religious and cultural history and traditions of ancient Israel from earliest period to Exile. 3120 The Rise of Judaism (4) Political, religious, cultural and historical traditions of exilic and post-exilic Israel and early Judaism through 135 A.D. Later literature of Old Testament, Apocrypha, and Dead Sea Scrolls.

3121 Religious Traditions of Ancient Egypt (4) Religious and cultural traditions of ancient Egypt from Old Kingdom to Hellenistic period.

3131 Religious Traditions of Ancient Mesopotamia (4) Religious and cultural traditions of ancient Sumerians, Babylonians, and Assyrians.

3232-33 Religious Aspects of Literature (4,4) 3232—Religious Themes in Classic Works. Major themes of Western religion as reflected in classic literary works; authors such as Vergil, Dante, Shakespeare, Milton, Blake, Goethe, Tolstoy. 3233—Religion and Literature: 20th Century. Religious themes in western writing such as Yeats, Eliot, Mann, Kafka, Faulkner, Lawrence, Shaw, Camus, Cather. Prereq.: for 3233: 3332.

3311-12 Images of Jesus (4,4) Introduction to ancient and modern portrayals of Jesus, understood within their cultural milieus. Prereq. for 3312: 3311.


3340 Judaism in the Common Era (3) Survey of literature and traditions of Judaism in the Common Era.

3370-80 The Christian Tradition (4,4) Introduction to the Christian religious tradition, its origins, development and forms of impact on Western culture. 3370—Sacred writings of the tradition; basic forms of spirituality and polity. 3380—Unity and diversity of Christian theology in relation to such issues as human nature and society, nature of the cosmos, and relation of religion and culture. Prereq. for 3380: 3370.

3411-12 The Reformation (2,3) 3411—Renaissance. 3412—Reformation, Counter Reformation, and Wars of Religion, 1517-1618. (Same as History 3411-12.)

3440 Religion of Primitive Peoples (3) (Same as Anthropology 3440.)

3490 African Religions (4) Examination of religions of the indigenous peoples of Africa, including a study of functions of myth, rites, and symbols and an inquiry into how certain political movements in Africa have been and are informed by religious sensibilities. (Same as Anthropology 3490 and Black Studies 3490.)

3510-30 Religion in America (4,4) Not a survey but a representative profile of religion in America, past and present, organized each quarter around themes or problem. May be taken independently.

3550 Religion and Racism in America (4) Historical and critical survey of role played by religion in supporting and criticizing American racial injustice. (Same as Religious Studies and Sociology 3550.)

3560 Afro-American Religion in the United States (4) Historical and critical examination of development of African-American religious thought and institutions in the United States. (Same as Afro-American Studies 3560.)

3600-10 Religious Ethics (4,4) Historical and critical survey of religious ethics; basic theories and their application in social problems.

3605-06 Professional Responsibility (4,4) (Same as Philosophy 3605-06.)

3611 Medical Ethics (4) (Same as Philosophy 3611.)

3620 Topics in Religious Ethics (4) Examination of particular theoretical issues and social problems from perspectives of religious ethics. May be repeated once for credit.

3650 Philosophy and Religion in India (4) (Same as Philosophy 3650.)

3660 Buddhist Philosophy and Religion (4) (Same as Philosophy 3660.)

3671 Religion and Philosophy in China (4) (Same as Philosophy 3671.)

3672 Religion and Society in Japan (4) (Same as Sociology 3672.)

3680 Islam (4) Origins and early history, rapid spread as a world faith, development of Muslim theology and culture, interaction with modern cultures.

3690 Philosophy of Religion (4) (Same as Philosophy 3690.)

3710 Literature of the English Bible (3) (Same as English 3710.)

3711 Literature of the English Bible (3) (Same as English 3711.)
3715 Religious Thought in the Nineteenth Century (4) Major problems and themes in European and American religious thought between 1800 and the beginning of World War I.
3720 Contemporary Religious Thought (3) Major themes, issues, and thinkers.
3740 Issues in Science and Religion (3) Relation of religion to history, methods, and theories of science.
3750 Theology and Literature (3) Exploration of issues raised for religious inquiry by phenomena of literature, relation of religious and moral considerations to problems of literary criticism. Relation of 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.
3770 Zen Buddhism (3) Examination of historical, philosophical, and meditational materials of Zen. Special emphasis upon Zen theories of emptiness, non-mind, sudden enlightenment, and the koan.
3780 The Literature of Dissent (3) Critique of religion in Western thought. Aspects of atheism, rebellion, and revolution in such thinkers as Lucretius, Spinoza, Voltaire, Feuerbach, Marx, Nietzsche, Russell, and Camus.
4101 Foreign Study (1-16) See page 161.
4102 Off-Campus Study (1-16) See page 161.
4103 Independent Study (1-18) See page 161.
4111-21 Modern Religious Philosophies (4,4) Examination of the religious implications of major thinkers and movements. 4111—Nicolas of Cusa to Hume. 4121—Kant and the 19th century. Prereq: 9 hours of philosophy other than logic. (Same as Philosophy 4111-21.)
4200 Classical Indian Systems of Philosophy: The Moksha Tradition. (4) Basic writings and philosophical problems of the traditions of Samkhya, Yoga, and Vedanta. Prerequisite Religious Studies/Philosophy 3650 or 3660. (Same as Philosophy 4200.)
4210 Topics in Ancient Israelite and Ancient Near Eastern Religions (4) Prereq: 3110-20 or consent of instructor. May be repeated once for credit.
4310 Jesus and Paul Compared (4) Jesus' teaching and activity in context of first-century Palestinian Judaism: analysis of what Apostle Paul made of the tradition of and about Jesus. 2610 or 2611 recommended. Prereq: 9 hours of philosophy other than logic. (Same as Philosophy 4310.)
4410 American Religious Thought (4) Selected figures, movements, and problems in American religious thought from colonial period to present.
4450 Topics in American Religion (4) Prereq: One of the following: 3510, 3520, 4410, or consent of instructor. May be repeated once for credit.
4540 Social and Religious Change (4) (Same as Sociology 4540.)
4610 Topics in Western Religious Thought and Institutions (4) Selected figures, issues, and institutions. Seniors and graduate students only, except by consent of department. Prereq: 3560-70. May be repeated. Maximum credit 12 hours.
4640 Topics in Early Christianity and Hellenistic Religions (4) Selected figures, issues, and institutions. Seniors and graduate students only, except by consent of department. Prereq: Consent of instructor. May be repeated. Maximum credit 12 hours.
4870 Topics in Eastern Religions (4) Selected figures, issues, and institutions. Seniors and graduate students only, except by consent of department. Prereq: 3560-70. May be repeated. Maximum credit 12 hours.
4810-20-30 Readings and Research in Religious Studies (3-4,3-4,3-4)

4850 Proseminar in Religious Studies (3) For advanced students in religious studies. Specific topics, e.g., nature and function of myth in religion, problem of transcendence, integrating various disciplines involved in study of religion. Prereq: Consent of instructor. May be repeated. Maximum credit 9 hours.
4940 Sociology of Religion (4) (Same as Sociology 4940.)

GRADUATE
Consult the Graduate Catalog for listing of graduate level courses.

