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

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

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

Latin American Studies (600)

Concentration consists of 36 hours including Spanish 3710-20 or Portuguese 3510-20, History 3870-60-90, Political Science 3625-26, and Geography 3800 or 3790 and 7 hours of acceptable elective courses in any of the participating departments or in the Latin American studies sequence 2510-20 (4,4) or Independent Research 4010-30.

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

Minor: Consist of 24 quarter hours selected from Geography 3800 or 3790, History 3870-80-90, Political Science 3625-26, Spanish 3710-20 or Portuguese 3510-20, and the Latin American studies sequence 2510-20 or Independent Research 4010-30.

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

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

4010 Independent Research in Latin American Studies (3-9) Directed research in any topic fully related to Latin American Studies to be undertaken by a student off campus, normally in Latin American country. The research must be approved and evaluated by the Latin American Studies Committee and directed by a faculty member involved in the study of the Latin American area. Credit to vary according to the scope and length of the project.

4870 Senior Seminar (3-4) Selected topics in Latin American studies. May be repeated with consent of instructor.

Linguistics (625)

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

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

Religious Studies 3141-51 (Hebrew);
Arabic 2510-20; Asian Studies 2531-32 (Chinese); Asian Studies 2631-32 (Japanese).

Concentration
The concentration shall consist of 38 hours distributed as follows:
(a) 32 hours composed of: Audiology and Speech Pathology 3050; French, German, Russian, or Spanish 4250-60-70; English 3330, 4430, 4440, Speech 4811; Linguistics 4020-30.
(b) 6 hours of the following, selected in consultation with the Linguistics Committee:
Anthropology 3800; Audiology and Speech Pathology 3200, 4650, 5651, 5790; Educational Curriculum and Instruction 3562-63; Special Education and Rehabilitation 5220, 5310-20-30, English 3340, 4450, 4460, 4471, 4481, 5150, 5170-30, German 4310-20; 4810-20-30, 5710-20-30, Linguistics 4000; Russian 4510-20-30; Philosophy 4630; Psychology 4650, 4680, 5399-70; French 4210-20-30, 5110-20-30; Spanish 4210-20-30, 5110-20-30.
(c) Other hours may be substituted in (b) by approval of the Linguistics Committee.

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

NOTE: In addition to the above listed courses for the concentration and the minor there are occasionally offerings in the Honors Series or in graduate seminars which may be substituted for certain requirements subject to written approval of the Linguistics Committee and the Office of the Dean.

For further information consult the chairman of the program, Dr. Bethany Dumas.

3330 Introduction to Study of English Language (4) (Same as English 3330)
3331 Cultural History of the English Language (3) (Same as English 3331)
3332 Modern English Grammar (3) (Same as English 3332)
4000 Topics in Linguistics (3) Content varies. May be repeated. Maximum credit 9 hours.
4020-30 Historical Linguistics, Neogrammarians School, and Growth of Structuralism (3,3) 4020—Traces development of scientific approach to linguistics from Grimm to Noam Chomsky, 4030—Traces change in linguistic interest brought about by Saussure's Cours and growing interest of anthropologists and biologists in linguistic study.
4250 Introduction to Descriptive Linguistics (3) (Same as French, German, Russian, and Spanish 4250)
4260 Introduction to Historical and Comparative Linguistics (3) (Same as French, German, Russian, and Spanish 4260)
4270 Introduction to Romance Linguistics (3) (Same as French and Spanish 4270)
4271 Introduction to Slavic Linguistics (3) (Same as Russian 4271)
4440 Sociolinguistics (3) (Same as English 4440)
4450 Dialectology (3) (Same as English 4450)
4460 Special Topics in English Linguistics (3) (Same as English 4460)
4471-81 English as a Second or Foreign Language (3,3) (Same as English 4471-81)

Medieval Studies (674)

A concentration in Medieval studies focuses upon culture and society from the collapse of the Roman Empire to the 16th century. Such a
concentration offers the opportunity to deepen one's self-awareness and broaden one's view of the range of human possibilities by studying a very different and remote culture—its conditions of life, social and political institutions, art, music, and modes of perception and expression.

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

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

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

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

4010 Seminar in Medieval Studies (4) Interdisciplinary treatment of selected topics. Upper-division courses for the concentration in Medieval studies may be chosen from the list of courses below.

Category #1
- History, Philosophy, Political Science, and Religious Studies.
- History 3061 History of Western Religious Thought and Institutions (4)
- History 3411 Renaissance (3)
- History 3710 History of Germany (3)
- History 3780 History of Middle East (3)
- History 4011 European History Colloquium (3) (when subject is part of medieval culture and society)
- History 4500 History of Medieval England (3)
- History 4710-30-50 Medieval History (3,3,3)
- Philosophy 4430 Medieval Philosophy (4)
- Political Science 3802 Studies in Political Thought (4)
- Religious Studies 3061 History of Western Religious Thought and Institutions (4)
- Religious Studies 3411 Renaissance and Reformation (4)
- Religious Studies 3713 Religion in the Middle Ages

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

Category #2 Language and Literature
- Classics 4310 Selected Reading from Latin Literature (3) (readings in Latin)
- Comparative Literature 4012-22-32 Special Topics in Comparative Literature (3,3,3) (when subject is part of medieval culture and society)
- Comparative Literature 4050-60-70 Dante and Medieval Culture (3,3,3)
- English 4410 Introduction to Study of English Language (3) (no language requirement)
- English 4420 History of English Language (3) (no prerequisites)
- English 4910-20 Chaucer (3,3) (Readings in Middle English)
- French 3210 French Literature in English Translation (3)
- French 4350-60-70 Medieval French Literature (3,3,3) (readings in French)
- French 4410 French Civilization (3) (readings in French)
- German 3210 German Literature in English Translation (3-4)
- German 3240 Old Norse Literature in English Translation (3)
- German 4510 History of German Language (3) (readings in German)
- Italian 4010 Italian Drama in English Translation (3) (or in Italian)
- Italian 4050-60-70 Dante and Medieval Culture (3,3,3) (readings in English or Italian)
- Italian 4330 History of Italian Language (3) (readings in Italian)
- Spanish 4050-60-70 Hispano-Arabic Literature and Culture (3,3,3) (in English translation)

Category #3 The Arts
- Architecture 4130 Seminar in Medieval Architecture (4)
- Art 3704 History of Medieval Art (4)
- Art 3705 Northern European Painting, 1350-1600 (4)
- Art 3715 Early Italian Renaissance Art, 1300-1500 (4)
- Music 4200 Independent Study in Music History and Literature (1-3) (when subject is part of medieval culture and society)
- Music 4280 The Mass to 1600 (3)
- Music 4290 Gregorian Chant (3)
- Theatre 3252 History of the Theatre (4)

Russian and East European Studies (887)

Prerequisites to the major are the completion of Russian 2110-20-30 and Russian 2640-50. (It is suggested that students planning to major in Russian and East European Studies satisfy Option 2 of the Language, Literature, and Arts section of the Triad. Russian 2110-20-30 can be used to satisfy part of that Option. Russian 2640-50 can be used to satisfy Part A of the History and Society section of the Triad.) The major consists of 42 hours distributed as follows: Geography 3880; six hours from History 3470-80-90; Political Science 3651 and four additional hours from Political Science 3632, 3796, 4615, 5370, and 5580; Russian 3110-20-30; Russian 4010 (Selected Topics in Russian and East European Studies); and any eight additional hours in courses numbered 3000 or above from the list "Approved Area Courses" which can be obtained from the chairman of the Russian and East European Studies Committee, Dr. Donald Fiene.

4010 Selected Topics in Russian and East European Studies (5) 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, David Samuel Wallace.

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

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

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

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

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

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

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

4570 Cities and Urbanization in American History (4) (Same as History 4570).

4600 Aspects of Urban Environment (4) (Same as Architecture 4900).

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

Anthropology:
- 3450 Community Studies in Complex Culture (3)

4440 Urban Anthropology (3)

Architecture:
- 2000 Man-Environment Systems I (4)
- 3930 Behavioral Approaches to Environmental Design (6)

4900 Aspects of Urban Environment (4)

Geography:
- 3000 Man, Location, and Behavior (4)

4340 Urban Geography (4)

History:
- 4670 Cities and Urbanization in American History (4)

4740 The City in Europe (3)

Planning:
Women's Studies (944)

Minor: Consists of Women's Studies 2010-20 and 16 hours of appropriate courses numbered 3000 or above. Courses approved for Women's Studies minor are listed below. Students may petition the Women's studies Committee for approval of courses other than those listed. For further information consult the chairperson of Women's Studies, Dr. Martha Lee Osborne, at the Women's Studies offices, Alumni Hall, 974-4209, or in the Philosophy Department, 807 McClung Tower, 974-3196 or 974-3255.

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

4000 Topics in Women's Studies (4)

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

Black Studies 4830 Black Women in American Society (4)

English 3310 Women Writers in England and America (3)

French 3240 Women in French Culture (4)

History 4290 Women in American History (4)

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

Philosophy 3430 Concepts of Women (4)

Public Health 4430 Women's Health (3)

Psychology 4870 Contemporary Research in the Behavior of Women (4)

Sociology 3150 Gender in Society (4)

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

Educational and Counseling Psychology 4110 Psychology of Sex Role Development (3)

Educational and Counseling Psychology 5110 Psychology of Women (2)

Cultural Studies (270)

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

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

4101 Foreign Study (1-16) Acceptable for credit in any cultural studies concentration or minor except Black Studies. Registration by consent of director of cultural studies and the respective chairperson. See pages 185 and 198.

4102 Off-Campus Study (1-16) Acceptable for credit in any cultural studies concentration or minor except Black Studies. Registration by consent of director of cultural studies and the respective chairperson. See pages 185 and 198.

4103 Independent Study (1-16) Acceptable for credit in any cultural studies concentration or minor except Black Studies. Registration by consent of director of cultural studies and the respective chairperson. See pages 185 and 198.

Graduate Program:

5101 Foreign Study (1-12)

5102 Off-Campus Study (1-12)

5103 Independent Study (1-12)

Ecology (278)

J. Frank McCormick, Director.

Basic Faculty:


The graduate program in ecology offers Master of Science and the Doctor of Philosophy degrees. This interdepartmental program provides advanced courses in contemporary ecology for students from undergraduate programs in basic and applied biology, agriculture, social sciences, mathematics, and engineering. Research opportunities in both fundamental and applied ecology are intended to prepare students for academic careers as well as professional positions in industry or government. The Environmental Sciences Division of the Oak Ridge National Laboratory, the Tennessee Valley Authority, and the National Park Service provide advisers and research facilities. The Great Smoky Mountains, Cumberland Plateau, valley and ridge topography, TVA lakes, and wild rivers provide 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 with an emphasis upon tropical environments.

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

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

Courses Acceptable in Program:

4101 Biology of Soil Microorganisms (4)

Agricultural Economics

4330 Land Economics (3)

5420 Advanced Land Economics (3)

Anthropology

4360 Field Work in Physical Anthropology (3-9)

4640 Zoology (3)

4960 Primate Paleontology (3)

4970 Human Paleontology (4)

5970 Emergence and Early Evolution of Man (3)

Botany

4310 Plant Ecology (4)

5340 Plant Geography (4)

5350 Analysis of Plant Communities (4)

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

5830 Field Methods in Plant Ecology (4)

6320 Ecosystems of the World (3)

Ecology

5000 Thesis

5100 Special Problems in Ecology (1-3)

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

5310 Ecology for Planners and Engineers (3)

5320 Implementation of Environmental Policy (3)

5610 Environmental Toxicology (3)

5640 Techniques in Environmental Toxicology (3)

6000 Doctoral Research and Dissertation

6100 Special Topics in Ecology (3)

6110 Seminar in Animal Behavior (2)

6120 Seminar in Aquatic Ecology (2)

6130 Seminar in Physiological Ecology (2)

6140 Seminar in Community Ecology (2)

6150 Seminar in Radiation Ecology (2)

6160 Seminar in Systems Ecology (2)

6431 Current Topics in Environmental Toxicology (1)

Economics

4260 Economics of Resources and Environmental Policy (3)

Environmental Engineering
Economics (283)

See faculty list, page 89.

UNDERGRADUATE

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

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

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

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

GRADUATE

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

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

English (339)


Associate Professors: J. M. Annistead, Ph.D. Duke; L. S. Burghardt, Ph.D. Chicago; D. A. Carroll, Ph.D. North Carolina; D. R. Cox, Ph.D. Missouri; B. K. Dumas, Ph.D. Arkansas; J. E. Gill, Ph.D. North Carolina; D. F. Goslee, Ph.D. Yale; N. M. Goosée, Ph.D. Yale; T. J. A. Heffernan, Ph.D. Cambridge; M. A. Lofaro, Ph.D. Maryland; R. B. Miller, Ph.D. Brown; M. P. Richards, Ph.D. Wisconsin; F. K. Robinson, Ph.D. Texas.

Assistant Professors: K. H. Adams, Ph.D. Florida; M. Kallet, Ph.D. Rutgers; M. L. Keene, Ph.D. Texas; I. Leki, Ph.D. Illinois; C.
3000-level writing course. A, B, C, I, NC, W grading.scale and work load the same as regular sequence.

Open only to those students selected on the basis of
1018-28-38 Honors: English Composition (3,3,3) 2

poetry. 1032-Writing and language: how we are in-

a year's work in English composition; no more than one
Prereq: 1010-20; any 1030-level course completes a

of writing skills to areas of special interest. Study and
1031-32-33 English Composition (3,3,3)1 Application

a year's work in English composition with any 2000-or

in the English department offers

for this program, the English department offers

Honors Programs: For students who qualify

Honors: English Composition (3,3,3) 2

application for the full course are permitted to register for only two other courses.

1221 Written and Oral English for Foreign Students (6) Emphasis on the more advanced structures of English grammar and on paragraph writing. Required during the first quarter of residence of all foreign students (graduates, undergraduates, and transfer students) who are not excused from it on the basis of the English Proficiency Examination or credit obtained for the full sequence of freshman composition with a grade of C or better at a college or university in the United States which is accredited by a regional association. A, B, C, I, F, W grading. Students regist-
tered for this course are permitted to register for only two other courses.

1281 English Pronunciation for Foreign Students (3) Sounds and intonation patterns of American English and relation of spelling to sound. Designed to improve students ability to speak and understand English. May be repeated. Maximum credit 6 hours. S/NC. (Same as Audiology and Speech Pathology 1261.)

431 English Composition for Foreign Students (3) offers the opportunity for intensive study in grammar, mechanics, sentence patterns, reading, and revision; intensive study of essays for meaning and ways of expressing meaning; conferences on individual writing problems. A, B, C, I, NC, W grading. Students may not receive credit for both 1010 and 1011.

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

1011 English Composition (4) Expository writing recommended for students who lack the ACT English score needed for 1010 or who have previously failed to pass that course. Includes the material of 1010 with two additional class hours of individual and group instruc-
tion in grammar, mechanics, sentence patterns, read-
ing, and writing development. A, B, C, I, NC, W grading. Students may not receive credit for both 1010 and 1011.

109 Writing Workshop (1) Self-paced laboratory course designed for this course is intended to begin at the beginning of the quarter by their English Composition teachers. Individual instruction in grammar, mechanics, sentence patterns, and paragraph development. To receive credit, a student must participate at least two hours per week and must also pass the composition class in which he/she is currently enrolled. May be repeated once for credit; may not be taken for credit concurrently with 1011. S/NC grading.

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

1031-32-33 English Composition (3,3,3) Application of writing skills to areas of special interest. Study and practice of research writing; individual conferences. Prereq: 1010-20; any 1030-level course completes a year's work in English composition; no more than one may be taken for credit. 1031—Writing about modern literature; study of story, screen, plays, and poetry. 1032—Writing and language; how we are in-


1018-28-38 Honors: English Composition (3,3,3) Open only to those students selected on the basis of placement scores and high school record. Grading scale A, B, C, D, F. Work load the same as regular sequence.
3440 Literature and Film (4) Aesthetic relationships, emphasis upon media comparison.

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

3470 Writing Poetry (3) Introduction to writing poetry.

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

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

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

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

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

3630 Restoration and Eighteenth-Century Drama (3) Dryden through Sheridan.

3721 Introduction to Folklore (3) Essential terms and concepts in modern folklore folk-life studies. Emphasis on North American materials: folklore, folklore, legend, proverb, riddle, superstition, dance, games, and architecture.

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

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

3870 Writing the Screenplay and the Television Play (3,3) Advanced novels in 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.

3910-20-30 Comparative Literature (3,3,3) 3910—Ancient. 3920—Medieval and Renaissance, 3930—Modern.

3940 Novel of the Contemporary Western World (3) Proust, Joyce, Mann, and others.

4010-20 Shakespeare (3,3) 4010—Early plays, e.g., 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: comedy, tragedy, epic, lyric, satire, etc. May be repeated with consent of department. Maximum credit 6 hours each.

4045-46 Topics in Literary Theory and Criticism (3,3) Content varies. Special topics in theoretical and practical approaches to British and American literature. May be repeated with consent of department. Maximum credit 6 hours each.

4050-60-70 American Novel (3,3,3) 4050—From earliest colonial novels through Brown, Cooper, and Kennedy, and major figures to 1875. 4060—Henry James and Mark Twain through early works of Faulkner and Hemingway. 4070—Early thirty to present.

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

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

4102 Off-Campus Study (3-12) See page 184.

4103 Independent Study (1-12) See page 184.

4118-28 Honors: Senior (0,0,9) Admission by consent of department. 4118A-28B graded S.

4140-50 Technical Writing (3,3) 4140—for students planning careers in physical, life and health sciences, engineering, agriculture, and forestry. Writing of proposals, laboratory and progress reports, abstracts, and journal articles. 4150—Writing of scientific literature articles in which data are marshalled and analyzed for human interest.

4250 Advanced Fiction-Writing (3) Further development of skills acquired in basic writing fiction course. Prereq: 3445 and consent of instructor.

4254 Writing the Detective and Mystery Story (3) Survey of genre development and basic texts of science fiction, speculative fiction, and fantasy. Exercises in writing in genres, in accordance with techniques learned in basic writing fiction course.

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

4310-20-30 Black Literature (3,3,3) Trends and movements in literature of Twentieth Century. Prereq: 4471. (Same as Linguistics 4471-81.)

4320—Scott to Thackeray. 4330—Darwin to Jane Austen.

4330—George Eliot to Galsworthy.

4340—James to Mark Twain.

4410-20-30 Black Literature (3,3,3) Trends and movements in literature of Twentieth Century. Prereq: 4471. (Same as Linguistics 4471-81.)

4440 Sociolinguistics (3) Exploration of language patterns in terms of correlations between them and their social context. Examination of effects of language upon culture, and vice versa. Prereq: English 3350 or consent of instructor. (Same as Linguistics 4440.)

4450 Dialectology (3) Theories and methodologies of dialect research, fieldwork, and analysis. Prereq: 3340 or consent of instructor. (Same as Linguistics 4450.)

4455 Variables of English (3) Theories, methodologies, and findings of English and American dialectology with emphasis on implications for cultural pluralism. Prereq: English 3330 or consent of instructor.

4460 Special Topics in English Linguistics (3) May be repeated for credit with consent of department. (Same as Linguistics 4460.)

4471-81 English as a Second or Foreign Language (3,3,3) Applied linguistics in teaching and learning of English as second or foreign language. Phonological and grammatical structure of present-day English. Analysis of differences (phonological, grammatical, and lexical) between English and another language. Prereq: Second year of a foreign language. 4481—Materials and methods of language teaching, with emphasis on preparation of materials and structured teaching situations. Theory of teaching language competence and performance, with emphasis on construction of tests. Team teaching with an experienced member of the staff. Prereq: 4471. (Same as Linguistics 4471-81.)

4610-20-30 Black Literature (3,3,3) Trends and developments.

4651 Southern Literature through the Nineteenth Century (3) Southern writing from colonial period to end of 19th century, including frontier humorists and local color writers.

4652 Southern Literature in the Twentieth Century (3) Modern Southern literary renaissance, Fugitives and Agrarians, Faulkner, and more recent writers such as Welty, O’Connor, and Porter.

4660 Emerson and Thoreau (3)

4680 American Humor through Mark Twain (3)

4721-31-41 Ballad and Folktaile (3,3,3) 4721—Study of traditional English and Scottish popular ballads and their North American variants; 4731—Study of Native American ballad and folklore; 4741—The folk narrative: functions, categories, and patterns of storytelling.

4850 Milton (3) Emphasis on major poems.

4860 Seventeenth-Century Prose and Poetry (3) Bacon and Donne to Marvell.

4890-40 Chaucer (3,3) (4930—The Canterbury Tales. 4940—Troilus and Criseyde and early poems.)

GRADUATE

5000 Thesis

5002 Non-Thesis Graduation Completion (3-15)

5101 Foreign Study (1-12)

5102 Off-Campus Study (1-12)

5103 Independent Study (1-12)

5110 Teaching Expository Writing (1)

5120 Teaching Writing about Literature (1)

5130 Teaching Business and Technical Writing (1)

5150 Old English Prose (3)

5170 History of the English Language (3,3)

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

5240 Readings in Black American Literature (3)

5310 Rhetoric and Composition: Theory and Practice (5)

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

5510-20 Readings in Literary Criticism from Plato and Aristotle to Present (3,3)

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

5710-29-39 Readings in English Literature of Eighteenth Century (3,3,3)

5910-20-30 Readings in English Language of Renaissance (3,3,3)

5860 Introduction to Literary Research (3)

5910-29-30 Readings in English and American Literature of Twentieth Century (3,3,3)

6000 Doctoral Research and Dissertation

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

6140 Studies in Old English Language and Literature (3)

6150 Old English Poetry (3)

6160 Beowulf (3)

6170 Studies in Middle English (3)

6181-82-83 Studies in the English Language (3,3,3)

6210-20-30 Studies in American Literature (3,3,3)

6241 Studies in Colonial American Literature (3)

6280-81 Studies in American Fiction (3,3)

6310-20-30 Studies in Victorian Literature (3,3,3)

6410-20-30 Studies in Chaucer (3,3,3)

6510-20-30 Studies in Spenser and Milton (3,3,3)

6550 Studies in Mode and Genre (3)

6590 Special Topics (3)

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

6710-20-30 Studies in Eighteenth-Century Literature (3,3,3)
problems or situations of contemporary interest are studied in depth, illustrating geographical points of view and techniques I have not explained previously. Not open to students who have taken 1110 and 1120.

1810-20 Geographical Perspective (4) The influence of location, pattern, and environment in economic activities. Emphasis: 2110—agriculture, 2120—energy, minerals, and manufacturing, 2130—transportation and trade. Not open to students who have taken 1710.

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

2110-20 Economic Geography (4,4,4) The significance of location, pattern, and environment in economic activities. Emphasis: 2110—agriculture, 2120—energy, minerals, and manufacturing, 2130—transportation and trade. Not open to students who have taken 1710.

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

3410 Intermediate Economic Geography (4) Concepts, theories, and practices in location planning and locational patterns in agriculture, manufacturing, and service activities.

3420 Urban Geography (4) Concepts and theories concerning development and significance of systems of cities and internal morphology of cities. Not open to students who have taken 4660.

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

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

3510 Meteorology (4) Introduction to the study of the atmosphere and its weather elements, their measurement, and analysis. Emphasis upon the study of weather and climate.

3520 Climatology (4) The study of climate and its variability. Emphasis upon the study of climate and its variability.

3530 The Land-Surface System and Man (4) Study of the interaction of man with his environment, with particular emphasis upon the interaction of man with his environment. Not open to students who have taken 1710.

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

3610 Political Geography (4) Study of the political factors that influence the location of political units and the political processes involved.

3620 Cultural Geography (4) Study of the cultural factors that influence location and cultural processes.

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

3790 Geography of Middle America (4) Covers Mexico, Central America, and the West Indies. Not open to students who have taken 3740, 3770, or 3760.

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

3810 Geography of Europe (4) Geography of Africa (4) Survey of major physical, cultural, and economic characteristics of Africa with particular emphasis on the area to the south of the Sahara.

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

3870 Geography of Asia (4) A survey of the physical, cultural, and economic characteristics of the countries of Asia, excluding the Soviet Union. Not open to students who have taken 3820, 3890, or 3900.

3880 Geography of the Soviet Union (4) Regional Geography of the Soviet Union (4)

3910 Regional Geography of United States and Canada (4) Major physical, economic, and social distributions and their interrelated characteristics. Emphasis on the interrelationship of the countries of United States and Canada. Not open to students who have taken 3710 or 3720.

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

3930 Geography of Tennessee (4) Geography of Appalachia (4) Interrelation of physical, economic, and social distribution and the role of the individual character of the Appalachian region and its parts, especially southern Appalachia. Pennsylvania in the current American scene.

4075 Geography of Transportation (4) Geographic examination of transportation systems, emphasizing transportation and people on the highway and in the air. Emphasis upon changing population patterns and the development of the transportation systems.

4076 Quantitative Methods in Geography (4) Emphasis upon the application of mathematical techniques to the study of human spatial behavior. Emphasis on the computer analysis of areal units. Pre: Pr: Econometrics 3000 or consent of instructor.

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

4102 Off-Campus Study (1-16) See page 184.

4103 Independent Study (1-16) See page 184.

4210 Problems in Geographical Method (4) Examples of problems and approaches to geographical analysis and synthesis. Emphasis on the application of geographical data, area sampling, generalization, classification, regionalization, and problems of scale.

