Asian Studies 4010-20-30 Readings in Asian Literature (4,4,4)
Music 4260 Introduction to Ethnomusicology (3)
(b) Economics, Geography, History, and Political Science
Economics 4232 The Political Economy of Asian Development (3)
Geography 3870 Geography of Asia (4)
History 3780-90 History of the Middle East (3,3)
History 3795 Contemporary Middle East (4)
History 3800 North Africa since 1630 (3)
History 3810-20-30 History of East Asia (3,3,3)
History 4791 Modernization of the Middle East (3)
History 4792 Historical Writers in Islamic History (3)
History 4811-21 History of Japan (4,4)
History 4870 Cultural History of China (3)
History 4880 History of Modern China (3)
History 4890 History of Contemporary China (3)
Political Science 3621-22 Politics of Asian States (4,4)
Political Science 3641 Government and Politics of Middle East and North Africa (4)
Political Science 3795 Contemporary Middle East (4)
(c) Anthropology, Philosophy, Religious Studies, and Sociology
Anthropology 3510 Peoples and Cultures of Mainland Asia (3)
Anthropology 4510 Peoples of China II: Chinese Society after 1839 (3)
Anthropology 4570 Peoples of Southeast Asia (3)
Anthropology 4590 Peoples of Japan (3)
Philosophy 3650 Philosophy and Religion in India (4)
Philosophy 3660 Buddhist Philosophy and Religion (4)
Philosophy 3671 Religion and Philosophy in China (4)
Religious Studies 3650 Philosophy and Religion in India (4)
Religious Studies 3660 Buddhist Philosophy and Religion (4)
Religious Studies 3671 Religion and Philosophy in China (4)
Religious Studies 3672 Religion and Society in Japan (4)
Religious Studies 3680 Islam (4)
Religious Studies 3760 Eastern Religions and Western Thought (3)
Religious Studies 3770 Zen Buddhism (3)
Religious Studies 4670 Topics in Eastern Religions (4)
Religious Studies 4960 Tradition, Change and Modernity in Asia (4)
Sociology 3672 Religion and Society in Japan (4)
Sociology 4660 Tradition, Change and Modernity in Asia (4)

Cinema Studies
Minor: Consists of English 2690 and Art 2935 plus sixteen additional hours of approved area courses. It is strongly recommended that English 2690 and Art 2935 be taken before selection of electives provided for in the minor.

For further information consult the chairperson of the Cinema Studies Committee, Dr. Ferdinand A. Hilenski.

Approved Area Courses
Art 3935 Film Design (4)
Broadcasting 3670 TV Film News (3)
Broadcasting 4030-40 Television Production (3,3)
Comparative Literature 4032 Topics in Film and Literature (3)
English 3233 Film and American Culture (3)
English 3340 Literature and Film (3)
English 4090 Topics in Film Study (3)
Italian 3340 The Italian Cinema (3)

Comparative Literature (260)
A concentration in comparative literature consists of 36 hours including Comparative Literature 4010, 4012-22-32, 9 hours of literature in a foreign language in courses numbered 3000 and above, and 1 classics course selected from Classics 4010, 4230, 4510. The remaining 12 hours should include literature courses, either in English or in a foreign language, numbered 3000 and above, from at least two of the following departments: English, Germanic and Slavic Languages, Religious Studies, Romance Languages (certain courses in Philosophy and Speech and Theatre may be substituted with the approval of the chairperson of the Comparative Literature Program). Students concentrating in comparative literature are strongly encouraged to acquire a working knowledge of a second foreign language, especially if they hope to pursue comparative literature on the graduate level.

A minor in comparative literature consists of 24 hours including Comparative Literature 4010, two courses from Comparative Literature 4012-22-32, 6 hours of literature in a foreign language in courses numbered 3000 and above, and 9 hours of literature in a foreign language, from at least two of the following departments: Classics (4010, 4230, 4510), English, Germanic and Slavic Languages, Religious Studies, and Romance Languages (certain courses in Philosophy or Speech and Theatre may be substituted with the approval of the chairperson of the Comparative Literature Program). Minors in comparative literature are strongly encouraged to continue their study of a foreign language beyond the minimum requirement.

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

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

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

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

4010 Methodology of Comparative Literature (3)
Research and writing of comparative literary studies. Major project will be preparation of seminar paper in comparative literature. Prereq: 2010 and one course above, either in English or in a foreign language.

4012-23-32 Special Topics in Comparative Literature (3,3,3) Content varies; may be repeated for credit.

5012 Comparative Theories of Literature (3)

5022 Approaches in Comparative Literature (3)

5032 Studies in Comparative Literature (3)

Approved Area Courses
Classics 3210-20-30 Greek and Roman Mythology (3,3,3)
Classics 4010 Greek Drama in English Translation (3)
Classics 4510 Selected Reading in Latin Literature in Translation (3)
English 3411-12-20-30 Modern Drama (3,3,3,3)
English 3710 Literature of the English Bible (3)
courses in these languages may be applied to the appropriate division listed above. For further information, consult Dr. H. C. Rutledge (Classics) or Dr. W. L. Humphreys (Religious Studies).

**Latin American Studies (600)**

Concentration consists of 36 hours including Spanish 3310-20-30 or Portuguese 3510-20, History 3870-80-90, Political Science 3625-26, and Geography 3860 or 3790 and 7 hours of acceptable elective courses in any of the participating departments or in the Latin American studies sequence 2510-20 (4,4) or Independent Research 4010.

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

Minor: Consist of 24 quarter hours selected from Geography 3860 or 3790, History 3870-80-90, Political Science 3625-26, Spanish 3510-20-30 or Portuguese 3550-20, and the Latin American studies sequence 2510-20 or Independent Research 4010.

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

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

**4910 Independent Research in Latin American Stu-
dies (3-9)** Directed research in any topic fully related to Latin American Studies to be undertaken by a student off-campus, normally in a Latin American country. The research must be approved and evaluat-
ed by the Latin American Studies Committee and directed by a faculty member involved in the study of the Latin American area. Credit to vary according to the scope and length of the project.

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

**Linguistics (623)**

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

The requirements of this concentration are:

**Corequisites**

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

(b) Two quarters of a non-Indo-European language to be selected from the following:

- Romance Studies 3141-51 (Hebrew);
- Arabic 2510-20; Asian Studies 2521-32 (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 2520-60-70; English 3330, 3332, 4440; Speech 4811; Linguistics 4020-30.

(b) 6 hours of the following, selected in consultation with the Linguistics Committee:

- Anthropology 3800; Audiology and Speech Pathology 3200, 4650, 5651, 5790; Educational Curriculum and Instruction 3562-63; Special Education and Rehabilitation 5220, 5530-20-30, English 3340, 4450, 4460, 4471, 4481, 5150, 5170-80; German 4310-20; 4810-
- 20-30, 5710-20-30; Linguistics 4000; Russian 4310-20-30; Philosophy 4650; Psychology 4650, 4860, 5980-70; French 4210-20-30, 5110-20-30; Spanish 4210-20-30, 5110-20-30.

(c) Other hours may be substituted in (b) by approval of the Linguistics Committee.

**Minor**

A minor in linguistics shall consist of 27 credit hours composed of 9 from section (b) of the major selected in consultation with the Linguistics Committee, and 18 hours as follows: Audiology and Speech Pathology 3050; Linguistics 4020-30; English 3332; French, German, Russian, Spanish 4250-60.

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

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

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

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

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

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

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

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

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

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

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

4440 Sociolinguistics (3) (Same as English 4440.)

4450 Dialectology (3) (Same as English 4450.)

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

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

Medieval Studies (674)

A concentration in Medieval studies focuses upon culture and society from the collapse of the Roman Empire to the 16th century. Such a concentration offers the opportunity to deepen one's self-awareness and broaden one's view of the range of human possibilities by studying a very different and remote culture—its conditions of life, social and political institutions, values and ideals, and modes of perception and expression. A concentration in Medieval studies consists of Medieval Studies 2010 and 4010 and 28 hours of upper-division courses concerned primarily with the Medieval experience, divided among the following three categories: (1) history, philosophy, political science, and religious studies; (2) language and literature; (3) the arts—history of art, architecture, music, and speech and theatre. Courses should not be selected at random but should either form a related pattern (for example, courses in the literature and history of Medieval England or Italy, etc.), or should revolve around a particular discipline, or two closely related disciplines (for example, courses in the history of art and architecture). A minor in Medieval studies consists of Medieval Studies 2010 and 4010 and 16 additional hours distributed among the categories listed above for the major. Each student's program, major or minor, must be approved in advance by the Medieval Studies Coordinating Committee, chairperson, Dr. Thomas J. Heffernan.

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

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

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

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

Category #1

History, Philosophy, Political Science, and Religious Studies.

History 3060 History of Western Religious Thought and Institutions (4)

History 3411 Renaissance (3)

History 3710 History of Germany (3)

History 3780 History of Middle East (3)

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

History 4500 History of Medieval England (3)

History 4710-20 Medieval History (3,3)

Philosophy 3121 Medieval Philosophy (4)

Political Science 3802 Studies in Political Thought (4)

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

Religious Studies 3411 Renaissance and Reformations (4)

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

Category #2 Language and Literature

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

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

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

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

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

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

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

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

French 3210 French Literature in English Translation (3)

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

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

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

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

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

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

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

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 (867)

Prerequisites to the major are the completion of Russian 2110-20-30 and Russian 2640-50. (It is suggested that students planning to major in Russian and East European Studies satisfy Option 2 of the Language, Literature and Arts section of the Triad. Russian 2110-20-30 can be used to satisfy part of that Option. Russian 2640-50 can be used to satisfy Part A of the History and Society section of the Triad.) The major consists of 42 hours distributed as follows: Geography 3880; six hours from History 3470-80-90; Philosophy 3550; Political Science 3981 and four additional hours from Political Science 3632, 3790, 4815, 5370, and 5390; 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 Fiance.

4010 Selected Topics in Russian and East European Studies (3) An interdisciplinary seminar on a selected topic using a comparative approach.
Urban Studies (985)
A concentration in urban studies consists of 40 quarter hours, including Urban Studies 2500 and 3000, at least 4 hours of Urban Studies 4000, and 28 hours from the urban studies curriculum provided below. The urban studies minor consists of 24 quarter hours, including Urban Studies 2500 and 3000 plus 16 hours from the urban studies curriculum provided below. For further information consult the chairperson of the Urban Studies Committee, Dr. Samuel Wallace.

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

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

3750 The Urban Polity (4) (Same as Political Science 3760).

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 4 credits required for a concentration in urban studies. May be repeated. Maximum credit 16 hours.

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

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

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

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

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

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

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

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

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

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

Planning:
4100 Introduction to Planning (3)

Political Science:
3750 The Urban Polity (4)
3790 Urban Policy Process (4)
Real Estate and Urban Development:
3610 Principles of Real Estate and Urban Development (3)
4120 Urban Growth and Land Use (3)
4130 Problems of Urban Development (3)

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

Women's Studies (944)
Minor: Consists of Women's Studies 2010-20 and 16 hours of appropriate courses numbered 3000 or above. Courses approved for the Women's Studies minor are listed below. Students may petition the Women's Studies Committee for approval of courses other than those listed. For further information consult the chairperson of Women's Studies, Dr. Martha Lee Osborne, at the Women's Studies offices, 206 Alumni Hall, 974-2408, or in the Philosophy Department, 807 McCLung Tower, 974-3196 or 974-3255.

2010-20 Women's Studies (4) Explores basic knowledge and sources necessary to understand current and past societal experiences of women. 2010 utilizes perspective of humanities; 2020 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 4630 Black Women in American Society (4)
Child and Family Studies 2120 Sex Roles and Marriages (3)
English 3310 Women Writers in England and America (3)
French 3340 Women in French Culture (4)
History 4280 Women in European History (4)
History 4290 Women in American History (4)
History 5310 Topics in Women's History (3) (graduate courses; variable contents)
Music 3095 Women in Music (3)
Philosophy 3430 The Concept of Woman (4)
Philosophy 3435 Philosophy of Feminism (4)
Public Health 4430 Women's Health (3)
Psychology 4870 Contemporary Research in the Behavior of Women (4)
Sociology 3150 Gender in Society (4)
Speech and Theatre 4560 Rhetoric of the Women's Rights Movement (4)

Educational and Counseling Psychology 4110 Psychology of Sex Role Development (3)
Educational and Counseling Psychology 5110 Psychology of Women (3)

Cultural Studies (270)
1000 Selected Topics (2-4) May be repeated. Maximum credit 8 hours.

4000 Selected Interdisciplinary Cultural Topics (1-12) Acceptable for credit in any cultural studies concentration or minor except Black studies. Registration by consent of director of cultural studies and the respective chairperson. See pages 185 and 198.

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.

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

GRADUATE

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

Ecology (278)
Dewey L. Bunting, Chairman

Basic Faculty:

The graduate program in ecology offers Master of Science and Doctor of Philosophy degrees. This interdisciplinary program provides advanced courses in contemporary ecology for students from undergraduate programs in basic and applied biology, agriculture, social sciences, mathematics, and engineering. Research opportunities in both fundamental and applied ecology are intended to prepare students for academic careers as well as professional positions in industry or government. The Environmental Sciences Division of the Oak Ridge National Laboratory, the Tennessee Valley Authority, and the National Park Service provide advisers and research facilities. The Great Smoky Mountains, Cumberland Plateau, valley and ridge topography, TVA lakes, and wild rivers provide a spectrum of natural habitats and consequent biological diversity which is truly unique. In addition, faculty research programs provide opportunities for student research elsewhere on this continent and abroad.
ADMISSION
Requirements for admission to this program are: (1) admission to the Graduate School of the University of Tennessee; (2) at least 12 quarter hours of college mathematics, 9 quarter hours of ecology at the upper-division level, and the Graduate Record Examination. Application forms for admission should be obtained from the Graduate School. Inquiries concerning the admission and degree requirements should be addressed to the Chairman, Graduate Program in Ecology, University of Tennessee, Knoxville, Tennessee 37916.

5000 Thesis (1-15)

5100 Special Problems in Ecology (1-3)

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

5310 Ecology for Planners and Engineers (3)

5320 Implementation of Environmental Policy (3)

5410 Environmental Toxicology (3)

5640 Techniques in Environmental Toxicology (3)

6000 Doctoral Research and Dissertation (3-15)

6100 Special Topics in Ecology (3)

6110 Seminar in Animal Behavior (2)

6120 Seminar in Aquatic Ecology (2)

6130 Seminar in Physiological Ecology (2)

6140 Seminar in Community Ecology (2)

6150 Seminar in Radiation Ecology (2)

6160 Seminar in Systems Ecology (2)

6431 Current Topics in Environmental Toxicology (1)

Economics (283)
See faculty list, page 89.

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

Courses offered in the Department of Economics of the College of Business Administration provide opportunity for a major or minor in economics in the College of Liberal Arts. See page 50 for description of the courses available.

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

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

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

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

English (339)

Professors:
J. B. Trafren (Head), Ph.D. Princeton; P. G. Adams, Ph.D. Texas; J. E. Seuser, Ph.D. Kentucky; W. R. Brown, Ph.D. Brown; R. E. Parker (Emeritus), Ph.D. Tennessee; J. M. White, M.A. Camberly; N. Wright (Emerita), Ph.D. Yale.

Associate Professors:

Instructors:

Professors:
J. A. Hansen (Emeritus), Ph.D. Yale; R. M. Kelly, Ph.D. Tennessee; T. B. Stewart, Ph.D. Northwestern; E. W. Stockton (Emeritus), Ph.D. Harvard; R. H. Walker, M.A. Texas; T. V. Westover, Ph.D. North Carolina; J. M. White, M.A. Camberly; N. Wright (Emerita), Ph.D. Yale.

Assistant Professors:

Concentration in the English Language: Twelve English courses at the 3000-4000 level including:
(1) English 3330;
(2) five courses in linguistics and the English language selected from among those offered by the English department and, with English adviser approval, from Psychology 4660, Anthropology 3800, or Linguistics 4020;
(3) two additional courses in language, literature, or writing;
(4) four courses in literature.

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

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

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

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

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

1010 English Composition (3) Expository writing recommended for students with ACT English scores of 24 or above and un瑪一nal (currently 13) set by the English Department. Emphasis on invention, organization, style, and revision; intensive study of essays for meaning and ways of expressing meaning; conferences on individual writing problems. A, B, C, T, CG, 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 additional emphasis on handwriting, sentence structure, and composition. Not open to 1010 for undergraduate foreign students. Prereq: 1021 or recommendation based on English Proficiency Examination.

141 English Composition for Foreign Students (3) For students whose native language is not English. Emphasis on paragraph and composition organization with attention to grammar. Credit is not repeatable. English 141 replaces English 1010 for undergraduate foreign students. Prereq: 1221 or recommendation based on English Proficiency Examination.

1441 English Composition for Foreign Students (3) For students whose native language is not English. Credit is not repeatable. English 1441 replaces English 1010 for undergraduate foreign students. Prereq: 1221 or recommendation based on English Proficiency Examination. 

1451 English Composition for Foreign Students (3) For students whose native language is not English. Credit is not repeatable. Students Prereq: 1341. A, B, C, I, NC, W grading.


2510-20 English Masterpieces (4,4) 2510—To the mid-18th century, 2520—Since the mid-18th century.

2530 American Masterpieces (4)

2540 The Literature of Black America (4) Poetry, fiction, drama. Emphasis on 20th century.

2550-70-80 Literature of the Western World (4,4,4) 2550—Ancient and medieval, 2560—Renaissance through the 18th century, 2580—19th and 20th centuries.

2560-50 English Culture (4,4) 2560—Beginnings to the late 18th century, 2550—From the late 18th century to the present.

2660 Introduction to Drama (4) Study of selected plays to provide critical techniques necessary for understanding of drama.

2670 Introduction to Poetry (4) Study of selected poems to provide critical techniques necessary for reading of different types of poetry.

2680 Introduction to the Novel (4) Study of selected novels to provide critical techniques necessary for understanding and analysis of narrative cinema. Emphasizes basic elements of film expression and contours of film history. Writing assignments.

3010-20-30 American Literature (3,3,3) 3010—John Smith through Mark Twain. 3020—Henry James to present.