RELATED LANGUAGE STUDIES
3140-50-60 Elementary Classical Hebrew (3,3,3) 3140—Basic elements of Hebrew, phonology, script, morphology, and syntax. 3150—Continued grammar study and selected reading and translation. 3160—Continued reading and translation. Introduction to basic elements of text, literary form, historical, and traditional criticism. 3170-80-90 Intermediate Classical Hebrew (4,4,4) 3170—Torah and Former Prophets. 3180—Prophets. 3190—Writings and Mishnaic Hebrew. Prereq: 3151 or consent of instructor.
4740-50-60 Elementary Sanskrit (4,4,4) 4740—Introduction to grammar of classical Sanskrit and reading of annotated selections of epic and classical Sanskrit. (Same as Asian Studies 4740-50-60.)
4770-80-90 Intermediate Sanskrit (4,4,4) 4770—Advanced grammatical constructions and reading of epic and classical religious and cryptic materials. (E.g., Bhragavacarya Gita, Mokshadharma, Ramayana, Kathasaritsagar). Prereq: 4760 or consent of instructor. (Same as Asian Studies 4770-80-90.)
4840 Readings in Selected Language Related to Religious Studies (3-4) Prereq: Consent of instructor. May be repeated. Maximum credit 12 hours.

Romance Languages

Professors:
Yulan M. Washburn, (Acting Head), Ph.D. Florida State; P. E. Barrere, Ph.D. California (Berkeley); C. W. Cobb, Ph.D. Tulane; J. C. Elliott, M.A. Illinois; W. H. Helfin, Jr., Ph.D. Florida State; T. B. Irving (Emeritus), Ph.D. Princeton; F. D. Maurino (Emeritus), Ph.D. Columbia; C. R. M. Pinsky, Ph.D. California (Berkeley); M. Petrovska, Ph.D. Kentucky; J. O. Swain (Emeritus), Ph.D. Illinois; A. M. M. A. Vazquez-Bigli, Ph.D. Minnesota; G. E. Wade (Emeritus), Ph.D. Ohio State; A. H. Wallace, Ph.D. North Carolina; Y. M. Washburn, Ph.D. North Carolina.

Associate Professors:

Assistant Professors:
A. S. Allen, Ph.D. California (Berkeley); D. M. DiPuccio, Ph.D. Kansas; C. K. Duncan, Ph.D. Illinois; F. Perez-Pineda, Ph.D. Penn State; T. W. Rogers, Ed.D. Georgia; B. S. West, Ph.D. North Carolina; J. J. Wood, Ph.D. Southern Californ.

Instructors:
M. T. Rabot, Cert. de Lic. Poitiers.

Placement Examination: Students who have had two or more years' work in French, Italian, or Spanish in high school or one year's work in another college should register in French or Spanish 2110 or in French, Italian, or Spanish 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 take residence, or the like should initiate a request for a proficiency test in the Office of the Dean of Admissions and Records. A student earning a grade of C or better on such a test will receive credit for a limited number of courses. Superior students are encouraged to proceed as rapidly as their achievement permits.

Note to Majors and Minors in French, Italian, or Spanish and Minors in Portuguese: Students who have completed nine hours of upper-division courses in French, Italian, or Spanish literature at The University of Tennessee, or equivalent work at other institutions, must either (1) have a minimum grade point average of 2.0 in French, Italian, or Spanish before being accepted for a major's program, or (2) qualify by demonstrating, during the first week of the quarter, not less than a minimum ability equivalent to a grade of middle C on the current examination in French or Spanish 2130 or French, Italian, or Spanish 2520.

All majors must take at least 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 Chair, Room 212 Claxton Education Building.

French (405)
B.A. Major: Consists of 36 hours in courses numbered 3110 or above. Students whose primary interest is literature must have the following courses (or their equivalent, with consent of the department): 3110-20-30 or 3810-20-30 (Aspects or Survey of Literature, 9 hours); 3410 or 3420 or 3430 or 3450 (Intermediate Composition and Conversation or Composition and Conversation for Careers in Business, 3 hours); 4210 (Phonetics, 3 hours); 4220 or 4230 (Advanced Grammar, 3 hours); 9 hours of literature at the 4000 level; 9 additional hours selected from courses in literature, language, or civilization. Students whose primary interest is language must have the following courses (or their equivalent, with consent of the department): 3110-20-30 or 3810-20-30 (Aspects or Survey of Literature, 9 hours); 3410 or 3420 or 3430 or 3450 (Intermediate Composition and Conversation or Composition and Conversation for Careers in Business, 3 hours); 4210 (Phonetics, 3 hours); 4220 or 4230 (Advanced Grammar, 3 hours); 6 hours selected from courses 3410-20-30 or 3450 (Intermediate Composition and Conversation or Composition and Conversation for Careers in Business, 3 hours); 4250 (Linguistics, 3 hours); 4220 or 4230 (Advanced Grammar, 3 hours); 6 hours selected from courses 3410-20-30 or 3450 (Intermediate Composition and Conversation or Composition and Conversation for Careers in Business, 3 hours); 4250 (Linguistics, 3 hours); 4220 or 4230 (Advanced Grammar, 3 hours); 6 hours selected from courses 3410-20-30 or 3450 (Intermediate Composition and Conversation or Composition and Conversation for Careers in Business, 3 hours); 4250 (Linguistics, 3 hours); 4220 or 4230 (Advanced Grammar, 3 hours).
Minor: Consists of 24 hours in courses numbered 3110 or above, including the following:
3110-20-30 or 3810-20-30 (Aspects of German Languages), 3250 (Intermediate Composition andConversation, 3 hours); 4210 (Phonetics, 3 hours); 9 additional hours selected from courses in literature, language, or civilization. Students pursuing a minor are strongly advised to consult with a departmental advisor.

Courses which are the equivalents of the foregoing may be substituted with consent of the department; but courses in French literature in English translation may not be counted toward either a major or a minor.

1110-20-30 Elementary French (3,3,3) This sequence strongly recommended for students intending to take upper-division courses in French. Must be taken in sequence. 3 hours and 2 labs.

1118-28-38 Honors: Elementary French (3) Honors course for eligible students; 15 hours required instead of 21. Students who have taken French in high school. Freshmen admitted to 1138 on basis of diagnostic test or consultation with instructor, high school average, and performance on ACT.

Class held to maximum of 15 for individual attention. Text covers core material for Elementary French program for first year, but is enriched. Students expected to spend normal amount of preparation time. Course duration is 15 weeks. Some courses may easily transfer to regular class. Potential majors and minors in French are urged to take this course.

1510-20 Elementary French (4,4) Must be taken in sequence. 4 class meetings and 2 laboratory periods.

2110-20-30 Intermediate French (3,3,3) This sequence strongly recommended for students intending to take upper-division courses in French. Must be taken in sequence. 3 hours and 2 labs.

2118-28-38 Honors: Intermediate French (3,3,3) Honors course for students of superior ability in French. Incoming freshmen admitted on basis of diagnostic test, high school average, and performance on ACT. Class held to a maximum of 15 for individual attention. Students follow enriched program which emphasizes speaking ability and reading, including literary selections. Students passing 2110 with a grade of B or higher are eligible for 2130. Students passing 2120 with a grade of B or higher are eligible for 2138 rather than 2130. Students earning a grade of A or B in 2138 are eligible to take a proficiency exam for French 3000; credit for French 3000 given to students receiving a grade of A or B on this examination.

2510-20 Intermediate French (4,4) Must be taken in sequence. 4 class meetings and 2 laboratory periods.