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

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

4550 Geography of Soils (4) Soil as a physical system and its relationship to the environment. Emphasis on the specific cases of the role of soil in management of environmental systems.

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

4630 Geography of Agriculture (4) 4710 Cartographic Design and Production (4) Survey of the principles, construction, functions, and production of maps, maps, and maps of systems. Pr: Pr: 3700 recommended, 2 hours and 2 labs.


4730 Advanced Cartography (4) Survey of the techniques of representing surfaces using geographic information systems. Pr: Pr: 3700 and knowledge of a computer language recommended.

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

College of Liberal Arts

University of Wisconsin

College of Liberal Arts

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Geological Sciences

Professors: 
K. R. Walker (Head), Ph.D. 
T. A. Wolfe, Ph.D. 
H. J. Klapra (Emeritus, Ph.D. Ohio State; O. C. Kopp, Ph.D. Columbia; 
R. E. McCaughn, Ph.D. Tennessee; 

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

4799 Practicum in Cartography/Remote Sensing (2) Supervised practice in design and production of maps and other graphic materials in Department of Geography's Cartographic Services Laboratory or a similar organization. Prereq: 4750 or 4740. May be repeated. Maximum credit 6 hours.

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

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

5000 Thesis

5100 Colloquium in Geography (1)

5101 Foreign Study (1-12)

5102 Off-Campus Study (1-12)

5150 Introduction to Geographical Research (3)

5160 Research Design and Field Problems (4-6)

5170 Geographic Concept and Method (3)

5200 Special Problems in Geography (2-6)

5250 Topics in Historical Geography (3)

5260 Advanced Cultural Geography (3)

5310 Topics in Regional Geography of United States (3)

5320 Topics in the Geography of the American South (3)

5410 Advanced Topics in Economic Geography (3)

5520 Advanced Urban Geography (3)

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

5610 Topics in Climatology (3)

5710 Seminar in Geography (3)

5720 Topics in Quantitative Geography (3)

5740 Advanced Topics in Remote Sensing (3)

5790 Topics in Cartography (3)

5815 Regional Geomorphology (4)

6000 Doctoral Research and Dissertation

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

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

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

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

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

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

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

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

Associate Professors:

Assistant Professors:
T. W. Broadhead, Ph.D. Iowa; D. W. Byerly, Ph.D. Tennessee; 

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

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

Undergraduate:
Major: Geology 1410, 1420, 1430 are prerequisite to a major which consists of Geology 3180, 3260, 3310, 3360, 3370, and at least 24 hours additionally in upper-division courses in geology chosen to include at least 12 hours from among the following courses: Geology 3510, 4110, 4115, 4230, 4510, and 4610. Geology 4310 and/or 4440 (or equivalent) are strongly recommended for students planning to become professional geologists.

Because of the interdisciplinary nature of geology and the prerequisites for advanced study, students who major in geology are required to take the following allied science and mathematics courses: Biology 1210-20, Chemistry 1110-20, Mathematics 1840-501, Physics 2210-20 or 2510, and 2310-20. It is recommended that students take additional courses beyond the elementary level in at least one of the above allied fields.

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

Geology (424)

1000 Frontiers in Earth and Planetary Sciences (4)
Recent developments in earth science of interest to the public. Designed for non-majors; treat popular topics such as discoveries on moon by Apollo missions, meteorites and the extraterrestrial life, evolution of life, and the future of the solar system.

1410-20 General Geology I, II (4,4) 1410—Introduction to study of the earth, its composition, structure, and processes. Prereq: Chem 1110-20. 3 lectures and 1 lab per field period.

1420-20 General Geology I, II, III (4,4,4) Lecture and laboratory courses intended for geology majors. May be taken separately or in sequence. Prereq: Chem 1110-20 or equivalent. 3 lectures and 1 lab or field period.

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

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


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

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

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

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

3190 Introduction to the Petrographic Microscope (1) Introduction to the petrographic microscope and optical methods for minerals identification in thin section. To be taken concurrently with 3310. 1 lab per week. 5/NC grading only.

3210-20 Invertebrate Paleontology (4,4) Systematic review of important invertebrate fossil groups. 3210—Foraminifera to Annelida, including cnidaria, echinodermata, and conodonts. 3220—Mollusca through lesser Chordata, including arthropoda and echinoderma. May be taken separately or in sequence. Prereq: 3260, Biology 1210-20, or consent of instructor. 3 lectures and 1 lab or field period.

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

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

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

3310 Introductory Petrology (4) Introduction to classification and properties of igneous and metamorphic rocks, processes which produce them, and tectonic environments in which they form. Laboratory emphasizes both hand specimen and macroscopic study of important rock types. Prereq: 3180. 3 lectures and 1 lab.

3320 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 processes as applied to sedimentary processes and interpretation of depositional environments. Prereq: 1420 and 3180. 3 hours and 1 lab or field period.
### German and Slavic Languages

#### Undergraduate

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

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

**Foreign Study:** Students are encouraged to study abroad. The department is prepared to recommend summer study programs and junior year abroad programs for students who are interested in foreign study. Credits from recognized foreign study programs can readily be transferred to UTK. For qualified students, the department also offers German 4091 Foreign Study and Russian 4101 Foreign Study. See page 185. Students should consult the department before registering for the foreign study course.

**German**

- **Major:** Majors or minors in German should carefully prepare their programs in consultation with a departmental faculty adviser. German 2110-20-30 or its equivalent is a prerequisite to the major. The major shall consist of at least 36 hours of German in courses numbered above 3000, including German 3110-20-30 (or 3410-20, 3810-20-30, 9 hours of German literature in courses numbered above 3000, excluding 301020-30 and courses in English translation.
- **Minor:** Minor: Russian 2110-20-30 is prerequisite to the major. The major consists of 36 hours of Russian courses, including Russian 3110-20-30, 3610-20-30, 9 hours from Russian 3210-20-31-30-40-50-60, and 9 hours numbered 3610-20-30 and above. It is recommended that majors also take History 3470-80-90 and 90 hours of more sophomores English.

- **Russian and East European Studies.** See Cultural Studies.
- **Certification for Teaching German and Russian in Tennessee:** Consult Certification Clerk, Room 212

#### Instructor

M. H. Harris, M.A. Illinois.

**Undergraduate**

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Name</th>
<th>Credits</th>
<th>Prerequisites</th>
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<tbody>
<tr>
<td>1000</td>
<td>Elementary German (3,3)</td>
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<tr>
<td>1010</td>
<td>Elementary German (3,3)</td>
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<tr>
<td>1100-20-30</td>
<td>Elementary German (3,3)</td>
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<tr>
<td>1200</td>
<td>Intermediate German (3,3)</td>
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<td>1518-2158</td>
<td>Honors: Elementary and Intermediate German (6,6)</td>
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<tr>
<td>2640-20-30</td>
<td>Elementary German (3,3)</td>
<td>9</td>
<td>1510-20-30 or 1110-20-30, 2110-20-30 and its completion allows the student to enter all 3000-level German courses.</td>
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<tr>
<td>2710-20-30</td>
<td>Intermediate German (3,3)</td>
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<td>2810-20-30</td>
<td>Advanced German (3,3)</td>
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<td>2910-20-30</td>
<td>Advanced German (3,3)</td>
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<tr>
<td>3010-20-30</td>
<td>Elements of German for Upper-Division and Graduate Students (3,3)</td>
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<tr>
<td>3110-20-30</td>
<td>German Literature in English Translation (3,3)</td>
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<td>3210-20-30</td>
<td>Conversation and Composition (3,3)</td>
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<tr>
<td>3310-20-30</td>
<td>Introduction to German Literature (3,3)</td>
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<tr>
<td>3410-20-30</td>
<td>Conversation and Composition (3,3)</td>
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<tr>
<td>3510-20-30</td>
<td>German Language and Linguistics (3)</td>
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<tr>
<td>3610-20-30</td>
<td>Advanced Undergraduate and Graduate</td>
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</tbody>
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**Advanced Undergraduate and Graduate**

- **4101 Foreign Study:** See page 185.
- **4102 Off-Campus Study:** See page 184.

### 4103 Independent Study (1-16)

See page 184.

### 4110-20-30 Studies in Classical and Modern Writing (3,3)

See page 184.

### 4140-50 Selected Topics in German Literature from 1750 to the Present (3,3)

See page 184.

### 4160 Studies in German Authors (3)

See page 184.
3280 Goethe's Faust in English Translation (3) Intensive study of Faust I and II and survey of criticism and interpretations of the work. No foreign language credit.

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

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

3330 Dramas of Ibsen and Strindberg (3-4) Study of two principal forerunners of 20th-century drama. Works are read in English translation. No foreign language credit.

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

GRADUATE

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

5000 Thesis

5101 Foreign Study (1-12)

5102 Off-Campus Study (1-12)

5103 Independent Study (1-12)

5160 Introduction to German Semantics (3)

5200 Proseminar (3)

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

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

5500 Studies in German Literature (3)

5510 German Humanism and Reformation (3)

5520 German Baroque Literature (3)

5530 The Enlightenment and the Rococo (3)

5540 German Classicism (3)

5550 Goethe's Faust (3)

5560 German Romanticism (3)

5570 German Realism and Naturalism (3)

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

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

5600 German Literary Theory and Criticism (3)

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

5710 Introduction to Old Norse (3)

5720 Readings in Old Norse Prose (3)

5730 Readings in Old Norse Poetry (3)

6000 Doctoral Research and Dissertation

6100 Gothic (3)

6120-30 Old High German (3,3)

6140 Old Saxon (3)

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

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

Russian (886)

1110-20-30 Elementary Russian (4,4,4) Must be taken in sequence.

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

1630-40-50 Elementary Serbo-Croatian (4,4,4) Must be taken in sequence.

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

2110-20-30 Intermediate Russian (4,4,4) Must be taken in sequence.

2631-41-51 Intermediate Serbo-Croatian (3,3,3) Must be taken in sequence.

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

3010-20 Elements of Russian for Graduate Students and Seniors (3,3,3) For graduate students preparing for language examinations and seniors desiring reading knowledge of a second foreign language. Prereq: 2 years of some foreign language in college or consent of department. Undergraduate credit only. No credit for students having completed 1510-20 or equivalent.


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.

ADVANCED UNDERGRADUATE

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

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

4102 Off-Campus Study (1-16) See page 184.

4103 Independent Study (1-16) See page 184.

4110-20-30 Studies in Major Russian Writers (3,3,3) Content varies. Pushkin, Lermontov, Gogol, Turgenev, Tolstoy, Dostoevsky, Chekhov, and others. Prereq: 9 hours of 3000 courses (exclusive of 3100-20-30, 3210-20-30, 3400-40-50-60-70, 3310) or equivalent. May be repeated for credit.


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

4260 Introduction to Historical and Comparative Linguistics (3) (Same as German, French, Spanish, and Linguistics 4280.)

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

4310-20-30 Advanced Studies in Russian Language (3,3,3) Intended primarily for students majoring or minoring in Russian interested in language and linguistics. Includes problems in morphology and syntax, stylistics and translation techniques, and history of Russian language as well as other special problems for advanced students of Russian. May be repeated. Maximum credit 9 hours each.

4410-20-30 Directed Readings in Russian (3,3,3) Intended primarily for students participating in program in Russian and East European Area Studies, course will involve individual study related to student's major field. Prereq: 9 hours of 3000-level courses in Russian (exclusive of 3100-20-30, 3210-20-30, 3400-40-50-70, 3310 or equivalent).
students who have not yet met Tennessee Legislature requirements in American history, or for transfers who enter liberal studies after 1971. In an American history sequence, 2511—Settlement to 1865, 2521—1866 to present. Prereq: Consent of department; or 2510 for 2520. May not be taken as 1 hour elective. Not be offered during summer sessions.

2515-26 United States History for International Students (3,4) Consent of department required.

2515-28 Honors: History of the United States (4,4) Consent of department required.

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

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

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

3060-70 History of Western Religious Thought and Institutions (3,3,3) (Same as Religious Studies 3060-70, 70.)

3140-50 History of England (3,3,3) 3140—To 1688, 3150—1689 through Reform Bill of 1832. 3160—1832 to present.

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, cultural, economic, and political impact of both spectator and participatory sports in 20th century.

3240 Law in American History (3) Nature and function of law in American society; evolution of law and legal profession with attention to selected aspects; legal education, professionalization of the bar, and application of law to problems of race, religion, and morality.

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

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

3411-12 The Reformation (3,3) 3411—Renaissance. 3412—Reformation, Counter Reformation, and Wars of Religion. 1571-1616. (Same as Religious Studies 3411-12.)

3421-22 Early Modern Europe 1600-1815 (3,3,3) 3421—17th century Europe. 3422—Ancient Empire. 3423—French Revolutions and Napoleon.


3470-80 History of Russia (3,3,3) 3470—To 1901. 3480—1910-1920th century. 3490—20th century.

3510-20 The American Colonies and the American Revolution (3,3) 3610-Settlements to 1754. 3620—1754-1789.


3670 Popular Culture in the United States (3,3) Examination of significance of fads, fashions, and amusements of Americans public from Colonial period to age of television. Not for graduate credit.

3680 Indian-White Relations in United States History (4) American-Indian relations from the Colonial times. Emphasis on diplomacy of two cultures existing side by side; background and formulation of official policies by frontier circumstances; Indian wars and campaigns; and present-day relationships. Not for graduate credit.

3710-20-30 History of Germany (3,3,3) 3710—First Reich to 1713, 3720-Habsburg and Hohenzollern and Formation of Second Reich, 1713-1890. 3730-From a united to a divided Germany, 1890 to present.

3740 The City in Europe, ca. 1200-1900 (3) Survey of European urban growth, with comparative analysis of major periods of urbanization of 13th and 19th centuries. Emphasis on relationship between demographic, economic, and social foundations of cities and political and cultural development.

3751-52 Ancient Near Eastern Civilization (3,3) 3751—Early and Middle Bronze Ages, 3752—Late Bronze and Iron Ages.

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

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

3785 Contemporary Middle East (4) Background of current problems in area, from World War I to present. (Same as Political Science 3785.)

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

3810-20-30 History of East Asia (3,3,3) 3810—Traditional China and Japan, ancient of mid-19th century, 5892—Modern China, Japan, Korea, mid-19th century to 1920s. 3830—Contemporary China, Japan, and Korea, 1920s to present.

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


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

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

4018-28 Honors: Senior Paper (0-6) REQUIRED of students working for honors in history.

4019 Foreign Study (1-16) See page 185.

4092 Off-Campus Study (1-18) See page 184.

4103 Independent Study (1-16) See page 184.

4120-30 History of Colonialism and Imperialism (3,3) 4120—Background; Age of Discovery and Exploration to 15th century. 4130—19th century to present.


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

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

4310-20-30 History of American Foreign Relations (3,3,3) 4310—To 1901. 4320—1901-1941. 4330—1941 to present.
4860 The United States in World War II (4) Military, diplomatic, and domestic experience.

4870 U.S. Military History, 1754 to the Present (4) Examination of nation's broad strategic aims and means used to attain them, shifting strategy, tactics, and weaponry involved in our wars, and relationship between American society and its armed forces.

4880 Civilian-Military Relationships 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; Army in Nazi Germany, and Truman-MacArthur controversy.

4910-20-30 History of the South (3,3,3) 4910—1860-1900, 4920—1840-1870, 4930—Since 1870.


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

The Master's Program General requirements for the Master of Arts in History or Master of Arts in College Teaching degrees are found in the Graduate Catalog.

The Doctoral Program General requirements for the doctoral degree are found in the Graduate Catalog.

5000 Thesis

5002 Non-Thesis Graduation Completion (3-15)

5015 Periods In European History (3)

5016 Periods In American History (3)

5101 Foreign Study (1-12)

5102 Off-Campus Study (1-12)

5103 Independent Study (1-12)

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

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

5240 Introduction to Historical Research (3)

5520 Topics in Historical Editing (3)

5720 Topics in Medieval History (3)

5740 Topics in European Urban History (4)

5750 Topics in Ancient History (3)

5780 Topics in German National Socialism (3)

5790 Topics in Middle Eastern History (3)

5810 Topics in Andean History (3)

5820 Topics in Mexican History (3)

5850 Topics in Chinese History (3)

5860 Topics in Japanese History (3)

5910-20 Topics in Southern History (3)

6000 Doctoral Research and Dissertation

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

6900 Seminar in Special Studies (3)

6910 Seminar in the Civil War Era (3)

6920 Seminar in Latin American History (3)

6930 Seminar in Twentieth-Century America (3)

6940 Seminar in Medieval European History (3)

6950 Seminar in the Trans-Mississippi West (3)

6960 Seminar in Negro History (3)

6970 Seminar in American Foreign Relations (3)

6980 Seminar in the Middle East (3)

6990 Seminar in the Postwar World (3)

5660 Topics in Negro History (3)

5670 Topics in American Colonial History (3)

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

5680 Topics in Nineteenth-Century American History (3)

5690 Topics in Twentieth-Century American History (3)

5720 Topics in Medieval History (3)

5740 Topics in European Urban History (4)

5750 Topics in Ancient History (3)

5780 Topics in German National Socialism (3)

5790 Topics in Middle Eastern History (3)

5810 Topics in Andean History (3)

5820 Topics in Mexican History (3)

5850 Topics in Chinese History (3)

5860 Topics in Japanese History (3)

5910-20 Topics in Southern History (3)

6000 Doctoral Research and Dissertation

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

6300 Seminar in Special Studies (3)

6310 Seminar in Tennessee History (3)

6350 Seminar in American Diplomatic History (3)

6410 Seminar in Western Europe (3)

6444 Seminar in French History (3)

6480 Seminar in Russian History (3)

6510 Seminar in English History (3)

6610 Seminar in American Colonial History (3)

6620 Seminar in Era of American Revolution (3)

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

6635 Seminar in Jacksonian Period (3)

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

6650 Seminar in American Westward Movement (3)

6770 Seminar in Medieval Institutions (3)

6710 Seminar in Central European History (3)

6810 Seminar in Latin American History (3)

6910 Seminar in the Civil War Era (3)

6930 Seminar in Twentieth-Century America (3)

6940 Seminar in History of the South (3)

6960 Seminar in Negro History (3)

Honors Program

Director: Dr. Harry Jacobson

Non-Departmental

The following courses are restricted to students who have been selected to participate. 1118-28-38 are for first-year students invited on the basis of test scores, high school averages, and where appropriate, on University performance. Participation in the 2000-, 3000-, and 4000-level courses is based on cumulative averages. At present students with an average of 3.25 or greater are eligible.
Honors (509)
1118-2138-38 Honors: First Year—Inquiry and Modes of Thought (2-4,2-4,2-4) 1125—The humanities; 1128—The Natural Sciences; 1138—The Social Sciences. May be repeated.
2118-28-38 Honors: Sophomore—Special Problems Seminar (2-4,2-4,2-4) 2118—The Humanities; 2138—The Natural Sciences; 2138—The Social Sciences. These seminars focus on selected problems in the respective disciplines. Specific topics vary from year to year. May be repeated.
3118-28-38 Honors: Junior—Colloquium (2-4,2-4,2-4) Small group studies of selected topics. May be repeated.
401 Honors: Foreign Study (1-16) See page 185 and Director of Special Programs. Primarily for College Scholar Students.
4102 Honors: Off-Campus Study (1-16) See page 184 and Director of Special Programs. Primarily for College Scholar Students.
4103 Honors: Independent Study (1-16) See page 184 and Director of Special Programs. Primarily for College Scholar Students.
4118-28-38 Honors: Senior—Colloquium (2-4,2-4,2-4) Small group studies of selected topics. May be repeated.
4998 Honors: College Scholars Studies (2-16) Designed for College Scholars working on their senior thesis, project, or project. May be repeated for a total of 24 credit hours.

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 and in preparing individuals for careers in human service-related fields. The course of study provided by the faculty is also appropriate for individuals who wish primarily to improve their understanding of themselves and of the society in which they live.

Graduates of the program are at work in a wide variety of settings, ranging from nursery schools to nursing homes, and are confronted with the human consequences of problems such as crime, poverty, alcoholism, child abuse, and discrimination. Many of our graduates enter graduate and professional schools, seeking advanced degrees in fields as diverse as guidance counseling, physical therapy, hospital administration, law, medicine, and social work.

The curriculum of the program includes required courses, elective courses, advising, and supervised experience in one or more human service agencies or organizations. Students pursuing a major in Human Services will take 2690, 3110, 3300, 4220, 4229, and 4400; preferably in the order given—and one course from each of the four lists of courses given below; total hours' credit for the major will vary from 48 to 52, due to differences in the number of hours' credit awarded for different courses on these four lists.

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

II. Complex Organizations Geography 3610; Political Science 3565, 3566, 4665, 4666; Psychology 4520; Religious Studies/Sociology 3490; Sociology 3610, 3620, 4030, 4690.

III. Research and Statistics Computer Science 3010; Philosophy 3720, 4270; Psychology 3150; Sociology 3910, 3920.

IV. Community and Society Economics 3220, 3410; Anthropology 3070, 3450; Child and Family Studies 3515, 3520, 4610; Geography 3000, 3430; Home Economics 3110; Human Services 4900; Philosophy 3320, 3440, 3611; Political Science 3710, 3720, 3730, 3780, 4650, 4690; Public Health 3330; Religious Studies 3550, 3600, 3610; Rural Sociology 3420; Sociology 3160, 3220, 3330, 3530, 3420, 3510, 3690, 4330, 4430, 4490, 4930; Special Education 3490, 5620.

Total Credit Hours: 48-52

2890 Introduction to Human Services (4) General field of human services with focus on related societal values; contemporary issues in human services.

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

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

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

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

4101 Foreign Study (1-16) Foreign Study (1-16) Application filed no later than the first week of the quarter prior to the quarter of enrollment. For additional information, see page 185.

4102 Off-Campus Study (1-16) Off Campus Study (1-16) Application filed no later than the first week of the quarter prior to the quarter of enrollment. For additional information, see page 184.

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 184.

4200 Social Welfare Policies and Issues (4) Specific social welfare policies and their relation to human needs, structure, program, and service approaches. Special focus on developing an analytical framework and social change efforts. Prerequisite: Full acceptance into major.

4210 Social Work Practice I (4) Essential theory, values, and skills of professional social work intervention. Emphasis on direct social work practice with individuals, groups, and families. Specific focus on professional work with clients characterized by social and economic deprivation. To be taken in sequence. Prerequisite: Social Work 3400. Corequisites: Social Work 3400, 4500.

4310 Social Work Practice II (4) Essential theory, values, and skills of professional social work intervention. Emphasis on direct social work practice with individuals, groups, and families. Specific focus on professional work with clients characterized by social and economic deprivation. To be taken in sequence. Prerequisite: Social Work 3400. Corequisites: Social Work 3400, 4500.

4400 Human Services Field Work (8 or 16) Practical field experiences in appropriately organized and directly ed human services settings. Designed to offer the student the opportunity to learn and develop specific helping skills and to extend those skills in the roles and function of social services; to provide some direct services in a supervised learning situation. Application filed no later than the first week of the quarter prior to the quarter of enrollment. For majors only. May be repeated. Maximum 16 hours. 16 hours required. S/NC. Prerequisite of internship.

Social Work (909)
Major: Social Work 3400-10 (4,4), 4110-20-30 (4,4), 4220 (4), 4500-10 (4,4), 4520-30 (8,8). The major consists of 48 hours.

Prerequisite to the major is Human Services 2690. Corequisite courses include: Human Services 3200; Psychology 2520, 2540; Sociology 3110, 3200; Social Work 3400. Corequisites: Social Work 3400, 4100, 4500.

4110 Social Work Practice I (4) Essential theory, values, and skills of professional social work intervention. Emphasis on direct social work practice with individuals, groups, and families. Specific focus on professional work with clients characterized by social and economic deprivation. To be taken in sequence. Prerequisite: Social Work 3400. Corequisites: Social Work 3400, 4500.

4130 Social Work Practice III (4) Essential theory, values, and skills of professionalism social work intervention. Emphasis on direct social work practice with individuals, groups, and families. Specific focus on professional work with clients characterized by social and economic deprivation. To be taken in sequence. Prerequisite: Social Work 4130. Corequisites: Social Work 3400, 4100, 4500.

4200 Social Welfare Policies and Issues (4) Specific social welfare policies and their relation to human needs, structure, program, and service approaches. Special focus on developing an analytical framework and social change efforts. Prerequisite: Full acceptance into major.

4500-10 Field Practice in Social Work I, II (4,4) An eight hour per week supervised agency field practicum in which students can apply classroom material to practice with clients. May be repeated up to 80 total credit hours. Prerequisite: Full acceptance into major.

4520-30 Field Practice in Social Work III, IV (8,8) A sixteen hour per week supervised agency field practicum in which students learn how to integrate theory
and practice and critically examine use of self as a professional helping person. Weekly faculty directed seminars. Prerequisite: Full acceptance into major. Corequisite: Social Work 412030.

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; R. E. Cline, Ph.D. Purdue; R. J. Davenner, Ph.D. Wisconsin; D. J. Desart, Ph.D. Maryland; D. E. Dobbe, Ph.D. Cornell; E. D. Eaves (Emeritus), Ph.D. Texas; H. Frandsen, Ph.D. Illinois; R. T. Gregory, Ph.D. Illinois; M. D. Gunzburger, Ph.D. New York; T. G. Hallam, Ph.D. Missouri; D. B. Hinton, Ph.D. Wisconsin; G. A. Hocking (Emeritus), Ph.D. Chicago; L. S. Husch, Ph.D. Florida State; H. T. Mathews, Ph.D. Tulane; R. M. McConnel, Ph.D. Duke; D. D. Miller (Emeritus), Ph.D. Michigan; R. J. Plemmons, Ph.D. Auburn; B. S. Ralph, Ph.D. Illinois; C. K. Reddy, Ph.D. Indiana Institute of Technology; W. P. Schaefer, Ph.D. Maryland; F. W. Stalman, Ph.D. Illinois; G. J. Siessens (Germany); W. R. Wade, Ph.D. California (Riverside); C. G. Wagner, Ph.D. Duke.