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

3045 Introduction to Literary Criticism (3)

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

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


3135 Tennyson and His Successors (3) Includes such poetry as that by PreRaphaelites, humanists, and Decadents.

3136 Browning, Arnold, and Hopkins (3)

3156 Melville (3)

3160 The Short Story (3) British and Continental European, with emphasis on 20th century.

3170 The American Short Story (3) From 19th century beginnings to present; emphasis on 20th century.

3210-20 English Literature and Culture of the Nineteenth Century (3,3) Survey of literature dealing with leading movements in politics, science, religion, and the arts. 3210—1800 to 1835. 3220—1835 to 1890.

3230-31 Literature and Other Fields (3,3) Content varies. Focus on religious, philosophical, psychological, historical, or other pertinent aspects of literature. May be repeated with consent of department. Maximum credit 6 hours each. (Same as American Studies 3230-34.)

3233-34 Forms of Popular Literature and Culture (3,3) Content varies. Detective fiction, science fiction, film, or other topics. May be repeated with consent of department. Maximum credit 6 hours each. (Same as Comparative Literature 3233-37.)

3510 Women Writers in England and America (3) Emphasis upon the literary consciousness of women in the 19th and 20th centuries.

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

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

3332 Modern English Grammar (3) Traditional, prescriptive approaches to English grammar, followed by intensive study of descriptive approaches of American structure and introduction to generative-Transformational theory. (Same as Linguistics 3332.)

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

3411-12-20-30 Modern Drama (3,3,3,3) 3411-20-30-30 Continental to 1500. 3412-20-30-30 Continental since 1500.

3420-25 Writing Fiction (3) Introduction to writing novels and short stories.

3470 Writing Poetry (3) Introduction to writing poetry.

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

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

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

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

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

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

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

3670 Age of Johnson (3)

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

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

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

3840-50 Writing Non-Fiction Prose (3,3) Strategies of writing on personal and academic subjects. Discussion of subject matter and expository writing. Conferences on individual student’s goals and problems. Open to
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 Varieties of English (3) Theories, methodologies, and findings of English and American dialectology with emphasis on implications for cultural pluralism. Prereq: English 3350 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) 4471—Applied linguistics in teaching and learning of English as second or foreign language. Phonological and grammatical structure of present-day English. Analysis of differences (phonological, grammatical, and lexical) between English and another language. Prereq: Second year of a foreign language. 4476—Materials and methods of language teaching, with emphasis on preparation of materials and structured teaching situations. Theory of testing language competence and performance, with emphasis on construction of tests. Team teaching with an experienced member of the staff. Prereq: 4471. (Same as Linguistics 4471-81.)

4510-20-30 Black Literature (3,3,3) Trends and developments.

4551 Southern Literature through the Nineteenth Century (3) Southern writing from colonial period to end of 19th century, including frontier humorists and local color writers.

4552 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.

4566 Emerson and Thoreau (3)

4680 American Humor through Mark Twain (3)

4721-31-41 Ballad and Folktale (3,3,3) 4721—Study of traditional English and Scottish popular ballads and their North American variants; 4731-Study of Native American ballad and folktale; 4741—The folk 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.

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

GRADUATE

5000 Thesis

5002 Non-Thesis Graduation Completion (3-15)

5101 Foreign Study (1-12)

5102 Off-Campus Study (3-12) See page 185.

5103 Independent Study (1-12) See page 185.

5118-28-38 Honors: Senior (0,0,9) Admission by consent of department. Maximum credit 6 hours each.

5141-50 Technical Writing (1,1,1) 5141—For students planning careers in physical, life and health sciences, engineering, agriculture, and forestry. Writing of proposals, laboratory and progress reports, abstracts, and journal articles. 4150—Writing of scientific feature articles in which data are marshaled and analyzed for human interest.

5250 Advanced Fiction-Writing (3) Further development of skills acquired in basic fiction writing course. Prereq: 3450 and consent of instructor.

5254 Writing the Detective and Mystery Story (3) Instruction and writing cover entire crime field—suspense, police procedural, private eye, spy, and adventure fiction. Prereq: 3450-40-70 or consent of instructor.

5256 Writing Science Fiction and Fantasy (3) Surveys general development and basic texts of science fiction, speculative fiction, and fantasy. Exercises in writing in genres, in accordance with techniques learned in basic fiction writing course.

5270 Advanced Poetry Writing (3) Further development of skills acquired in basic poetry writing course. Prereq: English 3470 or consent of instructor.

5310 Rhetoric and Composition: History and Theory (3)
Geography 3700, 4100, and 4990, and an additional 28 hours selected from courses at the 3000 and 4000 levels. At least one course must be selected from each of groups A, B, C, and D below.

**A. Physical Geography:** 3510, 3520, 3520, 4550

**B. Economic Geography:** 3410, 3430, 3490, 3670, 3780, 4610

**C. Cultural Geography:** 3450, 3600, 3610, 3660, 4240

**D. Regional Geography:** 3790, 3800, 3810, 3830, 3840, 3870, 3880, 3910, 3920, 3930, 3940.

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

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

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

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

**1810-20 Geography of the Natural Environment (4,4)** Characteristics and processes of earth's surface and lower atmosphere; their interaction to produce world patterns of distinctive environments significant to man. Must be taken sequentially. 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, races, ethnic groups, population, settlements, and forms of economy.

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

**3000 Man, Location, and Behavior (4)** Types of human 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. Locational patterns in agriculture, manufacturing, and service activities.

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

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

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

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

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

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

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

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

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

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

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

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

**3810 Geography of Europe (4)**

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

**3840 Geography of Australia and Oceania (4)** Survey of major physical, economic, and social characteristics of Australia, New Zealand, and of impact of western civilization on selected island groups of the South 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 3620, 3680, or 3900.

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

**3910 Regional Geography of United States and Canada (4)** Major physical, economic, and social distributions as they interrelate to give distinctive character to regions of United States and Canada. Not open to students who have taken 3710 or 3720.

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

**3930 Geography of Tennessee (4)**

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

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

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

**4101 Foreign Study (1-15)** Prereq: Written consent of instructor required prior to registration. See page 165.

**4102 Off-Campus Study (1-15)** Prereq: Written consent of instructor required prior to registration. See page 185.

**4103 Independent Study (1-15)** Prereq: Written consent of instructor required prior to registration. See page 185.

**4210 Problems in Geographical Method (4)** Examples of problems and approach in geographical analysis and synthesis. Emphasis on character of geographic data, area sampling, generalization, classification, regionalization, and questions of scale.

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

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

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

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

**4630 Geography of Agriculture (4)**

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

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

**4730 Advanced Cartography (4)** Map production from design through color proofs. Prereq: 3700, 4710, and 4720 or consent of instructor.

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

**4750 Interactive Computer Graphics (3)** (Same as Computer Science 4750 and Electrical Engineering 4785.)

**4790 Practicum in Cartography/Remote Sensing (2-6)** Supervised practice in production of maps and other graphic materials in Department of Geography's Cartographic Services Laboratory or a similar organization. Prereq: Written consent of instructor prior to registration.

**4990 Seminar in Geography (4)** Overview of major themes in geography, especially trends over past 20 years. Designed for 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**

**5002 Non-thesis Graduation Completion (3-15)**

**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)
5430 Advanced Cultural Geography (3)
5450 Terrigenous Clastic Sedimentary Petrology (4)
5550 Carbonate Sedimentology (4)
5640 Clay Mineralogy (4)
5635 X-Ray Diffraction: Single Crystal Techniques (3)
5760 Advanced Topics in Economic Geography (3)
5820 Strata-bound and Stratiform Sulfide Deposits (4)
5830 Economic Geology (4)
5850 Regional Studies in Geology (3)
5860 Coal Depositional Environments (4)
5870 Regional Geomorphology (4)
6000 Doctoral Research and Dissertation (1-45)
6110 Seminar in Stratigraphic Geology (3)
6120 Seminar in Palaeontology (3)
6130 Seminar in Structural Geology (3)
6140 Seminar in Mineralogy (3)
6150 Seminar in Petrology (3)
6160 Seminar in Economic Geology (3)
6710 Seminar in Geochemistry (3)
6810 Seminar in Geomorphology (3)

**Geological Sciences**

**Professors:**
- K. R. Walker (Head), Ph.D., Yale; H. J. Klepeis (Emeritus), Ph.D., Ohio State; O. C. Kopp, Ph.D., Columbia; K. C. Milton, Ph.D., Western Ontario; R. E. McLaughlin, Ph.D., Tennessee; L. A. Taylor, Ph.D., Lehigh; J. G. Wills (Emeritus), Ph.D., North Carolina.

**Associate Professors:**
- D. W. Biever, Ph.D., Tennessee; M. Clark, Ph.D., Pennsylvania State; H. Y. McSween, Ph.D., Harvard.

**Assistant Professors:**
- R. W. Armit, Ph.D., Northwestern; T. W. Broadhead, Ph.D., Iowa; P. A. Delcourt, Ph.D., Minnesota; S. G. Driese, Ph.D., Wisconsin; T. C. Lerbeth, Ph.D.; Caltech; N. J. Woodward, Ph.D.; Johns Hopkins.

The Department of Geological Sciences provides training for (1) those who plan careers as professional geologists in industry, federal and state surveys, education, or other fields which utilize earth scientists; and (2) those who seek a general knowledge of geology and its relationship to 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 in close consultation (3) with a departmental adviser. A list of advisers is available in the departmental office.

**UNDERGRADUATE**

**Major:** Geology 1410, 1420, 1430 are prerequisite to a major which consists of Geology 3180, 3190, 3260, 3310, 3360, 3370, and at least 24 hours additionally in upper-division courses in geology chosen to include at least 12 hours from among the following courses: Geology 3510, 4110, 4115, 4230, 4510, and 4610. Geology 4310 and/or 4440 (or equivalent) are strongly recommended for students planning to become professional geologists. A minimum of one quarter enrollment for undergraduate credit in Geology 5350, the departmental seminar, is required during the senior year.

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

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

**Geology (424)**

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

1430 General Geology III (4) Continuation of 1410-20 sequence and emphasis on modern concepts of continental drift and plate tectonics. Prereq: 1420. 3 hours and one 2-hour lab or field period.

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


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

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

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

3190 Introduction to the Petrographic Microscope (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, S/NC grading only.

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

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

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

3310 Introductory Petrology (4) Introduction to classification and properties of igneous and metamorphic rocks, processes which produce them, and tectonic environments in which they form. Laboratory emphasizes both hand specimen and microscopic study of important rock types. Coreqs: 3180, 3190. 3 lectures and 1 lab.

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

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

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

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

3514 Geology for Engineers (3) Basic principles of geology and engineering geology. Prereq: 1420 or equivalent. 2 lectures and 1 lab or field period.

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

3810 Regional Geology of the United States (3) Survey of geologic histories of various geographic provinces of the United States, emphasizing integration of their stratigraphic and tectonic framework. Prereq: Geology 1420-20 or equivalent.

4110 Principles of Economic Geology (4) Formation of metal deposits: classification, characteristics and origin of different types of mineral deposits, metal-
4115 Elementary Applied Geophysics (4) Basic principles of seismic, gravity, and magnetic surveying. Recommended: 4140, Physics 2220 or 3230, 2 lectures and 1 lab.

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

4230 Paleobotany (4) Principles of environmental analysis, fossils, faunal assemblages and associated lithologies. Prereq: 3260 or consent of instructor. 3 hours and 1 lab.

4240 Paleontology (4) Survey of fossil record of plants and particular emphasis on (1) comparative morphobiology and evolutionary trends in major plant groups and (2) chronological succession and geographic distribution of past flora on earth. Prereq: 4220 or Botany 3010-20 or consent of instructor. 3 hours and 1 lab or field period. (Same as Botany 4240.)

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

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

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


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

4309 X-Ray Diffraction Methods (3) Application of X-Ray in identifying crystalline substances, including photography, powder, Guinier, powder camera, Gandolfi camera and diffractometer. Prereq. or coreq: 4307 or consent of instructor, 2 hrs and 1 lab.

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

4311 Quaternary Geology of North America (4) Geologic processes, stratigraphy, sedimentology, and geomorphology of glaciated and unglaciated North America and oceans. Prereq: 1410 or consent of instructor. 2-hour lecture.

4322 Quaternary Paleoclimatology (4) Study of pollen and plant macrofossils of characterize vegetation and stratigraphically important microfossils and their biostratigraphic significance. Prereq: 4322 and 4320. 3 hours and 1 lab or field period.

4410 Special Problems in Geology (1-4) Prereq: Consent of instructor. May be repeated. Maximum credit 4 hours.

GRADUATE

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

5000 Thesis

5050 Geochronology of Ore Mineral Deposits (3)

5069 Experimental Geochemistry Laboratory (1-3)

5210 Special Problems in Geology (1-4)

5290 Quaternary Problems (4)

5310 Depositional Environments and Models for Exploration (4)

5340 Seminar in Local Stratigraphy (1)

5350 Selected Topics in Geology (1)

5705 Metastable Rocks (2)

5706 Stress-strain behavior of rock as a function of temperature and pressure. Prereq. 4610 or consent of instructor. 3 hours and 1 lab/field/semester period.

5810 Seminar in Geomorphology (3)

5820 Process Geomorphology (4) Graduational processes operating on and near the earth's surface, applied geomorphology, and field work in geomorphology. Prereq: 1430 and 4610. 3 hrs and 1 lab or field period.

5820 ore Petrology (4)

5850 Regional Studies in Geology (3)

5860 Coal Depositional Environments (4)

5915 Regional Geomorphology (4)

6000 Doctoral Research and Dissertation

6110 Seminar in Stratigraphic Geology (3)

6210 Seminar in Paleontology (3)

6610 Seminar in Economic Geology (3)

6710 Seminar in Geochemistry (3)

6810 Seminar in Geomorphology (3)

Germanic and Slavic Languages

Professors: J. E. Falen, Ph.D. Indiana; H. Kratochvila, Ph.D. Ohio State; M. H. Harris, M.A. Illinois.

Instructor:

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

ASSOCIATE PROFESSORS

Professor: M. P. Rice, Ph.D. Pennsylvania; C. Hodges, Ph.D. Chicago; H. W. Fuller (Emeritus), Ph.D. Wisconsin; N. A. Lauckner, Ph.D. Wisconsin; R. L. Hiller (Emeritus), Ph.D. Cornell; J. C. Osborne, Ph.D. Northwestern; M. P. Rice, Ph.D. Vanderbilt.

Assistant Professors:

J. S. Elliott, Ph.D. Michigan; H. B. Frieze, Ph.D. Indiana; H. A. Lauckner, Ph.D. Wisconsin; D. E. Lee, Ph.D. Stanford; C. J. Mellor, Ph.D. Chicago.

Assistant Professor:

C. Hodges, Ph.D. Chicago; U. C. Rutzenhoff, Ph.D. Connecticut.

Instructor:

H. Kratochvila, Ph.D. Ohio State; J. E. Falen, Ph.D. Pennsylvania; H. W. Fuller (Emeritus), Ph.D. Wisconsin; R. L. Hiller (Emeritus), Ph.D. Cornell; J. C. Osborne, Ph.D. Northwestern; M. P. Rice, Ph.D. Vanderbilt.

Associate Professors:

J. S. Elliott, Ph.D. Michigan; D. M. Frieze, Ph.D. Indiana; H. A. Lauckner, Ph.D. Wisconsin; D. E. Lee, Ph.D. Stanford; C. J. Mellor, Ph.D. Chicago.

Assistant Professors:

C. Hodges, Ph.D. Chicago; U. C. Rutzenhoff, Ph.D. Connecticut.

Instructor:

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

UNDERGRADUATE

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

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

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

German
Major: Majors or minors in German should carefully prepare their programs in consultation with a departmental faculty advisor. German 2110-20-30 or the equivalent is a prerequisite. The major shall consist of at least 36 hours of German in courses numbered above 3000, usually including German 3110-20-30 (or 3410-20), 3810-20-30, 9 hours of German literature in courses numbered above 3000, excluding 3010-20-30 and courses in English translation. It is recommended that German majors also take History 1510-20 or 3710-20-30 and 8 hours of sophomore English. Majors are also strongly urged to consider a minor in some other area of the humanities.

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

Russian
Major: Russian majors should carefully prepare their programs in consultation with the departmental faculty advisor. Russian 2110-20-30 is a prerequisite to the major. Russian 2640-50 is a corequisite to the major. The major consists of 36 hours of Russian courses numbered above 3000, including 3110-20-30, 3610-20-30, 9 hours from Russian 3210-20-21-30-40-50-30, and 9 hours of courses numbered 4000 and above. It is recommended that majors also take History 3470-60-90 and 9 hours of sophomores English. Majors are urged to consider a minor in some other area of the humanities.

Minor: Russian 2110-20-30 is a prerequisite to the minor. The minor itself consists of 27 hours of Russian courses, including 9 hours from Russian 2640-50 and/or 3210-20-21-30-40-50-60 and 18 hours to be taken from Russian 3110-20-30, 3610-20-30, and courses numbered 4000 and above.

Russian and East European Studies. See Cultural Studies.

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

Germa (433)
1110-20-30 Elementary German (3,3,3) Must be taken in sequence.

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

1518-2518-268 Honors: Elementary and Intermediate German (6,6,6) Honors course for students of superior ability. Freshmen are admitted on the basis of high school average and performance on the American College Testing Program. Upperclass students must have a B average. A grade of C or above must be achieved in 1518 in order to continue with German 2518. A student receiving a grade of D or better in 1518 may continue with German 1520. This sequence is equivalent to 1510-20 or 1110-20-30 and 2110-20-30 and its completion allows the student to enter all 3000-level German courses.

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

2110-20-30 Intermediate German (3,3,3) Must be taken in sequence.

3010-20-30 Elements of German for Upper-Division and Graduate Students (3,3,3) Elements of language, elementary and advanced readings. Open to graduate students preparing for language examinations, and upper-division students desiring knowledge of the language. Undergraduate credit only. No credit for students having completed 1510-20 or 1110-20-30.