2510-20 Panorama of French Culture (4,4) 2510—Cultural forces which produced the French nation; art, literature, architecture, music under Francis I; emergence of classicism; and the culture. 2520—Arts in Age of Reason and trends in French culture during the Revolution and Age of Romanticism, in bourgeois art of 19th century, and in modern movements of surrealism, dadaism, and existentialism.

2910-20-30 French Literature in English Translation (3,3,3) 2910—Introduction to French literature in translation (from the 16th century to the present); the evolution of French literature; and a study of selected works in modern French texts. Prereq: 2130, 2520, or equivalent.

9010-20-30 Medieval French Literature (3,3,3) Medieval French literature (3,3,3) medieval. No credit for those having had 1110-20-30, 1510-20.

4260 History of the French Language (3) 4260—The history of the French language from ancient Gaul to the present day. Prereq: 2110, 2520, or equivalent.

4270 French Linguistics (3) Development of scholarly study of the French language. (Same as Linguistics 4270.)
Survey of Italian culture from Roman era through the 17th century. 2620—Survey of Italian culture in the 18th, 19th, and 20th centuries.

3110-30-30 Aspects of Italian Literature (3,3,3) Prereq: 2130, 2520, or equivalent. Recommended for literature majors.

3310 Italian Literature in English Translation (3-4) Sicilian School, the Florentine School, Dante, Petrarch, Boccaccio, Machiavelli, Ariosto, Tasso. No change in credit hours after deadline. Option of 4 hours credit must present appropriate amount of extra work above that required for 3 hours.

3410-20-30 Advanced Grammar, Composition, and Conversation (3,3,3) Laboratory work, drills, and tapes. Prereq: 2130, 2520, or equivalent.

4050 Dante and Medieval Culture (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.)

4101 Foreign Study (1-16) See page 161.

4220 Petrarch (3) Prereq: 3130, 3520, or equivalent.

4230 Boccaccio (3) Prereq: 3130, 3520, or equivalent.

4410-30-30 Italian Literature of the Rinascimento (3,3) From Pulci to Tasso, the Quattrocento and the Cinquecento. Prereq: 3130, 3520, or equivalent.

4530 The Modern Novel (3) Prereq: 2130, 2520, or equivalent.

4760 Italian Folklore (3) Folk arts, music, traditions, rituals, and lore of Italy from Middle Ages to present. (Same as Anthropology 4760.)

GRADUATE

See Graduate Catalog for requirements and course descriptions.

Portuguese (811)

UNDERGRADUATE

Minor: A minor only is offered in Portuguese, consisting of 8 hours in the 3510-20 sequence (Aspects of Portuguese literature) and 18 hours in the 4310-20-30 sequence (directed readings in Brazilian and Portuguese literature, a course of variable content which may be repeated for credit). Students may substitute Foreign Study (4101) for any of the above courses.

1510-20 Elementary Portuguese (4,4) Must be taken in sequence. 4 class meetings and 2 laboratory periods.

2510-30 Intermediate Portuguese (4,4) Must be taken in sequence. 4 class meetings and 2 laboratory periods.

3000-01 Advanced Portuguese (3,3) An accelerated class for beginning students of Portuguese who already have a strong background in Spanish, French, or Italian. Conversation and reading with a quick survey of grammar. Introduction to the culture and literature of Portugal and Brazil. Prereq: Permission of instructor.

3510-20 Aspects of Portuguese Literature (4,4) Prereq: 2130, 2520 or equivalent. Recommended for literature majors. (Same as Latin American Studies 3510-20.)

4101 Foreign Study (1-16) See page 161.

4310-20-30 Directed Readings in Brazilian and Portuguese Literature (3,3,3) May be repeated with consent of instructor. (Same as Latin American Studies 4310-20-30.)

GRADUATE

Consult the Graduate Catalog for listing of graduate level courses.

Spanish (924)

UNDERGRADUATE

B.A. Major: Consists of 36 hours in courses numbered 3110 or above. Students whose primary interest is literature must have a minor chosen from the following sequences: 3110-20-30, 3310-20-30 (Aspects of Spanish literature or Aspects of Spanish American literature, 9 hours); 3410 plus 3420 or 3430 (Composition and Conversation, 6 hours); 4210 (Phonetics, 3 hours); 9 hours of literature at the 4000 level; 3 hours of civilization; sufficient additional hours selected from courses in literature, language, or civilization to fulfill the major requirement. Students whose primary interest is language must have a minimum of 9 hours chosen from the following sequences: 3110-20-30, 3310-20-30 (Aspects of Spanish literature, or Aspects of Spanish American literature, 9 hours); 3410 (Composition and Conversation, 3 hours); 4210 (Phonetics, 3 hours); 9 hours selected from courses 3420-30 (Composition and Conversation), 4220-30 (Advanced Grammar), or 4250-60-70 (Linguistics); 3 hours of literature at the 4000 level; 3 hours of civilization; sufficient additional hours selected from courses in literature, language, or civilization to fulfill the major requirement. With either of the above options, students may substitute Foreign Study (4101) for certain courses; students with special interests, such as Comparative Literature, may make certain substitutions with consent of the department.

Minor: Consists of 24 hours in courses numbered 3110 or above, including a minimum of 9 hours chosen from the following sequences: 3110-20-30, 3310-20-30 (Aspects of Spanish literature or Aspects of Spanish American literature, 9 hours); 3410 (Composition and Conversation, 3 hours); 4210 (Phonetics, 3 hours); sufficient additional hours selected from courses in literature, language, or civilization to fulfill the major requirements. Students pursuing a minor are strongly advised to consult with a departmental advisor.

Courses which are the equivalents of the following may be repeated with consent of the department; but courses in Spanish literature in English translation may not be counted toward either a major or a minor.

1110-20-30 Elementary Spanish (3,3,3) This sequence strongly recommended for students intending to take upper-division courses in Spanish. Must be taken in sequence. 3 hours and 2 labs.

1510-20 Elementary Spanish (4,4) Must be taken in sequence. 4 class meetings and 2 laboratory periods.

2110-30 Intermediate Spanish (3,3,3) This sequence strongly recommended for students intending to take upper-division courses in Spanish. Must be taken in sequence. 3 hours and 2 labs.

2510-20 Intermediate Spanish (4,4) Must be taken in sequence. 4 class meetings and 2 laboratory periods.

2518-28 Honors: Intermediate Spanish (4,4) Honors course for students of superior ability in Spanish. Incoming freshmen are admitted on the basis of a diagnostic test, high school average, and performance on the ACT. Class held to a maximum of 15 so that each student may receive more attention. Students follow a prescribed program with continuous 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: 3110-20-30, 1510-20, 1518-28, or equivalent.

2910-20-30 Spanish and Spanish American Literature in English Translation (1,4,4) 2910—Masterpieces of classical Spanish literature: Cervantes, realism, and the picturesque novel, religious mystics, Golden Age Theology. 2920-30-40 Spanish American Literature: Unamuno, Lorca, Baraja, Ortega. 2930—Contemporary Spanish American fiction: Mar- qués de Santa Cruz, 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. (Same as Latin American Studies 3010-20-30.)

3000 Spanish 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 2130 or 2520 in basic skills of reading, speaking, and writing Spanish.