Associate Professors:
C. E. Clark, Ph.D. Louisiana State; G. S. Jordan, Ph.D. Wisconsin; K. R. Kimberly, Ph.D. Ohio State; G. A. Klassen, Ph.D. Nebraska; Y. Kuo, Ph.D. Cincinnati; H. W. Row, Jr., Ph.D. Wisconsin; R. J. Rowlett, Ph.D. Virginia; S. M. Serbin, Ph.D. Cornell; J. F. Smith, Ph.D. California (Berkeley); G. A. Sodt, Ph.D. California (Berkeley); K. Soni, Ph.D. Oregon State; R. Soni, Ph.D. Oregon State; J. T. Wu, Ph.D. SUNY (Binghamton).

Assistant Professors:
V. Alexides, Ph.D. Delaware; D. F. Anderson, Ph.D. Cincinnati; M. Ashcraft, Ph.D. Princeton; L. Bullock, Ph.D. Florida State; J. Cohen, Ph.D. Washington; V. A. Douglass, Ph.D. Harvard; S. Elner, Ph.D. Cornell; L. J. Gross, Ph.D. Cornell; D. Karaskashian, Ph.D. Harvard; J. Ladwig, Ph.D. Oregon; S. Lemhart, Ph.D. Kentucky; M. Miller, Ph.D. Illinois; H. Simpson, Ph.D. California Institute of Technology; R. Stephenson, Ph.D. Wisconsin; C. Sundberg, Ph.D. Wisconsin.

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

Space Institute, Tullahoma.

UNDERGRADUATE

Placement Information for Freshman Courses: Students who need more than one year of mathematics should plan to take 1840-50-60 (or 1842-52-62 or 1848-58-68). The prerequisites for 1840 (and 1842) are two years of high school algebra, one year of geometry, and present an ACT score of at least 26 (or those who have taken a proficiency examination for one or more of these courses). Students who present an ACT score below 28 in mathematics are urged to take 0150 before (or concurrently with) 1840-50-60. If a satisfactory grade is made on 1840-50-60, no student who has received credit for Math 1540 with a grade of C or better may subsequently receive credit for Math 1540 or 1700. No student who has received a grade of C or better in Mathematics 1840-50-60 may subsequently receive credit for Mathematics 1550.

Honors Courses: The current practice of the department is to offer honors versions (1848-58-68 and 2848-58-68) of 1840-50-60, and subsequent honors courses, an honors version of any mathematics courses, as defined under the Honors Program. In exceptional cases, other courses of similar level may be accepted in place of the six hours of honors courses.

To major in mathematics, a student must complete the following requirements (categories 1 through 4 above): an honors version of any course in the department whose number has zero as the last digit may be offered in any year. 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 take the mathematics Office, Ayres Hall, Room 124, in the evening school (or equivalent anywhere). Students who have not had high school trigonometry should take 0150 before (or concurrently with) 1840 (or 1842). Students who present an ACT score of at least 32 in mathematics and a high school average of at least 3.00 are eligible for the honors course. Mathematics majors who meet these requirements are particularly encouraged to enroll in 1848. (Exceptions to the eligibility criteria for 1848 are possible. Interested students should see the department head in Ayres Hall, Room 124.)

The prerequisites for 1540 are two years of high school algebra or one year of algebra and one year of geometry. Students who present an ACT score below 18 in mathematics may take 1540 but are advised to take Math 0110 in the Evening School (or equivalent elsewhere), and make at least a B, or to make a passing grade in Math 0110 and 0120 in the Evening School (or equivalent elsewhere). Students who have taken two years of high school algebra and one year of high school geometry and who present an ACT score in mathematics of at least 28 (or who have earned at least a B in high school algebra and geometry, and present an ACT score in mathematics of at least 24) are encouraged to omit 1540 and begin with 1550.

Students who have a deficiency in algebra or geometry must remove the deficiency by taking the appropriate refresher course(s) in the Evening School (or equivalent elsewhere). No student who has received credit for Mathematics 1840 with a grade of C or better may subsequently receive credit for Math 1540 or 1700. No student who has received a grade of C or better in Mathematics 1850 may subsequently receive credit for Mathematics 1550.

Mathematics (641)
request at the department office, room 121, Ayres Hall. Prospective students are invited to write for copies.

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

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

1540 College Algebra (4) Sets, real and complex number systems, exponents and radicals, fundamental algebraic operations, theory of equations, polynomial inequalities, relations, functions, graphs. No student who has received credit for Math 1640 with a grade of C or better may subsequently receive credit for Math 1540 or 1700. Prereq: Two years of high school algebra or one year of algebra and one year of geometry.

1550-60 Introductory Calculus—General Mathematics (4,4) 1550—Equations of straight lines, conics, derivatives of algebraic functions, applications of derivatives, maxima and minima, related rates, antiderivatives, integration of algebraic functions, applications of definite integrals. Prereq: 1540 or equivalent. 1550—Determinants, matrices, systems of linear equations and inequalities, Cramer’s Rule, linear programming, trigonometric functions, the chain rule, differentials, the definite integral, geometric series, simple and compound interest, annuities, exponential and logarithmic functions, growth, applications. Prereq: 1550 or equivalent.

NOTE: No student who has received a grade of C or better in Mathematics 1550 may subsequently receive credit for Mathematics 1550.

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

1700 Probability: Mathematics (4) Function concept and use of functional notation. Properties of functions and their graphs. Polynomial, exponential, logarithmic, and trigonometric functions. No student who has received credit for Math 1840 with a grade of C or better may subsequently receive credit for Math 1540 or 1700. Prereq: Two years of high school algebra, one half-year of trigonometry or taking Mathematics 10150 concurrently.

1840-50-60 Single Variable Calculus (4,4,4) Functions, graphs, slope of a curve, definition of a derivative, limits and continuity, derivatives, applications of differentiation, chain rule, differentials, continuity. Applications of derivatives, maxima and minima, related rates, antiderivatives, integration of algebraic functions, applications of definite integrals. Prereq: 1540 or equivalent. 1550—Determinants, matrices, systems of linear equations and inequalities, Cramer’s Rule, linear programming, trigonometric functions, the chain rule, differentials, the definite integral, geometric series, simple and compound interest, annuities, exponential and logarithmic functions, growth, applications. Prereq: 1550 or equivalent.

2020 Great Ideas in Mathematics (4) Course for non-major students designed to expose the student to ideas which have had a significant impact on direction of mathematics or thought in particular and on civilization in general. Selected topics may include: the Greeks and mathematics as logical reasoning; irrational numbers; Descartes and analytical geometry; Newton and Leibniz and the mathematics of motion; non-Euclidean geometry; the infinite. Prereq: High school algebra and geometry and an interest in cultural mathematics.

2110-20-30 Structure of the Number System (3,3,3) 2110—Sets, relations, functions, graphs. Inverses, order properties, rational numbers. 2120—Elementary number theory, rational and irrational numbers. Euclidean division sequence. Prereq: 1 year of high school algebra and at least sophomore standing in elementary education, College of Education, or consent of instructor.

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

2540-50-60 Calculus (4,4,4) Calculus sequence for students who have completed 1560 or students who have had a significant introduction to calculus in high school. Definition of a derivative; derivatives of algebraic functions, the chain rule, differentials, continuity. Applications of derivatives, maxima and minima, related rates, antiderivatives, integration of algebraic functions, applications of definite integrals. Prereq: 1540 or equivalent. 1550—Determinants, matrices, systems of linear equations and inequalities, Cramer’s Rule, linear programming, trigonometric functions, the chain rule, differentials, the definite integral, geometric series, simple and compound interest, annuities, exponential and logarithmic functions, growth, applications. Prereq: 1550 or equivalent.

3110 Real Number System (3) Laws of arithmetic; irrational and rational numbers; fields. Primarily for students in the College of Education. Prereq: 1 year of college algebra or equivalent. Does not satisfy the requirements of a major or minor in mathematics.

3152 Introduction to Numerical Algorithms and Programming (3) (Same as Computer Science 3150.)

3155 Introduction to Numerical Algorithms (3) (Same as Computer Science 3155.)

3220 History of Mathematics (3) Survey of development of various branches 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 geometry. Spheres, hyperbolic plane. Prereq: 1 year of college mathematics.

3330 Transformational Geometry (3) Fundamental transformations in Euclidean geometry. Classification of
isometries and similarities; symmetries of a polygon; inversions. Prereq: One year of college mathematics.

3510 Intermediate Analysis for Teachers (3) Primarily for students planning careers as secondary mathematics teachers. Course covers elementary calculus from advanced viewpoint with emphasis on proofs of basic theorems. Topological properties of line and plane, sequences and series, continuous functions, derivatives, definite integral, and fundamental theorem of integral calculus. Prereq: 1550-50 or 1860. Does not satisfy the requirements for a major or minor in mathematics.

3560-60 Intermediate Analysis (3,3) Infinite series, convergence, uniform convergence, Taylor series, Fourier series, Taylor polynomials, variable content will include certain Laplace transforms. Parametric representations of curves and surfaces, line integrals, surface integrals, the divergence theorem, Stokes' theorem, and applications. Must be taken in sequence. Prereq: 2860.

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

3720 Theory of Equations (3) Techniques for finding roots of polynomial equations. Topics covered include complex, integral, and rational roots, multiple roots, separation of roots, Sturm's Theorem, Hensel's method of approximating roots, and formulas for quadratic, cubic, and biquadratic equations. Prereq: Math 2860 or consent of instructor.

3780-90 Introduction to Combinatorial Theory (3,3) Topics include problems of arrangement and selection with emphasis on the theory of generating functions, functions, relations and generating functions, graph theory, finite geometries and finite fields, partitions, block designs. Prereq: Math 2860 or consent of instructor.

3810 How to Prove It (3) Course is designed to improve understanding of nature and methods of mathematical proof by means of practice and participation in seminars. Topics will include various standard topics such as elementary set theory, relations and functions, and mathematical induction. Coreq: Math 2860 or consent of instructor.

3851 Mathematical Models in the Life Sciences (3) Introduction to difference equations and differential equations. Mathematical modeling techniques applied to biological phenomena. Prereq: Math 2841-51 or consent of instructor. Does not satisfy the requirements for a major or minor in mathematics.

3920-30 Topology of Euclidean Spaces (3,3) Topics will include topology of line and plane, separation properties, connectedness, compactness, completeness, continuous functions, homeomorphisms, continuity, and topological invariants. Must be taken in sequence. Prereq: 3810 or 2868 or consent of instructor.

3990 Studies in Mathematics (1-4) Credit determined at registration. May be repeated for credit with consent of dean; maximum credit 9 hours. Prereq: Consent of instructor.

4050-60 Matrix Algebra and Applications (3,3) Vector spaces, linear transformations, eigenvalues and eigenvectors, similarity and unitary transformations, singular value decomposition and the least squares problem, vector and matrix norms. Jordan canonical forms, evolution of discrete and continuous systems, quadratic forms and variational principles, related topics. Must be taken in sequence. Prereq: 3810 or 2868 or consent of instructor.

4070 Matrix Algebra and Applications (3) Topics to be chosen at the discretion of instructor.

4102 Off-Campus Study (1-16) See page 184.


4150-60 Abstract Algebra (3,3) Equivalence relations 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: Math 2860.

4235 Numerical Solution to Equations and Numerical Approximations (3) Numerical solution to equations and numerical approximations. Introduction to computation, instabilities, rounding errors. Solution of a single nonlinear equation; interpolation; iterative methods for linear and nonlinear systems; Polynomial equations; selection of methods for eigenvalues. Approximation by polynomials, piecewise polynomials, trigonometric and rational functions. Prereq: Math 3150 or 3155. (Same as Computer Science 4225.)

4236 Numerical Methods for Ordinary Differential Equations (3) Interpolation by polynomials and piecewise polynomials, quadrature, single-step and multistep methods for differential equations. Stability, consistency, and convergence. Current algorithms, variable step and order; stiff systems. Boundary value problems. Prereq: Math 3150 or 4210 or 4225. (Same as Computer Science 4236.)


4250-60 Introduction to Complex Analysis (3,3) 4250-Complex numbers, Cauchy-Riemann equations, Cauchy's theorem, Taylor and Laurent series, residues and their applications. 4260-Conformal mapping, Schwartz-Christoffel transformations, the Dirichlet problem, applications (steady temperatures, electrostatics, fluid flow), additional topics in complex function theory. Must be taken in sequence. Prereq: Math 2860.

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

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


4640 Calculus of Finite Differences (3) Real difference equations, application to problems in engineering and physics. Prereq or coreq: Math 4610.

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

4710 Vector Analysis (3) Fundamental operations, basis vectors, dot and cross products, directional derivatives, divergence and curl of vector fields, line and surface integrals, divergence theorem of Gauss, and Stokes theorem. Prereq: Math 2860. Does not satisfy the requirements for a major or minor in mathematics.

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

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

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

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

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

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

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

5000 Thesis

5002 Non-Thesis Graduation Completion (3-15)

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

5012 Differential Geometry for Teachers (3-4)

5013 Geometry for Teachers (3-4)

5014 Analysis for Teachers (3-4)

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

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

5051 Introductory Business Mathematics (3)

5052 Mathematics for Business Decisions (3)

5060-60-70 Mathematical Analysis (3,3,3)

5062 Business Mathematics (3)

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

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

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

5260 Applied Linear Algebra (3,3)

5370 Stability Theory and Liapunov's Direct Method (3)

5310-20-30 Introduction to Higher Geometry (3,3,3)
5996 Seminar in Numerical Mathematics (1-3)

Medieval Studies

See Cultural Studies.

Microbiology

Professors:
A. Brown (Head), Ph.D. Chicago; R. W. Beck, Ph.D. Wisconsin; J. M. Becker, Ph.D. Cincinnati; R. J. Courtney, Ph.D. Syracuse; T. C. Montle, Ph.D. Maryland; J. D. Mundy (Emeritus), Ph.D. Michigan State; W. S. Ruggles, Ph.D. Yale; D. T. Rouge, Ph.D. Guelph (Canada), B.V.Sc., Bristol (England); J. M. Woodward, Ph.D. Kansas; C. J. West, Ph.D. Indiana.

Associate Professors:
D. A. Brain, Ph.D., D.V.M. Ph.D. Michigan State; G. S. Sayler, Ph.D. Idaho.

Assistant Professors:
D. A. Bernis, Ph.D. Cornell; R. N. Moore, Ph.D. Texas-Austin; K. M. Strokin, Ph.D. Michigan State; G. Stolsey, Ph.D. Texas-Austin.

UNDERGRADUATE

Major: Consists of Biology 3110, 3120, Biochemistry 4110, 4120, Microbiology 3200, 3519, 3700, and 130 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, 3212-22-32, and Mathematics 1841-51 or 1540-50-60. Students intending to do postgraduate work should take Mathematics 1841-51 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. Microbiological principles as they apply to nursing care of the patient, epidemiology of infection, and principles of immunity and allergy. 3 hours and 1 lab.

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

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

2919 Laboratory in General Microbiology (3) Laboratory exercises designed to accompany 2910. Open only to students in the College of Nursing; prehospital medicine, food technology, food science, nutrition, or food systems administration. Others by consent of instructor. Students do not receive credit for 2919 if 2911 has been taken. Prereq or coreq: 2910.

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

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


3810 Food Bacteriology (3) Standard methods for examination, cultivation, and identification of bacteria associated with food fermentation and food spoilage. Prereq: 2910 or 3700 and Chemistry 2230 or 2811. 2 hours and 2 labs.

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

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

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

4010 Biology of Soil Microorganisms (4) Same as Entomology and Plant Pathology 4016.

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

4102 Off-Campus Study (1-16) See page xx. No more than 3 hours may be applied toward a major or minor in microbiology. May be repeated. Maximum credit 16 hours.

4103 Independent Study (1-16) See page xx. No more than 3 hours may be applied toward a major or minor in microbiology. May be repeated. Maximum credit 16 hours.

4110 Physiology of Bacteria (3) Modern concepts of bacterial physiology and metabolism including cell structure and function. Prereq: 3700 and 12 hours of organic chemistry.

4119 Bacteriological Laboratory (2) Prereq: 3519; coreq: 4110.

4130 Taxonomy of Bacteria (3) Bacterial classification. Prereq: 3700 and 3519. 3 hours.

4140 Molecular Genetics (3) Transmission and expression of genetic information at the molecular level. Emphasis is on bacterial and viral systems, but unique features of eukaryotic genetic systems are included. Prereq: 3700 or consent of instructor.

4149 Techniques in Microbial Genetics (2) Practical experience in basic techniques in experimentation in microbial genetics. Coreq: 4140.

4150 Microbial Ecology (3) Application of ecological principles to study of microbial communities. Emphasis on functional role of microorganisms in natural environments. Prereq: 3700, one year organic chemistry, Biology 3130 or consent of instructor.

4159 Experimental Microbial Ecology (3) Survey of techniques for assessment of microbial forms, functions, activities, and interactions in a variety of habitats. Prereq: 3519; coreq: 4150 or consent of instructor. 1 hour and 2 labs.

4270 Immunology (3) Principles of inflammation and immunity, immunoglobulin structure and theories of formation, complement, hypersensitivities, cell cooperation in immune mechanisms, abnormalities of the immune system. Prereq: Biology 3120. (Same as Zoology 4270)

4279 Advanced Immunology Laboratory (2) Laboratory exercises designed to accompany 4270. Prereq or coreq: 4270.

4289 Serological Methods (2) Practical procedures in serology and clinical immunology. Prereq or coreq: 4270.

4320 Pathogenic Bacteriology (3) Disease producing microorganisms including bacteria, rickettsias, and chlamydia. Prereq: 3200.

4329 Pathogenic Bacteriological Laboratory (2) Techniques for isolation, cultivation, and identification of pathogenic bacteria. Prereq: 3200; coreq: 4320.

4330 Medical Mycology (3) Disease causing fungi; cytology, physiology, and immunity; emphasis on methodology of isolation and identification. Prereq: 3700.

4339 Medical Mycology Laboratory (2) Prereq: 3519; coreq: 4330.

4420 Molecular Virology (3) Molecular aspects of the replication, expression, and propagation of viruses; emphasis on bacteriophage. Prereq: 3700.
three years of the Science-Medical Technology Curriculum, described on page 179, and who have been approved by the Pre-Medical Advisory Committee.

4011-12 Microbiology (8,6) Laboratory work in bacteriology, myology, and parasitology. Emphasis on pathogenic bacteria and fungi, their sources, methods of culture, techniques of identification, and evaluation of antibiotic sensitivity. Gross and qualitative chemical examination of feces and methods of identification of protozoa and helminth parasites of man.

4021-22 Chemical Chemistry (8,6) Clinical aspects of biochemistry, including overview of principles and instrumentation with emphasis on practical laboratory application of analytical procedures, specimen collection and handling, significance of results, and quality assurance. Includes blood gas analysis, including radiomicroassay, and analysis of blood and other body fluids for enzymes, hormones, and other constituents of clinical interest, utilizing both automated and manual techniques.

4031-32 Hematology and Clinical Microscopy (8,6) Principles, theories, and instrumentation related to the quantitative and qualitative evaluation of cellular elements of blood and other body fluids; factors of hemostasis, qualitative analysis of blood and renal function studies. Emphasis is placed on microscopic identification of cells and the significance and correlation of laboratory data.

4041-42 Immunohematology (4,4) Theory and practice in blood typing, erythrocyte antigens and their normal and abnormal immunology. Standard technical practices used in evaluation blood typing, cross matching, antibody detection, and preparation of blood components for transfusion. Safety control methods standard to an efficient blood bank.

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

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

4060 Histology (1) Overview of techniques of preparation of tissue for microscopic evaluation and role of histopathology in clinical diagnosis.

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

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

Music (690)


Columbia: W. P. Scarlett, M.M.; Louisiana State; S. E. Young, Ph.D., North Carolina.


The Department of Music offers curricula leading to the Bachelor of Music degree which is designed to prepare students for graduate study and for professional positions, and the Bachelor of Arts degree with a major and minor in Music, designed for those students whose interests are strong but essentially non-professional. Information regarding requirements for the B.M. degree may be found on page 180. The requirements for a major and minor are as follows:

Major:
(a) Concentration in Applied Music—Consists of Music 2000, 2111-21-31, 2113-23-33, 2310-20-30, 27 hours in applied music at the 2000-3000-4000, and levels (9 hours each), and junior and senior recitals. Prerequisites are Music 1111-21-31, 1113-23-33, and three quarters of study in applied music at the 1000 level.
(b) Concentration in Music History and Literature—Consists of Music 2111-21-31, 2113-23-33, 2310-20-30, 30-40, and 27 upper-division hours in music history and literature. Prerequisites are Music 1111-21-31, 1113-23-33, and 1340.

Minor:
(a) Concentration in Applied Music—Consists of Music 2000, 2111-21-31, 2310-20-30, 40, and 18 hours in applied music at the 2000-3000-4000, and levels (6 hours each). Prerequisites are the same as those for the major.
(b) Concentration in Music History and Literature—Consists of Music 2111-21-31, 2113-23-33, 2310-20-30. 40, and 27 upper-division hours in music history and literature. Prerequisites are the same as those for the major.

The Bachelor of Science in Music Education, designed for preparation for institutional teaching, is administered by the Department of Music Education. See page 107 for requirements.

GENERAL

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

1010-20-30-40-50-60 Class Piano (1,1,1,1,1,1) For music and music education majors only. Must be taken in sequence. Course may be waived by successful completion of Piano Competency Examination. Waived courses must be substituted with an equivalent number of quarters of study in music 1580 or above.

1015 Class Voice (1) Development of basic vocal skills. May be repeated for credit.

1025 Class Voice (1) Prerequisite: Consent of instructor. May be repeated for credit.

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

2000 Solo Class (0)

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

4430 Medical Virology (2) General virology with emphasis on medical aspects. Prereq: 3200.

4439 Medical Virology Laboratory (2) Laboratory procedures for isolation, handling and culturing of animal viruses. Prereq: 3619; coreq: 4430.

4909 Laboratory Problems in Microbiology (2-6) Involvement in research program of a faculty member through independent study projects. Consent of individual faculty member required. Not more than 3 hours may be used towards a major in microbiology. May be repeated. Maximum credit: 12 hrs.

4910 Seminar in Microbiology (1) May not be applied towards a major in microbiology. Prereq: Senior standing, consent of instructor. S/N credit.

GRADUATE

5000 Thesis

5002 Non-Thesis Graduation Completion (3-15)

5011-12-13-14-15-16 Mini-course in Microbiology (1,1,1,1)

5130 Topics in Taxonomy (3)

5310 Selected Topics in Microbiological Research (3)

5350 Advanced Microbiology for Secondary Education (4)

5360 Topics in Immunology and Immunoreactivity (4)

5441-42-43-44 Research Problems (3,3,3)

5510-30-50 Research Problems (3,3,3)

5720 Microbial Physiology (3)

5730 Pathogenesis of Infectious Disease (3)

5750 The Oncogenic Viruses (3)

5760 The Bacterial Viruses (3)

5819 Molecular Genetics Laboratory (3)

5820 Microbiology of Foods (3)

5829 Experimental Microbial Ecology (3)

5850 Seminar in History of Microbiology (1)

5851 Seminar in Microbial Ecology (1)

5852 Seminar in Microbial Pathogenesis (1)

5853 Seminar in Microbial Physiology (1)

5854 Seminar in Microbial Genetics (1)

5855 Seminar in Virology (1)

5856 Seminar in the Filamentous Fungi (1)

5870 Seminar in Current Topics in Environmental Microbiology (2)

6410 Concepts of Immunity (3)

6420 Current Topics in Biological Membrane Research (1)

6720 Advanced Topics in Microbial Physiology (3)

6730 Advanced Topics in Microbial Pathogenesis (3)

6740 Advances in Virology (3)

6760 Advanced Topics in Microbial Genetics (3)

6810-30-30 Problem Seminar (1,1,1)

Medical Technology (669)

Courses in this major are open only to qualified students who have completed the first

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

2055-65-75 Diction for Singers (2,2,2) Sounds by phonetic symbols. Opera and art songs used for examples. Performance practice.

2071-1-1-1 19th Century Performance Practice (1,1,1,1) Study of performance practices and styles involved in creating period performance practice. Prereq: Consent of instructor.

2111 Fundamentals of Performing Art History (3) Historical background, performance practices, and contemporary cultural issues. Prereq: Consent of instructor.

2145-24 Woodwind Literature (2,2) Prereq: Consent of instructor.

2150 Percussion Literature (1) Prereq: Consent of instructor.

2154-21-31 Theory (3,3,3) Materials of music with emphasis on theory or composition. Other students may be admitted subject to placement examination. Grade prerequisite.

2161 Fundamentals of Music Composition (3) Melodic invention in simple forms. May be repeated. Maximum credit 4 hours. Prereq: Music 3052-4101 or equivalent.

2162-63-64 Sight Reading at the Piano (1,1,1) Prereq: Consent of instructor.