3340 Special Topics in German Literature in English Translation (1-4) Topics and credit hours vary. Prerequisite: 9 hours of 3000 courses excluded. Prerequisite: 9 hours of 3000 courses (exclusive of 3010-20-30, or courses in English translation) or equivalent.

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

ADVANCED UNDERGRADUATE AND GRADUATE

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

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

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

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

4140-50 Selected Topics in German Literature from 1760 to the Present (3,3,3) Prerequisite: 9 hours of 3000 courses (exclusive of 3010-20-30, or courses in English translation) or equivalent.

4160 Studies in German Authors (3) Life and works of a single outstanding German literary figure. Content varies. May be repeated for credit. Prerequisite: 9 hours of 3000 courses (exclusive of 3010-20-30, or courses in English translation).

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

4210-30 Studies in German Literary Types (3,3,3) 4210—Lyric poetry. 4220—Drama. 4230—Narrative prose. 4240—Prose writings of sagas (exclusive of 3010-20-30, 3210-20-30, 3310) or equivalent.

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

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

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

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

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

4618-28-38 Honors: Senior German (3,3,3) Intended to give student of excellent standing great flexibility to do independent study than is possible in ordinary courses. Prerequisite: Senior standing, with a record of A in half of German courses taken as prerequisite to the 4000 courses, average of B in remainder, and consent of department.

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

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

GENERAL COURSES

2610-20-30 Culture of German-Speaking Peoples (3,3,3) Intended to give student of German-speaking peoples from their first contact with Romans to the present. Readings in English. Students opting for 4 hours credit will be expected to present an appropriate amount of extra work above that required for 3 hours.

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

3240 Old Norse Literature in English Translation (3-4) Prose readings of sagas of Scandinavian kings, great Icelandic family sagas, and Vinland sagas, narrating discovery of America around the year 1000. Mythological and heroic poems of the Edda. No foreign language credit.

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

3270 Modern German Novel in English Translation (3) From 1900 to present. Remarque, Hesse, Mann, Kafka, Frisch, Boll, Grass. No foreign language credit.

3280 Goethe's Faust in English Translation (3-4) Intensive study of Faust I and II and survey of criticism and interpretations of the work. No foreign language credit.

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.
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 3010-20-30, 3210-20-30-40-50-60-70, 3310) or equivalent. May be repeated for credit.
4250 Introduction to Descriptive Linguistics (3) (Same as German, French, Spanish, and Linguistics 4260.)
4260 Introduction to Historical and Comparative Linguistics (3) (Same as Linguistics 4271)
4310-20-30 Advanced Studies in Russian Language (3,3,3) intended primarily for students majoring or minor 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 relating to student's major field. Prereq: 9 hours of 3000-level courses in Russian (exclusive of 3010-2030, 3210-20-30-40-50-60-70, 3310) or equivalent.

GENERAL COURSES
2640-50 Background and Main Currents of Russian Culture (4,4) A broad interdisciplinary approach to the appreciation of the language, religion, literature, art, music, history, geography, and social problems of Russia. No knowledge of Russian required. May not be taken for foreign language credit.
2910 Nineteenth-Century Russian Literature in English Translation (3-4) Realism and the novel; selection from works of Pushkin, etc.
3220 Works of Leo Tolstoy in English Translation (3-4) War and Peace, Anna Karenina, and other works.
3221 Works of F. M. Dostoevsky in English Translation (3-4) Crime and Punishment, Brothers Karamazov and other works.
3230 Twentieth Century Russian Literature in English Translation (3-4) Russian modernism and literature under the Soviets.
3240 The Russian Drama in English Translation (3-4) Selections from works of Vonovskii, Griboedov, Pushkin, Gogol, Ostrovsky, Turgenev, Chekhov, and others.
3250 The Works of Ivan Turgenev and Anton Chekhov in English Translation (3-4)
3260 Russian Folklore in English Translation (3-4)
3270 Russian Philosophical and Theological Thought (4) An introduction to the development of philosophical and theological thought in Russia from the Middle Ages to the Revolution. Special emphasis on the expression of this thought in Russian literature and literary criticism. No knowledge of Russian required. Same as Philosophy 3270 and Religious Studies 3270.
3280 Special Topics in Russian Literature in English Translation (4) Topics vary and are announced in advance. Student suggestions for topics are welcome. No foreign language credit. May be repeated.

3281 Contemporary Slavic Literature in English Translation (3-4) Survey of Polish, Czech, Yugoslav, and Russian fiction since 1960, with emphasis on first three.

Greek See Classics.

Hebrew See Religious Studies.

History (462)
Professors: P. H. Bergeron, Ph.D. Vanderbilt; E. V. Chmielewski, Ph.D. Harvard; E. D. Duncan, Ph.D. California (Berkeley); G. P. K. Ching, Ph.D. Harvard; Y. P. Hao, Ph.D. Harvard; A. G. Haas, Ph.D. Chicago; R. W. Hawkins (Emeritus), Ph.D. California (Berkeley); C. O. Jackson (Associate Dean, Liberal Arts College), Ph.D. Emory; M. M. Klein 2, Ph.D. Columbia, R. G. Landen (Dean, Liberal Arts College), Ph.D. Philnston.


Instructor: D. B. Morrow, M.A. UTK.

11002 Distinguished Professor. 2Alumni Distinguished Service Professor.
3Bennett Young Professor.

UNDERGRADUATE
History is a rewarding subject for students seeking a general education. History majors traditionally have done well in a number of careers, such as law, business, journalism, public service, teaching and research, library and archival fields, and ministry. Many students majoring in other subjects take history courses: to develop their skills in thinking, writing, reading, and speaking; to assist them in their search for personal identity; and to help them in their lifelong effort to understand change, continuity, and the links between past, present, and future.

Major: Majors in history should prepare their programs under the supervision of the faculty advisor. History 1510-20 (or their honors equivalents), or 1610-20, are prerequisites to a major which consists of 41 hours, including: (1) 8 hours of History 2510-20 (or their honors equivalents); (2) 3 hours of a thematic course, History 210; and (3) 30 upper-division hours. The distribution of the upper-division courses shall be in such a way that they include at least: (1) one course dealing predominantly with a period prior to 1750, and (2) two courses in each of the following areas: 1) United States, 2) Europe and Latin America, and 3) Asia-Africa. It is highly recommended that majors take History 4010, and History Colloquium.

Minor: History 1510-20 (or honors equivalent) is prerequisite to a minor which consists of 24 hours of courses numbered 2000 or above, including at least: (1) 8 hours
junior level from quarter to quarter. Especially suitable for non-
2015 Historical Issues (3) Introduction to broad, Rights and Black Power movements. struggle; their philosophies and programs, responses
for political, civil, and social equality; leaders of the Afro-American struggle from 1890. Traditional African societies from which Afro-
Departmental Course Information: Students can experience from 1890. The Afro-American struggle for political, civil, and social equality; leaders of the Afro-American struggle from 1890. Traditional African societies from which Afro-
3060-70-80 History of Western Religious Thought 3060-70.80. 3122 Medieval Europe, 500-1540 (3) The emergence of a distinctive western European civilization from classical, Christian, and Germanic roots. Considers such topics as the barbarian migrations, feudalism, state-making in England and France, the social and spiritual power of the church, the rise of cities, the Black Death and early Renaissance.
3123 Early Modern Europe, 1450-1750 (3) The transition from medieval toward modern society. Considers such topics as war and depression and consequent political and social instability; the Russian Revolution; Nazism, decolonization, the impact of Freud and Einstein; welfare states; European reuni-
3124 Modern Europe, 1750,1900 (3) The political, industrial and intellectual changes of the 19th and 20th centuries. Considers such topics as war and depression and consequent political and social instability; the Russian Revolution; Nazism, decolonization, the impact of Freud and Einstein; welfare states; European reuni-
3125 Contemporary Europe, 1900-2000 (3) The transformation from industrial to post-industrial society and the decline of the European nation-state. Considers such topics as war and depression and consequent political and social instability; the Russian Revolution; Nazism, decolonization, the impact of Freud and Einstein; welfare states; European reuni-
3140-50-60 History of England (3,3,3) 3140—To 1660. 3150—1660—1688. Through Reform Bill of 1682. 3160—1682 to present. Medieval state, church, and society; origins of Anglo-American law, the monarchy and parliamentary government, the Reformation, 17th Century revolutions, commercial, agricultural and in-
dustrial revolutions and their consequences, the welfare state, world wars, economic crisis.
3210 History of Sports in United States is an analysis of the development of sports and their significance in American life from colonial period to present. Empha-
ses on social, cultural, economic, and political impact of both spectator and participatory sports in 20th century.
3240 Law in American History (3) The law and economic development, law and slavery, law and civil liberties, the role of law in the Revolution and the Civil War, and the rise and development of the legal profes-
sion. Not for graduate credit.
3270 History of Human Services and Public Health in United States (3) Development of human services in modern society, focusing on how and why public 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 cen-
tury to Civil War Era, 1783-1865. 3312-18th century to Civil War Era, 1825—1865. Prereq. Consent of department, prereq or coreq, 2510 or 2520. May not be taken as a 1 hour elective. Will not be offered during summer sessions. 3311-21 History of Tennessee (3,3) 3311-18th cen-
tury to Civil War Era, 1783-1865. 3312-18th century to Civil War Era, 1825—1865. Prereq. Consent of department, prereq or coreq, 2510 or 2520. May not be taken as a 1 hour elective. Will not be offered during summer sessions. 3311-21 History of Tennessee (3,3) 3311-18th cen-
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tury to Civil War Era, 1783-1865. 3312-18th century to Civil War Era, 1825—1865. Prereq. Consent of department, prereq or coreq, 2510 or 2520. May not be taken as a 1 hour elective. Will not be offered during summer sessions.
4010 History Colloquium (3) Small group, problem-oriented, emphasis on skills rather than content, with special reference to historical writing, including critical analysis of historical documents. Open to juniors, seniors, and non-majors.

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

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

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

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

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

4250-60-70 European Intellectual and Cultural History (3,3,3) From Reformation to Scientific Revolution (1500-1700), Enlightenment to Age of Realism (1700-1870), Subjection to Relativism (1870-present).

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

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


4380 The American Experience in World War II (4) A team-taught course. Diplomacy and warfare in Europe and Asia and the impact of the war on American society.

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

4380 Civilian-Military Relationships In the Modern Western World (3) Training of the military forces in modern democratic societies. Emphasis on institution building, elites, and ideology. Prerequisites: 3795 or consent of instructor.

4410 Modernization of the Middle East (3) Advanced reading and discussion course which examines key facets of political, economic, and social dynamics in contemporary Middle East with emphasis on institution building, elites, and ideology. Prerequisite: 3795 or consent of instructor.

4451 Great Britain from Burke to Bright (1780-1848) (3)

4450 Twentieth-Century Britain (3) The emergence of the Welfare State, the political impact of the Labour movement, World War and Depression, chronic economic crisis, the persistence of class.

4460-20-30 The American Frontier and Westward Movement I, II, III (3,3,3) Settlement and development of the "West" throughout American history, from the Atlantic to the Mississippi, 1602-20—The Trans-Mississippi West.

4461-51 America: Mind, Mood, and Society (3,3) Surveys social and cultural history and thought from mythology through colonization to the major beliefs and values which form the foundation of present-day life in the United States. Colonial period to 1865.

4461-51 America: Mind, Mood, and Society (3,3) Surveys social and cultural history and thought from mythology through colonization to the major beliefs and values which form the foundation of present-day life in the United States. Colonial period to 1865.

4461-51 America: Mind, Mood, and Society (3,3) Surveys social and cultural history and thought from mythology through colonization to the major beliefs and values which form the foundation of present-day life in the United States. Colonial period to 1865.

4462-51 America: Mind, Mood, and Society (3,3) Surveys social and cultural history and thought from mythology through colonization to the major beliefs and values which form the foundation of present-day life in the United States. Colonial period to 1865.

4461-51 America: Mind, Mood, and Society (3,3) Surveys social and cultural history and thought from mythology through colonization to the major beliefs and values which form the foundation of present-day life in the United States. Colonial period to 1865.
College Scholars each year. 3018—humanities, 3028—science and mathematics, 3038—history and society. May be repeated. Maximum 12 hrs. S/N/C grading only.

3118-29-38 Honors: Junior—Colloquium (2-4,2-4,2-4) Small group studies of selected topics. May be repeated.

4101 Honors: Foreign Study (1-16) See page 185 and Director of Special Programs. Primarily for College Scholar Students.

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

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

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

4998 Honors: College Scholars Studies (2-16) Designed for College Scholars working on their senior thesis, project, or performance. May be repeated for a total of 24 credit hours.

**Human Services**

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

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

**Assistant Professors:** M. W. DeVoe, Ed.D. VPI & SU; T. McClam, Ph.D.; South Carolina; J. D. McLean, Ph.D. Chicago.

**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 improve the well-being of our society and of the societies in which they live.

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

The Human Services Program is approved by the Council for Standards in Human Service Education (CSHSE). The curriculum of the program includes required courses, elective courses, advising, and supervised experience in one or more human service agencies or organizations.

Students pursuing a major in human services will take 2960, 3100, 3300, 4220, 4229, and 4400—preferably in the order given—and one course from each of the four lists of courses given below; total hours' credit for the major will vary from 48 to 52, due to differences in the number of hours' credit awarded for different courses on these four lists.

**I. Culture and Personality**

American Studies 3010; Anthropology 3410, 3800, 3930, 4240, 4430, 4740; Audiology & Speech Pathology 4250, 4650; Child and Family Studies 3210, 3220, 4810; Educational Psychology 4110, 4800; Geography 3610; Psychology 3120, 3550, 3650, 4510; Sociology 3130, 4820; Speech 3021, 3030.

**II. Complex Organizations.** Geography 3610; Political Science 3565, 3566, 4665, 4666; Psychology 4520; Religious Studies/Sociology 4940; Sociology 3010, 3620, 4030, 4560.

**III. Research and Statistics.** Computer Science 3010; Philosophy 3720, 4720; Psychology 3510; Sociology 3910, 3920.

**IV. Community and Society.** Economics 3220, 3410; Anthropology 3070, 3450; Child and Family Studies 3515, 3520, 4610; Geography 3000, 3450; Home Economics 3110; Human Services 4920; Philosophy 3350, 3440, 3611; Political Science 3710, 3720, 3730, 3760, 4580, 4590; Public Health 3330; Religious Studies 3550, 3600, 3610; Rural Sociology 3420; Sociology 3160, 3220, 3330, 3350, 3420, 3510, 3690, 4330, 4530 4540, 4930; Special Education 5490, 5620.

**Total Credit Hours:** 48-52

2690 Introduction to Human Services (4) General field of human service with an emphasis on related social values; current 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.

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

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

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

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

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

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

4400 Human Services Field Work (8 or 16) Practical field experiences in appropriately organized and directed human services settings. Designed to offer the student the opportunity to learn and develop specific helping skills and to become exposed and involved in the roles and functions of human services; to provide some direct services in a supervised learning situation. Application filed no later than the first week of the quarter prior to the quarter of enrollment. For majors
only. May be repeated. Maximum 16 hours. 16 hours required. S/NC. Prereg: Consent of instructor.

**Social Work (906)**

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

Assistant Professors: F. J. Spicuzza, M.S.W., Howard;

Major: Social Work 2000 (4), 3400-10 (4,4), 4110-20-30 (4,4,4), 4620 (4), 4500-10 (4,4), 4200-20-30 (8,8). The major consists of 52 hours. Preliminary acceptance into the major depends on successful completion of Social Work 2000. Corequisite courses include: Human Services 3200; Psychology 2520, 2540. Students are not to take part of classes from the following: Sociology 3130, 3150, 3220; Black Studies 3300.

Students who graduate from this program are prepared for beginning professional practice as a social worker. The program follows the Council on Social Work Education Accreditation Standards.

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

**3400 Human Behavior and the Social Environment I (4)** Applies social and environmental conditions of the social environment such as social work practice in which students can apply classroom material to social work practice situations in order to develop professional skills, values, and attitudes. A weekly faculty led seminar focuses on the integration of knowledge with practice. To be taken in sequence. Only for social work majors. Prerequisite: Social Work 2400, Corequisite: Social Work 3410, 4110.

**4520-30 Field Practice in Social Work III, IV (6,8)** A semester length 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. C. Jr. Jr. (Emeritus), Ph.D. Louisiana State; T. C. Clark, Ph.D. Louisiana; R. E. Cline, Ph.D. Purdue; R. J. Daverman, Ph.D. Wisconsin; D. J. Dessert, Ph.D. Maryland; D. E. Dobbs, Ph.D. Cornell; E. D. Eaves (Emeritus), Ph.D. Texas; H. Fradenstien, Ph.D. Illinois; R. T. Gregory, Ph.D. Illinois; T. G. Hallam, Ph.D. Missouri; D. B. Hinton, Ph.D. Tennessee; A. S. Householder (Emeritus), Ph.D. Chicago; L. H. Hursch, Ph.D. Florida State; H. T. Matthews, Ph.D. Tulane; R. M. McConnell, Ph.D. Duke; D. D. Miller (Emeritus), Ph.D. Michigan; B. S. Rajput, Ph.D. Illinois; K. C. Roddy1, Ph.D. Indian Institute of Technology; P. W. Schier, Ph.D. Maryland; F. W. Stallmann, Ph.D. Giessen (Germany); W. R. Wade, Ph.D. California (Riverside); C. G. Wagner, Ph.D. Duke.

Associate Professors: D. F. Anderson, Ph.D. Chicago; V. A. Doupalis, Ph.D. Harvard; G. S. Gordon, Ph.D. Wisconsin; K. R. Grobe2, Ph.D. Ohio State; G. A. Klassen, Ph.D. Nebraska; Y. Kuo, Ph.D. Cincinnati; R. H. Row, Jr., Ph.D. Wisconsin; R. J. Rowlett, Ph.D. Virginia; S. M. Smith, Ph.D. California; S. J. Son, Ph.D. California (Berkeley); G. A. Sod1, Ph.D. California (Berkeley); K. Soni, Ph.D. Oregon State; R. F. Soni, Ph.D. Oregon State; K. R. Stephenson, Ph.D. Wisconsin; J. J. Walsh, Ph.D. SUNY (Binghamton).