3110-30-30 Aspects of Spanish Literature (3,3,3) 3110—Introduction to Spanish literature, using selections from prose, drama, and poetry of the modern period; 3120—aspects of Golden Age literature, including the mystics, Cervantes, and Lope de Vega. 3130—aspects of modern Spanish literature, including Unamuno, Ortega y Gasset, and Garcia Lorca. Prereq: 2130, 2520 or equivalent. Recommended for literature majors. Not offered for graduate credit.

3310-30-30 Aspects of Spanish American Literature (3,3,3) Study of various periods of the literature; emphasis upon the genres (poetry, novel, drama) varies. May be taken in place of 3130-20-30. Prereq: Foreign Study (4101). (Same as Latin American Studies 3310-20-30.)

3410-20-30 Intermediate Composition and Conversation (3,3,3) Not offered for graduate credit.

4055-65-75 Survey of Spanish Literature (3,3,3) 4055-The Medieval Period: Cantar de A mio Cid, Libro de buen amor. La Celestina, El Golden Age. 4056-The Golden Age: Lope de Vega, the picaresque novel, the Mystics, Calde- ron, Cervantes. 4075-The Modern Period: Becquer, the Generation of '98, Lorca, Ortega y Gasset, Cela. Prereq: Third-year literature sequence in Spanish or consent of instructor.

4101 Foreign Study (1-16) See page 161.

4115 Cervantes (3) Life and works of Cervantes, focusing on Don Quijote, but including other works; includes an introduction to Cervantes criticism and bibliography across the centuries. 4125 The Comedia (3) Study of Golden Age dramas with emphasis on works by Lope de Vega, Tirso de Molina, Alarcon, and Calderon de la Barca. Prereq: Third-year literature course in Spanish or consent of instructor.

4135 Generation of '98 (3) Study of the books of Granell and Lain Enraigo on the Generation: readings from Unamuno, Gasset, Baraja, Azaiez, Valle-Inclan, Antonio Machado, Jimenez, Benavente, and Ortega y Gasset. Prereq: Third-year literature course in Spanish or consent of instructor.

4140 Theatrical Spanish (1-3) Performance in one or more plays. Prereq: Intermediate Spanish or equivalent and consent of instructor. May be repeated with consent of department. Maximum 6 hrs.

4160-70-80 Advanced Conversation (2,2,2) Intensive training in prepared and spontaneous conversations. Subjects range from travel and current events to literature and aspects of national culture. Prereq: Completion of 9 hours of courses on 3000 level.

4210 Phonetics (3) Prereq: 2130, 2520, or equivalent.

4220-30 Advanced Grammar (3,3) Prereq: 2130, 2520, or equivalent.

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

4260 Introduction to Historical and Comparative Lin- guistics (3) (Same as French, German, Russian, and Linguistics 4260.)

4270 Romance Linguistics (3) (Same as French and Linguistics 4270.)
4410 Spanish Civilization (3) Prereq: 2130, 2520, or equivalent.
4420-30 Latin American Civilization (2,3) Prereq: 2130, 2520, or equivalent. (Same as Latin American Studies 3010-20-30.)
4510 Special Topics in Nineteenth Century Spanish Literature (3) Prereq: 2130, 2520, or equivalent. (Same as Latin American Studies 3010-20-30.)
4510 Special Topics in Nineteenth Century Spanish Literature (3) Prereq: 2130, 2520, or equivalent. (Same as Latin American Studies 3010-20-30.)

4618 Honors: Readings in Literature (3) Prereq: 3150, 3330, or equivalent and at least 3.0 on all university work. No credit for grade less than B.
4810-20-30 Topical Survey of Spanish American Literature (3,3,3) 4810—Poetry: major examples of the short story and novel. 4810—Poetry: landmark figures of past and present. 4830—Drama and essay: the modern period. (Same as Latin American Studies 4810-20-30.)

GRADUATE
The Master's Program
See Graduate Catalog for requirements and course descriptions.

Russian
See Germanic and Slavic Languages.

Russian and East European Studies
See Cultural Studies.

Sociology (915)

Professors:
T. C. Head (Head), Ph.D. Duke, M. D. Belz, Ph.D., Michigan State; J. A. Black, Ph.D. Iowa; D. J. Champion, Ph.D. Purdue; D. W. Hastings, Ph.D., Massachusetts; D. R. Poehl, Ph.D. North Carolina; N. E. Shover, Ph.D., Illinois (Urbana); S. E. Wallace, Ph.D. Minnesota.

Associate Professors:
D. Ciepland, Ph.D. Michigan State; S. Kurth, Ph.D., Illinois (Chicago); R. G. Fenn, Ph.D. British Columbia; K. D. Van Lierie, Ph.D. Washington State.

Assistant Professors:
S. Cathe, Ph.D. Pennsylvania State.

Instructor:
D. K. Harris, M.A. Tennessee.

UNDERGRADUATE
BA. Major: Consists of 36 upper-division hours in sociology. Eight lower-division hours in sociology are prerequisite to a major. Students will select 20 hours within one of the following six programs of study:
(1) Humanistic Sociology is designed for students who wish to develop an appreciation of how the social world works and of the individual's place in it. Courses include: Collective Behavior 3010, Resource Scarcity and Social Change 3015, Social Psychology 3130, Prejudice and Racism 3330, Stratification 3350, Urban Environment 3410, American Sociology 3780, Sociological Theory 3810, Social Research 3910, Sociology of Sport 4050, and Social Movements 4930.
(2) The Social Service program provides a broad background for students interested in the helping professions. Courses include: Social Psychology 3130, Deviance 3140, Sociology of Medicine 3180, The Family 3220, Poverty and Inequality 3340, Urban Problems 3420, Juvenile Delinquency 3510, Social Research 3910, Socialization Across the Adult Life Cycle 4160, and Sociology of Aging 4730.
(3) The Pre-professional program assists in preparation for graduate study in law, urban studies, planning, ecology, and sociology. Courses include: Political Sociology 3030, Social Psychology 3130, Urban Environment 3410, Occupations as Organizations 3620, Sociological Theory 3810, Social Research 3910, Elementary Social Statistics 3920, Social Change 4540, and Formal Organization 4560.
(4) The Research Analyst program is preparation for data analysis in public and private research organizations and in business and industry. Courses include: Stratification 3350, Social Research 3910, Elementary Social Statistics 3920, Population Problems 4110, Theory of Atitudes and Values 4180, and selected courses outside of the department. Students should consult with the Undergraduate Coordinator.
(5) The Human Management program is preparation for those who manage people as part of their work. Courses include: Social Psychology 3130, Gender in Society 3150, Communicative Processes 3220, Prejudice and Racism 3330, Occupations 3610, Occupations as Organizations 3620, Social Research 3910, and Formal Organizations 4560.
(6) The Criminal Justice program is preparation for careers in corrections, law enforcement, parole and probation, and criminology. Courses include: Collective Behavior 3010, Deviance 3140, Prejudice and Racism 3330, Juvenile Delinquency 3510, Social Research 3910, Sociology of Law 4030, Punishment and Corrections 4130, and Criminology 4310. A Minor consists of 24 upper-division hours. Eight lower-division hours in sociology are a prerequisite to a minor.
1510 General Sociology (4) Social origins, structures, forces, processes, and products.
1518 Honors: General Sociology (4) Enriched introduction to sociological principles and research. Permission of department required. B average or better. Selected freshmen.
1520 Sociology of Social Problems (4)
1528 Honors: Social Problems (4) Permission of department required. B average or better. Selected Freshman.
1530 Contemporary Social Change (4) Introduction to basic concepts and principles used in analyzing social change. Emphasis on contemporary society.
2351 Interpersonal Communication (4) (Same as Speech 2351.)
2510 Introduction to Sociology Through Literature (4) Social processes such as social control and socialization, sociological concepts such as status and role, and the other elements of a basic introduction to sociology are examined in this specialized introduction to sociology.
2520 Social Problems: Crime and Justice (4) Specialized introduction to social problems confined primarily to an analysis of American experiences in areas such as the causes of crime, the operation of the police and courts, and the correctional process.
2850 Sport in American Society (3) (Same as Physical Education 2850.)
3010 Collective Behavior (4) Analysis of collective phenomena emphasizing crowd behavior, responses to disaster, popular crazes, mass movements, and social protests.
3015 Resource Scarcity and Social Change (4) The relationship between scarcity of natural resources and changes in societal beliefs and social structure. Topics include social and physical limits to growth and collective action problems.
3025 Computers and Society (3) (Same as Computer Science 3025.)
3310 Social Psychology (4) Social psychological analysis of social behavior emphasizing its acquisition, its enactment and its dynamic nature.
3340 Comparative Poverty and Inequality (4) (Same as Afro-American Studies 3330.)
3340 Comparative Poverty and Inequality (4) Comparative description and sociological analysis of poverty and inequality in the modern world. (Same as Afro-American Studies 3340.)
3380 Social Stratification (4) Study of economic class, prestige, life style, and power hierarchies; causes and consequences of structured social inequality.
3410 Urban Environment (4) Introduction to urban environment; emergence of the city; cities of New World; rise of metropolitan America; urban society, social worlds within urban environment.
3420 Urban Problems (4) Introduction to social problems; urban social problems and interventions; housing, urban renewal, and neighborhood conservation; the urban poor; the dissident, and alienated; planning for urban youth; the urban elderly; the social and physical planning process; new towns. (Same as Urban Studies 3420.)
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.
3672 Religion and Society in Japan (4) (Same as Religious Studies 3672.)
3710 Corporate and Organizational Deviance (4) An introduction to analysis and understanding of crime and deviance committed by organizations. Intended for students from diverse fields, the course examines case studies of corporate and organizational
deviance. A principal focus is a critical examination of organized responses to this type of deviance, especially the operation of regulatory agencies.