2171-31-31 Sight Reading at the Keyboard (1,1,1) Prereq: Consent of instructor.

2181-24-24 String Literature (2,2) Prereq: Consent of instructor.

2199 Orchestration (3) Advanced techniques in instrumental writing. Prereq: Music 3116 or consent of instructor.

2201 College of Liberal Arts

2205 Fundamentals of Vocal Pedagogy (1,1,1) Examination of theories and strategies in vocal pedagogy and related teaching materials. Collateral laboratory experiences accompany the study. Prereq: Consent of instructor.

4012-22-32 Principles of Vocal Pedagogy (1,1,1) Examination of theories and strategies in vocal pedagogy and related teaching materials. Collateral laboratory experiences accompany the study. Prereq: Consent of instructor.

4036-37-38 Advanced Piano Literature (2,2,2) Piano music from preclassical period to present. Prereq: Consent of instructor.

4041 Styles in Opera Acting (3) Study and practice of styles in opera acting based on historical and national characteristics. Prereq: 3015 or consent of instructor.

4045 Projects in Opera Theatre (1-3) May be repeated for credit. Consent of instructor.

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

4056-56-57 Elementary and Intermediate Piano Pedagogy (2,2,2) Examination and study of piano methods and materials designed for teaching prescolar level students. Prereq: Consent of instructor.

4060 Choral Techniques I (3) Techniques and methods involved in producing total choral program. Prereq: Consent of department head. May be repeated. Maximum credit 6 hours. Prereq: Consent of instructor.

4074-48 Church Music Seminar (3,3) History and philosophy of church music; church music administration. Prereq: Consent of instructor.


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

4111-21-31-41 Analysis of Music Literature (3,3,3,3) Historical background, theoretical concepts, tape and synthesizer usage. Prereq: Consent of instructor.

4111-21-31-41 Analysis of Music Literature (3,3,3,3) Historical background, theoretical concepts, tape and synthesizer usage. Prereq: Consent of instructor.

4116 Set Structure in Musical Composition (3) Study and application of principles of improvisation, including nomenclature, chord progressions, chord scales, patterns, melodic development, and free form devices. Prereq: Consent of instructor. 2 hours and 1 lab.

4121-1825-1900 4141-1890 to present.

4124 Marching Band Arranging (3) Study and application of principles of arranging for marching band. Prereq: 3112 or consent of instructor.

4125 Theory and Practice of Real-Time Electronic Music (3) Research and writing of arrangements or men's, women's and mixed choruses. Prereq: 3112 or consent of instructor.

4126 Orchestration (3) Advanced techniques in instrumental writing. Prereq: 3112 or equivalent.

4127 Pedagogy of Music Theory (3) Techniques, methods and materials involved in college-level theory programs. Prereq: Consent of instructor.

4130 Stage Band Arranging (3) Study and application of variation procedures. Prereq: 3129 or equivalent.

4131 Set Structure in Musical Composition (3) Theory of sets and its application to analysis of music. Prereq: Consent of instructor.

4136 Chamber Music (3) Study and application of variation procedures. Prereq: Consent of instructor.

4137 Orchestration (3) Study and application of variation procedures. Prereq: Consent of instructor.

4144-23-33 Advanced Ear Training (1,1,1) Should be taken concurrently with 2111-2131 or 2116-28-38. Must be taken in sequence. 2 hours per week.

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. Must be taken in sequence. Prereq: 1131 or 1136 or consent of instructor.

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. Must be taken in sequence. Prereq: 1131 or 1136 or consent of instructor.

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. Must be taken in sequence. Prereq: 1131 or 1136 or consent of instructor.
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 Small Ensemble (1,1) May be repeated for credit.
3001-5601 Woodwind Choir (1,1) May be repeated for credit.
3602-5602 Brass Choir (1,1) May be repeated for credit.
3604-5604 Jazz Ensemble (1,1) May be repeated for credit.
3606-5606 Trombone Choir (1,1) May be repeated for credit.
3007 Tuba Ensemble (1) May be repeated for credit.
3610-5610 Percussion Ensemble (1,1) May be repeated for credit.
3611 Marimba Choir (1) May be repeated. (Also 5611)
3612 Baroque Ensemble (1,1) May be repeated for credit.
3620-5620 UT Singers (1,1) May be repeated for credit.
3630-5630 Chamber Singers (1,1) May be repeated for credit.
3632-5632 Collegium (1,1) May be repeated for credit.
3634-5634 Saxophone Choir (1,1) May be repeated for credit.
3640-5640 Opera Theatre (1,1) May be repeated for credit.
3642-5642 Opera Workshop (1,1) May be repeated for credit.
3650-5650 Concert Band (1,1) May be repeated for credit.
3652-5652 Campus Band (1,1) May be repeated for credit.
3654-5654 Varsity Band (1,1) May be repeated for credit.
3656-5656 Laboratory Band (1,1) May be repeated for credit.
3657-5657 Marching Band (1,1) May be repeated for credit.
3670-5670 Symphony Orchestra (1,1) May be repeated for credit.
3680-5680 Concert Choir (1,1) May be repeated for credit.
3682-5682 University Chorus (1,1) May be repeated for credit.
3686-5686 Men’s Glee Club (1,1) May be repeated for credit.
3687-5687 Women’s Chorale (1,1) May be repeated for credit.
3689-5689 Accompanying (1,1) May be repeated for credit.
3684 Campus Chorus (1) May be repeated for credit.

GRADUATE

The Department of Music offers the Master of Music degree in performance, composition, music theory, choral conduction, and Suzuki cello techniques, and the Master of Arts degree in musicology and music theory. See the Graduate Catalog for admission and degree requirements.

5000 Thesis
5001 Choral Conducting Document (3)
5002 Non-Thesis Graduation Completion (3-15)
5010 Organ Literature Seminar (3)
5012-22-32 Pedagogy of Voice (2,2,2)
5020 Piano Literature Seminar (3)
5030 Choral Literature Seminar (3)
5040 Vocal Literature Seminar (3)
5050 Graduate Recital (3)
5051 Opera Performance (3)
5052 Vocal Chamber Music Performance (3)
5053 Choral Conducting Performance (3)
5054 Lecture-Recital (3)
5055-56 Practicum for Instrumental Conductors (1,1)
5057 Instrumental Conducting Seminar (3)
5060 Seminar in Choral Performance (3)
5061 Choral Conducting (3)
5070 Opera Production (1-3)
5080 Instrumental Conducting Performance (1)
5090 Special Topics In Performance (1-3)
5100 Independent Study In Music Theory (1-3)
5111 Advanced Harmony (3)
5114 History of Music Theory (3)
5116 Musical Styles (3)
5121 Analytical Techniques (3)
5125 Practicum in Computers and Music Research (3)
5150 Seminar In Music Theory (3)
5200 Independent Study In Music History and Literature (1-3)
5210 Introduction to Music Research (3)
5220 Music Bibliography (3)
5250 Seminar in Musicology (3)
5315 Band Literature (3)
5350 Music In the Middle Ages (3)
5352 Music In the Renaissance (3)
5353 Music In the Baroque Period (3)
5355 Music In the Classic Period (3)
5400 Musical Aesthetics (3)
5597 Composition with Electronic Media (1-3)
5611 Marimba Choir (1)

Organizational Psychology Program
See Graduate School.

Philosophy (745)

Professors:
J. W. Davis (Head), Ph.D. Emory; L. B. Cubik, Ph.D. Nebraska; R. B. Edwards, Ph.D. Emory; M. H. Moore (Emeritus), Ph.D. Chicago; D. Van de Vate, Ph.D. Yale.

Associate Professors:

Assistant Professors:
H. P. Hamlin, Ph.D. Georgia; E. R. Jones III, Ph.D. Chicago; J. E. Nott, M.A. Ohio State; D. E. Oet, Ph.D. Texas; S. J. Reaven, Ph.D. California (Berkeley).

Philosophy seeks to understand humans, the world, their relations. It involves (1) use of logical and scientific methods, (2) appreciation of all values, (3) history of ideas, (4) philosophical systems.

Philosophy is an appropriate major for students wishing a broad education, and those preparing for careers as writers (whether journalistic or literary), lawyers, ministers, teachers, in various types of political and governmental service, and in non-technical positions in business and industry.

A major in philosophy implies a balanced program in the humanities, natural and social sciences. Graduate students should read French or German, preferably both; other ancient or modern languages are useful and necessary for some advanced work.

UNDERGRADUATE

Major: 36 hours in courses numbered 2000 and above. Majors should discuss their program with a member of the philosophy faculty.

Minor: 24 hours in courses numbered 2000 and above. It is suggested that minors discuss their programs with a member of the philosophy faculty.

American Studies. See Cultural Studies.

Russian and East European Studies. See Cultural Studies.

1510 Introduction to Philosophy: Human Nature and Values (4)
1520 Introduction to Philosophy: Consciousness and Reality (4) May be taken before 1510.
1600 Topics in Philosophy (4) May be repeated once for credit.
2310 Elementary Ethics (4) Theories of ethical values.
2410 Art and Experiences (4) Introduction to various understandings of art.
2510-20 Elementary Logic (4,4) 2510—Traditional or modern deductive logic, informal fallacies, uses of language, definitions. (5810 is recommended as introductory for students with mathematical aptitude.) 2520—Inductive reasoning, elements of scientific method, and statistical inference.
3111 Ancient Western Philosophy (4)
3121 Medieval Philosophy (4)
3131 Seventeenth-and Eighteenth-Century Philosophy (4)
3141 Nineteenth-Century Philosophy (4)
3151 Contemporary Philosophy (4) Survey of recent movements in philosophy.
3270 Russian Philosophical and Theological Thought (4) (Same as Russian 3270 and Religious Studies 3270.)
3311-12 American Philosophy (4,4) 3311—Colonial to late 19th century: 3312—Late 19th century to present.
3320 Philosophy of Law (4) Nature, sources, function of law.
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.
4610 Philosophical Analysis (4) Prereq: 8 hours of philosophy or consent of instructor.
4620 Philosophy of Mind (4) Problems of mind and body in relation to consciousness and personal identity. Prereq: 8 hours of philosophy or consent of philosophy.
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 Metaphysics (4) Prereq: 8 hours of philosophy or consent of instructor.

GRADUATE
5000 Thesis
5050 Symbolic Logic (4)
5080 Philosophy of Logic (4)
5101 Foreign Study (1-12)
5102 Off-Campus Study (1-12)
5103 Independent Study (1-12)
5110-20-30-40-50-60 Studies in History of Europe
5250 Studies in the History of American Philosophy (4)
5310-20-30 Studies in Value and Normative Theories (4,4,4,4)
5355 Orientation to Medical Ethics (2)
5365 Applied Ethical Theory (4)
5370 Topics in Medical Ethics (4)
5375 Clinical Medical Ethics (1)
5410 Philosophy of History (4)
5430 Philosophy and Literature (4)
5450 Problems of the Self (4)
5460 Philosophy of the Mind (4)
5510-20 Studies in Epistemology (4,4)
5560-60 Philosophy of Science (4,4)
5610 Recent Developments in Philosophy of Religion (4)
5710 Studies in Metaphysics (4)
5810 Social and Political Philosophy (4)
5940 Lakeshore Clinical Residence (6)
5950 Clinical Practicum in Medical Ethics (4-12)
6000 Doctoral Research and Dissertation
6110-20-30 Seminars in History of European Philosophy (4,4,4)
6150 Seminar in History of American Philosophy (4)
6250 Seminar in Philosophy of Religion (4)
6310 Seminar in Axiology (4)
6370 Advanced Topics in Medical Ethics (4)
6510 Seminar in Epistemology (4)
6550 Seminar in Philosophy of Science (4)
6950 Advanced Residence in Medical Ethics (4-12)

Physical Sciences

Major: None offered.
Minor: Consists of the following courses: Physics 2210-20-30, Chemistry 2140-49, 3211-21-31-41, 3219-29-39, and six hours chosen from Biochemistry 4210-20-30, Chemistry 3410-20-30, 4140-50, 4910-20-30, or Physics 3410-20-30, 3610-20-30. Prerequisites to this minor are Mathematics 1640-50 and Chemistry 1110-20-30. The physical sciences minor is designed particularly for students majoring in one of the biological sciences and/or preparing for graduate studies in a biological science or medicine.

Physics and Astronomy


Assistant Professors: M. J. Breing, Ph.D. Oregon; S. B. Eaton, Ph.D. Massachusetts; T. H. Handler, Ph.D. Rutgers.

Research Associate Professors: A. H. Rogers, Ph.D. Massachusetts Institute of Technology.

Research Assistant Professors: S. J. Daunt, Ph.D. Queen's; D. L. McCorkle, Ph.D. Tennessee; S. E. Nave, Ph.D. Tennessee.
Astronomy (150)

2110-20-30 Introductory Astronomy (4,4,4) Surveys astronomical data and theories. 2110-20 concentrates on the solar system. 2120 introduces stellar astronomy and the interstellar medium. It is recommended that the courses be taken in sequence. 4 hours including demonstration lab.

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


318-28-38 Honors: Fundamentals of Physics: Mechanics and Heat (4,4,4) Honors course designed for physics majors and for qualified advanced students from other disciplines. Must be taken in sequence. Coreq: Math 1840-50-60. 3 hours of lecture, 2 hours of lab.

1410-20-30 Nature of the Physical World (4,4,4) Introductory course in concepts and principles of physical sciences which enables a student to establish a unified picture of the physical universe. In the first two terms the principles of mechanics, electricity, and wave motion are developed and applied to such varied fields as solar systems, atomic and molecular behavior, radiation, dynamic changes in the atmosphere and in the earth's crust, and to stellar and galactic phenomena. In the third term, the universe in more detail is examined. Emphasis will be placed on certain topics such as nuclear energy, cosmology, atmospheric and oceanic phenomena, drifting continents, and cosmic distances. 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 statistics, equilibrium, linear and angular motion, force, work, and energy. 4 hours lecture and demonstration.

1810 Physics of Music (4) Production, transmission, and reception of sound waves. Frequency, intensity, time. Basic acoustics of instruments and voice. 4 hours lecture and demonstration.

2210-20-30 Elements of Physics (4,4,4) 2210—Mechanics, properties of fluids, heat. 2220—Electricity and magnetism, sound waves. 2230—Optics, atomic and nuclear physics, radiation protection. Basic physical principles and applications required for pre-medical, pre-dental, pre-pharmacy, and pre-veterinary programs. Must be taken in sequence. Coreq: Math 1550-60 or Math 1840-50-60 (for non-honors courses). 3 hours of lecture and 3 hours of lab.

2240-50-60 Elements of Physics for Architects (4,4,4) 2240—Statics, dynamics, properties of fluids, heat. 2250—Electricity and magnetism, sound waves. 2260—Optics, atomic and nuclear physics, radiation protection. Basic physical principles and applications required for architecture pre-medical, pre-dental, pre-pharmacy, and pre-veterinary programs. Must be taken in sequence. Coreq: Math 1550-60 or Math 1840-50-60 (for non-honors courses). 3 hours of lecture and 3 hours of lab.

2310-20-30 Foundations of Physics: Electricity, Waves and Optics, Modern Physics (3,3,3) Required of all engineering students. 2310—Electricity. 2320—Waves and Optics. 2330—Modern Physics. Must be taken in sequence. Coreq: Math 2640-50. 3 hours of lecture, 2 hour of laboratory and recitation per week. 3 hours of lecture, 3 hours of lab per week.


2510 Mechanics (5) Statics, kinematics, Newton's laws, momentum, energy, rotation. 4 hours of lecture-recitation, 3 hours of laboratory-problem sessions. Coreq: Math 1840-50-60 or equivalent. 2510 satisfies prereq for Physics 2310, although physics major should also take Physics 1330 as a prereq to the major.


3320 Heat and Thermodynamics (3) Concepts of temperature and heat; laws of thermodynamics; applications of laws to simple physical and chemical problems. Prereq: Math 2920 or 2330 and calculus. 3210-20 or instructor's consent.


3510-20-30 Physical Measurements (3,3,3) Laboratory measurement of some physical quantities. Theory supplied where necessary. Prereq: 2210-20-30 or 2210-20-30, and calculus; 3510 for 3520 and 3530. 3 labs.

3610-30 Electronics (3,3,3) Electronic components and circuits of interest to physicists. Prereq: 2310-20-30 or 2210-20-30 and calculus. 3 labs.

3650 Nuclear Electronics Laboratory (3) Elementary circuits of interest in nuclear instrumentation are designed and built, and their characteristics are tested as a function of various parameters. Prereq: 3610-20.

3710-30 Introduction to Atomic and Nuclear Physics (3,3,3) 3710—Special relativity and elementary quantum mechanics. Prereq: 2310 or 2310-20-30. Coreq: Math 2860 and Physics 2320 for 3710; 2388 or 3710 for 3720-30.

3990 Junior Seminar (1-3) Topic of current interest. May be repeated for credit with consent of department.

4040 Foundation of Physics (3) Selected topics from history and philosophy of classical and modern physics. Prereq: One year of general physics and consent of instructor. Required of M.A.C.T. candidates.


4110 Elementary Nuclear Physics (3) General properties of nuclei, transmutation systems, nuclear forces, nuclear models, nuclear reactions, nuclear disintegration and beta-decay, nuclear spin and magnetism. Prereq: 3730 or 4120.

1 Or equivalent—honors courses.

4130 Physical Acoustics (4) Considerations fundamental to detailed investigation of any branch of acoustics. Mathematics of reflection and transmission of light at a dielectric interface; paraxial theory of interfaces, lenses, and mirrors; thick lenses, lens systems, ray tracing; polarization; imagery; laser light; 4500—Physical optics: mathematics of wave motion, superposition of waves; interference, Fraunhofer and Fresnel diffraction; Fourier optics; holography. Prereq: 4210 or consent of instructor. 3 hours of lecture and 3 hours of lab.

4210-20-30 Electricity and Magnetism (3,3,3) Intermediate level electrostatics, steady and alternating currents; laws of electromagnetism; Maxwell's equations; radiation of electromagnetic waves; reflection and refraction; electromagnetic fields of moving charges. Must be taken in sequence. Prereq: 2320 or 2220 and Math 2860.

4230-40 Modern Optics (4,4) 4230-Geometrical optical- reflection and transmission of light at a dielectric interface; paraxial theory of interfaces, lenses, and mirrors; thick lenses, lens systems, ray tracing; polarization; imagery; laser light; 4540—Physical optics: mathematics of wave motion, superposition of waves; interference, Fraunhofer and Fresnel diffraction; Fourier optics; holography. Prereq: 4210 or consent of instructor. 3 hours of lecture and 3 hours of lab.

4510-20-30 Atomic Physics Laboratory (3,3,3) Experiments in fundamental particle properties, photophysics, detection 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 techni-
6410 Interaction of Electrons with Gases (3)
6620 Interaction of Electrons with Solids (3)
6630 Interaction of Radiation with Matter (3)
6710-20-30 Advanced Solid State Physics (3,3,3)
6810 Vibrational Problems in Molecular Spectra (3)
6820 Molecular Vibration-Rotation Theory (3)

**Political Science (801)**

**Professors:**
T. D. Unga (Head), Ph.D. Iowa; R. S. Avery (Emeritus), Ph.D. North Carolina; L. S. Greene (Emeritus), Ph.D. Wisconsin; V. R. Iredell, Ph.D. Chicago; D. D. Nimmo, Ph.D. Vanderbuilt; H. Plaat, Ph.D. Utah; N. M. Robinson, Ph.D. Syracuse; T. A. Smith, Ph.D. Ohio State; H. Stephens, Jr., Ph.D. Johns Hopkins; D. M. Welbom, Ph.D. Texas.

**Associate Professors:**

**Assistant Professors:**

**BUREAU OF PUBLIC ADMINISTRATION**
Professor:
T. D. Unga (Director), Ph.D. Iowa.

**Associate Professor:**
M. R. Fitzgerald, Ph.D. Oklahoma.

**Graduate Research Associates:**
P. K. Freeman, Ph.D. Wisconsin; D. F. Olatkshi, Ph.D. Temple.

**Research Associates:**
S. Rechichar, M.P.A. Tennessee.

**UNDERGRADUATE**
A major consists of 40 hours that must be distributed as follows:

1. Eight hours at the 2000 level in political science or in political science courses not used for Triad credit but included on the History and Society list.
2. Thirty-two hours in political science classes or in political science courses not used for Triad credit but included on the History and Society list.
3. Thirty-two hours in political science courses not used for Triad credit but included on the History and Society list.
4. Forty-eight additional hours in political science or in political science courses not used for Triad credit but included on the History and Society list.
ment. State government's role in formulating, enacting, and implementing state policy.

3750 The Urban Polity (4) Analysis of political institutions and processes in metropolitan areas. (Same as Urban Studies 3750.)

3760 Urban Policy Process (4) Analysis of urban problems and policies in metropolitan areas.

3880 American Political Thought (4) Examination of role of selected political ideas, doctrines, and themes in America, emphasizing their development and relationships to diverse political interests.

4110 Law and the Administrative Process (4) Power of, procedures of, controls over administrators.

4555 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-political process.


4646 The Judicial Process (4,4) The study of courts as components of political systems, and public policy formulation through judicial decision making. 2510-20 desirable as preceding courses.

4550 Congress (4) Nature, functions, and processes of the U.S. Congress.

4575 Special Topics in United States Government and Politics (4) May be repeated 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 (3) Development of the merit system in government, career systems, public personnel management functions, organization for personnel management.

4740 Political Parties and Elections (4) Analysis of party systems and electoral process.

4750 Political Campaigns (4) Coverage includes all aspects of campaign process.

4940 Politics and the Environment (4) Examination of formulation and implementation of public policies and public opinion.

Comparative Government and Politics

3605 Political Change in Developing Areas (4) Character and political problems of political changes with primary focus on developing areas.

3615-16 Dynamics of Black African Politics (4,4)

3621 Contemporary China and Japan (4)

3622 Contemporary South and Southeast Asian States (4) Analysis of selected states, with emphasis on problems of development.

3625-26 Latin American Government and Politics (4,4)

3631-32 Government and Politics of the Soviet Union (4,4)

3635-36 Politics in Western Democracies (4,4) Political culture, patterns, and institutions of Western democratic systems.

3641 Government and Politics of Middle East and North Africa (4)

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.

4665-66 Policy Making in Democracies (4,4) Comparative approach to theory and process of making public policies.

4675 Special Topics in Comparative Government and Politics (4) May be repeated for a maximum credit of 8 hours with consent of department.

International Relations

3701-02 Introduction to International Relations (4,4) 3701—Basic elements of 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.

3790 Contemporary Diplomatic and Military Problems (4) Analysis of current international events.

3796 Contemporary Problems of Soviet Foreign Policy (4)


4711 International Law (4)

4727 Politics of Inter-American Relations (4) Analysis of selected theoretical and policy issues concerning international relations in the Americas with emphasis upon imperialism, intervention, and the Cuban revolution, nationalism, foreign assistance, trade, and economic integration.

Political Theory and Methodology

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.

4815 Contemporary Soviet Marxism-Leninism (4) Soviet applications of Marxist-Leninist theory.

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.

4875 Special Topics in Political Thought (4) May be repeated up to maximum of 8 credit hours with consent of department.

Other

3918-28-38 Junior Honors Seminar (4,4,4) Required of honors majors; admission with consent of Department.

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

4102 Off-Campus Study (1-16) See page 184.

4103 Independent Study (1-16) See page 184.

4918-28-38 Senior Honors Thesis and Seminar (0-12) Required of honors majors; admission with consent of Department. Maximum credit 12 hours.

4975 Special Topics in Political Science (4) Selected research for seniors; primarily for majors. May be repeated up to maximum of 8 hours with consent of department.

GRADUATE

General requirements for the master's degree and doctoral degree are found in the Graduate Catalog.

5000 Thesis

5002 Non-Thesis Graduation Completion (3-15)

5101 Foreign Study (1-12)

5102 Off-Campus Study (1-12)

5103 Independent Study (1-12)

5110-20 Seminar in World Political Theory (3,3,3)

5140 Politics, Administration, and Community in Non-metropolitan Areas (3)

5150 Internship in Political Science (2-9)

5210-20-30 Seminar in World Politics (3,3,3)

5211 Directed Readings in Political Science (3)

5250 Seminar in African Politics (3)

5270 Seminar in Politics of Development (3)

5310-20 Seminar in Comparative Government (3,3)

5340-50 Seminar in Latin American Government (3,3)

5370-80 Seminar in Soviet Politics and Government (3,3)

5410-20 Seminar in Public Law (3,3)

5440-50 Theory and Analysis of U.S. Foreign Policy Processes (4,4)

5510-20 Seminar in International Organization (3,3)

5540 Seminar in Comparative Public Administration (3)

5550 Seminar in Administration in Developing Countries (3)

5600 Public Administration (3)

5605 Research and Methodology in Public Administration (3)

5610-20 Seminar in Organization Theory (3,3)

5611-21-31 Seminar in State-Local Administration (3,3,3)

5630 Seminar in Technology and Public Policy (3)

5635-45 Operations Research for Public Administrators (3,3)

5640-50-60 Seminar in Metropolitan Areas (3,3,3)

5641 Seminar in Contemporary Public Policies (3)

5670-80 Seminar in Policy Analysis (3,3)

5710 Seminar in Politics of Administration (3)

5730 Seminar in Public Budgeting and Fiscal Management (3)

5740 Seminar in Organizational Analysis (3)

5750 Seminar in Public Management (3)

5755 Seminar in Public Management (3)

5765-75 Law and the Administrative Process (3,3)

5770 Practicum in Public Administration (3,3)

5785-95 Seminar in Staff Functions (3,3)

5790 Seminar in Public Personnel Management (3)

5810 The American Political Process (4)

5820 The American Political Process (4)

5831-32 The Systematic Study of Politics (3,3)

5840 Ethics, Values, and Morality in Public Administration (3)

5850 Seminar in Comparative State Politics (3)

5910-20 Quantitative Political Analysis (3,3)

College of Liberal Arts
Psychology (830)

Professors:
- W. H. Calhoun (Head), Ph.D. California (Berkeley); G. M. Berrett, Ph.D. English; F. Symon, Ph.D. Tennessee; C. P. Cohen, Ph.D. Kansas; E. E. Cureton (Emeritus), Ph.D. Columbia; J. H. Fine, Ph.D. Syracuse; S. J. Hardel, Ph.D. Johns Hopkins; L. Handler, Ph.D. Michigan State; R. P. Lorion, Ph.D. Rochester; J. F. Lubar, Ph.D. Chicago; E. O. Milton (Director, Learning Research Center); Ph.D. Michigan; K. R. Newton, Ph.D. Tennessee; H. R. Pollio, Ph.D. Duke; N. L. Rasch, Ph.D. Pennsylvania; F. Samejima, Ph.D. Tokyo (Japan); R. R. Shread, Ph.D. Tennessee; W. S. Verplanck (Emeritus), Ph.D. Brown; R. G. Wahier, Ph.D. Washington; J. A. Wibler, Ph.D. Syracuse.