Professors: V. A. Alexander, Ph.D. Delaware; L. Bales, Ph.D. Cornell; L. Banker, Ph.D. Florida State; J. Cohen, Ph.D. Washington; S. Ellner, Ph.D. Cornell; L. J. Gross, Ph.D. Cornell; O. Karakashian, Ph.D. Harvard; S. L. French, Ph.D. Kentucky; M. Miller, Ph.D. Illinois; S. Mulay, Ph.D. Purdue; H. Simpson, Ph.D. California Institute of Technology; C. Sundberg, Ph.D. Wisconsin.

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

1Space Institute, Tullahoma.

**UNDERGRADUATE**

**Placement Information for Freshman Students:** Courses that students need more than one year of mathematics should plan to take

1. 2840-50-60 (or 2848-58-68) and 3810.

The prerequisites for 1840 (and 1842) are two years of high school algebra, one year of geometry, and one semester of trigonometry or equivalent. Students who present an ACT score below 28 in mathematics are urged to complete 1700 in a way and present an ACT score of at least 28 in mathematics and a high school average of at least 3.00 are eligible for the honors course 1848. Prospective mathematics majors who meet these requirements are strongly encouraged to enroll in 1848. Exceptions to the eligibility criteria for 1848 are possible. Interested students should see the department head in Ayres Hall, Room 124.

The prerequisites for 1540 are two years of high school algebra or one year of algebra and one year of geometry. Students who present an ACT score below 18 in mathematics may take 1540 but are advised to take Math 0110 in the evening school (or equivalent elsewhere), and make at least B, or to make a passing grade in Math 0110 and 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 24 for those who earned at least a B in high school algebra and geometry, and present an ACT score in mathematics of at least 24 are encouraged to omit 1540 and begin with 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 1550 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 2840-50-60 in sequence, fall-winter-spring, each year. In addition to these regularly offered honors courses, the department may subsequently offer honors versions (1848-58-68 and 2848-58-68) of any course in the department whose number has zero as the last digit may be offered in any quarter. In this case, the last digit will be changed to eight and the title will be preceded by the word "Honors" on the timetable and on the student's transcript. These honors courses may be offered upon the initiative of interested faculty, students, or the department head (in all cases subject to the approval of the department head).

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

Advanced Mathematics Courses: Include 3090 and all courses numbered 3140 or above except 3150 and 4170.

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

1. 2840-50-60 (or 2848-58-68) and 3810.

Students who complete 2858...
substitute any 3 hour advanced mathematics course for 3810.
2. One three-quarter sequence (9 hours) from one of the following areas, and one two-quarter sequence (6 hours) selected from a different area:
   a. Combinatorial mathematics: 3780-90; 3810-20
   b. Topology: 3920-30
   c. Algebra: 4050-60, or 4120-50-60, or 4510-60
   d. Numerical mathematics: 4225-35-45, or 4225-35, or 4225-45
   e. Complex analysis: 4250-60
   f. Real analysis: 4510-20-30, or 4510-20; 4610-20;
   f. Probability and statistics: 4580-50-60, 4580-50, 4580-70, or 4570-50;
   g. Differential Equations: 4610-20, 4610-20; 4610-20;
   h. Probability and statistics: 4580-60-70, 4580-60, 4580-70, or 4570-60;

3. Fifteen additional hours of advanced mathematics courses as defined under the heading, Advanced Mathematics Courses above. In satisfying this requirement, a student may substitute not more than 6 hours of courses from the following list, for advanced mathematics courses: Computer Science 4510, 4710; Educational Curriculum and Instruction 3751, 3752, 3753, 3754, 3755, 3756, 3757, 3758, 3759, 3760, 3761; Statistics 3460.

4. Senior seminar, 4910 or 4920.

Honors Program:

All Honors Program in mathematics will consist of at least 27 hours of mathematics courses numbered 4000 or above, except 4710, including at least 6 hours of honors courses (courses numbered such that the last digit is 8). Students who satisfy the major requirements (categories 1 through 4 above) and complete the Honors Program with an overall grade point average of at least 3.4, or 3.6, or 3.8 will be graduated with Honors, High Honors, or Highest Honors in Mathematics, respectively. In exceptional cases, other courses of similar level may be accepted in place of the six hours of honors courses.

A student who wishes to be considered under the Honors Program will apply the quarter before he or she expects to graduate (but in the spring, if graduation is to be in December). The application window for the Honors Program (for fall quarter enrollment) is the 27 hours to be offered, including the honors courses or their proposed substitutes. Students taking more than 27 hours of qualifying courses may select those to be listed. A note of successful completion will be added to the student's transcript.

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

Minor: Consists of 2840-50-60 (or 2848-58-68) and at least 12 hours of advanced mathematics courses, as defined under the heading, Advanced Mathematics Courses. Program Planning for Majors:

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

a. for employment in business or industry, whether in numerical mathematics and computer science, operations research, probability, or any other area requiring training in mathematics;

b. for graduate work, in pure mathematics, applied mathematics, computer science, operations research, or statistics;

c. for teaching, at the school or college level.

d. for careers in business, law, medicine, or any other area requiring training in mathematics.

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

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

1540 College Algebra (4) Sets, real and complex number systems, exponents and radicals, fundamental algebraic operations, theory of equations, polynomial inequalities, relations, functions, graphs. No student who has received credit for Math 140 with a grade of C or better may subsequently receive credit for Math 1540 or 1750. Mathematical concepts from algebra or one year of algebra and one year of geometry. 4 hours per week. No college credit.

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, integral functions, applications of integration. Prereq: 1540 or equivalent. 1560—Determinants, matrices, systems of linear equations and inequalities, Cramer's Rule, linear programming, trigonometric functions, applications, arithmetic and geometric series, simple and compound interest, annuities, exponential and logarithmic functions, law of growth, applications. Prereq: 1550 or equivalent.

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

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

1700 Precalculus Mathematics (4) Function concept and use of functional notation. Properties of functions and their graphs. Polynomial, exponential, logarithmic, and trigonometric functions. 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. Prereq: Two years of high school algebra, and the equivalent of one-half year of trigonometry or taking Mathematics 1900.

1840-50-60 Single Variable Calculus (4,4,4) Functions, graphs, slope of a curve, definition of a derivative, limits, derivatives of algebraic functions, implicit differentiation, related rates, minimum and maximum values, continuity, applications of derivatives, maxima and minima. Indefinite integral, area, definition of definite integral, Fundamental Theorem of Calculus, application of the definition integral, logarithmic, exponential, and trigonometric functions and their derivatives. Techniques of integration, plane analytic geometry, polar coordinates. Must be taken in sequence. NOTE: No student who has received credit for Math 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 year of geometry, and one semester of trigonometry, or equivalent.

1841-51 Calculus for Biological Sciences (4,4) Course for students whose intended major is in an area of the life sciences. Functions, graphs, differentiation and integration of algebraic, exponential functions, applications of the derivative and definite integral, growth curves, Taylor polynomials, Newton's method, applications of the definite integral, differential equations, probability and statistics. Emphasis on applications to problems in the life sciences. Must be taken in sequence.

1842-52-62 Single Variable Calculus with Computer Support (5,5,5) Same coverage of calculus as 1840-50-60 supplemented with computer. Elementary FORTRAN is introduced and applied to problems from following areas: complex and Fourier analysis; numerical quadrature and optimization, application of limits to definition of derivative; approximation via differentials; approximate solution of equations; circular and spherical coordinate systems; Green's and Newton's method; rectangular, trapezoidal, Simpson's rule; limits of numerical integration, Euler's method for initial value problems, applications to problems in high school algebra, one year geometry, and one semester of trigonometry or equivalent.

1848-58-68 Honors: Single Variable Calculus (4,4,4) Honors course for students planning to attend graduate school or enter the professions. Prereq: C or better in 1840. Additional problem sets and exams. Prereq: C or better in 1840 or 1848, 1840-50-60 during the junior or senior year. Special sections of 1848 will be made available for students who perform well in 1840. Must be taken in sequence.

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

2012 Basic Concepts of Elementary Mathematics (4) Sets, theory of arithmetic operations, elementary probability and statistics, problems in the life sciences, applications to problems from various fields, elementary analytic geometry. Applications. May not be taken for credit after or concurrently with 1540, 1550, 1650, 1640, 1648, 1700, or 2440. Prereq: C or better in 1540.

2110-20-30 Structure of the Number System (3,3,3) 2110—Set theory, whole numbers, integers. 2120—Inverses, order properties, rational numbers. 2130—Elementary number theory, rational and irrational numbers. Euclidean geometry. Must be taken in sequence. Prereq: 1 year of high school algebra and at least one year of high school mathematics (other than algebra). Secondary education students. Prereq: 1 or 2.

2215 Discrete Structures (3) Prereq: 1620 and Math 1550. (Same as Computer Science 221.)

2610 Introduction to Differential Equations (2) Variables separable, homogeneous, exact, and linear first order equations, integrating factors. Second order linear equations with constant coefficients. Prereq: 1860.


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

Prerequisites: If specific courses are listed below as prerequisites, equivalent preparation satisfactory to the instructor will be accepted as substitute. Graduate standing is prerequisite to enrollment in courses numbered above 4510. Undergraduates working towards a major in mathematics with a view to taking advanced work are strongly advised to include 4510-20-30 and 4510-50 during the junior or senior year.

3000 Elementary Quantitative Methods (4) Elementary course designed to prepare students in social and life sciences for quantitative courses in their department. Treats basic topics in probability and statistics with an emphasis on applications. Must be used to meet requirements for majors or minors in mathematics, nor is it available for credit to students in College of Business Administration.

3050 Elementary Probability and Statistical Analysis (3) Combinatorial problems; sample spaces, sets,
The Department of Mathematics offers four advanced degrees. In order to be a candidate for any one of these the student should have completed certain standard topics such as elementary set theory, relations and generating functions, graph theory, finite geometries and finite fields, partitions, block designs. Prereq: Math 2860 or equivalent.

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 seminar setting. Variable content will include certain standard topics such as elementary set theory, relations and functions, and mathematical induction. Coreq: Math 3100 or consent of instructor.

3861 Mathematical Models in the Life Sciences (3) Introduction to difference equations and differential equations. Mathematical modeling techniques applied to biological phenomena. Prereq: Math 1841-51 or consent of instructor. Does not satisfy the requirements of a major or minor in mathematics.

3920-30 Topology of Euclidean Spaces (3,3) Topics will include topology of line and plane, separation properties, compactness, connectedness, completeness, continuous functions, homeomorphisms, compactness, and topological invariants. Must be taken in sequence. Prereq: 3810 or 2860 or consent of instructor.

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

4050-60 Matrix Algebra and Applications (3,3) Vector spaces, linear transformations and their matrices, systems of linear equations and determinants, inner products, and diagonalization of symmetric matrices. Prereq: 2860 or 4050.

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

4225 Numerical Solution to Equations and Numerical Approximations (3) Introduction to computation, rounding errors, solving linear systems, eigenvalues and eigenvectors. Prereq: 2860 or 4050.

4235 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 size and stiff systems. Boundary value problems. Prereq: 3150 or 3155 or 4610 or 4225. (Same as Computer Science 4225.)

4245 Numerical Linear Algebra (3) Review of vector and matrix operations, property of eigenvalues and eigenvectors, iterative methods for large, sparse problems. Orthogonal decompositions, least squares, and algebraic eigenvalue problems. Prereq: 3150 or 3155, or 4050. (Same as Computer Science 4245.)

4250-40 Introduction to Complex Analysis (3,3) Complex numbers, Cauchy-Riemann equations, Cauchy's theorem, Taylor and Laurent series, residues in the complex plane. Variable content: Complex mapping, Schwarz-Christoffel transformations, the Dirichlet problem, applications (steady temperature, electrostatics, fluid flow), additional topics in complex function theory. Must be taken in sequence. Prereq: 2860; one 4000-level mathematics course recommended.

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

4540 Infinite Series and Functions of Several Variables (3) General theory, power series and Taylor's formula, expansions. Prereq: Current or completed course in partial differentiation and maxima and minima for functions of several variables. Lagrange multipliers. Prereq: 2860.

4550 Partial Differential Equations (3) Fourier series; Fourier integral; orthogonal functions; the vibrating string - solution by separation of variables. Legendre polynomials, spherical harmonics, Bessel functions. Prereq: 2860, 4510 or 4710 recommended.


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

4650-60-70 Introduction to Mathematical Statistics (3,3,3) 4650—Introduction to probability. Probability distributions; sampling theory; confidence intervals. Prereq: 3810 or 2868 or consent of department head. Independent study. Some courses may require consent of department head. Maximum credit 9 hours. Prereq: Consent of department; maximum credit 9 hours. Prereq: Consent of instructor.

4760-Expository Writing in Mathematics (3) Great mathematicians and events; statistical independence, bimodal, Poisson, hypergeometric, and normal distributions. 4760—Expectation, conditional expectation, and characteristic function of random variables, infinite sequences of random variables, the weak and strong laws of large numbers, and the central limit theorem. 4770—Markov chains; limiting probabilities; steady-state and stationary distributions. Substitution methods. 4780—Direct and death processes; Kolmogorov equations. Prereq: Math 2860-4050.

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

4750-60-70 Introductory Probability Theory (3,3,3) 4750—Elementary combinatorial analysis, probability in discrete sample spaces, conditional probability and stochastic independence, binomial, Poisson, hypergeometric, and normal distributions. 4760—Expectation, conditional expectation, and characteristic function of random variables, infinite sequences of random variables, the weak and strong laws of large numbers, and the central limit theorem. 4770—Markov chains; limiting probabilities; steady-state and stationary distributions. 4780—Direct and death processes; Kolmogorov equations. Prereq: Math 2860-4050.

4810 Elementary Number Theory (3) Divisibility; congruences; theorems of Fermat and Wilson, primitive roots, and congruences; theorems of Euler and Lagrange. Prereq: 1 year of college mathematics. Does not satisfy the requirements of a major or minor in mathematics.

4910 Senior Seminar (1-3) See page 185.

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

4990 Studies in Mathematics (1-4) 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 superior 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; student may earn a maximum of 4 credit hours from 4910 and 4920 combined. Prereq: Senior standing.

GRADUATE

The Department of Mathematics offers four advanced degrees. In order to be a candidate for any one of these the student...
4103 Independent Study (1-16) See page 345. 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 Biological Physiology 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, rickettsia, and chlamydia. Prereq: 3200.

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

4330 Medical Mycology (3) Disease causing fungi: cytology, physiology, pathogenesis, 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, assembly and expression of viruses, with emphasis on bacteriophage. Prereq: 3700.

4430 Medical Virology (3) 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: 3519; coreq: 4430.

4909 Laboratory Projects 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 5 hours may be used toward a major in microbiology. May be repeated. Maximum credit 12 hrs.

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

GRADUATE

5000 Thesis

5002 Non-Thesis Graduation Completion (3-15)

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

5130 Topics in Taxonomy (3)

5310 Selected Topics in Microbiological Research (3)

5320 Advanced Microbiology for Secondary Education Instructors (4)

5360 Topics in Immunology and Immunohematology (4)

5411-12-13-14-15-16 Clinical Microbiology (6,6,6,6,6,6)

5510-20-30 Research Problems (3,3,3)

5720 Microbial Physiology (3)

5730 Pathogenesis of Infectious Disease (3)

5750 The Oncogenic Viruses (3)

5760 The Bacterial Viruses (3)

5819 Molecular Genetics Laboratory (3)

5820 Microbiology of Foods (3)

5829 Experimental Microbial Ecology (3)

5850 Seminar in History of Microbiology (1)

5910-20-30 General Seminar (1,1,1)

6000 Doctoral Research and Dissertation (3)

6310 Seminar in Immunology (1)

6230 Seminar in Microbial Pathogenesis (1)

6330 Seminar in Microbial Physiology (1)

6340 Seminar in Microbial Genetics (1)

6350 Seminar in Virology (1)

6360 Seminar in the filamentous fungi (1)

6370 Current Topics in Environmental Microbiology (2)

6410 Concepts of Immunity (3)

6420 Current Topics in Biological Membrane Research (1)

6720 Advanced Microbiology in Pathological Physiology (3)

6730 Advanced Microbiology in Microbial Pathogenesis (3)

6740 Advances in Virology (3)

6760 Advanced Topics in Microbial Genetics (3)

6810-20-30 Problem Seminar (1,1,1)

Medical Technology (669)

Courses in this major are open only to qualified students who have completed the first three years of the Science-Medical Technology Curriculum, described on page 178, and who have been approved by the Pre-Medical Advisory Committee.

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

4021-22 Clinical Chemistry (6,6) Clinical aspects of chemistry, including overview of principles and instrumentation related to the qualitative and quantitative evaluation of cellular elements of blood and other body fluids; factors of hemostasis; quantitative chemical analysis of urine, and renal function studies. Emphasis is placed on microscopic identification of cells and the significance and correlation of laboratory data.


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

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

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

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

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

Music (698)


The Department of Music offers curricula leading to the Bachelor of Music degree, which is designed to prepare students for graduate study and for professional positions, and the Bachelor of Arts degree with a major and minor in Music, designed for those
students whose interests are strong but essentially non-professional. Information regarding requirements for the B.M. degree may be found on page 151. The requirements for a major and minor are as follows:

Major:
(a) Concentration in Applied Music—Consists of 24 hours in courses numbered 2000-5000 and above, distributed as follows: Music 2300, 12 hours in applied music and 9 hours in music electives. Prerequisites are Music 1000 or equivalent and three quarters of applied music study at the 1500-1599 levels.
(b) Concentration in Music History and Literature—Consists of 24 hours in courses numbered 2000 and above, distributed as follows: Music 2300, 12 hours in Music History and Literature courses and 9 hours in music electives. Prerequisites are Music 1000 or equivalent and three quarters of applied music study at the 1500-1599 levels.

Minor:
(a) Concentration in Applied Music—Consists of Music 2000, 2111-21-31, 2310-20-30-40, and 18 upper-division hours in music history and literature. Prerequisites are the same as those for the major.
(b) Concentration in Music History and Literature—Consists of Music 2111-21-31, 2310-20-30-40 and 18 upper-division hours in music history and literature. Prerequisites are the same as those for the major.