3780 American Society (4) An analysis of the institutional organization of contemporary American society, with attention to institutional interrelations (e.g., between the economy and the polity), characteristics of important social groups (e.g., educators, political parties, and workers), and major forces of change.

3810 Sociological Theory (4) Survey and analysis of development of sociological theory from time of Comte to contemporary. Scope of subject matter determined by students and instructor with consent of department. Elective credit only. Prereq: Determined by department.

4000 Special Topics (4) Student-generated course offered at convenience of department upon student initiative. Scope of subject matter determined by students and instructor with consent of department. Elective credit only. Prereq: Determined by department.

4030 Society and Law (4) General treatment of social origins and consequences of law and legal process. Pigeonhole analysis on problems of law and social change, and on structure and functioning of legal sanctions. Law and law-like phenomena in formal organizations and processes emphasized.

4051 Sociology of Sport (4) The social meaning, organization and process of sport. Social organization and meaning of sport. The difference between sport and play and games, socialization, stratification and sport, sport as an occupation, place of sport in mass culture, sport sub-cultures, and reciprocal influences of sport and cultural milieu. Prereq: P.E. 2850 or sociology 2850, or permission of instructor. (Same as Physical Education 4051.)

4102 Off-Campus Study (1-16) See page 161.

4103 Independent Study (1-16) See page 161.

4110 Population Problems (4) Demographic factors and social structure; trends in fertility, mortality, population growth, migration, distribution and composition; population policy.

4120 Topics in Social Psychology (4) (Same as Psychology 4120.)

4160 Theory of Attitudes and Values (4) Study of organization, functions and measurement of attitudes and values; approaches to attitude change; and relationship to attitudes, values and behavior.

4190 Socialization Across the Adult Life Cycle (4) The social process through which people acquire skills and abilities and undergo identity transformations and types of adult socialization (e.g., occupational, institutional) are emphasized.

4330 Urban Ecology (4) Examination of public, private, collective, and individual space. Classical school ecology, its neoclassical revisers, social area analysis, and cognitive symbolic ecology emphasized. (Same as Urban Studies 4330.)

4410 Educational Sociology (3) (Same as Educ. C & A 4410.)

4500 Criminology (4) A systematic inquiry into the causes and control of crime and criminals. Emphasis is on causation.


4520 Criminal Justice II: Corrections (4) The historical development of institutions and programs such as juvenile delinquency, prisons, probation and parole. Analysis of their operation and impact is special focus. Discusses evaluation research and its application to correctional programs. Recommended: Sociology 4500.

4540 Development and Underdevelopment (4) Critical examination of theories which attempt to explain differential development in the modern world. In-depth examination of development issues in selected regions of the world. (Same as Religious Studies 4540.)

4560 Formal Organization (4) Analysis of bureaucratic organization, division of labor, delegation of authority, channeled communication under system of rationality.

4730 Sociology of Aging (4) Emphasizes how roles and statuses change with age in relation to the major social institutions and examines the impact that the rapidly increasing number of older people have on society, as well as the effect of society on older people.

4820 American Minority Groups (4) Minority groups and social structure in American society; analysis of intergroup relations with attention given to both past and present relationships of selected groups to broader society.

4930 Social Movements (4) Development, organization, and function of social movements; attention is given to ideology, leadership, and organization of political, religious, and other types of social movements.

4940 Sociology of Religion (4) Interrelationships of society, culture, and religion. (Same as Religious Studies 4940.)

GRADUATE

The General requirements for the major's and doctoral degrees as well as course descriptions are in the Graduate Catalog.

Spanish

See Romance Languages.

Speech and Theatre

Professors:


Associate Professors:

M. L. Ambrester, Ph.D. Ohio; J. E. Buckley, Ph.D. Northwestern; R. T. Church, Ph.D. Temple; N. C. Cook, M.A. Alabama; M. Custer, M.F.A. Wisconsin; R. W. Glenn, Ph.D. Northwestern.

Assistant Professors:


Instructor:


UNDERGRADUATE

B.A. Major: The Department of Speech and Theatre offers a single undergraduate degree, the Bachelor of Arts in Speech and Theatre. Majors must declare a concentration in either (a) Speech or (b) Theatre.

(a) Major in Speech and Theatre (Speech concentration)^1

Speech 1211 and 1221 are prerequisites to a concentration which consists of Speech 2311, 2331, 2351, and either 3890 or 4550, and 24 additional hours in Speech courses numbered 2000 and above, of which 20 hours must be in courses numbered 3000 and above. No more than 8 hours from Speech 2410-20, 3410-20, Speech and Theatre 4101, 4102, and 4103 may be counted toward the concentration. Advisory tracks are available in: (1) Interpersonal Communication, (2) Organizational Communication, and (3) Public Communication. Consult the Departmental office for information and recommended advisors.