Associate Professors:

Assistant Professors:

Honoraria
- Madeleine Distinguished Service Professor

UNDERGRADUATE

Major: (Concentration in General Psychology) Designed to give students a broad and current background in the science and application of psychological methods and principles. It is particularly suited for students who plan careers in areas such as business, law, and journalism, or who for other reasons desire a liberal education concentrating on psychology. Students planning to continue their education in psychology are urged to take at least 20 semester hours of psychology courses in addition to this concentration. The student should consult the Psychology Advising Office for specific suggestions. The student should also apply to the psychology department. Successful applicants usually have a G.P.A. of at least 3.0. Requirements: Psychology 2500 or 2518 and one other 2000-level course in psychology, 3150, and one quarter of laboratory or field experience. Honors students will complete Psychology 4948-56-68 and Psychology 4975-54-64. Completion of the Honors Program is dependent upon submission of an acceptable Honors research thesis and passing of a final Honors examination.

2500 General Psychology (4) An introduction to psychology with an emphasis on development, methods, and contributions of the major movements and ideas which define contemporary psychology.

2518-28 Honors General Psychology (4.4) First quarter of a two-year (Junior-Senior) program leading to the B.A. degree. Objective of the Honors Program is to enable superior students to accelerate development of grasp of science of psychology. Program encourages independent study.

Eligibility: Selection of participants is determined by departmental Undergraduate Honors Committee. The interested student should apply to the psychology department. Successful applicants usually have a G.P.A. of at least 3.0. Requirements: Psychology 2500 or 2518 and one other 2000-level course in psychology, 3150, and one quarter of laboratory or field experience. Honors students will complete Psychology 4948-56-68 and Psychology 4975-54-64. Completion of the Honors Program is dependent upon submission of an acceptable Honors research thesis and passing of a final Honors examination.

2500 General Psychology (4) An introduction to psychology with an emphasis on development, methods, and contributions of the major movements and ideas which define contemporary psychology.

2518-28 Honors General Psychology (4.4) First quarter of a two-year (Junior-Senior) program leading to the B.A. degree. Objective of the Honors Program is to enable superior students to accelerate development of grasp of science of psychology. Program encourages independent study.

Eligibility: Selection of participants is determined by departmental Undergraduate Honors Committee. The interested student should apply to the psychology department. Successful applicants usually have a G.P.A. of at least 3.0. Requirements: Psychology 2500 or 2518 and one other 2000-level course in psychology, 3150, and one quarter of laboratory or field experience. Honors students will complete Psychology 4948-56-68 and Psychology 4975-54-64. Completion of the Honors Program is dependent upon submission of an acceptable Honors research thesis and passing of a final Honors examination.

2500 General Psychology (4) An introduction to psychology with an emphasis on development, methods, and contributions of the major movements and ideas which define contemporary psychology.

2518-28 Honors General Psychology (4.4) First quarter of a two-year (Junior-Senior) program leading to the B.A. degree. Objective of the Honors Program is to enable superior students to accelerate development of grasp of science of psychology. Program encourages independent study.
5019 Research Practicum (1-3)
5017 Colloquium in Ethology (1)
5002 Non-Thesis Graduation Completion (3-15)
5000 Thesis

GRADUATE (4,4,4). Honors candidates only.

5959-69-79 Practicum in Psychological Appraisal (2,2,2)
5980 Counseling Techniques (3)
5950-60 Theory and Practice of Consultation (3,2)
5959-69 Practicum in Psychological Appraisal (2,2,2)
6000 Doctoral Research and Dissertation
6050 Seminar on Methods of Social Research (3)
6089 Internship in Community Psychology (1-6)
6099 Internship in School Psychology (1-6)
6100 Seminar in Community Psychology (3)
6150 Seminar in Program Evaluation (3)
6159 Practicum in Program Evaluation (3)
6210-30-50 History, Systems, and Theories in Psychology (3,3,3)
6255-60-70 Seminar in Organizational Psychology (3,3,3)
6280-90 Factor Analysis (3,3)
6310 Seminar in Motivation and Emotion (3)
6319 Field Work in School Psychology: Level II (2)
6320 Seminar in Research Methods (3)
6330 Seminar in Learning (3)
6340 Seminar in Developmental Psychology (3)
6350 Seminar in Thinking (3)
6360 Seminar in Sensation and Perception (3)
6370 Seminar in Theoretical Psychology (3)
6380 Seminar in Industrial Psychology (3)
6385 Hypnosis and Imagery (3)
6390 Seminar in Psychotherapy (2)
6395 Seminar in Assessment (3)
6400 Seminar in Changing Concepts in Clinical Psychology (3)
6405 Seminar in Psychopathology (3)
6410-20-30 Psychotherapy (3,3,3)
6411-12-13-14 Psychotherapy; Elective Concentration in Learning Laboratory (2,2,2)
6419-29-39 Psychotherapy Practicum (1-3,1-3,1-3)
6450-60 Advanced Psychometrics (3,3)
6490 Continuing Education in Professional Mental Health (1-4)
6481 Field Placement in Clinical Psychology Level-1 (1-8)
6492 Field Placement in Clinical Psychology Level-2 (1-8)
6483 Field Placement in Clinical Psychology Level-3 (1-8)
6494 Field Placement in Clinical Psychology Level-4 (1-8)
6500 Seminar in Psychometrics (3)
6520 Experimental Design (3)
6550 Seminar in Advanced Social Psychology (3)
6575 Seminar in Mental Health Administration (3)
6650 Assessment of Human Services Organizations (3)
Religious Studies (863)

Professors: C. H. Reynolds (Head), Ph.D. Harvard; F. S. Lusby, B.D. Colgate (Rochester); D. L. Dungan, Th.D. Harvard; W. L. Humphreys, Th.D. Union; D. E. Linge, Ph.D. Vanderbilt; R. V. Norman, Jr. (Associate Vice Chancellor for Academic Affairs), Ph.D. Yale.

Assistant Professors: J. L. Fitzgerald, M.A. Chicago; J. Kim, Ph.D. Chicago; L. A. Tober, M.A. Vanderbilt. Adjunct, T. Paton, M.A.

UNDERGRADUATE

Minor: Two options are available in religious studies. One religious studies 2000-level course is a prerequisite for either option, and Religious Studies 4850 is required in both options.

The basic option consists of 36 hours of courses at the 3000 level or above (including 4850) with a minimum of 12 hours selected from courses listed below under History and Literature of Religions and a minimum of 12 hours selected from courses listed below under Probematic of Religion. Majors are invited to discuss their programs with a member of the religious studies faculty.

The student-initiated option is to be specified in an individual program defined in consultation between each student and the Department of Religious Studies. At least 36 hours of courses at the 3000 level or above (including 4850) are required for this major. Students whose educational goals would best be served by such a major are encouraged to construct their own plans of study as early as possible. The student initiated option is recommended for persons who plan to pursue graduate study in religion or a closely related field. Further details are available in the department office, located at 501 McClung Tower, or from any member of the religious studies faculty.

History and Literature of Religion: 3011, 3021, 3060-70-80, 3110, 3120, 3210-20-30, 3270, 3311-12, 3330, 3340, 3411-12-13, 3440, 3490, 3510-20, 3560, 3650, 3660, 3661, 3671, 3680, 3710, 3711, 3731, 3770, 4210, 4310, 4450, 4640, 4670, 4810-20-30.

Problematic of Religion: 3600-10, 3611, 3620, 3660, 3715, 3720, 3740, 3750, 3760, 3780, 4101, 4102, 4103, 4111-21, 4370-71, 4410, 4540, 4610, 4810-20-30, 4850, 4940, 4950, 4960.

Minor: Twenty-four hours of courses at the 3000 level and above. It is suggested that students minor in religious studies discuss their programs with a member of the department faculty.

1010 Introduction to Religions (4) introduction to living religious traditions in a variety of cultural settings.

1020 Current Themes in Religious Studies (1) introduction to the study of religion through consideration of selected contemporary themes, problems or controversies. Variable content. May be repeated for a maximum of 3 credit hours.

2610 Introduction to Religion (4) introduction to the study of religion through selected historical traditions. East and West.

2611 Introduction to Ancient Near Eastern Religions (4) introduction to study of religion through selected ancient Near Eastern and Mediterranean traditions.

2612 Issues in Religious Studies (4) introduction to study of religion through selected religious problems and alternatives.

HISTORY AND LITERATURE OF RELIGIONS

3060-70-80 History of Western Religious Thought and Institutions (3,3,3) 3060—First century to 5th century. 3070—6th century to 15th century. 3060— 16th century to 1900. (Same as History 3060-70-80.)

3110 Ancient Israel's Historical and Religious Traditions (4) Political, religious, and cultural history and traditions of ancient Israel from earliest period to Exile.

3120 The Rise of Judaism (4) Political, religious, and cultural history and traditions of exilic and post-exilic Israel and early Judaism through 135 A.D. Later literature of Old Testament, Apocalypse, 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.

3210 Early Greek Mythology (3) (Same as Classics 3210.)

3220 Greek Mythology in the Classical Period (3) (Same as Classics 3220.)

3230 Roman Mythology (3) (Same as Classics 3230.)

3270 Russian Philosophical and Theological Thought (4) (Same as Russian 3270 and Philosophy 3270.)

3311-12 Images of Jesus (4,4) Introduction to ancient and modern portrayals of Jesus, understood within their cultural milieus. Must be taken in sequence.


3340 Judaism in the Common Era. (3) Survey of literature and traditions of Judaism in the Common Era.

3411-12 The Reformation (3,3) 3411—Renaissance. 3412—Reformation, Counter Reformation, and Wars of Religion, 1517-1618. (Same as History 3411-12.)

3440 Religion of Primitive Peoples (3) (Same as Anthropology 3440.)

3490 African Religions (4) Examination of religions of the indigenous peoples of Africa, including a study of functions of myth, rites, and symbols and an inquiry into how certain political movements in Africa have been and are informed by religious sensibilities. (Same as Anthropology 3490 and Black Studies 3490.)

3510-20 Religion in America (4,4) Not a survey but a representative profile of religion in America, past and present, organized each quarter around theme or problem. May be taken independently.

3550 Religion and Racism in America (4) Historical and critical survey of role played by religion in supporting and contesting American racial injustice. (Same as Black Studies 3550.)

3560 Black Religion in America (4) Historical and critical examination of formation and development of black religious thought and institutions in America. (Same as Black Studies 3560.)

3650 Philosophy and Religion in India (4) (Same as Philosophy 3650.)

3660 Buddhist Philosophy and Religion (4) (Same as Philosophy 3660.)

3671 Religion and Philosophy in China (4) (Same as Philosophy 3671.)

3672 Religion and Society in Japan (4) (Same as Sociology 3672.)

3680 Islam (4) Origin and early history, rapid spread as a world faith, development of Muslim theology and culture, interaction with modern cultures.

3710 Literature of the English Bible (3) (Same as English 3710.)

3711 Literature of the English Bible (3) (Same as English 3711.)

3770 Zen Buddhism (3) Examination of historical, philosophical, and meditational materials of Zen. Special emphasis upon Zen theories of emptiness, no-mind, sudden enlightenment, and the Koan.

4200 Classical Indian Systems of Philosophy: The Moksha Tradition. Basic writings and philosophic 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.

4450 Topics in American Religion (4) Prereq: One of the following: 3510, 3520, 4410, or consent of instructor. May be repeated. Maximum credit 12 hours.

4670 Topics in Eastern Religions (4) Selected figures, issues, and institutions. Seniors and graduate students only, except by consent of department. Prereq: Consent of instructor. May be repeated. Maximum credit 12 hours.

4810-30 Readings and Research in Religious Studies (3-4,3-4,3-4)

PROBLEMATIC OF RELIGION

3011 Phenomenology of Religion (4) Examination of recurrent forms, themes, and patterns in history of religions, such as high gods, cultic heroes, initiations, and asceticism.

3021 Religious Myth, Symbol, and Ritual (4) Study of interrelation of myths, symbols, and rituals among preliterate peoples through a specific myth, such as solar, lunar, and communal.

3600-10 Religious Ethics (4,4) Historical and critical survey of religious ethics; basic theories and their application in social problems.

3611 Medical Ethics (4) (Same as Philosophy 3611.)

3620 Topics in Religious Ethics (4) Examination of particular theoretical issues and social problems from perspectives of religious ethics. May be repeated once for credit.

3690 Philosophy of Religion (4) (Same as Philosophy 3690.)

3715 Religious Thought in the Nineteenth Century (4) Major problems and themes in European and American religious thought between 1800 and the beginning of World War I.

3720 Contemporary Religious Thought (3) Major themes, issues, and thinkers.

3740 Issues in Science and Religion (3) Relation of religion to history, methods, and theories of science.

3966 Organizational Development in Human Service Settings (3)

6702 Social Ecology (3)

710 Seminar in Physiological Psychology (3)

727 Seminar in Comparative and Ethological Psychology (3)

733 Methods in Ethological and Naturalistic Research (3)

780 Advanced Psychopharmacology (3)

800 Field Work in Industrial Psychology (1-15)
difficult may easily transfer to regular classes. Potential majors and minors in French are urged to take this course. Students passing 1110 with grade of B or higher are eligible for 1128 rather than 1120. Students passing 1120 with grade of B or higher are eligible for 1130 rather than 1130.

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. Involves more material, more reading, and oral; exercises in free composition. Prereq: 2130 or oral; exercises in free composition. Prereq: 2130 or equivalent.

2520 and 2220-30-38 Honors: Intermediate French (3,3,3) Honors course for students of superior ability in French. Involves more material, more reading, and oral; exercises in free composition. Prereq: 2130 or oral; exercises in free composition. Prereq: 2130 or equivalent.

2310 Survey of French Literature (3,3,3) Chronological study of various genres (poetry, novel, drama) by periods, from medieval period to the present. May be taken in place of 3110-20-30. Prereq: 2130, 2520 or equivalent.

3000 French Translation (3) Development of linguistic skills necessary for satisfactory work in courses above 2130. Recommended for students who feel they would benefit from additional training beyond 2130 or 2520 in basic skills of reading, speaking and writing French.

3010-20-30 Elements of French for Upper-Division and Graduate Students (3,3,3) 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. Not for credit for those having had 1110-20-30, 1510-20, or equivalent. No auditors.

3110-20-30 Aspects of French Literature (3,3,3) Studies various aspects of various periods of the literature; emphasis upon the genres (poetry, novel, drama) varied. Prereq: 2130, 2520, or equivalent. Recommended for students preparing for upper-division courses in French literature. Consent of instructor.

3210-20-30 French Literature In English Translation (3,4-3-4,3-4) 3210-From the origins through the Renaissance: Life of St. Alexis, Song of Roland, Romance of the Rose, Rabelais, Du SID: The Classical period and the Age of Reason: The great dramatists, La Princesse de Cleves, Voltaire, Rousseau, Racine, Flaubert, Proust, Camus. No change in credit hours after add deadline. Option of 4 hours credit for those having had 1110-20-30, 1510-20, or equivalent. No auditors.

3450 Composition and Conversation for Careers in Business (3) Analysis of contemporary French language as it applies to business transactions. Understanding and composing business letters; oral communication and elements of French Culture related to good business practices. Students will work in simulated business transactions. Only one of the courses, 3430 or 3450, may be applied toward the major. Prereq: 3410, 3420 or permission of instructor.

3810-20-30 Survey of French Literature (3,3,3) Chronological study of various genres (poetry, novel, drama) by periods, from medieval period to the present. May be taken in place of 3110-20-30. Prereq: 2130, 2520 or equivalent.

4001-02-03 Introduction to Consecutive and Simultaneous French Translation (3,3,3) 4001-Translation into English; 4002—Consecutive Translation to and from English; 4003—Simultaneous Translation to and from English. Training of students with intermediate or advanced knowledge of French for consecutive and simultaneous oral translation from French into English, and vice versa, on a variety of practical subjects such as business, economics, politics, and sciences. The course will be given mainly in the language lab with additional classroom supervision by the instructor. Prereq: 3430 or equivalent. Must be taken in sequence.

4010 Masterpieces of French Literature in English Translation (3) No foreign language credit.

4011 Foreign Study (1-16) See page 185.

4101-20-30 French Literature of the Seventeenth Century (3,3,3) Prereq: 2130, 2520, or equivalent.

4150 Theatrical French (1-3) Performance in one or more French plays. May be repeated for credit with consent of department. Prereq: 2130, 2520, or equivalent, and consent of instructor.

4160-70-80 Advanced Conversation (2,2,2) Intensive training in prepared and spontaneous conversations. Subjects range from travel and current events to literature and aspects of national culture. Prereq: Completion of 9 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) Phonetics and phonemics, morphology and syntax. Types of languages, linguistic groups, dialects, and dialect geography. Application of descriptive linguistics to French literature, at least 3 hours of courses numbered 3110 or above, to include the following (or equivalents, with consent of the department): 3410-20-30 (advanced grammar, composition, and conversation, 9 hours); 3110-20-30 or 3510-20 (aspects of Italian literature, at least 6 hours); 9 hours of literature at the 4000 level; 10 additional hours selected from courses in literature, language, or civilization. Students may substitute Foreign Study (4101) for certain courses; students with special interests, such as comparative literature, may take certain substitutions with consent of the department.

Minor: Consists of 24 hours in courses numbered 3110 or above, to include the following: 3410-20-30 (advanced grammar, composition, and conversation, 9 hours); 3110-20-30 or 3510-20 (aspects of Italian literature, at least 8 hours); 7 additional hours selected from courses in literature, language, or civilization.

Courses in Italian literature in English translation may not be counted toward either a major or a minor.
4760 Italian Folklore (3) Folk arts, music, traditions, rituals, and lore of Italy from Middle Ages to present. (Same as Anthropology 4760.)

GRADUATE See Graduate Catalog for requirements.

5011 Techniques in Literary Analysis (2)

5101 Foreign Study (1-12)

5102 Off-Campus Study (1-12)

5161-61-72 Bibliography and Methods of Research (1,1,1)

5610-20-30 Readings in Italian Literature (3,3,3)

5710-20-30 Seminar in Italian Literature (3,3,3)

Portuguese (811)

UNDERGRADUATE

Minor: A minor only is offered in Portuguese, consisting of 8 hours in the 3510-20 sequence (aspects of Portuguese literature) and 18 hours in the 4310-20-30 sequence (directed readings in Brazilian and Portuguese literature, a course of variable content which may be repeated for credit). Students may substitute Foreign Study (4101) for any of the above courses.

1510-20 Elementary Portuguese (4,4) Must be taken in sequence. 4 class meetings and 2 laboratory periods.

2510-20 Intermediate Portuguese (4,4) Must be taken in sequence. 4 class meetings and 2 laboratory periods.

3000-01 Advanced Portuguese (3,3) An accelerated 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: 2520 or equivalent. Recommended for literature majors.

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

4310-20-30 Directed Readings in Brazilian and Portuguese Literature (3,3,3) May be repeated with consent of instructor.

GRADUATE

5101 Foreign Study (1-12)

5102 Off-Campus Study (1-12)

5103 Independent Study (1-12)

Spanish (924)

UNDERGRADUATE

Major: Consists of 36 hours in courses numbered 3310 or above. Students whose primary interest is literature must have a minimum of 8 hours chosen from the following sequences: 3110-20-30 (aspects of Spanish literature, 9 hours); 3310-20-30 (aspects of Spanish American literature, 9 hours); or 3610-20 (survey of Spanish literature, 8 hours); 3410 (composition and conversation, 3 hours); 4210 (phonetics, 3 hours); 9 hours selected from courses 3420-30 (composition and conversation), 4220-30 (advanced grammar), or 4601-60-70 (linguistics); 3 hours of literature at the 4000 level; 3 hours of civilization. Students must select 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 3310 or above, including a minimum of 8 hours chosen from the following sequences: 3110-20-30 (aspects of Spanish literature, 9 hours); 3310-20-30 (aspects of Spanish American literature, 9 hours); or 3610-20 (survey of Spanish literature, 8 hours); 3410 (composition and conversation, 3 hours); 4210 (phonetics, 3 hours); sufficient additional hours selected from courses in literature, language, or civilization to fulfill the minor requirements. Students pursuing a minor are strongly advised to consult with a departmental advisor.

Courses which partially fill the foregoing may be substituted with consent of the department; but courses in Spanish literature in English translation may not be counted toward either a major or a minor.

1110-20-30 Elementary Spanish (3,3,3) This sequence strongly recommended for students intending to take upper-division courses in Spanish. Must be taken in sequence. 3 hours and 2 labs.

1510-20 Elementary Spanish (4,4) Must be taken in sequence. 4 class meetings and 2 laboratory periods.

1518-28 Honors: Elementary Spanish (4,4) Honors courses for students of superior ability. 1518 is open only to students who have taken Spanish in high school. Freshmen are admitted on the basis of a diagnostic test or performance on the ACT. Class held to a maximum of 15 so that each student may receive more attention. This class will cover the normal Spanish program for the first year, but will be enriched whenever possible. Students will be expected to spend only the normal amount of time in preparation. Students who find the course too difficult may easily transfer to a regular class. Potential majors and minors in Spanish are urged to take this course. Students who pass 1510 with a grade of B or higher may take 1528 instead of 1520.

2110-20-30 Intermediate Spanish (3,3,3) This sequence strongly recommended for students intending to take upper-division courses in Spanish. Must be taken in sequence. 3 hours and 2 labs.

2510-20 Intermediate Spanish (4,4) Must be taken in sequence. 4 class meetings and 2 laboratory periods.

2518-28 Honors: Intermediate Spanish (4,4) Honors courses for students of superior ability in Spanish. Incoming freshmen are admitted on the basis of a diagnostic test or performance on the ACT. Class held to a maximum of 15 so that each student may receive more attention. Students will follow an enriched program with continuing emphasis upon speaking ability and cultural awareness, including literary selections. Must be taken in sequence. Students who earn an A or B in 2528 automatically receive credit for Spanish 3110-20, 1510-20, 1518-28, or equivalent.

2610-20 Panorama of Hispanic Culture (4,4) 2610—Peninsular Spain from Roman invasion through 19th century, including Colonial period in Latin America. 2620—Highlights of 20th-century culture in both Latin America and Spain.

3000 Spanish Transition (3) Development of linguistic skills necessary for satisfactory work in courses above 3000. Recommended for students who feel they would benefit from additional training beyond 2130 or 2520 in basic skills of reading, speaking, and writing Spanish.

3010-20-30 Spanish and Spanish American Literature in English Translation (4,4,4,3) 3010—Mas-
terpieces of classical Spanish literature; Cervantes, including the picture novel, religious mystics, Golden Age Theatre. 3020 — Masterpieces of 20th cen-
tury Spanish literature; Unamuno, Lorca, Baroja, Or-
tegas, 3030 — Contemporary Spanish American fiction: Marquez, Borges, Fuentes, Asturias. Must not change in credit hours after add deadline. Option of 4 hours credit must present an appropriate amount of extra work above that required for 3 hours.

3110-20-30 Aspects of Spanish Literature (3,3,3)
3110 — Introduction to Spanish literature, using selec-
tions from prose, drama, and poetry of the modern period; 3120 — aspects of Golden Age literature, includ-
ing the mystics, Cervantes, and Lope de Vega; 3130 —
aspects of modern Spanish literature, including Unam-
ueno, Ortega y Gasset, and Garcia Lorca. Prereq: 2130, 2520 or equivalent. Recommended for literature maj-
ers. Not offered for graduate credit.

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 3610-20. Prereq: 2130, 2520 or equiva-
 lent.

3410-20-30 Intermediate Composition and Conver-
sation (3,3,3) Not offered for graduate credit.

3610-20 Survey of Spanish Literature (4,4)
Chronological study of the various genres (poetry, novel, drama) by periods from the medieval period to the present. May be taken in place of 3110-20-30 or 3310-20. Prereq: 2130, 2520, or equivalent.