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

GENERAL
1000 Fundamentals of Music Theory (3) Theory and practice of basic elements of music. 3 hours.
1010-20-30-40-50-60 Class Piano (1,1,1,1,1,1) For music and music education majors only. Must be taken in sequence. Course may be waived by successful completion of Piano Competency Examination. Waived courses must be substituted with an equivalent number of quarters of study in Music 1580 or above.
1015 Class Voice (1) Development of basic vocal skills. May be repeated for credit.
1085-95 Class Guitar (1,1) Must be taken in sequence. Prereq: Consent of instructor.
2000 Solo Class (0)
2010 Introduction to Musical Theatre Technology (3) Stage technology unique to lyric stage.
2020 Vocal Techniques in Popular Music (1) Development of performance techniques in Broadway and other contemporary music styles. Prereq: Consent of instructor. May be repeated for credit.
2055-65-75 Diction for Singers (2,2,2) Sounds by phonetic symbols. Opera and art songs used for examples. Performance practice.
2071-81-91 Church Service Playing I (1,1,1) Practical skills applicable to the use of the organ in church services, including keyboard harmony, improvisation, hymn playing, and accompanying on the organ. Prereq: 1131 and 6 hours in organ.
2199 Techniques of Sound Recording (3) Theory and applications of tape recording. Topics include room acoustics, microphones, processing, noise reduction, mixing, editing, dubbing, and recorder maintenance.
2200 Introduction to Music Literature (3) Acquaintance with basic concepts and accepted methods of music through chronological approach. For music majors and minors only.
2810-20 Jazz Piano (1,1,1,1,1,1) Harmonic language of jazz; interpretation of chord symbols, formule for voicing chords, chord progressions, and fundamental melody-playing and improvisation for right hand. Must be taken in sequence. Prereq: 1010-20.
3000 Junior Recital (0)
3012-22-32 Song Literature (2,2,2) Study of literature from 1750 to present with emphasis on performance practices. closet, Classical, and Romantic German art song; 3022—French and Russian songs; 3032—Late German and contemporary songs. Prereq: 2075 and consent of instructor.
3014-24 Woodwind Literature (2,2) Prereq: Consent of instructor.
3015 Percussion Literature (1) Prereq: Consent of instructor.
3018 Introduction to Styles in Jazz Drumming (2) Examination and study of major composers and performers who have contributed significantly to creation of principal styles of jazz drumming.
3052-63 Jazz Improvisation (2,2) Study and application of principles of improvisation, including nomenclature, chord progressions, chord-scales, patterns, melodic development, and free form devices. Prereq: Consent of instructor. 2 hours and 1 lab.
3044-54 Brass Literature (2,2) Prereq: Consent of instructor.
3070 Opera Production (1-3) Supervised work on opera productions. May be repeated for credit. Prereq: Consent of instructor.
3071-81-91 Church Service Playing II (1,1,1) Continuation of Music 2071-81-91, which is prereq.
4000 Senior Recital (0)
4002 Suzuki Piano Method (2) Study of the psychology, procedures, and literature of the Suzuki piano method. Prereq: Consent of instructor.
4007-17-27 String Techniques (1,1,1) Problems of string playing, development of string techniques, styles and interpretation, program building. Prereq: Consent of instructor.
4009-19-29 Talent Education Program of S. Suzuki (2,2,2) Prereq: Maximum credit 12 hours. Prereq: Consent of instructor.
4010-20-30 Piano Techniques (1,1,1) Problems of piano playing; development of piano technique; style and interpretation; program building. Prereq: Consent of instructor.
4012-22-32 Principles of Vocal Pedagogy (1,1,1) Examination and evaluation of concepts and approaches to teaching singing (past and present) and related teaching materials. Collaborative laboratory experiences accompany the study. Prereq: Consent of instructor.
4036-37-38 Advanced Piano Literature (2,2,2) Piano music from preclassical period to present. Prereq: Consent of instructor.
4041 Styles in Opera Acting (3) Study and practice of styles in opera acting based on historical and national characteristics. Prereq: 3015 or consent of instructor.
4050 Advanced Instrumental Conducting (3) Development of knowledge and skills in instrumental conducting; study of various periods and composers and relationship of different styles to the conductor's art; musical analysis and practice in conducting. Prereq: Music Ed. 4430 or equivalent.
4055-56-57 Elementary and Intermediate Piano Pedagogy (2,2,2) Examination and study of piano methods and materials designed for teaching precollege level students. Prereq: Consent of instructor.
4060 Choral Techniques (3) Techniques and methods involved in producing total choral program.
4074-44 Church Music Seminar (3,3) History and philosophy of church music; church music administration. Prereq: Consent of instructor.
4085 Harpsichord Techniques (1,1) Study of the harpsichord, technique, performance practice, and use of its technique and function. Prereq: Consent of instructor.
4091 Special Topics in Performance (1-3) Prereq: Consent of department head. May be repeated. Maximum credit 6 hours.
4400 Jazz Directing (1) Techniques of arranging for jazz ensembles; special conducting techniques, repertoire, library systems, programming, and supervised laboratory experience in rehearsing university jazz ensembles. Prereq: Consent of department head. May be repeated. Maximum credit 3 hours.
4480 Jazz Pedagogy (1) Methods and materials relating to teaching of jazz and administering of jazz programs. Prereq: 3052-63. May be repeated. Prereq: Consent of instructor.
4860 Advanced Improvisation (2) Focus on further development of individual skills and solving individual problems in jazz improvisation. Prereq: Music 3052-63.
MUSIC THEORY AND COMPOSITION
1111-21-31 Theory (3,3,3) Materials of music with emphasis on literature of Baroque, Classic, and Romantic periods. Exercises in writing and analysis. Must be taken in sequence.
1113-23-33 Sight Singing and Ear Training (1,1,1) Should be taken concurrently with 1111-21-31. Must be taken in sequence. 2 hours per week.
1199 Fundamentals of Music Composition (3) Melodic invention in simple forms. May be repeated. Maximum credit 4 hours. Prereq: Consent of instructor.
1400 Analysis of Jazz Styles (2) Individual improvisation techniques by style of analysis of transcribed solos. Training and function of ear in music. Transcription of solos from recordings and preparation of analyses. Prereq: Consent of instructor.
2111-21-31 Theory II (3,3,3) Materials of music with emphasis on literature of contemporary periods. Exercises in writing and analysis. Must be taken in sequence. Prereq: 1131 or 1136 or consent of instructor.
2113-23-33 Advanced Ear Training (1,1,1) Should be taken concurrently with 2111-21-31 or 2118-28-38. Must be taken in sequence. 2 hours per week.
2118-28-38 Honors: Theory II (4,4,4) Materials of music with emphasis on literature of Romantic and contemporary periods. Exercises and projects in writing and analysis. Prereq: 1138 or placement examination.
3062-63-64 Sight Reading at the Piano (1,1,1) Prereq: Consent of instructor.
3111-21-31 Tonal Counterpoint (3,3,3) Counterpoint techniques of 18th century, with emphasis on works of J. S. Bach. Must be taken in sequence. Prereq: 2131 or 2138.
3112 Instrumentation (3) Basic techniques in scoring for voices; brass, woodwind, and string choirs; and percussion. Prereq: 2131 or 2138.
3113 Analysis I (3) Study and practice in analysis of structures of music from smallest structural units to large compound structures and macroanalytic techniques. Prereq: 2131 or 2138 or equivalent.
3122 Orchestration (3) Advanced techniques in instrumental writing with emphasis on scoring for the
3271-16 History of Opera (3,3) Study of music history, with emphasis on the Italian, French, and German Schools. 3271-81 History of Opera (3,3) Dramatic, vocal, and instrumental music from 1600 to the present. 3281-1800-1900. 3240-20 Orientation to Ethnomusicology (3,3) Basic attitudes and techniques of ethnomusicology. 3260 Chamber Music (3) Survey of chamber music from death of Bach to present. 3260-20 Orientation to Ethnomusicology (3,3) Basic attitudes and techniques of ethnomusicology. 3280 Chamber Music (3) Survey of chamber music from 1750 to present. 3271-16 History of Opera (3,3) Dramatic, vocal, and orchestral elements in opera of Italian, French, and German Schools. 3271-1600-1800. 3281-1800-1900.

3340 Oratorio (3) Choral works other than those appropriate for use in church.

3350 Introduction to Afro-American Music (3) History of African music, blues, gospel music, and jazz with emphasis on Black artists and their contributions.

3360 Evolution of Jazz (3) Study of origin, development, and styles of jazz music and its exponents.

4003-04-05 The Organ and Its Literature (3,3,3) The development of the organ and organ literature from the Middle Ages to the present; problems of style and interpretation; pedagogical literature and methods; organ design. Prerequisites: Coreq or coreq: 3210-20-30-40 and consent of instructor.

4200 Independent Study in Music History and Literature (1-3) May be repeated for credit. Prerequisites: Consent of department head.

4205 Survey of Music History (3) History of music with emphasis on genres, style changes, and cultural forces. Covers the Western European tradition from 400 to 1800. Recommended as a review course for graduate students. Prerequisite: Consent of instructor.

421 American Music (3) American music from colonial times to present. Emphasis on 20th century. Includes both folk and cultivated traditions. Prerequisite: 1210-20 or equivalent.


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

4315 Wind Chamber Music (3) Study of wind chamber music from 18th through 20th century. Emphasis placed on style interpretation, rehearsal techniques, programming, and musical significance, both historical and theoretical.

4340-50 Works on Bach (3,3) Detailed examination of sonatas, chamber, keyboard, and orchestral works; cantatas, motets, Passions, and oratorios. 4340—instrumental works; 4350—vocal works.

APPLIED MUSIC

Applied study is classified as Principal or Secondary. Students studying their principal (major) instrument register for credit appropriate to their program, 2-4 credit hours. Students studying a secondary instrument register for 1-2 credit hours. Specialty study under a principal instrument register for 1-2 credit hours. Non-music students will be accepted at the secondary level if they meet audition requirements established by area faculty. Non-music students will be accepted at the principal level if they meet audition requirements at that level. Course level and credit hours will be determined by the applied faculty.

All students studying applied music at the principal level are required to register for Music 2000 Solo Class. The requirements for this course are to attend scheduled concerts, recitals, master, repertoire, and solo classes, and to perform at least once each quarter as partial fulfillment of applied music credit requirements.

Applied Music Fees: $20 per quarter for half-hour lesson (1 credit hour) $40 per quarter for hour lesson (2-4 credit hours)

Computer registration and applied music fee payment must be verified in the Department of Music office no later than the end of the second day of classes of the fall, winter, and spring quarters and the first day of the summer terms in order to be accepted for applied music study.

Applied music fees are not refundable after lessons have been scheduled.

1500-2500-3500-4500-5500 Flute (1-4) May be repeated for credit.

1505-2505-3505-4505-5505 Oboe (1-4) May be repeated for credit.

1510-2510-3510-4510-5510 Bassoon (1-4) May be repeated for credit.

1515-2515-3515-4515-5515 Clarinet (1-4) May be repeated for credit.

1520-2520-3520-4520-5520 Saxophone (1-4) May be repeated for credit.

1525-2525-3525-4525-5525 Horn (1-4) May be repeated for credit.

1530-2530-3530-4530-5530 Trumpet (1-4) May be repeated for credit.

1535-2535-3535-4535-5535 Trombone (1-4) May be repeated for credit.

1540-2540-3540-4540-5540 Baritone (1-4) May be repeated for credit.

1545-2545-3545-4545-5545 Tuba (1-4) May be repeated for credit.

1550-2550-3550-4550-5550 Percussion (1-4) May be repeated for credit.

1555-2555-3555-4555-5555 Voice (1-4) May be repeated for credit.

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

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

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

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

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

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

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

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

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

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

A student's preference for musical organization will be honored whenever possible, but factors considered in making the assignment will include playing ability, specific needs of various organizations, and previous performance experience at the University.

3500-5600 Small Ensemble (1,1) May be repeated for credit.

3600-5601 Wind Ensemble (1,1) May be repeated for credit.

3602-5602 Brass Choir (1,1) May be repeated for credit.

3604-5604 Jazz Ensemble (1,1) May be repeated for credit.

3606-5606 Trombone Choir (1,1) May be repeated for credit.

3607 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 for credit. (Also 5611)

3612-5612 Baroque Ensemble (1,1) May be repeated for credit.

3620-5620 UT Singers (1,1) May be repeated for credit.

3630-5630 Chamber Singers (1,1) May be repeated for credit.

3632-5632 Collegium (1,1) May be repeated for credit.

3634-5634 Saxophone Choir (1,1) May be repeated for credit.

3640-5640 Opera Theatre (1,1) May be repeated for credit.

3642-5642 Opera Workshop (1,1) May be repeated for credit.

3650-5650 Concert Band (1,1) May be repeated for credit.

3652-5652 Campus Band (1,1) May be repeated for credit.

3654-5654 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.

3687-5687 Women's Chorus (1,1) May be repeated for credit.

3699-5699 Accompanying (1,1) May be repeated for credit.

RADUATE

C. The Department of Music offers the Master of Music degree in performance, composition, and musicology and music theory. See strings and instrumental requirements in the Graduate Catalog for admission and the Q. requirements degree basis.

5000 Theoricon Conducting Project (1-3)

5001 Choral Conducting Graduation Completion (3-15)

5002 Non-Therapeutic Seminar (3)

5010 Organ Literature of Voice (2,2,2)

5012-22-32 Pedagogy Seminar (3)

5020 Piano Literature Seminar (3)

5030 Choral Literature for Singers (2,2,2)

5033-34-35 Advanced Seminar (3)

5040 Vocal Literature of Voice (2,2,2)

5041-42-43 Vocal Literature (3)

5050 Graduate Recital Project (3)

5051 Opera Performance (3)

5052 Vocal Chamber (3)

5054 Lecture-Recital Project for Instrumental Conductors (1,1)

5055-56 Practicum for Conducting (1,1)

5057 Instrumental Conducting Seminar (3)

5060 Seminar in Choral Conducting (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)

5114 History of Music Theory (3)

5116 Musical Styles (3)

5121 Theoretical Techniques (3)

5125 Practicum in Computers and Music Research (3)

5150 Seminar in Music Theory (3)

5200 Independent Study in Music Theory (1-3)

5210 Introduction to Music Research (3)

5220 Music Bibliography (3)

5270 Composer Seminar (3)

5316 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)

5357 Music in the Romantic Period (3)

5359 Music in the Twentieth Century (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; R. E. Aquila, Ph.D. Northwestern; L. B. Celik, Ph.D. Nebraska; R. B. Edwards, Ph.D. Emory; G. D. Gruber, Ph.D. Michigan; 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. Nolt, M.A. Ohio State; S. J. Reaven, Ph.D. California (Berkeley); J. W. Summers, Ph.D. Tulane.

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

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

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

UNDERGRADUATE

Major: 36 hours in courses numbered 2000 and above. Majors should discuss their programs 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.


1510 Introduction to Philosophy: Human Nature and Values (4)

1520 Introduction to Philosophy: Consciousness and Reality (4) May be taken before 1510.

1600 Topics in Philosophy (4) May be repeated once for credit.

2310 Elementary Ethics (4) Theories of ethical values.

2410 Art and Experience (4) Introduction to various understandings of art.

2540-20 Elementary Logic (4,4) 2510—Traditional or modern deductive logic, informal fallacies, uses of
language, definitions. (3810 is recommended as introductory for students with mathematical aptitude.) 2520—Inductive reasoning, elements of scientific method, and statistical inference.

3111 Ancient Western Philosophy (4)
3121 Medieval Philosophy (4)
3131 Seventeenth- and Eighteenth-Century Philosophy (4)
3141 Nineteenth-Century Philosophy (4)
3151 Contemporary Philosophy (4)
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.
3330 Philosophy of History (4) Speculative and critical aspects of philosophy of history.
3410 Philosophical Ideas in Literature (4) Philosophical assumptions and implications in major literary works.
3420 Philosophy of Literature (4) Study of the nature, function, value, and epistemic principles of literary arts.
3430 Concepts of Woman (4) Examination of some of the theoretical functions of feminism and antifeminism.
3440 Social Ethics (4) Ethical theory as related to politics, economics, education, law, religion, and the family.
3510 Existentialism (4)
3550 Marxism as Philosophy (4)
3570 Social and Political Philosophy (4) Philosophical problems relating to nature and justification of social policies and institutions.
3590 Business Ethics (4) Ethical problems as they confront both business as a social institution and individuals in business.
3611 Medical Ethics (4) Explores ethical issues in medicine such as abortion, euthanasia, human experimentation, fairness in health care delivery and the doctor-patient relationship. (Same as Religious Studies 3611)
3650 Philosophy and Religion in India (4) (Same as Religious Studies 3650)
3660 Buddhist Philosophy and Religion (4) (Same as Religious Studies 3660)
3671 Religion and Philosophy in China (4) (Same as Religious Studies 3671)
3690 Philosophy of Religion (4) Analysis of basic issues of religion. (Same as Religious Studies 3690)
3740-50 Conceptual History of Science (4,4,4) 3740—The Scientific Revolution: Historical evolution of thought in astronomy, mechanics, and philosophy of nature up to Newton. 3750—The development and decline of Newtonian science: historical evolution of thought on the nature of matter and of light, and on that of life. Prereq: 8 hours of physical science or consent of instructor.
3770 Introduction to Philosophy of Science (4) Standard topics in philosophy of science: scientific method, nature of laws and theories, problem of induction, explanation, measurement. No background in logic is presupposed.
3810 Introductory Symbolic Logic (4) Techniques for formal analysis of deductive reasoning (propositional logic and quantification theory).