(b) Major in Speech and Theatre (Theatre Concentration)^2

Theatre 1320-30-40 is prerequisite to a concentration which consists of: (a) Theatre 2111, 2221-21, 2522-53-54, 2552-53-54, 3400; (b) 19 additional hours of Theatre courses numbered 2000 or above^1. 12 hours of which may be cognate areas approved by the department; (c) at least one half of the hours in the concentration must be earned at the 3000-level and above. Speech and Theatre 4101-02-03 may be repeated for major credit to a maximum total of 8 hours.

Minors: Two minors are offered: (a) Speech and (b) Theatre.

(a) Minor in Speech:

i. Prerequisites: Speech 1211, 1221.
ii. Requirements: 24 hours in Speech courses numbered above 3000.

(b) Minor in Theatre:

i. Prerequisites: Theatre 1320-30-40.
ii. Requirements: 24 hours in Theatre courses numbered above 3000, 6 of which must be in history and criticism. Certification for Teaching Speech and English Consult Certification Clerk, Room 212, Claxon Education Building.

GRADUATE

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

Speech (943)

1211 Communication and Society (4) Study of communication media (speech, posters, speeches, songs, plays, demonstrations, film) and social change.

1221 Introduction to Speech Communication (3) Fundamental theories and practices with particular reference to interpersonal, interpersonal, group and public communication.

2311 Public Speaking (4) Basic principles of speech preparation and delivery. Students may not receive credit for both 2311 and 2312.

2312 Public Speaking (4) Includes the material of Speech 2311 with additional work on methods for coping with speech anxiety. Permission of instructor required. Students may not receive credit for both 2311 and 2312.

2331 Argumentation and Debate (4) Reasoned decision-making with emphasis on analysis, evidence, reasoning, constructing and refuting arguments.

2351 Interpersonal Communication (4) Study of the process by which thoughts, feelings, and actions affect and are affected by the face-to-face communication situation. (Same as Sociology 2351.)

2361 Business and Professional Speaking (4) Basic principles of oral communication within organizations, including such topics as organizational communication, motivation, group problem solving, formal presentations, and interviewing.

2410-20 Intercollegiate Forensics (1,1,1) Supervised work in tournament debate and individual events. Prereq: Consent of instructor.

1 Students majoring in Speech and Theatre with a Speech Concentration may choose an emphasis in Oral Interpretation.

2 Students choosing a Theatre Concentration must emphasize one of the following areas: history and criticism, playwriting, performance, production or oral interpretation.
2100 Introduction to Research Methods in Communication Studies (3) Introduction to the development and application of empirical research methods appropriate to interpersonal, group, and public communication. Basic concepts and techniques of sampling, surveys, reliability and validity of design in communication research.

3011 Persuasion (4) Persuasive theory: psychological, sociological, and cultural dimensions.

3021 Group Communication (4) Communication theory in its application to small groups, especially discussion groups; communication barriers, non-verbal communication, business communication.

3031 Nonverbal Communication (4) Exploration of nonverbal communication from human communication perspective: origins and research, usage and coding of nonverbal behavior, research strategies and theoretical approaches.

3320 Interpersonal Communication Processes (4) (Same as Sociology 3320.)

3361 Fundamentals of Organizational Communication (4) A study of communication behavior, theory and skills in organizational settings; upward, downward, and lateral communications in dyads and groups.

3410-20-30 Intercollegiate Forensics (1,1,1) Continuation of 2410-20-30. Prereq: Consent of instructor.

3890 Theories of Communication (4) Survey of contemporary communication theories and their applications.

3990 Evidence and Argumentation (3) The concept of evidence in public controversies, uses and sources of evidence, and conditions affecting credibility.

4000 Topics in Speech Communication (3) Variable content course affording opportunity to subject matter not covered in an existing course. Topics, scope of subject matter, and prerequisites to be determined by department. May be repeated. Maximum 6 credit hours. Major credit is limited to 3 credit hours.

4222 Advanced Argumentation and Debate (4) Prereq: 2331 or consent of instructor.

4351 Communication and Conflict (3) Communication as a significant factor in the development, management, and resolution of conflict at the interpersonal, small group, organizational, or societal level.

4550 History of Rhetorical Theory (4) Survey of Western rhetorical theory from Plato to the present.

4650 Rhetoric of the Women's Rights Movement (4) Historical and critical study of public address in campaign for women's rights from the 1830s to present. (Same as Women's Studies 4560.)

4571 British Oratory (4) Historical and critical study of British public address.

4591 Persuasive Uses of Imaginative Literature (4) Topics in social and political uses of novels, plays and poems.

4930 Studies in American Public Address (4) May be repeated. Maximum credit 12 hours.

GRADUATE
Consult the Graduate Catalog for listing of graduate level courses.

Theatre (976)

1200-30-40 Introduction to Theatre (3,3,3) 1200 — Lighting: theatre: thought, philosophy and aesthetics. 1300 — Historical perspectives on the making of the modern theatre. 1340 — Practice of theatre: collaboration of artists and craftsman.

2111-21 Acting (4,4) 2111 — Realism: readings, improvisations and scene study. 2121 — Extended Realism: voice and movement for the stage, basic rehearsal techniques. Prereq: Consent of instructor for 2121. Production participation required.

2211-21 Stagecraft (4,4) 2211 — Techniques of scenery construction. 2221 — Fundamental methods of stage lighting. Production participation required.

2231 Basic Stage Cosuming (4) Costume design and construction: basic theory and technique. Production participation required.

2282-53-54 Survey of World Drama (3,3,3) 2252 includes Greek, Roman, Medieval and Eastern forms of drama; 2253 covers Elizabethan through nineteenth century drama; and 2254 deals with the study of realism through contemporary drama.

3121-32 Advanced Acting (4,4) Historical styles of acting. 3121—Realism: 17th and 18th centuries. Prereq: Consent of instructor. Production participation required.

3151 Theatre Practicum: Performance (1-4) Supervised work on departmental productions. Available for credit only to theatre majors or with consent of department. Prereq: Consent of instructor. May be repeated. Maximum credit 4 hours.

3152 Theatre Practicum: Production (1-4) Supervised work on departmental productions. Available for credit only to theatre majors or with consent of department. Prereq: Consent of instructor. May be repeated. Maximum credit 4 hours.

3153 Summer Repertory Productions (1-4) Supervised work on summer repertory productions. Available only to members of summer company by consent of instructor. May be repeated. Maximum 4 credit hours.

3221-22 Introduction to Scene Design (4,4) 3221 — Problems in space, with reference to space shapes, form, movement, scale, and style; rudiments of rendering and ground-plan preparation. 3222 — Play interpretation through scenic must be set as environment for dramatic action; rudiments of model making. Must be taken in sequence.


3262-63 History of the American Theatre (3,3) Development of the theatre as social institution in American life. 3262 — From its beginnings to 1800. 3263 — From 1800 to present. (Same as English 3262-63.)

3511-12 Introduction to Costume Design (4,4) Costume as expression of character on stage; the application of costume history to specific design projects. Prereq: 2331 or consent of instructor.

4133-34 Special Problems in Acting (3,3) Advanced exercises in voice and movement; preparation of major role under performance conditions. Prereq: 3121-22 and consent of instructor.

4151 Theatre Practicum: Performance (1-4) Continuation of 3151. Available for credit only to theatre majors. Prereq: Consent of instructor. May be repeated. Maximum credit 4 hours.

4152 Theatre Practicum: Production (1-4) Continuation of 3152. Available for credit only to theatre majors. Prereq: Consent of instructor. May be repeated. Maximum credit 4 hours.