4020 Masterpieces of Spanish Literature in English Translation (3) No foreign language credit.

4050-60-70 Hispanic-Arabic Literature and Culture (3,3,3)

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

4110-20-30 Spanish Literature of the Golden Age (3,3,3)
The picassieur novel; Cervantes, the Comedia.

4160-70-90 Advanced Conversation (2,2,2) Inten-
sive training in prepared and spontaneous conversa-
tions. Subjects range from travel and current events to literature and aspects of national culture. Prereq: Completion of 9 hours of courses on 3000 level.

4210 Phonetics (3) Prereq: 2130, 2520, or equivalent.

4220-30 Advanced Grammar (3,3) Prereq: 2130, 2520, or equivalent.

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

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

4270 Romance Linguistics (3) (Same as French and Linguistics 4270.)

4410 Spanish Civilization (3) Prereq: 2130, 2520, or equivalent.

4420-30 Latin American Civilization (3,3) Prereq: 2130, 2520, or equivalent.

4450-70 Studies in Modern Spanish Style (3,3) Prereq: 4410-20-30 or consent of instructor.

4510 Special Topics in Nineteenth Century Spanish Literature (3) Prise, poetry and theatre of Spain in the Nineteenth Century. This course may focus on a genre, movement, or combination of several literary aspects. Course may be repeated with consent of department. Maximum credit 9 hours. Prereq: Intermediate Spanish or equivalent.

4618-38 Honors: Readings in Literature (3,3) Prereq: 3100, 3330, 3620, or equivalent and at least 3.0 on all university work. No credit for grade less than B.

4710-20-30 Spanish Literature of Twentieth Centu-


GRADUATE
The Master's Program
See Graduate Catalog for requirements.

5000 Thesis

5002 Non-Thesis Graduation Completion (3-15)

5011 Techniques in Literary Analysis (3)

5070-80-90 Hispanic-Arabic Literature and Culture (3,3,3)

5101 Foreign Study (1-12)

5102 Off-Campus Study (1-12)

5103 Independent Study (1-12)

5110-20-30 Old Spanish (3,3,3)

5121 College Teaching of Romance Languages (3)

5151-61-71 Bibliography and Methods of Research (1,1,1)

5211-21 Don Quijote (3,3)

5212-32 Golden Age Prose (3,3)

5250-60 The Generation of '98 (3,3)

5270 The Contemporary Novel (3)

5310-20 Directed Readings (3,3)

5311-21 Special Topics in Spanish or Spanish American Literature (3,3)

5340 Problems in Hispanic Culture (3)

5510 Special Topics in Spanish Theatre after the Golden Age (3,3)

5550-60 The Golden Age Theatre (3,3)

5610 Spanish American Prose to 1900 (3,3)

5611-21 Spanish American Lyric Poetry (3,3)

5620-30 The Modern Novel in Spanish America (3,3)

5631 Spanish American Essay (3,3)

5632 The Spanish American Short Story (3,3)

5633 Twentieth-Century Latin American Theatre and Film (3,3)

5640 Latin American Women Writers (3,3)

5650-60 Advanced Syntax and Stylistics (3,3)

5670 Problems in Romance Linguistics (3,3)

5810-20-30 Spanish Lyric Poetry (3,3,3)

5910 Literary Criticism: Foundations of Romance Criticism (3)

6000 Doctoral Research and Dissertation

6210-20-30 Seminar in Spanish Literature (3,3,3)

6310-20-30 Seminar in Latin American Literature (3,3,3)

Russian
See Germanic and Slavic Languages.

Russian and East European Studies
See Cultural Studies.

Sociology (915)

Professors:
D. R. Ploch (Head), Ph.D. North Carolina; J. A. Black, Ph.D. Iowa; J. D. Champion, Ph.D. Purdue; L.

Eberesol (Vice Chancellor for Planning and Administration), Ph.D. Pennsylvania; D. W. Hastings, Ph.D. Massachusetts; W. B. Jones (Emeritus), Ph.D. Vanderbilt; N. E. Shover, Ph.D. Illinois (Urbana); S. E. Wallace, Ph.D. Minnesota.

Associate Professors:

Assistant Professors:
S. H. Calkin, Ph.D. California (San Diego); S. Kurth, Ph.D. Illinois (Chicago); K. D. Van Liere, Ph.D. Washington State; K. V. Ritter, Ph.D. Washington.

Instructor:
D. Harris, M.A. Tennessee.

UNDERGRADUATE
Major: Consists of 36 upper-division hours in sociology. Eight lower-division hours in sociology are prerequisite to a major. The minor shall consist of 24 upper-division hours. Eight lower-division hours in sociology are a prerequisite to a minor.

Social Work. Students contemplating entrance into the field of professional social work will have an opportunity to plan their upper-division programs to this end. Suggested course offerings for students planning a social work career can be obtained from the Graduate School of Social Work catalog. The address and general information on the School are given on page 55.

Students who contemplate professional training in social work should discuss their upper-division programs with the Knoxville campus representatives of the School of Social Work.


1510 General Sociology (4) Social origins, structures, forces, processes, and products.

1520 Sociology of Social Problems (4)

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 collec-
tive action problems.

3030 Political Sociology (3) Sociological analysis of American political system. Attention given to considera-
tion of concept of power, elitist/pluralist controversy, end-of-ideology debate, and related topics.

3130 Social Psychology (4) Social psychological analysis of social behavior emphasizing its acquisition, its enactment and its dynamic nature.

3140 Deviance and the Social Order (4) Examination of relations between deviance and social order. Various types of social deviance considered, with focus on their structure, social factors related to process of becoming deviant, and consequences of deviant conduct.

3150 Gender in Society (4) Exploration of gender in society utilizing various sociological perspectives with special focus on the relationships between social struc-
tures, social roles and gender identities.

3160 Sociology of Medicine (4) Introduction to sociological approach to study of health and medicine. Emphasis on relationship of demographic charac-
teristics to the prevalence of disease, organization of health care facilities, and staff-patient relationships.

3220 The Family (4) Examine theoretical frameworks and sociological dimensions of communication and of com-
munication processes at the organizational and interac-
tional levels.

3330 Prejudice and Racism in the United States (4) (Same as Black Studies 3333.)

3340 Sociology of Poverty and Inequality (3) Factors contributing to condition of poverty and social consequences of being poor. (Same as Black Studies 3340.)

3350 Social Stratification (4) Study of economic class, prestige, life styles 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) Cities and the urban con-
scape; urban problems and interventions; housing, urban renewal, and neighborhood conservation; the urban poor, the disinterested, and alienated; planning for urban youth; the urban elderly; the social and physical planning process; new towns.

3510 Juvenile Delinquency (4) Critical assessment of nature of the delinquency problem, major sociological causes and their implications for control, and admin-istration of juvenile justice.

3610 Sociology of Occupations (4) Introduction to occupations and their relation to the individual and society; technology and occupations; unequal rewards and occupations; social organization and occupations.

3620 Occupations as Organizations (4) Occupations as interest groupings; their impact on work settings and the wider community.

3672 Religion and Society in Japan (4) (Same as Religious Studies 3672.)

3680 Sociology of Aging (4) The aged as social minority and subculture in society, role changes in middle age and in old age, significance of increase in proportion of aged in terms of employment, welfare, retirement, and political power.

3810 Sociological Theory (4) Survey and analysis of develop-
tment of sociological theory from time of Comte to present.

3910 Introduction to Social Research (4) Scientific method applied to social phenomena; formulating test-
ing hypotheses; techniques for collecting data; measur-
ing social variables; interpreting research findings. Lect-
ure and laboratory.

3920 Elementary Statistical Methods (4) Statistics used in social research; elementary descriptive tech-
iques; measures of central tendency; dispersion; ele-
mentary statistical inference; tests of significance for parametric and non-parametric data.

4000 Special Topics (4) Student-generated course offered at convenience of department upon student initiative. Scope of subject matter determined by students and instructor with consent of department. Effective credit only. Prereq: Determined by department.

4030 Society and Law (4) General treatment of social origins and consequences of law and legal process. Particular emphasis on problems of law and social change, and on structure and functioning of legal sanctions. Law and law-like phenomena in formal organizations and primitive societies. (Same as Urban Studies 4350.)

4050 Sociology of Sport (4) Social organization and meaning of sport. The difference between sport and play and games, social stratification and sport, sport as an occupation place of sport in mass culture and sport subcultures, and reciprocal influences of sport and cultural milieu.

4102 Off-Campus Study (1-16) See page 184.

4103 Independent Study (1-16) See page 184.

4110 Population Problems (4) Demographic factors and social structure; trends in fertility, mortality, popula-
tion growth, migration, distribution, and composition; population policy.

4120 Topics in Social Psychology (4) (Same as Psychology 4129.)

4130 Sociology of Punishment and Corrections (4) Traces development of correctional movement, devel-
ops a critical sociological perspective on contemporary correctional programs, and provides overview of evalu-
ative research in corrections.

4160 Theory of Attitudes and Values (4) Study of organization, functions and measurement of attitudes and values; approaches to attitude change; and relation-
ship 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, institu-
tional) are emphasized.

4310 Criminology (4)

4330 Urban Ecology (4) Examination of public, private, collective, and individual space. Classical school ecology, its neoclassical revisioners, social area analysis, and cognitive symbolic ecology emphasized. (Same as Urban Studies 4350.)

4410 Educational Sociology (3) (Same as Educ. C & I 4410.)

4520 Sociology of Education (4) History and development of educational institutions, society, culture, and religion. (Same as Religious Studies 4960.)

4530 Community Organization (4) Structure; func-
tion, linkages. Change and development and important community studies. Emphasis on sociological analysis, not on implementation of change.

4540 Social and Religious Change (4) Critical review of historical and contemporary theories and methods employed in study of change. Both macro and micro change. (Same as Religious Studies 4540.)

4560 Formal Organization (4) Analysis of bu-
reaucratization process, division of labor, delegation of authority, channelled communication under system of rationality.

4580 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, organiza-
tion, and function of social movements; attention is given to ideology, leadership, and organization of politi-
cal, religious, and other types of social movements.

4940 Sociology of Religion (4) Interrelationship of society, culture, and religion. (Same as Religious Studies 4940.)

4960 Tradition, Change and Modernity in Asia (4) (Same as Religious Studies 4960.)

4998 Honors: Sociology (4) Intensive study and re-
search in study of people or social institution, including writing of senior thesis. Course credit may be split into two quarters. Candidacy is open only to majors who have shown a marked capability for independent study and have grade averages of at least 3.0 in the college of Liberal Arts and 3.2 in the department. Prereq: Senior standing.

GRADUATE

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

5000 Thesis

5010 Professional Seminar (1)

5040 Methodological Issues in Social Research (3)

5050 Seminar in Political Sociology (3)

5060-70 Special Social Investigation (3,3)

5125 Seminar in Environmental Sociology (3)

5200 Seminar in Collective Behavior and Social Movements (3)

5210, 5420-30 Social Theory (3,3,3)

5220 Social Control (3)

5230 Seminar in Sociology of Medicine (3)

5251 Historical Demography (3)

5310 Seminar in Methods of Sociological Research (3)

5320-30 Social Statistics (3,3)

5520 Crime, Law, and Social Control (3)

5530 Seminar in Community (3)

5560 Field Research in Deviance (3,3)

5580 Sociology of Mental Disorders (3)

5590 Social Differentiation and Stratification (3)

5610-20-30 Seminar in Occupations (3,3,3)

5640 Theories of Social Psychology (3)

5670 Social Organization (3)

5720 Social Interaction (3)

5730 Seminar in Research Problems in Intergroup Relations (3)

5810 Seminar in Race and Culture (3)

5910 Urban and Regional Sociology (3)

5920 Seminar in Social Attitudes (3)

5940 Delinquency and the Social Structure (3)

5960 Demographic Techniques (3)

5970 Sociology of Development and Modernization (3)

6000 Doctoral Research and Dissertation

6040 Experimental Research (3)

6050 Seminar on Methods of Social Research (3)

6070 Problems in Field Research (3)

6080 Reading in Social Psychology (3)

6090-6100 Survey Design and Analysis (3,3)

6130 Seminar in Mass Behavior and Related Top-

6140 Advanced Reading in Sociological Theory (3)

6150 Advanced Reading in Sociological Methods (4)

6160 Advanced Special Social Investigation (4)

6170 Cross-cultural Aspects of Human Fertility (3)

6180 Theory and Method in Human Ecology (3)

6190 Advanced Special Social Investigation (4)

6200 Topics in Socialization (3)

6240 Theory and Research in Human Migration (3)

6510 Advanced Issues in Criminological Theory (3)

6520 Sociology of Deviance (3)

6530 Sociology of Law (3)

6540 Readings in Criminology and Deviance (3)

6590 Advanced Studies in Community (3)

6610 Seminar in Formal Organization (3)

6620 Seminar in Formal Organization (3)

6630 Seminar in Formal Organization (3)

6710 Seminar in Class and Status (3)

6810 Advanced Studies in Social Psychology (3)

6840-50 Social Change (3,3)

6940 Advanced Studies in Urban Sociology (3)
Spanish

See Romance Languages.

Speech and Theatre

Professors:

Associate Professor:

Assistant Professors:
R. S. Ampler, Ph.D. Ohio State; M. L. Ambrester, Ph.D. Ohio; L. DeCarlo, M.F.A. Tulane; M. E. Hampton, M.F.A. Yale; C. M. Kaseta, M.F.A. Alabama; D. K. Sorensen, Ph.D. Louisiana State.

UNDERGRADUATE

Major: The major, speech and theatre, offers two areas of concentration as follows:

Concentration in Speech: Eight hours from Speech 1211-21, Speech and Theatre 1441 are prerequisite to a concentration which consists of two courses from Speech 2021, 2311 (or 3551 by permission), 2312, 2351, and 30 additional hours in speech courses numbered 2000 and above, 12 hours of which may be cognate area approved by the department and 24 of which must be in courses numbered 3000 and above.

Concentration in Theatre: Theatre 1320-30-40 is prerequisite to a concentration which consists of Theatre 4011, 2211-21, 2231, 3252-53-54, 19 additional hours of theatre courses numbered 2000 or above, 12 hours of which may be cognate area approved by the department. At least one-half of the hours in the concentration must be earned at the 3000 level or above. Corequisite: nine hours from courses listed in the Dramatic Arts option of the Language, Literature, Arts Triad.

Minor: Two minors are offered: speech and theatre. Speech 1211-21 is prerequisite to a minor in speech which consists of 24 hours in speech courses numbered 3000 and above. Theatre 1320-30-40 is prerequisite to a minor in theatre which consists of 24 hours in theatre courses numbered 3000 and above, 6 hours of which must be in history and criticism.

Certification for Teaching Speech and English: Consult Certification Clerk, Room 212, Clayton 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 (posters, speeches, songs, plays, demonstrations, films) and social change.

1221 Introduction to Speech Communication (4) Fundamental theories and practices with particular reference to interpersonal communication, persuasion, semantics, psycholinguistics; legal and ethical dimensions of communication.

2021 Voice and Diction (4) Voice production; attention to individual speech problems.

2311 Public Speaking (4) Basic principles of speech preparation and delivery.

2231 Argumentation and Debate (4) Recommended: 2311.

2341 Parliamentary Procedure (3) Various techniques and procedures for collective decision making in assemblies.

2351 Interpersonal Communication (4) Communicating in its application to informal, face-to-face situations.

2361 Business and Professional Speaking (4) Basic principles of oral communication within organizations. Listening skills, interviewing techniques, formal presentation (including technical papers and reports), conference planning, selecting and employing visual aids, informal communication systems, communicating corporate image, and other aspects of business and professional communicating.

2410-20-30 Intercolligate Forensics (1,1,1) Supervised work in tournament debate and individual events. Prereq: Consent of instructor.

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 Non-verbal Communication (4) Exploration of non-verbal communication, human communication perspective, origins and research, usage and coding of non-verbal behavior, research strategies and theoretical approaches.

3041 Communication Projects (1-4) Intensive application of communication theory covered in other Speech Communication courses. Includes the areas of persuasion and interpersonal communication. May be repeated. Maximum 4 credit hours.

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 Intercolligate Forensics (1,1,1) Continuation of 2410-20-30. Prereq: Consent of instructor.

3551 Persuasive Speaking (4) Speech forms; principles and practice of speech composition.

422 Advanced Argumentation and Debate (4) Prereq: 2331 or consent of instructor.

4461 Quantitative Research Methods In Speech Communication (4) Designing experiments; planning field studies; using statistical analysis.

4541 Rhetorical Theory and Criticism (4) Survey of Western and contemporary approaches to criticism of public address.

4560 Rhetoric of the Women's Rights Movement (4) Historical and critical study of public address in campaign for women's rights from the 1830s to present.

4671 British Oratory (4) Historical and critical study of British public address.

4691 Persuasive Uses of Imaginative Literature (4) Topics in social and political uses of novels, plays and poems.

4811 Advanced Phonetics (4) Phonetic aspects of contemporary dialects of the English language. Prereq: Consent of instructor.

4930 Studies in American Public Address (4) May be repeated. Maximum credit 12 hours.

4999 Colloquium in Speech Communication (1) May be repeated for credit.

GRADUATE

5140 Communications Theory (3)

5210 Topics in Group and Interpersonal Communications (3)

5220 Quantitative Projects in Speech Communication (3)

5440 Organizational Communication (3)

5550-60-70 Studies in Persuasion (3,3,3)

5750-60-70 Studies in Rhetoric (3,3,3)

5911 Directing the Forensic Program (4)

Theatre (976)

1310 Introduction to Theatre (4) Theatre as experience, materials and techniques.


2111-21 Acting (4,4) 2111—Realism: readings, improvisations and scene study, 2112—Extended Realism: voice and movement for the stage, basic rehearsal techniques. Prereq: Consent of instructor for 2111. 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 Costuming (4) Costume design and construction: basic theory and technique. Production participation required.

3121-22 Advanced Acting (4,4) Historical styles of acting. 3122—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 taken in sequence. Prereq: 2211-21 or consent of instructor.

3214-15 Technical Theatre (4,4) Special techniques in scenery and property construction; stage management, problems in the technical theatre practice. Must be taken in sequence. Prereq: 2211-21 or consent of instructor.

3221-22 Introductory to Scene Design (4,4) 3221—Problems in stage design with reference to space and form, movement, scale and style, rudiments of rendering and ground-plan preparation. 3222—Play interpretation through scenic means; setting as environment for dramatic action; rudiments of model making. Must be taken in sequence.

3252-53-54 History of the Theatre (4,4,4) Drama in performance with particular emphasis in theatre architecture, scene design, and acting styles. 3252—Antiquity to the Renaissance. 3253—The European theatre, 1650-1850. 3254—Modern theatre.

3262-53 History of the American Theatre (3,3) Development of the theatre as social institution in America, 3263—Beginnings to 1900. Prereq: From 1900 to present.

3321-22 Introduction to Lighting Design (4,4) Mechanics of stage lighting; elementary theory; problems in basic lighting practice. May be taken in sequence. Prereq: 2211-21 or consent of instructor.

4351-52 Play Directing (4,4) Must be taken in sequence. Prereq: 2111.

5311-12 Introduction to Costume Design (4,4) Costume as expression of character on stage; the application of costume history to specific design projects. Prereq: 2311 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 4 credit hours.

4214-15 Advanced Technical Theatre (4,4) Advanced technical theatre management; advanced scenery and property execution; special problems in technical theatre.

4241-42 Advanced Scene Design (4,4) Advanced scenic drawing as an approach to three-dimensional design; theatrical graphic standards and preparation of design drawing. 4242—Perception of surface color; construction of spatial illusion through color with reference to rendering, scene painting, and preparation of painter's elevations. Must be taken in sequence. Prereq: 2211-21, 3221-22, and consent of instructor.

4341-42 Advanced Lighting Design (4,4) Relationship of light to setting in creating stage environment. Must be taken in sequence. Prereq: 332122 and consent of instructor.

4441-42 Advanced Play Directing (4,4) Problems of play interpretation; directing period plays; preparation of actors for stage production. Must be taken in sequence. Prereq: 3451-52 and consent of instructor.

4541-42 Advanced Theatre Costume Design (4,4) Advanced problems in costume design and construction; pattern drafting; drafting. Prereq: 3511-12.

4751-52 Dramatic Theory and Criticism (3,3) (b) Statistics electives:

5011-12-13 Projects in Lieu of Thesis (3,3,3) (a) Required courses:

5250 Seminar in Playwriting (3)

5310 Studies in European Theatre History (3)

5320 Studies in American Theatre History (3)

5620 Projects in Lighting Design (3)

5830 Projects in Play Directing (3)

5840 Projects in Scene Design (3)

5950 Projects in Costume Design (3)

5960 Projects in Technical Theatre (3)

5970-71-72-73-74-75 Master Class in Acting (5,5,5,5,5,5)

5980-81-82 Design and Technical Theatre Seminar (1-8,1-6,1-6)

5980 Studies in Theatrical Production (3)

5992 Play Production in Secondary Schools (4)

5995-60-70 Studies in Dramatic Theory and Criticism (3,3,3)

Speech and Theatre (945)

1441 Introduction to Cinema (4) Development of motion pictures as a medium; film aesthetics; analysis and criticism of selected films.

2031 Introduction to Oral Interpretation (3) Art of reading aloud; development of interpretive techniques and their application to selected passages of prose, poetry, and drama.

3651 Oral Interpretation of Prose Literature (4) Prereq: 2031 or consent of instructor.

3681 Oral Interpretation of Poetry (4) Prereq: 2031 or consent of instructor.

3671 Oral Interpretation of Drama (4) Prereq: 2031 or consent of instructor.

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

4102 Off-Campus Study (1-16) May be repeated for major credit to maximum of 12 hours. See page 184.

4103 Independent Study (1-16) May be repeated for major credit to maximum of 6 hours. See page 184.

170-80-90 Film History and Theory (3,3,3) Analysis of cinematic forms and styles. 4170—Narration, 4190—Exposition and persuasion. 4190-Experimental forms; films and other media.

4640 Group Performance of Literature (4) Oral interpretive techniques of choral reading, readers theatre, and chamber theatre.

GRADUATE

5000 Thesis

5002 Non-Thesis Graduation Completion (3-15)

5110 Introduction to Graduate Research in Speech and Theatre (3)

5120 Directed Reading and Research (3)

5160 Theory and Technique in Oral Interpretation (4)

Statistics

See faculty list page 94.

Liberal arts students may major or minor in statistics under the supervision of the faculty of the statistics department in the College of Business Administration. The major is designed to prepare students for graduate study in statistics or for professional work in various applications of statistical methods, including applications in the sciences, business, and industry. It is highly recommended that a student majoring in statistics have a minor in an area of application.

Major:

(a) Required courses: 27 hours to consists of

Mathematics 2840-50-60; Statistics 3450-60, 4750; Computer Science 4310; Statistics 3550 or Mathematics 4650 or 4750.

(b) Statistics electives: 12 hours from upper-division statistics courses not listed in part (a) above.

(c) Electives: 12 hours to be selected from no more than two of the following groups:

Computer Science 3150, 3510, 3820, 410; Industrial Engineering 3430, 3510, 3520, 3530, 4590; Industrial Management 4610, 4620; Mathematics 3780-90, 4060-70, 4510-20 (or 4518-28-38), 4660-70.

Minor:

(a) Required courses: 21 hours to consist of

Mathematics 2840-50-60; Statistics 3450-60; Computer Science 4310.

(b) Statistics electives: 9 hours from upper-division statistics courses not in part (a) of the minor.

University Studies (984)

(Non-Departmental)

University students deal with important contemporary topics which are sufficiently comprehensive to require study and attention of students and faculty from more than one college. They are open to all qualified members of the UK community.

1000 The First Course (4) An introduction to university education as an adventure in personal growth and professional development. A.D., B. C. +, C/NC.

2010 Technology, Society and the Common Good: The Energy Problem (3) Designed for students of all college. They are open to all qualified majors. Prereq: Consent of instructor. May be repeated with approval of instructor.

Women's Studies

See Cultural Studies.

Zooology (995)

Professors:

J. H. Abel(Head), Ph.D. Brown, R. M. Bagby, Ph.D. Illinois; D. L. Bunting, Ph. D. Oklahoma State; J. G. Carlson (Emeritus), Ph.D. Penneyvania; A. C. Cole (Emeritus), Ph.D. Ohio State; J. Daniel, Jr., Ph.D. New York; D. A. Eberle, 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. Jean, Ph.D. London (England); A. W. Jones (Emeritus), Ph.D. Virginia, R. K. Keeney, Ph.D. Iowa; J. N. Ules, Ph.D. Ohio State; L. E. Roth (Vice Chancellor for Graduate Studies), Ph.D. Chicago; C. A. Shively, Ph.D. Colorado; J. T. Tanner (Emeritus), Ph.D. Cornell; H. G. Welch, Ph.D. Florida; M. C. Whiteside, Ph.D. Indiana; G. L. Whiteford, Ph.D. Iowa.

Associate Professors:

K. D. Bumpham, Ph.D. Iowa; A. C. Eckenhart, Ph.D. Kansas; D. J. Fox, Ph.D. Johns Hopkins; M. A. Handel, Ph.D. Kansas State; J. A. MacCabe, Ph.D. California (Davis); M. L. Pan, Ph.D. Pennsylvania; S. R. Barber, Ph.D. Wisconsin; G. L. Vaught, Ph.D. Duke.

Assistant Professors:

T. T. Chen, Ph.D.; Florida; L. D. Elkin, Ph.D. Indiana; G. F. McCracken, Ph.D. Cornell; N. B. Greenberg, Ph.D. Rutgers.

UNDERGRADUATE

Prerequisites to upper-division courses:

Biology 1110-20-30 or Zoology 1116-28 are prerequisites for all upper-division courses, with the exception of 3090 and 4940.