4000 Special Topics (4) A student-or instructor-initiated course to be offered at convenience of department. Subject matter to be determined by mutual consent of students and instructor with approval of department. Prerequisites to be determined by department. May be repeated for credit.
4101 Foreign Study (1-16) See page 185
4102 Off-Campus Study (1-16) See page 185.
4103 Independent Study (1-16) See page 185.
4111-21 Modern Religious Philosophies (4,4,4) (Same as Religious Studies 4111-21).
430 Intermediate Ethics (4) Topics in meta-ethical ethics.
4370 Theoretical Issues in Medical Ethics (4) 4370—Prereq: 2210 or 3811 or consent of instructor. (Same as Religious Studies 4370)
4410 Plato (4) Prereq: 8 hours of philosophical or consent of instructor.
4420 Aristotle (4) Prereq: 8 hours of philosophical or consent of instructor.
4450 Continental Rationalism (4) Prereq: philosophy or consent of instructor.
4460 British Empiricism (4) Prereq: philosophy or consent of instructor.
4470 Kant (4) Prereq: 8 hours of philosophical or consent of instructor.
4480 Advanced Topics in Epistemology (4) Prereq: 8 hours of philosophical or consent of instructor.
4511 Advanced Topics in Logic (4) Prereq: Consent of instructor.
4620 Philosophy of Mind (4) Prereq: 8 hours of philosophical or consent of instructor.
4630 Philosophy of Language (4) Prereq: 8 hours of philosophical 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
5002 Non-Thesis Graduation Completion (3-15)
5080 Symbolic Logic (4)
5101 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 European Philosophy (4,4,4,4,4,4)
5250 Studies in the History of American Philosophy (4)
5310-20-30 Studies in Value and Normative Theories (4,4,4)
5355 Orientation to Medical Ethics (2)
5365 Applied Ethical Theory (4)
5370 Topics in Medical Ethics (4)
5375 Clinical Medical Ethics (4)
5410 Philosophy of History (4)
5430 Philosophy and Literature (4)
5450 Problems of the Self (4)
5460 Philosophy of the Mind (4)
5510-20 Studies in Epistemology (4,4)
5560-60 Philosophy of Science (4,4)
5590 Recent Developments in Philosophy of Religion (4)
5710 Studies in Metaphysics (4)
5810 Social and Political Philosophy (4)
5840 Lakeshore Clinical Residence (6)
5850 Clinical Practicum in Medical Ethics (4-12)
5860 Doctoral Research and Dissertation
5910-20-30 Seminars in History of European Philosophy (4,4,4)
5910 Seminar in History of American Philosophy (4)
5920 Seminar in Philosophy of Religion (4)
5930 Seminar in Axiology (4)
5970 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.
Prerequisite for the minor is Mathematics 1840-50 and Chemistry 1110-20. The physical sciences minor is designed particularly for students majoring in one of the biological sciences and/or preparing for graduate study in a biological science or medicine.

Math 2840 is a prerequisite for these courses.

Physics and Astronomy

Astronomy (150)

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

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


Physics (773) UNDERGRADUATE

The undergraduate program in physics is designed to give the student a wide background which will permit ready specialization in various areas such as nuclear physics, solid state physics, high energy physics, molecular physics, etc. Learning in physics is urged to consult advisers in the Department of Physics prior to registration in freshman year with regard to selection of proper first course in physics.

Major: Physics 1318-28-38 and Math 1840-50-60 are prerequisites to a major in physics which includes the following courses: Physics 2318-28-38, Math 2840-50-60, Physics 3210-20; either Physics 3710-20-30 or 3730-20-30, and at least six hours from 3610-20 or 4220-40 4510-20-30, 4540-50. Physics 1310-20-30 or Basic Engineering 1310-20-30 may be substituted for Physics 1318-28-38 and Physics 2310-20-30 may be substituted for Physics 2318-28-38 as a graduation requirement. Transfer students from other schools or departments may substitute 2510 and 1330 for 1310-20-30 or 1318-28-38.

A major in physics with a concentration in health physics includes Physics 2310-20-30 or 2318-28-30, 3210-20, 3710-20-30, 4210-20, 4710-20-30, and Math 2840-50-60. It is suggested that students also take Chemistry 1110-20-30, 3211-21-31, 3219-29-39, and 12 hours of an approved biological science.

Minor: A minor in physics shall consist of Physics 2110-20-30 or 2318-28-38 and 15 hours from physics and astronomy courses numbered 3000 and above. Substitution provisions in the major statement also apply to the minor.

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

1210-20-30 Introductory Physics (4,4,4) General course for students whose major falls outside the physical sciences. Concepts of physics developed by observation of phenomena and logic rather than mathematical means. In second quarter: vectors, statics, forces on particles. In third quarter: mechanics, heat, and energy. In second quarter wave motion, sound, electricity and magnetism, and light. In the third quarter: waves and optics, modern physics. It is recommended that the courses be taken in sequence. 1210-20 represent a survey of classical physics. 1218-28-38 is recommended as an introduction to the discipline for liberal arts non-science majors.

1310-20-30 Fundamentals of Physics: Mechanics and Heat (4,4,4) First course in physics for engineers and liberal arts majors in mathematics and the physical sciences. Basic Engineering 1310-20-30 is equivalent for graduation purposes. Must be taken in sequence. Coreq: Math 1840-50-60. 3 hours of lecture; 2 hours of lab.

1318-28-38 Honors: Fundamentals of Physics: Mechanics and Heat (4,4,4) Honors course designed for physics and engineering physics majors and for qualified 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) Introduction to concepts and principles of physical sciences which enables a student to establish a unified picture of the physical universe. In the first two quarters: principles of mechanics, electricity, and wave motion are developed and applied to such varied fields as solar systems, atomic and molecular behavior, radiation in the electromagnetic spectrum and in the earth's crust, and to stellar and galactic phenomena. In the third term: new principles are applied in electricity and magnetism, more detailed study of topics as nuclear energy, cosmology, atmospheric and oceanic phenomena, drifting continents, and science and society. May be taken out of sequence only with consent of instructor. 4 hours including demonstration lab.

1450 Physics of Athletic Activity (4) Principles of physics, particularly mechanics and heat, are introduced. Discussion of these ideas will emphasize their role in physical activities, particularly sport-related. Coreq: Sports Science 2200. 4 hours lecture and demonstration.

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

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 of laws to be applied in pre-medical, pre-dental, pre-pharmacy, and pre-veterinary programs. May be taken with prerequisites Math 1840-50-60 or Math 1845-50 (or equivalent honors courses). 3 hours of lecture and 3 hours of lab.

2240-50-60 Elements of Physics for Architects (4,4,4) 2240—Statics, dynamics, properties of fluids; coreq: Math 1840 or 1550. 2250—Heat and thermodynamics, sound and wave motion, optics; coreq: Math 1850 or 1560. 2260—Electricity and magnetism, alternate energy topics. Basic physical principles with applications particularly appropriate in architecture. Limited to students in School of Architecture. Should be taken in sequence. 3 hours of lecture. 3 hours of lab.

2310-20-30 Fundamentals of Physics: Electricity, Waves and Optics, Modern Physics (3,3,3) Required of all engineering students. 2310—Electricity, 2320—Waves and Optics, 2330—Modern Physics. Must be taken in sequence. Prereq: 1310-20-30 or Basic Engineering 1310-20-30, or Physics 2310; coreq: Math 2840-50-60. 3 hours of lecture, 2 hours of laboratory and recitation per week.

2318-28-38 Honors: Fundamental Physics: Electricity, Waves and Optics, Modern Physics (4,4,4) Honors course designed for selected students admitted on basis of Honors core and in 1318-28-38, 1310-20-30, and Engineering 1310-20-30; 2318—Electricity; 2328—Waves and Optics; 2338—Modern Physics. Coreq: Math 2840-50-60. 3 hours of lecture-discussion, 2 hours of lab per week.

2510 Mechanics (5) Statics, kinematics, Newton's laws, momentum, rotation. 4 hours of lecture-recitation. 1 lab. Prereq: Math 1840-50-60 or equivalent. 2510 satisfies prerequisites for Physics 2310, although physics major should also take Physics 1330 as a prereq to the mechanics sequence.

2510-20-50 Mechanics (3,3,3) 2510—Statics, kine-matics and dynamics of a particle; 2520—Statics, kinematics, and dynamics of systems of particles and rigid bodies; 2530—Lagrangian and Hamiltonian equations of motion. Must be taken in sequence. Prereq: 2320 and Math 2860.

3230 Heat and Thermodynamics (3) Concepts of temperature and heat; laws of thermodynamics; applications of laws to temperature and chemical properties. Prereq: 2320 or 2330 and calculus, 3210-20 or instructor's consent.

3610-20 Electronics (3,3) Electronic components and circuits of interest to physicists. Prereq: 2310-20-30 or Math 1840-50-60. 3 hours of lecture, 1 lab.

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: 361020.


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


4140 Elementary Nuclear Physics (3) General properties of nuclei, two-nucleon systems, nuclear forces, nuclear models, nuclear reactions, nuclear disintegrations and beta-decay, nuclear spin and magnetism. Prereq: 3730 or 4120.

4160 Physical Acoustics (4) Considerations fundamental to detailed investigation of any branch of acoustics: propagation of acoustic waves in the in- trasonic, the audible, the ultrasonic, and the hyper-sonic ranges of frequencies. 3 hours and 1 lab. Prereq: 3100 or 3110.

4120-30 Electricity and Magnetism (3,3,3) Intermediate level electrostatics; steady and alternating currents; laws of electromagnetism; Maxwell's equations; radiation, reflection, refraction; electromagnetic fields of moving charges. Must be taken in sequence. Prereq: 2320 or 2250 and Math 2860.

* Or equivalent honors courses.
4230-40 Modern Optics (4,4) Geometrical optics: reflection and transmission of light at a dielectric interface; paraxial theory of interfaces, lenses, and mirrors; wavefronts, rays, lenses, lens systems, ray tracing; polarization; imagery; laser light. 4240—Physical optics: mathematics of wave motion, superposition of waves, interference: Fraunhofer and Fresnel diffraction; Fourier optics: holography. Prereq: 4210 or consent of instructor. 3 hours of lecture and 3 hours of lab.

4510-20-30 Atomic Physics Laboratory (3,3,3) Experiments in fundamental particle properties, photoelectricity, conduction of electricity through gases, atomic and molecular spectroscopy, X-ray. Prereq or coreq: 3710-20-30, lab.

4540-50 Experimental Nuclear and Radiation Physics (4,4) Interaction of charged particles and electromagnetic radiation with matter; theory and characteristics of various detectors; statistics of counting, nuclear properties, experiments illustrate recent techniques for investigating the nucleus and nuclear radiation.1 hours of lecture, 6 hours of lab. Prereq: 2330.

4580 Principles of Non-Destructive Testing (3) Detection and characterization of discontinuities in materials by non-destructive physical measurements. Ultrasonic, electromagnetic, holographic, and penetrating radiation techniques. Prereq: 2310-20-30 or consent of instructor. (Same as Engineering Science and Mechanics 4580.)


4710-20-30 Introduction to Health Physics (3,3,3) Radioactivity, interaction of electromagnetic radiation with matter, radiation quantities and units, point kernel and extended sources, X-rays and gamma rays, neutron activation, interaction of charged particles with matter, stopping power, range-energy relations, counting statistics, shielding, dosimetry, waste disposal, criticality prevention, radiation biology, and ecology. Prereq: 3730.

4918-28-38-48-58-68-78-88-98 Honors: Research and Independent Study (1 hour each) Designed for excellent undergraduate majors. Provides opportunity for research and independent study with faculty guidance. Special consent of department required. Maximum credit 9 hours.

4980 Senior Seminar (1-3) Topic of current interest. May be repeated for credit with consent of department.

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

5000 Thesis

5002 Non-Thesis Graduation Completion (3-15)

5080 Graduate Research Participation (3)

5110-20-30 Introduction to Theoretical Physics (3,3,3)

5210-20 Advanced Modern Physics (3,3,3)

5230-20 Advanced Dynamics (3,3,3)

5410-20 Electromagnetic Theory (3,3,3)

5440 Experimental Methods of Infrared and Raman Spectroscopy (3)

5510-20 Advanced Thermodynamics and Statistical Mechanics (3,3,3)

5510-20 Advanced Mathematical Methods in Physics (3,3,3)

5640 Numerical Methods in Physics (3)

5720 Physics of Polyatomic Molecules (3)

5911-31 Special Problems in Teaching of Physics (3,3)

5990 Seminar (1,3)

6000 Doctoral Research and Dissertation

6110-20-30 Quantum Mechanics (3,3,3)

6210-20-30 Nuclear Structure (3,3,3)

6310 Electromagnetic Theory of Light (3)

6320 Special Relativity (3)

6330 General Relativity (3)

6420 Advanced Topics in Classical Theory (3)

6430 Advanced Topics in Quantum Theory (3)

6500-10 Electrical Conduction in Gases and Plasma Physics (3,3,3)

6610 Interaction of Electrons with Gases (3)

6620 Interaction of Electrons with Solids (3)

6630 Interaction of Radiation with Matter (3)

6710-20-30 Advanced Solid State Physics (3,3,3)

6810 Vibrational Problems in Molecular Spectra (3)

6820 Molecular Vibration-Rotation Theory (3)

Political Science (801)

Profs: T. D. Ungs (Head), Ph.D. Iowa; R. S. Avery (Emeritus), Ph.D. Northwestern; D. H. Carlisle, Ph.D. North Carolina; L. S. Greene (Emeritus), Ph.D. Wisconsin; V. R. Iredell, Ph.D. Chicago; D. D. Nimmo, Ph.D. Vanderbilt; H. Plaa, Ph.D. Utah; N. M. Robinson, Ph.D. Syracuse; T. A. Smith, Ph.D. Ohio State; O. H. Stephens, Jr., Ph.D. Johns Hopkins; D. M. Welborn, Ph.D. Texas.


BUREAU OF PUBLIC ADMINISTRATION Prof. T. D. Ungs (Director), Ph.D. Iowa.


Assist. Prof. P. K. Freeman, Ph.D. Wisconsin; D. F. Olschfield, Ph.D. Temple.


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

(1) Eight hours at the 2000 level in political science or in political science courses not used for Triad credit but included on the History and Society list.

(2) Thirty-two hours in political science courses numbered at 3000 and above. Upper-division courses on the Triad list may be included.

A minor consists of 24 hours that must be distributed as follows:

(1) Eight hours at the 2000 level in political science or in political science courses not used for Triad credit but included on the History and Society list.

(2) Sixteen hours in political science courses numbered at 3000 and above. Upper-division courses on the Triad list may be included.

Honors in Political Science: The Honors concentration encourages highly motivated students to obtain a superior liberal education and more rigorous preparation in the discipline. Admission is selective. The Honors concentration is usually a two year program and consists of 56 hours, including:

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. Forty-eight additional hours in political science courses including:

a. Political Science 5918-28-38
b. Political Science 4918-28-38

c. 24 additional hours numbered 3000 and above. These 48 hours must include at least one course from each of four areas of the discipline: United States Government and Politics/Public Administration; Comparative Government and Politics; International Relations; and Political Theory and Methodology. Upper-division courses on the Triad list may be included.

To graduate with Honors in Political Science, the student must have a GPA of at least 3.3 in Political Science, and an overall GPA of at least 3.0.


2020 Introduction to Political Science (4) A variety of the basic substantive concepts and concerns of political science.

2510-20 United States Government and Politics (4) 2510-20-20 United States: the Constitution, federalism—separation of powers, campaigns and elections, parties, interest groups, the media, public opinion. 2520—Institutions: executive, legislative, judicial functions, and bureaucracy at national, state, and local levels.

2518-28 Honors: United States Government and Politics (4) Honors course designed for students of superior ability and interest. Enrollment into 2518 requires a B average, selected entering freshmen will be accepted on the basis of placement scores and high school record. A grade of B in 2518 is necessary for entrance into 2528.

2530 Tennessee Government and Politics (4)

2550 Governments in Knox County (4) Analysis of political institutions and processes in Knox County.

United States Government and Politics/Public Administration

3545 United States Constitutional Law: Sources of Power and Restraint (4) Analysis of judicial review, constitutional powers of the President and Congress, federalism, sources of regulatory authority, and constitutional protection of political rights. 2510-20 desirable as preceding courses.

3555 Minority Group Politics in the United States (4) Content varies from quarter to quarter. May be repeated to a maximum credit of 8 hours with consent of department.

3565 Introduction to Public Administration Organization and Management (4) Organization and decision-making theories and staff services, policies of organization, leadership, personnel and fiscal management, administrative responsibility. 2510-20 desirable as preceding courses.

3566 Public Administration and the Policy-Making Process (4) Public bureaucracies and the policy-making process, their political environments, administration with special policy making. 2510-20 desirable as preceding courses.

3710 State Politics (4) Focus on formal and informal setting of state government. State government's role in formulating, enacting, and implementing state policy.


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

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

3780 American Political Thought (4) Examination of liberal and conservative doctrines, and in America, development and relations to diverse political interests.

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

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

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

4110-22 Contemporary Issues in International Relations (4,4) Critical evaluation of contemporary issues in international relations. 4111 International Relations I: Theory (4) Introduction to international relations with emphasis on theoretical issues in international relations. 4112 International Relations II: Theory (4) Advanced theoretical issues in international relations. 4113 International Relations II: Case Studies (4) Application of theoretical issues in international relations to case studies. 4114 International Relations II: Processes and Cases (4) Application of theoretical issues to international processes and cases. 4115 International Relations II: Processes and Concepts (4) Application of theoretical issues to international processes and concepts. 4116 International Relations II: Concepts and Cases (4) Application of theoretical issues to international concepts and cases.

4201 Foreign Study (1-16) See page 185.

4202 Off-Campus Study (1-16) See page 185.

4203 Independent Study (1-16) See page 185.

4311-32 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.

4320-32 Seminar in Comparative Government (3,3) Content varies from quarter to quarter. May be repeated to a maximum credit of 8 hours with consent of department. Graduate students must have consent of Department. Maximum credit 12 hours.

GRADUATE

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

5000 Thesis

5002 Non-Thesis Graduation Completion (3-15)

5101 Foreign Study (1-12)

5102 Off-Campus Study (1-12)

5103 Independent Study (1-12)

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

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

5150 Internship in Political Science (3-9)

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

5211 Directed Readings in Political Science (3)

5220 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 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 Seminar in Metropolitan Areas (3,3,3)

5641 Seminar in Contemporary Public Policies (3)

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

5710 Seminar in Politics of Administration (3)

5730 Seminar: Public Budgeting and Fiscal Management (3)

5735 Seminar: Public Financial Management (3)

5740 Seminar in Organizational Analysis (3)

5750 Seminar in Public Management (3)

5755 Seminar in Public Management (3)

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

5770 Practicum in Public Administration (3)

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

College of Liberal Arts 227
or more hours of upper-division psychology courses.