4153 Summer Repertory Productions (1-4) Continuation of 3153. Available only to members of summer company by consent of instructor. May be repeated. Maximum credit 4 hours.

4211 Technical Theatre I (4) Study and practice of theatre woodworking; production participation will be required. Prereq: 2221. Graduate credit available to Theatre MFA students only.

4212 Technical Theatre II (4) Study and practice of metalworking and plastics for theatrical productions; production participation will be required. Prereq: 2211. Graduate credit available to Theatre MFA students only.

4213 Technical Theatre III (4) Study and practice of stage rigging for theatrical productions; production participation will be required. Prereq: 2221. Graduate credit available to Theatre MFA students only.

4214-15 Advanced Technical Theatre (4,4) Advanced technical theatre methods and equipment; advanced technical theatre property execution; special problems in technical theatre.

4216 Advanced Lighting Technology (4) Study and practice of advanced stage lighting technology for theatrical productions. Prereq: 2221. Graduate credit available to Theatre MFA students only.

4217 Theatre Sound (4) Study and practice of theatrical and technical technology. Prereq: 2221. Graduate credit available to Theatre MFA students only.

4421-42 Advanced Scene Design (4,4) 4421 — Descriptive drawing as an approach to three-dimensional design; theatrical graphics standards and preparation of design drawings. 4422 — Perception of surface color; construction of spatial illusion through color with reference to rendering, scene painting, and preparation of painter's elevations. Must be taken in sequence. Prereq: 2221-21, 3221-22, and consent of instructor.

4341-42 Advanced Lighting Design (4,4) Relationship of light to setting in creating stage environment. Must be taken in sequence. Prereq: 3221-22 or consent of instructor.

4441-42 Advanced Play Directing (4,4) Problems of play interpretation; directing period plays; preparation of major role under performance conditions. Prereq: Consent of instructor. May be repeated. Maximum credit 4 hours.

4461 Drawing for the Theatre (3) A drawing course for students in the theatre design disciplines. Work toward development of skills in perspective, linear and graphic interpretation. Prereq: Consent of instructor. May be repeated. Maximum credit 4 hours.

4462 Scenery Painting (3) Materials, techniques and principles of the craft. Emphasis on gaining skill and understanding through studio experience. Prereq: Consent of instructor. Graduate credit available for students in Theatre MFA program only.

4751-52-53 Dramatic Theory and Criticism (3,3,3) 4951-52 Playwriting (4,4) Prereq: Consent of instructor.

GRADUATE
Consult the Graduate Catalog for listing of graduate level courses.

Speech and Theatre (945)

2021 Voice and Diction (4) Voice production; attention to individual speech problems.

2031 Oral Interpretation (3) Art of reading aloud; development of interpretive techniques and their application to selected passages of prose, poetry, and drama.

3651 Oral Interpretation of Prose Literature (4) Prereq: 3031 or consent of instructor.

3651 Oral Interpretation of Poetry (4) Prereq: 2031 or consent of instructor.

3671 Oral Interpretation of Drama (4) Prereq: 2031 or consent of instructor.

4101 Foreign Study (1-16) See page 186 and description of major concentration.

4102 Off-Campus Study (1-16) May be repeated for major credit to a maximum of 8 hours. See page 186 and description of major concentration.

4103 Independent Study (1-16) May be repeated for major credit to a maximum of 8 hours. See page 186 and description of major concentration.
Zoology/College of Liberal Arts 209

Statistics

See faculty list page 85.

Liberal arts students may major or minor in statistics under the supervision of the faculty of the statistics department in the College of Business Administration. The major is designed to prepare students for graduate study in statistics or for professional work in various applications of statistical methods, including applications in the natural and social sciences, business, and industry. It is highly recommended that a student majoring in statistics have a minor in an area of application.

Major: (a) Required courses: 24 hours to consist of Mathematics 2840-50-60; Statistics 3450-60; Computer Science 4310; Statistics 3550 or Mathematics 4650 or 4750. (b) Statistics electives: 15 hours from upper-division statistics courses not listed in part (a) above.

Minor: (a) Required courses: 21 hours to consist of Mathematics 2840-50-60; Statistics 3450-60; Computer Science 4310. (b) Statistics electives: 9 hours from upper-division statistics courses not in part (a) of the minor.

University Studies (964)

(Non-Departmental)

The University Studies Program has three objectives: 1) to foster interdisciplinary teaching and scholarship in the promotion of superior intercollegiate, general education; 2) to provide a mechanism for integration and synthesis within the university community; and 3) to nurture the personal and intellectual development of faculty and students. To these ends, the Program sponsors three courses, which are intercollegiate and team-taught.

1. The Common Good; and 3) Aging, Society, and the Common Good. Further information is available through the Dean’s Office, The College of Liberal Arts, 226 Ayres Hall.

2.00 The First Course (3) An introduction to university education as an adventure in personal growth and professional development. S/NC.

1.00 Learning, Thinking, and Creation (3) An introduction to strategies which promote excellence in learning, critical thinking, and creativity.

2110-20-30 Topics in University Studies (4,4,4) Variable content course using case studies and problem-solving approaches to explore interdisciplinary issues. Course includes a one-hour learning laboratory. Only for students enrolled in a University Learning Community.

3110-20 Technology, Society and the Common Good (3,3) Introduction to the interlocking relationships between population, food production and distribution, environmental pollution, depopulation of non-renewable natural resources, global arms race, etc. Two-quarter sequence designed for students of all colleges, first quarter—global perspectives; second quarter—decisions for the future. Extensive use of films, field trips, student discussion.

Women’s Studies

See Cultural Studies.

Zoology (995)

Professors: A. C. Echternacht (Acting Head), Ph.D. Kansas; R. M. Bagby, Ph.D. Illinois; D. L. Bunting, II, Ph.D. Oklahoma State (Emeritus); Ph.D. Pennsylvania; A. C. Cole (Emeritus), Ph.D. Ohio State; A. C. Echternacht, Ph.D. Kansas; D. A. Ehler, Ph.D. Minnesota; R. C. Fraser (Emeritus), Ph.D. Minnesota; B. Hochman, Ph.D. California (Berkeley); J. C. Howell (Emeritus), Ph.D. Cornell; E. T. Howley, Ph.D. Wisconsin; K. W. Jeon, Ph.D. London (England); A. W. Jones (Emeritus), Ph.D. Virginia; J. R. Kennedy, Ph.D. Iowa; J. N. Liles, Ph.D. Ohio State; J. A. MacCabe, Ph.D. California (Davis); S. E. Riechert, Ph.D. Wisconsin; L. E. Roth, Ph.D. Chicago; C. A. Shivera, Ph.D. Michigan State; J. T. Tannier (Emeritus), Ph.D. Cornell; H. G. Watch, Ph.D. Florida; G. L. Whitsom, Ph.D. Iowa.

Associate Professors: R. Ganguly, Ph.D. Nebraska; L. Rome, Ph.D. Harvard.

Research Associate Professors: T. Ashley, Ph.D. Florida State; R. Tindall, Ph.D. Penn; State.

Research Assistant Professor: J. L. Gittelman, Ph.D. Sussex (England).

UNDERGRADUATE

Prerequisites to upper-division courses: Biology 1210-20-30 or Zoology 1118-28 are prerequisites for all upper-division courses, with the exception of 3080 and 4940. Additional prerequisites are included with course descriptions.