Additional prerequisites are included with course descriptions. Courses numbered in the 4000's are no more advanced than those in the 3000's except as may be indicated by prerequisites.

Majors: 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 16 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 ZoolPgy 3990 must also be included. Prerequisites to this major are: Biology 1210-20-30 or Zoology 1118-28 (Zoology 2850-30 may be substituted for Zoology 1118 or Biology 1220), and Chemistry 1110-20-30. Corequisites are Mathematics 1841-51, or 1840-50 or 1550-60 (Mathematics 1841-51 is the recommended choice); and a year sequence in physics (except 14-20-30). Note: Students majoring in zoology are advised to exercise care in fulfilling the Science and Mathematics Triad requirements.

2010 Technology, Society and the Common Good: The Energy Problem (3) Designed for students of all college. They are open to all qualified majors. Prereq: Consent of instructor. May be repeated with approval of instructor.
Minor: Consists of 24 hours of zoology, or zoology and biology, courses. (Zoology courses must be at the upper-division level; but 3000-level biology courses may be used, e.g. Biology 3110, 3120, 3130.) Prerequisites to this minor are Biology 1210-20-30 or Zoology 1110-20-30 or 1118-28 and Chemistry 1110-20-30.

Note: Certain Zoology courses require organic chemistry or other prerequisites—consult the catalog description for each course.

Many courses in this department are offered only in specified quarters. Students should plan in advance the proper sequence. Information on the quarter a course is to be offered is available in the departmental office.

1118-28-30 Honors: Fundamentals of Zoology (4,4,4) Course designed for superior students in any field who are interested in obtaining a solid foundation in zoology. On completing this sequence students may register for core Biology 3110-20-30. Honors zoology is open to all students with a minimum ACT composite score of 27, or with a minimum GPA of 3.2 in college. Students must achieve at least a B in any quarter to be eligible for the next quarter. Students who do not satisfy this restriction may register for this sequence when they have been accepted for the major. Two quarters must be taken with appropriate quarters of Biology 1210-20-30. Must be taken in sequence. 1118 (Fall)-Processes; Structure and function of animal tissues; General and physiological. 1138 (Spring)-Ecological; independent projects. Each quarter consists of six hours of combined lecture and lab. Students who receive credit for this sequence may not receive additional credit for Biology 1210-20-30 or Botany 1110-20 or 1118-28.

2460-70-80 Human Anatomy and Physiology for Nurses (4,3,3) Fundamentals of human anatomy and physiology. 2 hours and 1 lab.

2461-71-81 Human Anatomy and Physiology for Nurses (4,4,4) Same as 2460-70-80 except 2 hours 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 man, cell biology, reproduction, development, principles of genetics. 2520—How we live, physiology of movement, utilization of food, respiration, circulation, excretion. 2530—Survival; infection and immunity, aging, vascular disorders, genetic disorders, cancer, nutritional inadequacies, human ecology, genetic engineering. May be taken in any sequence.

2920-30 Human Physiology (4,4,4) Fundamental of biology; principles of human physiology and anatomy. Must be concurrently offered in one of the eight quarters of college chemistry. 2 hours and 2 labs.

2980 Human Anatomy (4) Gross and Microanatomy of the Human. Prereq: 1 year of an introductory Biology course or Zoology 2800-30 or equivalent. 2 hours and 2 labs. (Does not carry credit for Biology or Zoology Majors).

3050 Comparative Vertebrate Embryology (5) Developmental morphology of selected vertebrates. 2 hours and 3 labs.

3060 Comparative Vertebrate Anatomy (5) Physiology and anatomy of organ systems. Dogfish and cat primarily used in laboratory. Three hours and 2 labs.

3080 Principles of Animal Physiology (5) Physiology of organ systems or animals including man. Prereq: Biology 2980 or 3210, 2221. Physics 2210-20-30 recommended. 3 hours and 1 lab.

3090 Biology and Human Affairs (3) (Same as Botany 3090.)

3110 General Entomology (5) Introduction to insects; basic structure, development, behavior; classification of insects and representatives for ligament interpretation and use of keys. Prereq: Biology 3130 or consent of instructor. 3 hours and 2 labs.

3150 Invertebrate Zoology (5) Biology of invertebrates (except insects) with emphasis on ecology and behavior. Prereq: Biology 3130. 3 hours and 2 labs.

3220 Physiology of Reproduction (3) (Same as Animal Science 3220.)

3320 Histology (4) Study of animal tissues. Prereq: Biology 3120. 2 hours and 2 labs.

3410 Bioethics (3) Relationship between biological discoveries in cell technology from stem cell to reproduction 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.)

3820 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 2 lab periods. Open discussion. (Does not carry credit in the Zoology major or major.

3990 Zoology Colloquium (1) Weekly discussions of colloquial and modern problems, junors, and seniors. Each Zoology major is required to take a minimum of one hour. Grading: S/N. May be repeated. Maximum 3 hours.

4007-8-9-10-11-12-13-14-15-16-17 Minicourse in Zoology (2,2,2,2,2,2,2,2,2,2,2) Three quarters of 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.

4050 Developmental Biology (4) Experimental morphogenesis, fertilization, cellular interactions, hormonal effects, and related topics with examples shown primarily from invertebrates and vertebrates. Prereq: 3050. 2 hours and 2 labs.

4110-20-30 Undergraduate Research Participation (3,3,3) 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 agencies, research laboratories. Approximately 5 hours of involvement per week. Prereq: Biology 3110, 3120, 3130, and senior standing.

4190 Mammalogy (4) Classification, evolution, distribution, reproduction, tropisms, non-behavior. 2 hours and 2 lab or field periods. (Not open to students with credit for 3190.)

4200 Ichthyology (5) Classification, collection and identification, distribution, life histories, and economic importance. 4200A-200B. 4200B-300C. Three quarters of instruction. Prereq: 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.

4250 Comparative Animal Physiology I (3) Environment, animal and human physiology. (Does not carry credit in the Zoology major or major.

4259 Comparative Animal Physiology Laboratory I (1) Coreq: 4250.

4260 Comparative Animal Physiology II (3) Sensory, effecter and integrative physiology. Prereq: 3080.

4269 Comparative Animal Physiology Laboratory II (1) (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 morphogenesis 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 1 (3-1) 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 hours and 2 labs.

4330 General Cytology (4) Study of cellular organelles at the light and electron microscope levels and the functioning of these organelles. Prereq: Biology 3120.

4359 General Genetic Laboratory (2) Mainly Drosophila experiments designed to illustrate basic principles of inheritance. Prereq: Biology 3110. 2 labs.

4380 Organic Evolution (3) Modern concepts of animal evolution. Prereq: Biology 3110.


4410 General Parasitology (4) Morphology, taxonomy, and ecology of parasitic worms and protozoa, with emphasis on host-parasite relationships. 3 hours and 1 lab. Prereq: Biology 3130 or consent of instructor.

4450 Protozoology (4) Morphology, taxonomy, and physiology of protozoa in relation to fundamental biological concepts. Recommended: Biology 3120, 2 hours and 2 labs.

4660 Introduction to Aquatic Ecology (4) Introduction to the physicochemical nature of the inland waters. Biotic communities are described, and their interrelations explored. Prereq: Chemistry 1110-20-30, and Biology 3130. Two hours and 2 labs.

4700 Arachnology (4) Biology of spiders, mites, scorpions, and relatives. Prereq: 3110 or 3150. 2 hours and 2 labs.

4720 Comparative Animal Behavior (4) Methods and principles. (Same as Psychology 4720.)

4729 Comparative Animal Behavior Laboratory (4) Laboratory and field studies. Coreq: 4720 (Same as Psychology 4720.)

4819-20-30 Insect Morphology and Taxonomy (4,4,4) 4819—Introduction of both generalized and specialized forms. 4820—Taxonomy of major orders. 4830—Taxonomy of minor orders and immature forms. Prereq for 4820-30: 3110 or consent of instructor. 2 hours and 2 labs.

4849 Physiology of Exercise (4) Functions of body in muscular work, physiological aspects of fatigue, training, and physical fitness. Prereq: 2920-30 or 3080. 3 hours and 1 lab. (Not open to students with credit for 3940.)

GRADUATE

5000 Thesis

5017 Colloquium In Ethology (1)

5075 Zooplankton Ecology (4)

5080 Graduate Research Participation (3)

5110-20-30 Special Problems (2,2,2)

5150 Zoological Bibliography (1)

5180 Fresh-Water Invertebrates (4)

5210 Plant Parasitic Nematodes (4)

5280 Physiology of Hormones (4)

5270 Advanced Neuromuscular Physiology (5)

5280 Insect Physiology (4)

5290 Quaternary Problems (4)

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<td>5740</td>
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<td>Transport of Ions Across Epithelia</td>
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<td>Methods of Taxonomy</td>
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<td>Geographic Distribution of Animals</td>
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<td>6910</td>
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</table>
The life process from conception through senescence. In nursing practice, this knowledge and understanding is combined with intellectual judgments, practical skills, and human compassion. Opportunities to develop this kind of expertise in a variety of settings and situations are integral components of all nursing courses.

A broad base of general education, a thorough study of human behavior, emphasis on health maintenance and promotion, and a strong family and community orientation are essential components of baccalaureate education in nursing. It is these characteristics which differentiate it from other types of basic nursing education.

Because of the expanding role of the professional nurse, the increasing complexity of health care delivery, and the ever-changing health needs of society, the goals of the program are to prepare graduates who are able to:

1. Assume beginning leadership positions in nursing in a variety of settings.
2. Work collaboratively with other health professionals.
3. Function as socially conscious and contributing citizens.
4. Pursue advanced education on either a formal or an informal basis.

GENERAL REQUIREMENTS

In order to obtain a Bachelor of Science in Nursing Degree, 12 quarters of full-time study or their equivalent are required. Students may enroll in nursing courses following successful completion of 90 quarter hour credits in prescribed general education courses. These courses may be taken at The University of Tennessee or at any accredited junior or senior college or community college. One hundred eighty-nine quarter hour credits must be successfully completed in order to be awarded the Bachelor of Science in Nursing Degree.

NOTE: Students are advised to consult the University's degree requirements as stated in the front of this catalog as well as the requirements for the College of Nursing.

GRADING POLICY

The satisfactory-no credit option is not permitted for any nursing course except 3900.

The minimum acceptable grade for all courses in the nursing curriculum, other than electives, is a C; a course in which a grade of D or F is achieved may be repeated once. If a grade of D or F is achieved on the second attempt, the student will be required to withdraw from the program.

Any student who achieves a grade of D or F for more than two clinical nursing courses will be required to withdraw from the program even if previous courses in which the grades of D or F were achieved have been repeated and a grade of C or better has been received. Clinical courses are: 2800, 3010, 3210-20, 3410, 4110, 4230, 4510-20, 4760.

If a student receives an Incomplete (I) in a required nursing course, the Incomplete must be removed before the student may enroll in any other required nursing courses.

If a student's clinical laboratory performance for any nursing course is deemed unsatisfactory, the grade for that course will be an F regardless of any grades related to the theoretical component of the course. If the unsatisfactory clinical performance is characterized by dangerous, inappropriate, or irresponsible behavior, behavior which actually or potentially places the patient's or family's welfare in jeopardy, the student will be required to withdraw from the program.

ADMISSION AND PROGRESSION PROCEDURES

1. Nursing students must achieve a course grade of C or better in all required lower-division courses.

2. During the academic year in which students expected to complete all lower-division requirements, a petition for progression to upper-division nursing courses must be submitted. Petition forms are available in the college's Student Affairs Office, and must be submitted to this office no later than the fifth class day of January. Students selected for progression are notified no later than one day prior to the preregistration period for the spring quarter.

Students selected for progression must successfully complete Nursing 2800 prior to enrollment in upper-division nursing courses. This course is offered in both the spring and summer quarters. Only students selected for progression may enroll in Nursing 2800.

3. Students who expect to enroll in The University of Tennessee, Knoxville,
College of Nursing, once they have completed lower-division requirements elsewhere, should contact the Associate Dean for Student Affairs at the UT College of Nursing and are then admitted to the University. If the number of students qualified to begin upper-division nursing courses exceeds the number that can be accommodated during the fall quarter, the cumulative grade point average will be utilized to select those students who may enroll in upper-division nursing courses. Qualified students not selected are eligible to reapply for placement during the next review period.

(4) Transfer students who have been accepted by the University must complete all coursework identified in the nursing curriculum. Transcripts will be evaluated on an individual basis. Students are free to take proficiency or challenge examinations in order to determine whether it is necessary for them to enroll in a course or whether they have met those course requirements in another way.

(5) Registered nurses seeking a baccalaureate degree in nursing must also apply for admission to the University and must be accepted on the same basis as others. They must complete all prerequisites and all required courses identified in the nursing curriculum. These students may also take challenge or proficiency examinations in required courses whenever these are appropriate and available.

Registered nurses who have completed Chemistry 1410-20 with a grade of C or better, within ten years prior to their admission to the College of Nursing, have satisfied the chemistry requirement.

For registered nurses, the following courses may be substituted for those required in the nursing curriculum if a grade of C or better was achieved and if the courses were taken within ten years prior to admission to the College of Nursing: Microbiology 2110 for Microbiology 2910; Nutrition 1230 for Nutrition 2610; Sociology 1010 for Sociology 1230; and Psychology 1010 for Psychology 2010.

A minimum of 189 quarter hours of credit is required.

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<tr>
<th>Freshman</th>
<th>Hours</th>
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<td>Microbiology 2910-19</td>
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<td>Philosophy 3611</td>
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TOTAL: 189 hours

At least 14 of the elective hours must be in humanities courses.

Nursing (720)

Professor: S. E. Hart (Dean), Ph.D. New York.

Associate Professors: D. H. Goodfellow, Ph.D. Peabody, M. E. Groer, Ph.D. Illinois, K. J. Kant, Ph.D. Illinois, J. N. Masingo, Ph.D. Windsor; B. M. Reid, M.S.N. Columbia.

Assistant Professors:
- M. T. Boynton, M.S.N. Emory, S. L. Bruning, M.S.N. Columbus; K. P. Conlon, M.S.N. SUNY (Buffalo); M. Donnellan, M.S.N. SUNY (Buffalo); G. A. Evans, B.S.N. Eastern Tennessee State; M. M. Evans, M.N. Florida; J. A. Greene, Ph.D. Vanderbilt; M. J. Jolly, M.S.N. Columbia; F. Kollar, M.N. Vanderbilt; M. M. Molin, M.S.N. Case Western; D. R. Odle, M.S.N. Emory; H. E. Overton, M.P.H. Tennessee; M. A. Pierse, M.P.H., Tennessee; V. M. Redford, M.S. Florida; C. M. Sampielle, M.S.N. Ohio State; T. Sharp, Ed.D. Tennessee; M. S. Theodarpoulos, M.S.N. Tennessee; L. P. Smith, M.S.N. Medical College of Georgia; B. J. Walter, M.N. Mississippi (Med. Center).

Instructors:
- S. M. Bowen, M.S. Tennessee; J. C. Coven, M.S.N. Tennessee; P. G. Droppelman, Ph.D. Pennsylvania; L. L. Harrison, M.S.N. Delaware; M. H. Hodson, M.S. Pennsylvania; J. Jozwik, M.S.N. Tennessee; S. A. Offutt, M.S.N. Texas Women's; M. S. Theodarpoulos, M.S.N. Boston.

Licensor:
- D. B. Stephens, M.S. Tennessee.

GRADUATE

General requirements for the Master of Science in Nursing degree are given in the Graduate Catalog. The following courses are open only to those baccalaureate candidates who have not completed an undergraduate major in nursing: 2410, 2820-30, 4240, 4240-10, 4260, 4280, 4820.

2410 Integrated Biomedical and Health Science (1-5)
Examination and application of selected theories from physics, chemistry, biochemistry, genetics, microbiology and nutrition to the nursing process. Five modules each carry one credit. Prerequisites: one year of biology or chemistry or consent of instructor.
Department of Air Force Aerospace Studies

Air Force ROTC Program

Professor of Air Force Aerospace Studies: Colonel W. J. Haynes (Head), M.B.A. Inter-American.

Assistant Professors:
Major L. E. Cool, M.B.A. Texas; Captain R. E. Dane, M.A. Webster College; Captain C. L. Little, M.A. Northern Colorado.

Purposes:
The Air Force Reserve Officers' Training Corps (AFROTC) is an educational program designed to provide the college student an opportunity to earn an Air Force commission as a second lieutenant while completing the University requirements for a bachelor's degree. The program provides education that will develop the skills and attitudes vital to the professional Air Force officer. Upon successful completion of the program and graduation from the University, students are commissioned as second lieutenants and they enter active duty.

The Programs

The Four-Year Program: Students entering the Four-Year Program may register for the program at the same time and in the same manner as they enroll in their other college courses and there is NO MILITARY OBLIGATION. During their freshman and sophomore years, students enroll in the General Military Course (GMC). They may then compete for entry into the Professional Officer Course (POC), the last two years of the Four-Year Program is designed to provide greater flexibility to meet the needs of students desiring Air Force opportunities. The basic requirement is that applicants have two academic years remaining at either the undergraduate or graduate levels, or a combination of both. After being nominated by a Professor of Aerospace Studies, applicants seeking enrollment in the Two-Year Program are evaluated on scores achieved on the AFOQT, the Air Force medical exam, and a personal interview by a board of Air Force officers. Additionally, every POC applicant must agree to take and successfully complete a course in mathematical reasoning or its equivalent before graduation and commissioning.

Since the processing procedure must be completed approximately six months in advance of intended enrollment, interested students must apply early in the year preceding the fall term in which they intend to enter the program. Application should be made in writing or by a personal visit to the Professor of Aerospace Studies.

Women in AFROTC

AFROTC at The University of Tennessee has been coeducational since 1970. Women complete the same courses as men and have the same opportunities. Upon successful completion of the AFROTC program and degree requirements, women are commissioned in the Air Force as second lieutenants. Pay and job opportunities are equal for women and men. Virtually all career fields in the Air Force are open to women, to include flying positions (pilot and navigator).

THE COURSES

The General Military Course (GMC): This is a two-year course taken during the freshman and sophomore years with one hour of academic instruction and one hour of Leadership Laboratory a week. The curriculum covers two main themes—the mission and organization of the Air Force, and the history of the development of air power. These courses are open to any student enrolled in the University, and there is no military obligation associated with taking them.

The Professional Officer Course (POC): This is a two-year course of instruction normally taken during the junior and senior years with three hours of academic instruction and one hour of Leadership Laboratory a week. The curriculum covers Air Force management and leadership and American defense policy. Admission is not automatic but is limited to fully qualified students selected by the Air Force ROTC staff.

Leadership Lab: Leadership Lab involves cadet participation in, and cadet direction of, corps leadership activities. It is largely cadet planned and organized in line with the premise that leadership training experiences will improve a cadet's ability to perform as an Air Force Officer. The freshman and sophomore Leadership Lab program involves initial leadership Lab experiences such as: preparing the cadet for individual, squadron, and flight movements in drill and ceremonies; customs and courtesies to include wearing of the uniform and saluting the flag; career opportunities; educational benefits and training problems; environment of the Air Force officer to include the military community, organizations, and functions; and preparation for field training. The junior and senior Leadership Lab program involves the cadets in advanced leadership experiences. The cadets will be responsible to a large degree for planning, organizing, directing, coordinating, and controlling the activities of the cadet corps; preparing briefings and written communication; and to provide interviews, guidance, information, and other services which will increase the performance and motivation of other cadets.

Field Training: Every AFROTC cadet or applicant is required to attend a summer camp, called field training, normally between the sophomore and junior years. Cadets in the Four-Year Program attend for four weeks, while Two-Year Program applicants attend for six weeks. The curriculum consists of aircraft, aircrew, career and survival orientation, physical training, small arms training, a social action program, and supplemental training. Field training is conducted at a number of Air Force bases throughout the United States. In addition to receiving travel pay to and from the Air Force base, each cadet or applicant is paid for attending field training.

Independent Departments
Flight Training: Flight training is offered free of charge to qualified pilot candidates who are senior AFROTC cadets. The cadet receives 25 hours of flight instruction. University credit is granted for the Ground School portion of the Flight Instruction Program.

UNIVERSITY CREDITS
The following credits are granted for Air Force Aerospace Studies work and are credited toward a degree in some colleges.

Aerospace Studies 1200 series (Freshman)—6 quarter hours per year
Aerospace Studies 2200 series (Sophomore)—6 quarter hours per year
Field Training Academics (Sophomore)—6 quarter hours
Aerospace Studies 3200 series (Junior)—9 quarter hours per year
Aerospace Studies 4200 Series (Senior)—9 quarter hours per year.

SCHOLARSHIP PROGRAM
Air Force ROTC Scholarships are available to qualified applicants in both the Four and Two-Year Programs. Each scholarship provides full tuition, incidental fees, and full reimbursement for curriculum-required textbooks. In addition, scholarship cadets receive a non-taxable $100 each month during the school year while on scholarship status.

High School Seniors or Juniors. Competitive four-year scholarships are available to high school male and female students who enroll in certain scientific and engineering career fields. These scholarships are also open to male students who apply for navigator or missile launch officer career areas. Four-year scholarship applications are contained in the AMC "Air Force ROTC Four-Year College Scholarship Applicant Bulletin." Bulletins may be obtained directly from the Air Force ROTC, Advisory Service, Maxwell AFB, AL 36112.

College Students: Other scholarship opportunities exist for students already in college. Four-, three-, and two-year scholarships are available on a competitive basis and the student must have at least four, three, or two undergraduate or graduate years of study remaining in order to compete. Applications for these scholarships should be made directly to the Professor of Aerospace Studies.

In order to retain an AFROTC scholarship, students must maintain the minimum grade point average prescribed by the university and they must take and complete an English composition course or its equivalent before completing the GMC.

PAY AND ENTITLEMENTS
All cadets enrolled in AFROTC are furnished textbooks, uniforms, Education Fund allowances, and from deposit $50 as security to the University against loss or damage to the uniforms. The deposit, minus a nominal fee to cover cost of shoes, is returned to the student upon successful completion of AFROTC or upon early withdrawal. Professional Officer Course cadets receive a subsistence allowance of $100 per month during the academic year. In addition, there is a charge to and from field training, plus pay commensurate with active duty rates while at field training.

ACTIVE DUTY COMMITMENTS
Commissioned graduates going into non-flying duties will be required to serve four years on active duty. Those graduates going into pilot assignments will be required to serve six years' active duty after completion of pilot training. Those graduates going into navigator assignments will be required to serve five years' active duty after completion of navigator training.

Curriculum
Air Force Aerospace Studies (094)

1210-20-30 Air Force Aerospace Studies (2,2,2)
Surveys the missions, functions, and organization of the Air Force. Emphasis on the Air Force Commands, the environment in which the Air Force operates, and how the Air Force works with the Army and Navy, providing foundation upon which study of the Armed Forces and the Air Force can be built. 1 hour and 1 hour lab (Leadership Laboratory).

2210-20-30 Air Force Aerospace Studies (3,3,3)
Introduction to study of air power. Course is developed from a historical perspective starting before the Wright Brothers and continuing into the 1970s. 3 hrs. and 1 lab. (Leadership Laboratory).

2240 Field Training (Academic Program) (1-6)
Role of United States military forces in contemporary world, with particular attention to United States Air Force, its organization and mission, various component forces of U.S. military, organization of America's defense structure, policies of major powers, and elements and processes involved in national policy. Conducted at Field Training bases in the country. Approximately 60 class hours.

3210-20-30 Air Force Aerospace Studies (3,3,3)
Air Force leadership at junior officer level, including theoretical, professional, and legal aspects, with attention to communications skills. Military management functions, principles, and techniques are covered. 3 hours and 1 lab. (Leadership Laboratory).

3240 Flight Instruction Ground School (Private Pilot) (3) Part of Air Force ROTC Flight Instruction Program designed to prepare student to operate safely as a pilot. A secondary objective is to enable student to pass FAA private pilot's written examination. Thirty-quarter hours of classroom instruction. Subject areas covered are: Pre-flight Facts-acquaints students with factors affecting flight; Meteorology-involves student in learning weather phenomena affecting flight, weather information, and services available to pilots; Flight Computer, Navigation, and Radio Navigation—covers the requirements to plan a country, use of appropriate maps, charts, logs, and regulations that must be known to operate safely. 3 hours and 1 lab.


4210-20-30 Air Force Aerospace Studies (3,3,3)
Role and function of professional officer in a democratic society; social trends in process, public attitudes, and value orientations associated with professional military service; requisites for maintaining national security forces; duality of Department of Defense; political, economic, and social constraints affecting formulation of U.S. defense policy; impact of technological and international developments upon strategic preparedness; emphasis on developing communicative skills. 3 hours and 1 lab (Leadership Laboratory).

Department of Military Science

Army Reserve Officers' Training Corps

Professor of Military Science:
Colonel Richard W. Griffin (Head), M.S. Georgia Institute of Technology.

Assistant Professor of Military Science:
LTC G. E. Crask, M.S. Livingston University; MAJ R. Y. Buff, MBA Winthrop College; S. D. Piet, B.S. Southern Mississippi; G. L. Krueger, MPA Western Kentucky University; CPT J. E. Alexander, M.S. Wichita State; J. R. Wheeler, M.A. Tennessee Technological Institute; R. L. Hover, M.A. Central Michigan University.