(Congress of Academic Psychology) Designed to prepare students for advanced work in the professional college-level teaching areas of psychology. Prerequisites to the major include Psychology 2518-28 (or 2500 together with 2 courses from 2520-30-40) Mathematics 1540-50-60 or 1840-50-60, and Biology 1210-20-30. The major consists of Psychology 3150 or 4150, 8 hours of laboratory, field, or practicum courses (including 30 or more hours of upper-division courses of 12 hours must be in courses at the 4000 level).

Minor: A minor in psychology shall consist of Psychology 2500 and 20 additional hours from 3000 and 4000-level courses.

Jr-Junior Honors Program in Psychology. A two-year program for juniors leads to the B.A. with Honors in Psychology. It is designed to enable superior students to accelerate their understanding of psychology through intensive course work and individual research.

Eligibility: Students with a GPA of 3.0 and junior standing may apply for admission. (Applications go to the Head, Department of Psychology, 307 Austin Peay Bldg.)

Participants in the program are selected by the Psychology Honors Committee from eligible applicants. Participants may begin their programs with advanced approval by the Department Head. Each participant is assigned a faculty mentor. Prerequisites: Math 1540-50-60 or 1840-50 or equivalent, Biology 1210-20-30 or equivalent, Psychology 2500 plus one course from 2520, 2530, 2540, or 2518-28.

Requirements: (1) Coursework in Psychology. Minimum requirements are: 3150, 3519; one from 3129, 3129-35, 4109, 4239, 4719, 4729; two from 3120, 3210, 3220, 3550, 3650, 3720; one from 4230, 4710, 4720; one from 4650, 4830, 4500; one from 4510, 4620, 4640. (2) Thesis. During the senior year, each participant enrolls in Psychology 4978-98-99 and prepares an honors thesis under the direction of his or her faculty supervisor; a final oral exam is arranged after the thesis is submitted. (3) GRE Exam. Participation takes the Psychology section of the GRE Exam.

Graduation with Honors: The Psychology Honors Committee certifies a student for a B.A. degree with honors or high honors after the oral exam on the basis of recommendations from faculty supervisor, GPA, and GRE Score. (Students who do not qualify for honors under these criteria graduate as regular psychology majors.)

2500 General Psychology (4) An introduction to psychology, with emphasis on the development, methods, and contributions of the major movements and ideas which are basic to behavior. Prerequisites: Math 1540-50-60 or 1840-50 or equivalent; Psychology 2500 or equivalent.

2518-28 Honors: General Psychology (4) First quarter an enriched survey of general psychology. Second quarter participation is psychological research, either individually or group arranged. Prereq for 2518: Minimum ACT Composite 26; GPA 3.2. Prereq for 2528: Admission by consent of department.

2520 Biological Foundations of Behavior (4) Survey of the bio-psycho-social foundations of behavior. General psychology recommended.

2530 Psychology as a Social Science (4) Introduction to individual behavior and experience in a social context. 2500 recommended.
4710 Physiological Psychology (4) Prereq: Consent of instructor.

4109 Undergraduate Research (1-16) May be repeated for credit to a maximum of 16 hours. Prereq: Consent of instructor.

4110 Undergraduate Participation in Community Research (1-16) May be repeated. Maximum credit 16 hours.

4115 Psychology of Sex Role Development (3) (Same as Educational and Counseling Psychology 4110.)

4120 Topics in Social Psychology (4) Intensive analysis of selected research topics. Prereq: 3120 or Sociology 3130. (Same as Sociology 4120.)

4150 Probability Models in Psychology (4) Introduction to use of probability models in theory of binary test items, differential psychology, comparison of different populations in specific psychological parameters, individual choice behavior, and testing of psychological hypotheses in human and animal behavior; reliability theory and regression theory. Prereq: Math 1560 or 1860 or consent of instructor.

4230 Sensory Processes and Perception (4) Survey of sensory and perceptual processes with emphasis on audition and vision. Prereq: 3150; 2520 recommended.

4239 Laboratory in Sensory Processes and Perception (2) Prereq or coreq: 4230.

4460 Organizational-Industrial Psychology (3) Cannot be taken for credit by students who have credit for Management 3460. (Same as Management 4460.)

4510 Personality Theories (4) Prereq: 3650.

4520 Personality and Social Systems (4) Prereq: 2540.

4610 Group Processes (3) Study and experience of theory and techniques of group processing and facilitation. Those participating in 4610 are expected to continue into 4620 and 4630. Prereq: 3616-26 and consent of instructor.

4620-30 Seminar in Group Processes (3,3) Didactic and laboratory experience for those qualified for further training as group facilitators. Prereq: 4610 and consent of instructor.

4640 Psychological Tests and Measures (4) Theory and construction of individual and group measures; survey of various methods of assessment of intelligence, personality, special abilities, and educational achievement. Prereq: 3150.

4880 Afro-American Psychology (4) Review and integrative review of major problems in psychology. Intensive examination of selected topics. Prereq: Consent of instructor.

4978-88-98 Honors Thesis (4,4,4) Honors candidates only.

GRADUATE

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

5000 Thesis

5002 Non-Thesis Graduation Completion (3-15)

5017 Colloquium in Ethology (1)

5019 Research Practicum (1-3)

5050 Methods of Research in Applied Psychology (3)

5070 Seminar in College Teaching (2)

5076 Practicum in College Teaching (2)

5100 Developmental Psychology (3)

5105 Developmental Assessment (3)

5110 Clinical Aspects of Human Sexuality (3)

5111 Seminar in Current Issues in School Psychology (3)

5140-50-60 Psychoeducational Assessment (3,3,3)

5149-59-69 Practicum in School Psychology I (2,2,2)

5170-80-90 Proseminar in Organization Psychology (3,3,3)

5200 Topics in Developmental Psychology (3)

5300 Readings and Special Problems in Psychology (1-5)

5319 Field Work in School Psychology: Level I (2)

5325 Behavioral Interventions (3)

5340 Group Dynamics (3)

5350-60-70 Seminar in Psychology (3,3,3)

5400 Psychophysics and Scaling Methods (3)

5420-30-40 Advanced Psychological Statistics (3,3,3)

5450 Human Problems in Administration (3)

5490 Continuing Education in Mental Health (1-4)

5500 Fundamentals of Psychometrics (4)

5510 Instrumentation for Psychological Research (3)

5520 Theory of Mental Measurement (3)

5530 Issues in Applied Psychological Measurement (3)

5540 Probability Models in Psychology

5550 Advanced Social Psychology (3)

5560 Seminar in Social Psychology (3)

5580 Theories of Personality (3)

5581 Psychodynamic Approach to Clinical Psychology (3)

5582 Behavioral Approach to Clinical Psychology (3)

5583 Phenomenological Approach to Clinical Psychology (3)

5589 Adult Psychological Assessment (3)

5591 Seminar in Object Relations Theory (3)

5592 Descriptive Psychopathology (3)

5601 Dynamics of Psychopathology (3)

5610-20 Psychology of Learning (3,3)

5650 Ethics in Professional Psychology (2)

5670 Forensic Psychology (2)

5680 Neural Basis of Behavior (3)

5690 Psychopharmacology (3)

5702 Community Psychology (3)

5713 Learning Models for Techniques in Professional Psychology (1-4)

5750 Ethological Psychology (3)

5760 General Vertebrate Neuroanatomy (3)

5769 Advanced Techniques in Physiological Psychology (3)

5790 Seminar in Psycholinguistic Concepts in Speech Pathology (3)

5840 Student Appraisal (3)

5850 Child Psychological Assessment (3)

5860 Interpersonal Assessment (3)

5870 Projective Techniques in Assessment (3)

5889-79 Practicum in Psychological Appraisals (3,3)

5900 Counselling Techniques (3)

5909-60 Theory and Practice of Consultation (3,3)

5999-69 Practicum in Psychological Appraisal (3,2)

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)

6210-20-30 History, Systems, and Theories in Psychology (3,3,3)

6250-60-70 Seminar in Organizational Psychology (3,3,3)

6280-90 Factor Analysis (3,3)

6310 Seminar in Motivation and Emotion (3)

6319 Field Work in School Psychology: Level II (2)

6320 Seminar in Research Methods (3)

6330 Seminar in Learning (3)
course is a prerequisite for either option, and Religious Studies 4650 is required in both options.

The basic option consists of 36 hours of courses at the 3000 level or above (including 4650) with a minimum of 12 hours selected from courses listed below History and Literature of Religions and a minimum of 12 hours selected from courses listed below Problems 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 4650) are required for this major. Students whose educational goals would best be served by such a major are encouraged to construct their own plans of study as early as possible. The student-initiated option is recommended for persons who plan to pursue graduate study in religion or a closely related field. Further details are available in the department office, located in 501 McCrung Tower, or from any member of the religious studies faculty.


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

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

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

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

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

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

HISTORY AND LITERATURE OF RELIGION

3060-70-80 History of Western Religious Thought and Institutions (3,3,3) 3060—First century to 5th century, 3070—6th century to 10th century, 3090—11th to 1000. (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.


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 Mesopotamian (4) Religious and cultural traditions of ancient Sumerians, Babylonians, and Assyrians.

3190 Early Greek Mythology (3) (Same as Classics 3120.)

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 Classics 3270.)

3511-12 Images of Jesus (4,4) Introduction to 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—Reformation, Counter Reformation, and Wars of Religion, 1517-1618. (Same as History 3411-12.)

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

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

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

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

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

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 mediational materials of Zen. Special emphasis upon Zen theories of emptiness, no-mind, sudden enlightenment, and the Koan.

4200 Classical Indian Systems of Philosophy: The Moksha Tradition. Basic writings and philosophical problems of the traditions of Samkhya, Yoga, and Vedanta. Prerequisite: Religious Studies/Philosophy 3650 or 3660. (Same as Philosophy 4200.)

4210 Topics in Ancient Israelite and Ancient Near Eastern Religions (4) Pre-requisite: 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 Judean
4450 Topics in American Religion (4) Prereq: One of the following: 3150, 3520, 4410, or consent of instructor. May be repeated once for credit.
4640 Topics in Early Christianity and Hellenistic Religions (4) Selected figures, issues, and institutions. Seniors and graduate students only, except by consent of department. Prereq: Consent of instructor. May be repeated. Maximum credit 12 hours.
4670 Topics in Eastern Religions (4) Selected figures, issues, and institutions. Seniors and graduate students only, except by consent of department. Prereq: 3650-60-71. May be repeated. Maximum credit 12 hours.
4810-20-30 Readings and Research in Religious Studies (3-4,3-4,3-4)

PROBLEMATIC OF RELIGION
3011 Phenomenology of Religion (4) Examination of recurrent forms, themes, and patterns in history of religions, such as high gods, cultural heroes, initiations, and ascensions.
3021 Religious Myth, Symbol, and Ritual (4) Study of interrelation of myths, symbols, and rituals among preliterate peoples through a specific motif, such as solar, lunar, and communal.
3600-10 Religious Ethics (4,4) Historical and critical survey of Western and Hindu religious ethics; basic theories and their application in social problems.
3611 Medical Ethics (4) (Same as Philosophy 3611.)
3620 Topics in Religious Ethics (4) Examination of particular theoretical issues and social problems from perspectives of religious ethics. May be repeated once for credit.
3690 Philosophy of Religion (4) (Same as Philosophy 3690.)
3715 Religious Thought in the Nineteenth Century (4) Major problems and themes in European and American religious thought between 1800 and the beginning of World War I.
3720 Contemporary Religious Thought (3) Major themes, issues, and thinkers.
3740 Issues in Science and Religion (3) Relation of religion to history, methods, and theories of science.
3750 Theology and Literature (3) Exploration of issues raised for religious inquiry by phenomenon of literature: interaction of religious and moral considerations to problems of literary criticism. Relation of religious language to certain forms of human expression; e.g., metaphor, myth, image) identified in study of literature.
3760 Eastern Religions and Western Thought (3) Critical consideration of influences of Hindu and Buddhist philosophy on Western thinkers.
3780 The Literature of Dissent (3) Critique of religion in Western thought. Aspects of atheism, rebellion, and revolution in such thinkers as Lucretius, Spinoza, Voltaire, Feuerbach, Marx, Nietzsche, Russell, and Camus.
4101 Foreign Study (1-16) See page 165.
4102 Off-Campus Study (1-16) See page 165.
4103 Independent Study (1-16) See page 165.
4111-21 Modern Religious Philosophies (4,4) Examination of the religious implications of major thinkers and movements. 4111—Nicolas de Cusa to Hume, 4121—Kant and the 19th century. Prereq: 9 hours of philosophy other than logic. (Same as Philosophy 4111-21.)
4370 Theoretical Issues in Medical Ethics (4) (Same as Philosophy 4370.)
4410 American Religious Thought (4) Selected figures, movements, and problems in American religious thought from colonial period to present.
equivalent, with consent of the department): 3110-20-30 or 3810-20-30 (aspects or survey of literature, 9 hours); 3410 or 3420 or 3430 (intermediate composition and conversation, 3 hours); 4210 (phonetics, 3 hours); 9 additional hours selected from courses in literature, language, or civilization. Students pursuing a minor are strongly advised to consult with a departmental advisor.

Courses which are the equivalents of the foregoing courses with consent of the department; but courses in French literature in English translation may not be counted toward either a major or a minor.

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

1118-28-38 Honors: Elementary French (3,3,3) Honors course for students of superior ability. 1118 not for students who have taken French in high school. Freshmen admitted to 1118 and 1138 on basis of diagnostic test or conference with instructor, high school average, and performance on ACT.

Class held to maximum of 15 for individual attention. Class covers normal elementary French program for first year, but is enriched. Students expected to spend normal amount of preparation time. Students finding course too difficult may easily transfer to regular class. 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 1130. Students passing 1110 with grade of B or higher are eligible for 1128 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. Incom ing freshmen admitted on basis of diagnostic test, school average, and performance on ACT. Class held to a maximum of 15 for individual attention. Students follow enriched program which emphasizes speaking ability and reading, including literary selections. Students passing 2110 with grade of B or higher are eligible for 2128 rather than 2120. Students passing 2120 with grade of B or higher are eligible for 2138 rather than 2130. Students earning a grade of A or B in 2138 are eligible to take a proficiency exam for French 3000; credit for French 3000 given to students receiving a grade of A or B on this examination.

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

2610-20 Panorama of French Culture (4,4) 2610—Cultural forces which produced the French nation; art, literature, architecture, music under Francis I; emergence of classicism; and the culture. 2620—Arts of the Renaissance and French trends during the French Revolution and Age of Romanticism, in bourgeois art of 19th century, and in modern movements of surrealism, dadaism, and existentialism.

3000 French 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 French.

3100-20-30 Elements of French for Upper-Division and Graduate Students (3,3,3) Elements of language, elementary and advanced readings. Open to graduate students preparing for language examinations, and upper-division students desiring reading knowledge of the language. Undergraduate credit only. 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) Study (not usually chronological) of various periods of the literature; emphasis upon the genres (poetry, novel, drama) varies. Prereq: 2130, 2520, or equivalent. Recommended for literature majors.

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 Belley. 3220—The Classical period and the Age of Reason: The great dramatists (La Princesse de Claves, Voltaire, Rousseau. 3230—The 19th and 20th centuries: Balzac, Flaubert, Proust, Camus. No change in credit hours after add/drop deadline. Option of 4 credit hours must present appropriate amount of extra work above that required for 3 hours.

3240 Women in French Culture (4) Role of women in shaping French history and culture. Feminists (George Sand; royal mistresses (Mme. de Maintenon); intellectuals (Mme. de Stael); actresses (Sarah Bernhardt); scientists (Marie Curie). Same as Women's Studies 3240.


3410-20-30 Intermediate Composition and Conversation (3,3,3) Grammatical analysis of modern French prose; review of grammatical principles and their application in translation from English to French, both written and oral. Prereq: 2130 or 2520.

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 interpretation of French Culture related to good business practices. Only one of the courses, 3430, 3450, or 3460 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 Transition (3,3,3) 4001—Oral transition to and from English; 4002—Consecutive Transition to and from English. Prereq: 2130, 2520, or equivalent. 4003—Simultaneous Transition to and from English. Training of students with ability to handle advanced knowledge of French for consecutive and simultaneous oral transition from French into English, and vice versa, on a variety of topics. Students may be divided into groups according to their skills in 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.

4020 Masterpieces of French Drama in English Translation (3) No foreign language credit.

4011 Foreign Study (1-18) See page 185.

4110-20-30 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.

4230 Introduction to Descriptive Linguistics (3) Phonetics and phonemics, morphology and syntax. Types of languages, linguistic groups, dialects, and dialect geography. Application of descriptive linguistics—field linguistics, dialect study, its practical use in learning languages and in language teaching. Introduction to transformational grammar. Prereq: 9 hours of upper-division English or 9 hours of upper-division courses in a modern or ancient language (exclusive of German and French 3010-2020), courses in literature in translation, and general courses in Latin and Greek required (no knowledge of these languages), or consent of department. (Same as German, Russian, Spanish, and Linguistics 4260.)

4240 Introduction to Historical and Comparative Linguistics (3) (Same as German, Russian, Spanish, and Linguistics 4260.)

4270 Romance Linguistics (3) Development of classical Latin through vulgar Latin into major Romance languages. (Same as Spanish and Linguistics 4270.)

4310-20-30 French Literature of Eighteenth Century (3,3,3) Prereq: 2130, 2520, or equivalent.

4350-60-70 Medieval French Literature (3,3,3) Medieval works in modern French texts. Prereq: 2130, 2520, or equivalent.

4410-20-30 French Civilization (3,3,3) Prereq: 2130, 2520, or equivalent.

4410 Readings in French Literature (3)

4710-20-30 French Literature of Twentieth Century (3,3,3) Prereq: 2130, 2520, or equivalent.

GRADUATE

General requirements for the master's program are given in the Graduate Catalog.