B.A. Major: Consists of Biology 3110, 3120, 3130; 18 hours of upper-division zoology courses and 3 quarters of chemistry or biochemistry at the 2000 level or above. Of the 18 hours of upper-division zoology courses, a minimum of 6 hours must be at the 4000 level, and must include at least one laboratory or field course. 1 to 3 hours of Zoology 3990 and 3 hours of Zoology 4990. Perspectives in Zoology must also be included. Prerequisites to this major are: Biology 1210-20-30 or Zoology 1118-28 (Zoology 2920-30 may be substituted for Zoology 1118 or Biology 1220) and Chemistry 1110-20-30. Corequisites are: (1) a Mathematics and Statistics/Computer Science package consisting of Mathematics 1550-50, 1640-50 or 1641-51 (Mathematics 4650 recommended choice) plus one of the following: Mathematics 1800, 3050, 3060, 3861, Psychology 3150, Computer Science 1510, 1610, Plant and Soil Science 3610; (2) a year sequence in Physics (except 1410-20-30).

Note: Students majoring in zoology are advised to exercise care in fulfilling Science and Mathematics requirements. Mathematics 1840-50 or 1841-51 or 1540-50-60 and Chemistry 1110-20-30 or equivalent (20 or 21 hours altogether) must be completed by all zoology majors.

Minor: Consists of 24 hours of zoology, or zoology and biology, courses. (Zoology courses must be at the upper-division level; but 3000-level biology courses may be used, e.g. Biology 3110, 3120, 3130.) Prerequisites to this minor are Biology 1210-20-30 or Zoology 1118-28-38 and Chemistry 1110-20-30.

Note: Certain Zoology courses require organic chemistry or other prerequisites — consult the catalog description for each course.

Many courses in this department are offered only in specified quarters. Students should plan in advance the proper sequence. Information on the quarter a course is to be offered is available in the departmental office.

1118-28-38 Honors: Fundamentals of Zoology (4,4,4) Course designed for superior students in any field who are interested in obtaining a solid foundation in zoology. On completing this sequence students may register for core Biology 3110-30-30. Honors zoology is open to all students with a minimum ACT composite score of 27 or with a minimum GPA of 3.2 in college. Students must achieve a minimum of at least a B in any quarter to be eligible for the next quarter. Students who do not satisfy this requirement must complete the sequence with appropriate quarters of Biology 1210-20-30. Must be taken in sequence. 1118 (Fall-Processes; Structure and development. 1128 (Winter)-Genetics and phylogeny. 1138 (Spring)-Ecology; independent projects. Each quarter consists of six hours of combined lecture and lab. Students who receive credit for this sequence may not receive additional credit for Biology 1210-20-30 or Botany 1116-20 or 1118-28.

2460-70-80 Human Anatomy and Physiology (3,3,3) Fundamentals of human anatomy and physiology for nurses. Cannot be taken for credit by zoology or biology majors. 2 hours and 1 lab.

2461-71-81 Human Anatomy and Physiology (4,4,4) Same as 2460-70-30 except 2 hrs. and 2 labs.

2510-20-30 Human Biology (3,3,3) For non-majors. Not available for major credit in zoology and biology. 2510—What we are; diversity of life forms, uniqueness of movements, utilization of food, respiration, digestion, excretion, development, and immunity, aging, vascular disorders, genetic disorders, cancer, nutritional inadequacies, human ecology, genetic engineering. May be taken in any sequence. 2 hrs. and 1 lab.

2920-30 Human Physiology (4,4) Fundamentals of
biological, principles of human physiology. Must be taken in sequence. Prereq: One year of college chemistry. 3 hrs. and 1 lab.

2980 Human Anatomy (4) Gross and Microanatomy of the Human. Prereq: 1 year of an introductory Biology course or Zoology 2920-30 or equivalent. 2 hrs. and 2 labs. (Does not carry credit for Biology or Zoology Majors).

3059 Comparative Vertebrate Embryology (5) Developmental morphology of selected vertebrates. 2 hrs. and 3 labs.

3060 Comparative Vertebrate Anatomy (5) Physiology and anatomy of organ systems. Dogfish shark and cat primarily used in laboratory. Three hrs. and 2 labs.


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 and use of keys. 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 2220.)

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. Open discussion of selected dilemmas arising from new knowledge about medicine, behavior, resources, and technology.

3720 Ethology and Sociobiology (3) Basic concepts of the evolutionary approach to behavior with special reference to controversial issues in applications to psychology, the social sciences, and the arts. (Same as Psychology 3720.)

3880 Junior Seminar (1-3) Topic of current interest. May be repeated for credit with consent of department. Maximum 6 credit hours.

3920 Human Endocrinology (4) Basic course in human endocrinology with emphasis on the practical diagnosis of hormone levels for analysis of glandular function and treatment of endocrine abnormalities. Three lectures and 1 discussion. Prereq: A course in physiology. (Does not carry credit in the Zoology major or minor.)

3990 Zoology Colloquium (1) Weekly discussions of contemporary interest. Open to sophomores, juniors, and seniors. Each Zoology major is required to take a minimum of one hour. Grading: S/N/C. May be repeated. Maximum 3 hours.

4008-9-10-11-12-13-14-16-17 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. Maximum 12 hours.

4059 Developmental Biology (4) Experimental morphogenesis, fertilization, cellular interactions, hormonal effects, and related topics with examples drawn primarily from invertebrates and vertebrates. Prereq: 3950. 2 hours and 2 labs.

4102 Off-Campus Study (1-16) See page 185 and description of major concentration.

4110-20-30 Undergraduate Research Participation (2,2,2) Experience in active research projects under supervision of staff members. Prereq: Junior or senior standing and prior consent of instructor.

4140 Practicum in Zoology (1-3) Participation in practical application of zoology in community institutions, government organizations, and industry. Approximately 5 hours of involvement per week. Prereq: Biology 3110, 3120, 3130, and senior standing.

4190 Mammalogy (4) Classification, evolution, distribution, reproduction, populations, and behavior. 2 hours and 2 lab or field periods.

4200 Ichthyology (5) Classification, collection and identification, distribution, life histories, and economic importance of fishes. Prereq: Biology 2130 or consent of instructor. 2 hours and 2 lab or field periods.

4250 Environmental Physiology (4) Survey of physiological mechanisms in the animal kingdom and their relationships to animal ecology and to survival of animals in diverse environments. Prereq: Biology 3120-30, 2 years of chemistry.

4259 Comparative Animal Physiology Laboratory I (1) Coreq: 4250.


4269 Comparative Animal Physiology Laboratory II (1) Prereq: 3080 and consent of instructor; coreq: 4260.

4270 Immunology (3) (Same as Microbiology 4270.)

4280 Comparative Endocrinology (5) Comparative analysis of the physiology and morphology of endocrine glands in vertebrates and invertebrates. Their role and interaction in maintenance of the organism and species. Prereq: 3080 or equivalent. 3 hours and one 3-hour lab.

4290 Herpetology (4) Classification, distribution, life histories, collection, and identification of amphibians and reptiles, primarily of local species. 2 hours and 2 lab or field periods.

4300 Ornithology (4) Morphology, physiology, behavior, reproduction, populations, evolution, field identification. 2 hours and 2 labs or field periods.

4320 Microtechnique (4) 3320 recommended. 2 hrs. and 2 labs.