UNIVERSITY ROTC PROGRAM
The University of Tennessee offers a voluntary ROTC program leading to appointment as an officer in the United States Army.

PURPOSE AND OBJECTIVE
The purpose is to provide professional education which will prepare students for appointment as commissioned officers in the Regular Army or the United States Army Reserve.

Objectives of the program are to provide students with an understanding of the fundamental concepts and principles of military art and science; to develop in them a basic understanding of associated professional knowledge, a strong sense of personal integrity, honor, and individual responsibility, and an appreciation of the requirements for national security; and to establish a sound basis for the students' future professional development.

ROTC draws young men and women for training from all geographical, economic, and social strata of our society as well as from the many educational disciplines required for the modern Army. The program insures that men and women educated in a liberal and broad spectrum of American institutions of higher learning are commissioned annually into the officer corps.

ARMY ROTC SCHOLARSHIP PROGRAM
The Army ROTC scholarship program offers financial assistance to outstanding young men and women in the Army ROTC program who are interested in the Army as a career. Each scholarship provides for free tuition, textbooks, and laboratory fees in addition to a subsistence allowance of $100 per month for the period that the scholarship is in effect. Scholarships may be awarded for either one, two, three, or four years. High school seniors should contact their guidance counselors early in August or September of their senior year to apply for the four-year scholarship. One-, two-, and three-year scholarship applicants should contact the Professor of Military Science for further information. Certain other privately financed scholarships and grants are available to ROTC cadets.

EARLY COMMISSIONING PROGRAM
By utilization of placement credit for the ROTC Basic Course, many cadets enter the Army ROTC course in either their freshman or sophomore year. The "ECP" enables cadets who complete the ROTC program to be commissioned in a reserve component prior to graduating with a baccalaureate degree. These newly commissioned officers begin their
The University requirements for subjects in the field of communications (English grammar, composition, speech, etc.); physical, natural, and biological sciences; humanities; social sciences; and applied sciences (engineering, mathematics, computer science, etc.) will satisfy the Army's desire for its officers to have a well-rounded liberal education.

**Junior and Senior Years**

The cadet is expected to pursue at least one quarter of upper-division work in each of two different divisional course areas (other than major) as follows: mathematics, computer sciences, natural sciences, anthropology, economics, political science and international relations, history, psychology, sociology, foreign languages, management, urban studies, mass communications, or accounting.

Students seeking an Army commission are permitted to substitute military studies for non-technical electives, social studies, and/or humanities to satisfy degree requirements. This substitution is at the sole discretion of the cadet or she has developed those abilities and attitudes expected of a student who has taken the course involved. The application must be submitted on forms supplied by the academic adviser.

**Substitution**

The following courses may be substituted for the given credit for military science:

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<tr>
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**MILITARY SCIENCE CORE CURRICULUM**

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<td>39 hours</td>
</tr>
</tbody>
</table>

**Substitution**

The following courses may be substituted for military courses with permission of adviser and ROTC department head:

- Management 4460, History 4380 for MS 4130. Certain other courses may be substituted with permission of FMS.

**OTHER ACADEMIC COURSES**

Academic prerequisites at the University is designed to provide a well-balanced education in diversified fields, no specific hour requirement is levied for courses outside the Military Science Core Curriculum.

**Freshman and Sophomore Years**

The University of Tennessee grants the following credit for military science:

<table>
<thead>
<tr>
<th>Military Science Core Curriculum</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Military Science I—3 quarter hours</td>
<td>(MS 1110)</td>
</tr>
<tr>
<td>Military Science II—6 quarter hours</td>
<td>(MS 2110-20)</td>
</tr>
<tr>
<td>Military Science III—12 quarter hours</td>
<td>(MS 3110-20-30)</td>
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<tr>
<td>Military Science IV—12 quarter hours</td>
<td>(MS 4110-20-30)</td>
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<tr>
<td>Army ROTC Summer Studies Basic</td>
<td>6 quarter hours</td>
</tr>
<tr>
<td>Army ROTC Summer Studies—6 quarter hours</td>
<td>(MS 4000)</td>
</tr>
</tbody>
</table>
development and function of military staff, and coordination and planning of the military team. Leadership Laboratory: Staff and Tactical Planning, presentation of briefings, preparation, execution, and supervision of plans. Prereq: 4000 or consent of instructor.

4120 Seminar in Leadership and Management (4,4) Analysis of selected leadership and management problems involved in unit administration, military justice, Army Readiness Program, and officer-enlisted relationships. Leadership Laboratory. Prereq: 4110.
Division of Continuing Education

Charles H. Weaver, Vice President for Continuing Education
Charles W. Hartseil, Assistant Vice President for Continuing Education
Raymond A. Shirley, Assistant Vice President for Continuing Education

The Division of Continuing Education is responsible for the operation of all statewide continuing education programs, both on campus and off campus. The Division is concerned with policies and programs required for effective offering of educational opportunities, including attainment of college-level degrees, to qualified students of all ages and walks of life who pursue knowledge outside the traditional on-campus setting. All continuing education programs of the University are coordinated through the Division.

Information concerning continuing education programs of the various campuses is set forth in the respective catalogs. Information on continuing education programs of The University of Tennessee, Knoxville, is given on page 101 of this catalog.

Center for Extended Learning

Associate Directors: B. W. Wallace, M.S. Tennessee; R. H. Considine, Ph.D. Tennessee.
Assistant Director: D. F. Holden, Ph.D. Kansas.

CEU Programs: Continuing Education Units are available for approved non-credit professional programs.

CLEP Open Center: Administers College Level Examination Program tests each month.

College Credit for High School Seniors: Coordinated in cooperation with the State Board of Education.

College Entrance Courses: To remove entrance deficiencies or to complete high school requirements.

Conferences: For specific clientele statewide.

Independent Reading: The student should contact the academic department for the desired reading course and then register for credit through the CEL.

Independent Study: Extends instructional services of the University from all campuses to the citizens of the state. Courses may be started at any time.

Non-Credit Courses and Certificate Programs: In areas of general interest and in technical, business, and professional fields.

Undergraduate Cooperative Education Program: For students desiring to work alternate quarters while going to school.

Video-tape Programs: Special educational programs on video-tape, both credit and non-credit. Tapes can be purchased or rented.

For information on enrollment, costs, books, and credit, write: Center for Extended Learning, 420 Communications and University Extension Bldg., The University of Tennessee, Knoxville, Tennessee 37996-0300. Telephone: (615) 974-5135.

Grants and Contracts In Human Services


This department assists public and private human service agencies through contractual training arrangements in the development of staff capabilities and understandings through inservice continuing education. Projects are developed for public dissemination of information related humanistic concerns.

Radio Services

Director: R. A. Shirley, M.A. Tennessee.
Associate Directors: N. L. Dyer, B.M. Indiana.
Assistant Directors: J. C. Adkins, M.S. Tennessee; J. A. Chasteen; S. D. Williamson, Jr., B.M. Tennessee.
Staff: Jill Johnson, B.A. North Carolina; D. Burris; P. Doyle, B.S. Tennessee; R. J. England; W. G. Hauser, B.A. New Mexico; M. Kiser, B.S. Tennessee; R. W. Steagg.

Radio Services provides local regional, and statewide services in radio broadcasting and audio production. It directs the operation of WUOT, the University's 100,000-watt stereo FM station in Knoxville and WLTG, the University's 50,000-watt FM station in Chattanooga. These stations operate 24 hours a day with varied programs of music, news, public affairs, discussion, drama and documentaries from local, state, national and international sources. The stations are members of the National Public Radio Network.

The department produces, duplicates and distributes informational and educational radio programs for broadcast on an audio tape network of 168 Tennessee radio stations. Program content and participants represent a wide range of subjects of public interest. The programs fall into three categories: agricultural and home-making information; current affairs; and cultural enrichment. The stations donate over 22,000 quarter-hours of broadcast time to the University each year. Its close contact with all types of broadcasting and its staff and facilities equip the department ideally for work with UT campuses in the production, duplication, and distribution of audio materials for educational use. It will upon request assist all UT campuses in communications development.

The department has a technical service which includes high-speed duplication of reel-to-reel or cassette audio tapes for University departments, recording conferences and workshops, audio production, and consulting work in audio or public radio technology.

Teaching Materials Center

Director: J. T. Benton, M.S. Tennessee.

This department provides educational films for the public schools, colleges, churches, civic clubs, and other interested organizations on a wide variety of subjects, ranging from agriculture to technical material on the space age, and also films for industrial use. Film councils throughout the state encourage the use of these materials for forum discussions and general adult education. An advisory service on effective film use is also provided by the department. Films, equipment, and other services are made available to the academic
faculty for classroom instruction, and experimentation and educational films are provided for the students both on and off campus for student teaching, previews, and special projects.

**Television Services**

**Director:**
F. A. Lester, M.A. Tennessee

**Assistant Directors:**
D. L. Bower; W. R. Terry, B.A. Tennessee.

**Producers:**
S. H. Gordon, B.S. Tennessee; W. P. Wilson, B.S. Tennessee.

**Artist:**
Marshall Thurman.

Television services has responsibility for the administration, scheduling, production and distribution of credit courses and instructional materials over the campus closed-circuit system. The department helps all interested academic departments utilize the television closed-circuit system for instructional purposes. Some 8000 students are taught one or more resident classes each year by television.

The department also serves as a central television production facility for meeting other University needs. Television programs are produced, edited, and duplicated to open circuit broadcast, cable distribution, and videotape distribution. Production efforts include UT sports events, University news and information, continuing education materials, and graduate and undergraduate credit courses for off-campus students.
The University Library

Donald R. Hunt, Director
Betty G. Bengtson, Associate Director/Technical Services
Kenneth E. Marks, Associate Director/Public Service
Marcia J. Myers, Associate Director/Administrative Services
Aubrey H. Mitchell, Collection Development Librarian

Professors:

Associate Professors:

Assistant Professors:

Instructors:

The UTK Library, as the premier library of the state, seeks to acquire and service all necessary recorded information, both print and non-print, that meets the needs of the University’s teaching, research, and service programs.

The books, periodicals, non-print and any other materials contained in the four UTK library units are available to all students, faculty and staff of The University of Tennessee, Knoxville. Included among the holdings are 1,392,009 books, 1,243,266 microforms, 5,983 audio tapes, 120,685 slides, 1,076 video tapes, more than 2 million manuscripts, and various historical ephemera, maps, and oral history tapes. More than 24,000 periodical and serial titles are received annually.

The library in its four locations is open to all students and faculty, regardless of their fields of study. The James D. Hoskins Library at 1401 West Cumberland is the main library where administrative and technical services offices are located. The dictionary catalog, listing the library holdings for the entire campus, is in Main, as are the general and research collections, comprehensive reference, interlibrary services, documents, 4000/5000-level reserves, newspapers, non-print materials, and Special Collections, the last a repository of local and regional source materials.

The John C. Hodges Undergraduate Library, on Volunteer Boulevard at Andy Holt Ave., has a limited collection of 150,000 volumes selected to meet the needs of students in undergraduate courses. Reserve materials for 1000-3000 level courses are available in this library as is a large collection of audio tapes, slides, and videocassettes.

Other libraries serving specialized areas are Agriculture-Veterinary Medicine in the Veterinary Medicine building and Music in the Music Building.

The libraries are administered by a director, three associate directors (for public, technical, and administrative services) and a number of department heads. Questions and comments are invited in person or through the suggestion boxes located in each library. Continuing evaluation and building of the collection is the responsibility of the Collection Development Librarian. While most materials are selected by faculty, recommendations for purchase are invited from all students and staff.

“Library Guides” are available in all library units, describing library services and facilities.
Computing Center

Gordon R. Sherman, Director
Asa O. Bishop, Jr., Associate Director
Dan R. Wilson, Associate Director
Michael L. Newman, Associate Director
Timothy P. Mackenzie, Assistant Director

Faculty Associates
Professors: G. R. Sherman (Director), Ph.D. Purdue; A. O. Bishop, Jr., Ph.D. Clemson; R. E. Cline, Ph.D. Purdue.
Assistant Professor: D. W. Straight, Ph.D. Texas.

The University of Tennessee Computing Center (UTCC) provides computing facilities and services for the University's teaching, research, public service, and administrative, activities. UTCC maintains close contact with the UT academic community by supporting research and instructional users with professional computer staff.

UTCC is principally located in the Stokely Management Center and in Andy Holt Tower. From the Stokely location, UTCC supplies computing services to all campuses in the UT system through job entry facilities located on each campus. At UTK, UTCC maintains seven job entry stations for batch work and nine sites for interactive computer work. UTCC maintains a graphics center with ten Tektronix graphics terminals, five storage and five refresh, two digitizing tablets, and a graphics plotter. Another digitizing tablet, plotter, and storage terminal are available at SMC M-1. UTCC also provides data entry services with two Entrex 600/50 key-to-disk systems.

UTCC's computers at Stokely Management Center which include two IBM 370/3031's, an IBM 4341/2, a DECsystem-10, and a DEC PDP 11/55 are used in research, instruction, and administrative work. UTCC also has an IBM 360/40 used exclusively for administrative work. A Calcomp 1051 plotter is used to produce graphics output from jobs run on the IBM and DEC computers at SMC. Each IBM 370/3031 has six million bytes of memory, the IBM 4341/2 has eight million bytes of memory, and the DECsystem-10 has 1024K words of memory. The DEC PDP 11/55 is used to support the WIDJET job submission and retrieval system.

The IBM 370/3031's run under SVS with HASP II. The DECsystem-10 runs under TOPS-10. Time sharing features include VM/CMS and Coursewriter III on the 370/3031's and APL, FORTRAN, BASIC, COBOL, MACRO, and other special purpose application programs, including extensive graphics software support, on the DECsystem-10.

UTCC publishes a User's Guide which describes the use of the IBM 370/3031's and the DECsystem-10 User's Guide which describes the use of the DECsystem-10. The guides are available at the UT Book & Supply Store. UTCC also publishes a monthly Newsletter which announces systems, equipment and procedural changes and contains other items of interest to users. Program write-ups and special user's guides are also available.

UTCC Periodically offers intensive training seminars of several days duration in computer utilization on the IBM 370/3031's and the DECsystem-10. These seminars are primarily for faculty, staff and graduate students who use or plan to use UTCC facilities. UTCC offers non-credit short courses each quarter in topics such as programming languages and special purpose programs. These courses are announced in the UTCC Newsletter, the "Campus Capsule" section of the UT Daily Beacon, and "this week on campus", a publication announcing campus events.

Computing services can be requested via the request for services form available from the receptionist, 200 Stokely Management Center. All users of UTCC facilities are assigned a consultant to provide user assistance.
Public Service

Vice President for Public Service (Acting): R. S. Hutchison, M.B.A. Chicago.

Institute for Public Service

Executive Director: R. S. Hutchison, M.B.A. Chicago.
Assistant Director: T. B. Ballard, B.S. Tennessee.
Assistant Director: S. Hutchison, M.B.A. Chicago.
Vice President for Public Service (Acting): R. W. Jackson, Johnson City, and Nashville, Tennessee.

The Institute for Public Service was established in 1971 within the Office of the Vice President Public Service. The purpose of the Institute is to coordinate and promote public service activities throughout the University system, excluding services provided through the Institute of Agriculture.

The basic goal of the University public service effort is to bring to the citizens of Tennessee—their business, their industry, and their governments—the problem-solving capabilities uniquely embodied within their statewide University system.

Public service at The University of Tennessee includes all services offered to those outside the University, including teaching in certain non-degree situations, technical assistance, and applied research which is in certain non-degree situations, technical assistance and applied research which is provided through the Institute of Agriculture.

The County Technical Assistance Service

Executive Director: J. H. Westbrook, Jr., B.S. Tennessee.
Associate Director: R. M. Womolley, B.S. Cumberland.
Assistant Director for Administration: T. D. McAnulty, M.A. Austin Peay State.
Legal Specialists: P. C. Davis, J.D. YMCA Law School; E. F. Fults, J.D. Tennessee; W. C. McIntyre, J.D. YMCA Law School.
Senior Law Enforcement Consultant: G. L. White.
Communications and Publications Specialist: B. E. Mather, B.S. Tennessee.
County Field Advisors: M. J. Frank, B.A. Tennessee; J. E. Headrick, B.S. Tennessee; C. R. Phlebus, M.S. Vanderbilt; S. L. Yeatbrough, M.S. Tennessee.

The County Technical Assistance Service was established by the Board of Trustees at the 1973 mid-year meeting and began operation September 1, 1973. Establishment of the Service was authorized by the 86th General Assembly for the purpose of providing studies and research in county government, publications, educational conferences and attendance thereat, and to furnish technical, consultative, and field services to counties of the state in problems relating to fiscal administration, accounting, tax assessment and collection, law enforcement, improvements, and public works, and in any and all matters relating to county government. This program shall be carried on in cooperation with and with the advice of counties in the state acting through the Tennessee County Services Association and its Board of Directors, which is recognized as their official agency or instrumentality.

The Service is headquartered in Nashville, with regional offices in Cookeville, Jackson, Johnson City, and Knoxville.

Municipal Technical Advisory Service

Executive Director: E. O. Miner, Ph.D. Utah.
Assistant Director: J. P. Hartman, M.P.A. Tennessee; W. C. McIntyre, J.D. YMCA Law School; E. W. Meisenheimer, M.S. in P.A. Syracuse; M. M. Tallent, M.A. Midwestern State.

Specialist Consultants: J. R. Hight, M.S. Tennessee (Energy); D. W. Huffler, J.D. Tennessee (Ordinance Codification); J. Kerth, B.S. Tennessee (Municipal Information); F. E. Kirk, B.S. in C.E. Southern Methodist (Public Works); J. H. Leuty, B.S. Tennessee Polytechnic (Finance and Accounting); A. D. Lewis, B.S. Missouri (Energy); A. C. Lock, Jr., B.S. C.E. Oklahoma State (Public Works); R. A. Lovelace, M.P.A. Kansas (Intergovernmental Affairs); W. Owby, J.D. Tennessee (Ordinance Codification); M. T. Pastore, B.S. Murray State (Finance and Accounting); E. Puech, J.D. Tennessee (Municipal Law).


Librarian: C. C. Havlak, M.S. Tennessee.

The 75th General Assembly (1949) established a Municipal Technical Advisory Service at The University of Tennessee. The legislation designated the purposes to be "studies and research in municipal government, publications, educational conferences and attendance thereat, and furnishing technical, consultative, and field services to municipalities in problems relating to fiscal administration, accounting, tax assessment and collection, law enforcement, improvements and public works, and any and all matters relating to municipal government." Services are currently provided in the fields of municipal law, municipal management, public works, finance and accounting, ordinance codification, municipal information, and others.
intergovernmental relations. The state is divided into four districts and a Regional Coordinator is assigned to coordinate service within that area. Headquarters for the agency are located on the Knoxville campus; regional offices are maintained in Cookeville, Jackson, Johnson City, Martin, and Nashville. This program is carried on in cooperation with the Tennessee Municipal League.

**Center for Industrial Services**

Executive Director: R. E. Harris, M.S. Tennessee, P.E.

Assistant Director: T. C. Parsons, M.S. Tennessee, P.E., CPA.

Senior Field Engineers: S. E. Chapp, M.S. Tennessee; R. E. Eddy, M.B.A.


Management Consultant: J. E. Ross, M.B.A. Tennessee Technological, P.E.

Field Counselor: H. D. Reasons, B.S. Bethel.

Research Associate: N. W. Wiesenbuegel, M.L.S. Peabody.


The Center for Industrial Services has the primary role of assisting Tennessee’s manufacturing firms by providing technical and managerial assistance to those companies seeking assistance. By the Tennessee Public Acts of 1963, the assigned objectives for the Center are “to render service to the industries in this state by providing information, data, and materials relating to the needs and problems of industry which might be supplied and solved through research; by providing information about available research facilities and research personnel in Tennessee colleges and universities, and in governmental and private research laboratories; by keeping Tennessee’s industries informed about the supply and demand for trained qualified personnel; and by cooperating with the Tennessee Department of Economic and Community Development in carrying out its duties.” This statewide program encourages and assists managers of Tennessee firms to draw upon the intellectual resources of the colleges and universities to upgrade the firm’s performance. Field engineers experienced in manufacturing operations take the initiative in encouraging the upgrading and expansion of management in their plant environment.

The Center for Industrial Services has headquarters in Nashville. Regional offices are maintained in Cookeville, Jackson, Johnson City, and Knoxville. This program is carried on in cooperation with the Tennessee Municipal League.

**Center for Government Training**

Executive Director: E. K. Smith.

Assistant Director: C. M. Mabrey, Jr., B.S. Middle Tennessee State.

Assistant Directors: J. H. Wenberg, M.S. Tennessee (Chattanooga); J. W. Fort, M.A. Austin Peay State; J. W. Pryor, J.D. Memphis State; D. R. Waynick, B.S. Lambuth.

Program Development and Evaluation Specialist: J. H. Wenberg, M.S. Tennessee (Chattanooga).

Coordinator: D. J. Edmondson, B.S. Tennessee; J. W. Fort, M.A. Austin Peay State; J. W. Pryor, J.D. Memphis State; D. R. Waynick, B.S. Lambuth.

Regional Managers: D. J. Edmondson, B.S. Tennessee (Chattanooga); J. W. Fort, M.A. Austin Peay State; J. W. Pryor, J.D. Memphis State; D. R. Waynick, B.S. Lambuth.

Assistant Project Manager: P. S. Blanton, M.S.W. Tennessee.

Manager of Program Development and Evaluation: J. H. Wenberg, M.S. Tennessee (Chattanooga).


The Center for Government Training has responsibility for providing professional assistance and establishing training and career development programs for state and local government officials and employees throughout the state. Headquarters is located in Nashville, but regional offices are also maintained in Jackson and Knoxville. The Center is charged with identifying and analyzing needs for public service education and training at the state and local levels in Tennessee, and with developing and conducting programs for training of public agency employees, working with institutions of higher education in the state and other educational facilities. The Center acts as a clearing house for information relative to public service personnel education and training programs. In addition, the Center serves as the central administrative agency in a statewide local government training network which includes four campuses of the University and the six senior institutions in the Board of Regents system.

**Critical Care Education Center**

Director: N. J. Shepard, B.S. Middle Tennessee.

Assistant Director: P. P. Vaughan, M.S.N. Vanderbilt.

Coordinator: J. C. Draper, A.S. Tennessee (Nashville); V. S. Rice, M.S.N. Vanderbilt; L. A. Tillman, M.S.N. Vanderbilt.

The Critical Care Education Center, created in 1971 by the Middle Tennessee Hospital Council, became a part of the former UT Nashville campus in 1973. Following the merger of UTN and Tennessee State University in 1979, the Center was moved to the Institute.

The Center provides: (1) a monthly series of one-hour videotape courses used to keep hospital personnel updated on the latest developments in critical care; (2) a 13-month, 688-hour paramedic training course for Middle Tennessee ambulance personnel; and (3) a four-week, 140-hour critical care course that provides certification required by the Joint Commission on Accreditation of Hospitals for registered nurses to staff and intensive care units.
THE UNIVERSITY OF TENNESSEE
GENERAL SUMMARY 1982-83

Administration

Trustees:
- Appointed by the Governor: 18
- Ex-Officio: 5

Officers of Administration:
- President: 1
- Vice-Presidents: 6
- Associate/Assistant Vice Presidents: 9
- Chancellors: 4
- Vice Chancellors: 16
- Associate/Assistant Vice Chancellors: 5
- Deans and Directors: 230

Faculty for 1981-82

<table>
<thead>
<tr>
<th></th>
<th>Center for the Health Sciences(^a)</th>
<th>Chattanooga</th>
<th>Knoxville</th>
<th>Martin</th>
<th>Institute of Agriculture</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Full-Time</strong></td>
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<tr>
<td>Professors</td>
<td>156</td>
<td>49</td>
<td>422</td>
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<tr>
<td>Associate Professors</td>
<td>143</td>
<td>94</td>
<td>358</td>
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<tr>
<td>Assistant Professors</td>
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<td>101</td>
<td>280</td>
<td>52</td>
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<td>Instructors/Lecturers/Agents</td>
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<td>16</td>
<td>100</td>
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<tr>
<td><strong>Total Full-Time Faculty</strong></td>
<td>555</td>
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<td><strong>Total Part-Time Faculty</strong></td>
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<td><strong>Total Faculty</strong></td>
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<td>262</td>
<td>1337</td>
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<td>621</td>
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<td>Graduate, Research, and Teaching Assistants, Fellows, Trainees</td>
<td>1745(^b)</td>
<td></td>
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</table>

Officers of Other Units

- Officers of the UT Center for the Health Sciences-Knoxville Unit: 34
- Officers of the Institute of Agriculture: 30

\(^a\)Includes UTCHS-Knoxville unit.
\(^b\)Fall 1980.
## STATEWIDE ENROLLMENT SUMMARY
### Fall 1981

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<thead>
<tr>
<th></th>
<th>Freshman</th>
<th>Sophomore</th>
<th>Junior</th>
<th>Senior</th>
<th>Graduate</th>
<th>Undergraduate</th>
<th>Special</th>
<th>Professional</th>
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<td>Knoxvile</td>
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<td>Knoxville Day</td>
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**Note:**
1. The enrollment data in this statewide summary of The University of Tennessee System represent students enrolled for degree credit. Students enrolled only on a non-credit or audit basis are not included.
2. UT Center for the Health Sciences does not include 654 graduate medical students (residents and interns).
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