5000 Thesis

5002 Non-Thesis Graduation Completion (3-15)

5011 Techniques in Literary Analysis (3)

5101 Foreign Study (1-12)

5102 Off-Campus Study (1-12)

5103 Independent Study (1-12)

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

5121 College Teaching of Romance Languages (3)

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

5210-20-30 French Literature of the Sixteenth Century (3,3,3)

5241 French Theatre of the 18th and 19th Centuries (3,3,3)

5251-21-31 Seventeenth Century French Literature (3,3,3)

5312 French Theatre of the 18th and 19th Centuries (3)

5380-30-30 French Directed Readings (3,3,3)

5390-60-70 The Philosophes (18th Century) (3,3,3)

5400-30-30 The French Novel (3,3,3)

5450-60 Lyric Poetry of Nineteenth Century (3,3,3)
5470 Baudelaire and the Symbolists (3)
5610-20-30 Trends in Contemporary French Literature (3,3,3)
5650-60 Advanced Syntax and Stylistics (3,3)
5670 Problems in Linguistics: Romance Languages (3)
5710-20-30 Seminar in French Literature (3,3,3)
5910 Literary Criticism: Foundations of Romance Criticism (3)

Italian (584)

UNDERGRADUATE
Major: Consists of 36 hours of courses numbered 3110 or above, to include the following (or equivalents, with consent of the department): 3410-20-30 (advanced grammar, composition, and conversation, 9 hours); 3110-20-30 or 3510-20 (aspects of Italian literature, at least 8 hours); 9 hours of literature at the 4000 level; 10 additional hours selected from courses in literature, language, or civilization. Students may substitute Foreign Study (4101) for certain courses; students with special interests, such as comparative literature, may make certain substitutions with consent of the department.

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

Courses in Italian literature in English translation may not be counted toward either a major or a minor.

1110-20-30 Elementary Italian (3,3,3) Must be taken in sequence. Three class meetings and 2 laboratory periods.

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

2110-20-30 Intermediate Italian (3,3,3) Must be taken in sequence. Three class meetings and 2 laboratory periods.

2610-20 Intermediate Italian (4,4) Must be taken in sequence. Four class meetings and 2 laboratory periods.

2610-30 Panorama of Italian Culture (4,4) 2010—Survey of Italian culture from Roman era through the 17th century; 2020—Survey of Italian culture in the 18th, 19th, 20th centuries.

3110-20-30 Aspects of Italian Literature (3,3,3) Prereq: 2130, 2520, or equivalent. Recommended for literature majors.

3310 Italian Literature in English Translation (3-4) Sicilian School, the Florentine School, Dante, Petrarch, Boccaccio, Machiavelli, Ariosto, Tasso. No change in credit hours after deadline. Option of 4 credit hours credit must present appropriate amount of extra work above that required for 3 hours.

3340 The Italian Cinema (3) Italian film masterpieces of such directors as Rossellini, DeSica, Fellini, Visconti; literary and socio-political relations; the Italian image in America.

3410-20-30 Advanced Grammar, Composition, and Conversation (3,3,3) Laboratory work, drills, and lapes. Prereq: 2130, 2520, or equivalent.

3510-30 Aspects of Italian Literature (4,4) Prereq: 2130, 2520, or equivalent. Recommended for literature majors.

4010-20 Italian Drama in English Translation (3,4,3-4) 4010—La commedia dell'arte and major works of Machiaveli, Metastasio, Alfieri, Goldoni, 4020—20th-century theatre: operatic drama, the Grottesco, Pirandello, De Filippo, Frati. No change in credit hours after deadline. Option of 4 hours credit must present appropriate amount of extra work above that required for 3 hours.

4050-60-70 Dante and Medieval Culture (3,3,3) Readings and lectures in English for students majoring or minoring in other departments. Haydn, Beethoven, reports, and term papers in Italian for students majoring or minoring in Italian. (Same as Comparative Literature 4050-60-70.)

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

4220 Petrarch (3) Prereq: 3130, 3520, or equivalent.

4230 Boccaccio (3) Prereq: 3130, 3520, or equivalent.

4410-20 Literature of the Rinascimento (3,3) From Pulci to Tasso, the Quattrocento and the Cinquecento. Prereq: 3130, 3520, or equivalent.

4530 The Modern Novel (3) Prereq: 2130, 2520, or equivalent.

4610 Contemporary Theatre (3) Prereq: 2130, 2520, or equivalent.

4620 Contemporary Poetry (3) Prereq: 2130, 2520, or equivalent.

4630 Contemporary Prose (3) Prereq: 2130, 2520, or equivalent.

4760 Italian Folklore (3) Folk arts, music, traditions, rituals, and lore of Italy from Middle Ages to present. (Same as Anthropology 4760.)

GRADUATE
See Graduate Catalog for requirements.

5011 Techniques in Literary Analysis (2)

5101 Foreign Study (1-12)

5102 Off-Campus Study (1-12)

5161-12 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. Four class meetings and 2 laboratory periods.

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

3510-30 Aspects of Portuguese Literature (4,4) Prereq: 2520 or equivalent. Recommended for literature majors.

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

4310-30 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)

Spanish (924)

UNDERGRADUATE
Major: Consists of 36 hours in courses numbered 3310 or above. Students whose primary interest is literature must have a minimum of 9 hours chosen from the following sequences: 3110-20-30 (aspects of Spanish literature, 9 hours); or 3310-20-30 (aspects of Spanish American literature, 9 hours); 3410 plus 3420 or 3430 (composition and conversation, 6 hours); 4210 (phonetics, 3 hours); 9 hours of literature at the 4000 level; 3 hours of civilization; sufficient additional hours selected from courses in literature, language, or civilization to fulfill the major requirement. Students whose primary interest is language must have a minimum of 9 hours chosen from the following sequences: 3110-20-30 (aspects of Spanish literature, 9 hours); or 3310-20-30 (aspects of Spanish American literature, 9 hours); 3410 (composition and conversation, 3 hours); 4210 (phonetics, 3 hours); 9 hours selected from courses 3420-30 (composition and conversation), 4220-30 (advanced grammar), or 4250-60-70 (linguistics); 3 hours of literature at the 4000 level; 3 hours of civilization; sufficient additional hours selected from courses in literature, language, or civilization to fulfill the major requirement. With either of the above options, students may substitute Foreign Study (4101) for certain courses; students with special interests such as comparative literature, may make certain substitutions with consent of the department.

Minor: Consists of 24 hours in courses numbered 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); 3410 (composition and conversation, 3 hours); 4210 (phonetics, 3 hours); sufficient additional hours selected from courses in literature, language, or civilization to fulfill the minor requirements. Students pursuing a minor are strongly advised to consult with a departmental advisor.

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

1119-20-30 Elementary Spanish (3,3,3) This sequence strongly recommended for students intending to take upper-division courses in Spanish. Must be taken in sequence. Three hours and 2 labs.

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

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

2410-30 Intermediate Spanish (4,4) Must be taken in sequence. Four class meetings and 2 laboratory periods.

4108-20 Independent Study (1-12)

5018-28 Honors: Intermediate Spanish (4,4) Honors course for students of superior ability in Spanish. Incoming freshmen are admitted on the basis of a diagnostic test, high school average, and performance on the ACT. Class held to a major sum of 15 so that each student may receive more attention. Students follow enriched program with continued emphasis upon speaking ability and with special emphasis on reading, including literary selections. Must be taken in sequence. Students who earn an A or B in 2528 automatically receive credit for Spanish 3340. Prereq: Spanish 1110-20-30, 1510-20, 1518-28, or equivalent.
3000 Spanish Transition (3) Development of linguistic skills necessary for satisfactory work in courses above 3000. Recommended for students who feel they would benefit from additional training beyond 2130 or 2520 in basic skills of reading, speaking, and writing Spanish.

3010-20-30 Spanish and Spanish American Literature in English Translation (3,3,3) 3010—Masterpieces of classical Spanish literature; Cervantes, realism and the picaresque novel, religious mystics, Golden Age Theatre, 3020—Masterpieces of 20th century Spanish literature: Unamuno, Lorca, Baroja, Ortega. 3030—Contemporary Spanish American fiction: Marquez, Borges, Fuentes, Asturias. No change in credit hours after add deadline. Option of 4 hours credit must present an appropriate amount of extra work above that required for 3 hours.

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

3210-20-30 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 equivalent.

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

4030 Masterpieces of Spanish Literature in English Translation (3) No foreign language credit.

4050-60-70 Hispano-Aratic Literature and Culture (3,3,3)

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

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

4140 Theatrical Spanish (1-3) Performance in one or more plays. Prereq: Intermediate Spanish or equivalent and consent of instructor. May be repeated with consent of department. Maximum 6 hrs.

4160-70-80 Advanced Conversation (2,2,2) Intensive training in prepared and spontaneous conversations. Subjects range from travel and current events to aspects of national culture. Prereq: Completion of 9 hours of courses on 3000 level.

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

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

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

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

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

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

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

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


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-American Literature and Culture (3,3,3)

5101 Foreign Study (1-12)

5102 Off-Campus Study (1-12)

5103 Independent Study (1-12)

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

5121 College Teaching of Romance Languages (3)

5151-51-71 Bibliography and Methods of Research (1,1,1)

5211-21 Don Quijote (3,3)

5212-32 Golden Age Prose (3,3)

5250-50 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)

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

5610 Spanish American Prose to 1900 (3)

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

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

5631 Spanish American Essay (3)

5632 The Spanish American Short Story (3)

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

5640 Latin American Women Writers (3)

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

5670 Problems in Linguistics: Romance Languages (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.

Social Work
(See description on pp. 56 and 183.)

Sociology (915)

Professors: D. R. Ploch (Head), Ph.D. North Carolina; J. A. Black, Ph.D. Iowa; D. J. Champion, Ph.D. Purdue; L. Ebersole (Vice Chancellor for Planning and Administration), Ph.D. Pennsylvania; D. W. Hastings, Ph.D. Massachusetts; W. J. Jones (Emeritus), Ph.D. Vanderbilt; N. E. Sherow, Ph.D. Illinois (Urbana); S. E. Wallace, Ph.D. Minnesota.


Assistant Professors: S. C. Fisher, Ph.D. California (San Diego); S. Kurth, Ph.D. Illinois (Chicago); M. T. Phillips, Ph.D. Michigan; K. V. Ritter, Ph.D. Washington; K. D. Van Liere, Ph.D. Washington State.

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

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

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

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

1520 Sociology of Social Problems (4)

2010 Collective Behavior (4) Analysis of collective phenomena emphasizing crowd behavior, responses to disaster, popular crazes, mass movements, and social protests.

2015 Resource Scarcity and Social Change (4) The relationship between scarcity of natural resources and changes in societal beliefs and social structure. Topics include social and physical limits to growth and collective action problems.

2020 Political Sociology (3) Sociological analysis of American political system. Attention given to consideration of concept of power, elitist-pluralist controversy, end-of-ideology debate, and related topics.

3130 Social Psychology (4) Social 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 roles related to process of becoming deviant, and consequences of deviant conduct.

3150 Gender in Society (4) Exploration of gender in society utilizing various sociological perspectives with special focus on relationship of demographic characterstics to the prevalence of disease, organization of health care facilities, and staff-patient relationships.

3220 The Family (4) Examines theoretical frameworks and methodological approaches and their application in the sociological study of past and present family forms.

3320 Sociology of Communicative Processes (4) Sociological dimensions of communication and of communication processes at the organizational and interactional levels.

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

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

3350 Social Stratification (4) Study of economic class, prestige, life style, and power hierarchies; causes and consequences of structured social inequality.

3410 Urban Environment (4) Introduction to urban environment; emergence of the city, cities of New World; rise of metropolitan America; urban society, social worlds within urban environment.

3420 Urban Problems (4) Crises and the urban conscience; urban problems and interventions; housing, urban renewal, and neighborhood conservation; the urban poor, the disoriented, and alienated; planning for urban youth; the urban elderly; the social and physical planning process; new towns

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

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

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

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

3890 Sociology of Aging (4) The aged as social minority and subculture in society; role changes in middle age and in old age; significance of increase in proportion of aged in terms of employment, welfare, retirement, and political power.

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

3910 Introduction to Social Research (4) Scientific method applied to social phenomena; formulating testing hypotheses; techniques for collecting data; measuring social variables; interpreting research findings. Lectures and laboratory.

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

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

4030 Society and Law (4) General treatment of social origins and consequences of law and legal process. Particular emphasis on problems of law and social change, and on structure and functioning of legal sanctions. Law and law-like phenomena in formal organizations and primitive societies. (Same as Urban Studies 4300.)

4090 Sociology of Sport (4) Social organization and meaning of sport. The difference between sport and play and games, social stratification and sport, sport as an occupation, place of sport in mass culture, sport subcultures, and reciprocal influences of sport and cultural milieu.

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

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

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

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

4130 Sociology of Punishment and Corrections (4) Traces development of correctional movement, develops critical sociological perspective on contemporary correctional programs, and provides overview of evaluative research in corrections.

4160 Theory of Attitudes and Values (4) Study of organization, functions and measurement of attitudes and values, approaches to attitude change, and relationship to attitudes, values and behavior.

4190 Socialization Across the Adult Life Cycle (4) The social process through which people acquire skills and abilities and undergo identity transformations and types of adult socialization (e.g., occupational, institutional) are emphasized.

4510 Criminology (4)

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

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

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

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

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

4820 American Minority Groups (4) Minority groups and social structure in American society; analysis of intergroup relations with attention given to both past and present relationships of selected groups to broader society.

4930 Social Movements (4) Development, organization, and function of social movements; attention given to ideology, leadership, and organization of political, religious, and other types of social movements.

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

4888 Honors: Sociology (4) Intensive study and research under faculty direction, including writing of senior thesis. Course credit may be split into two quarters. Candidacy is open only to majors who have shown 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.
Spanish
See Romance Languages.

Speech and Theatre

**Professors:** G. O. Mattmons (Acting Head), Ph.D., Louisiana State; R. A. Allen, D.F.A., Yale; T. P. Cooke, Ph.D., Florida State; R. M. Colthran, Jr.; R. C. Field, M.A., Miami (Ohio); J. F. Voelkel, M.A. (Emil反us); M.A. Ohio State; J. A. Harris, Ed.D., Tennessee; N. W. Henshaw, Ph.D., Pittsburgh; R. R. Mashburn, Ph.D., Florida State; L. M. Soper (Emil反us), Ph.D., Cornell.

**Associate Professors:** M. L. Ambreith, Ph.D., Ohio State; N. C. Cook, M.A., University of Oklahoma; M. Custer, M.A., Wisconsin; R. W. Glenn, Ph.D., Northwestern; P. D. Julian, Ph.D., Pennsylvania; L. W. Lester, (Acting Head), Ed.D., Tennessee.

**Assistant Professors:** R. S. Ambler, Ph.D., Ohio State; L. J. DeCuir, M.F.A., Tulane; M. E. Hampton, M.F.A., Yal; C. M. Kasella, M.F.A.; R. M. Brandis, R. T. Church, Ph.D., Temple University; L. C. Harman, M.F.A. Wisconsin; P. E. Schnit, M.A. University of Illinois (Chicago).

**GRADUATE courses numbered 3000-3999, 4000-4999, 5000-5999, and consent of instructor.**

**UNDERGRADUATE**

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

**Concentration in Theatre:** Theatrical skills of the stage and creative aspects of theatre production, with an emphasis on directing, playwriting, and technical theatre. Prerequisite: 2111.

**Concentration in Communication:** Public communication, with an emphasis on speech and theatre. Prerequisite: 2111.

**Certification for Teaching Speech and English:** Consult Certification Clerk, Room 212, Claxton Education Building.

**GRADUATE**

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

**Speech (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.

2331 Argumentation and Debate (4) Recommended: 2351.

2351 Interpersonal Communication (4) Communication theory in its application to self-talk, casual communication, structured communication, and intimate communication.

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

2410-20-30-40 Intercollegiate Forensics (1,1,1,1) 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, consultation, and non-verbal communication, business communication.

3031 Non-verbal Communication (4) Exploration of non-verbal communication from human communications perspective: language, 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.

3051 Fundamentals of Organizational Communication (4) A study of communication behavior; theory and skills in organizational settings; upward, downward, and lateral communications in dyads and groups.

3410-20-30 Intercollegiate Forensics (1,1,1) Continuation of 2410-20-30. Prereq: Consent of instructor.

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

4222 Advanced Argumentation and Debate (4) Prereq: 2251 or consent of instructor.

4461 Quantitative Research Methods in Speech Communication (4) Research design; planning field studies; using statistical analysis.

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

4560 Rhetoric of the Women's Rights Movement (4) Historical and critical study of women's participation in dramatic action; rudiments of model making. Must be taken in sequence. Prereq: Consent of instructor. Production participation required.

4571 British Oratory (4) Historical and critical study of British public address.

5911 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.

4990 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 Communications (3)

5440 Organizational Communication (3)

5550-50-70 Studies in Persuasion (3,3,3)

5750-50-70 Studies in Rhetoric (3,3,3)

5911 Directing the Forensic Program (4)

**Theatre (976) **

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


2111-21 Acting (4,4) 2111—Realism: readings, improvisations and scene study. 2121—Extended Realism: voice and movement for the stage, basic rehearsal techniques. Prereq: Consent of instructor for 2121. Production participation required.

2211-21 Stagecraft (4,4) 2211—Techniques of scene construction. 2221—Fundamentals 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. 3121—Renaissance; 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 repeated. Maximum 4 credit hours.

3241-15 Technical Theatre (4,4) Special techniques in scenery and property construction; stage management; problems in basic technical theatre practice. Must be taken in sequence. Prereq: 2211-21 or consent of instructor.

3291-22 Introduction to Scene Design (4,4) 3291—Problems of stage design with particular emphasis on form, movement, scale, and style; rudiments of rendering and ground-plan preparation. 3292—Play interpretation through scenic means; setting as environment for dramatic action; rudiments of model making. Must be taken in sequence.


3262-83 History of the American Theatre (3,3,3) Development of the theatre as social institution in American life. 3262—From its beginnings to 1900. 3263—From 1900 to present.

3281-22 Introduction to Lighting Design (4,4) Mechanical and electrical aspects of stage lighting. 3291—Survey of basic lighting practice. Must be taken in sequence. Prereq: 2211-21 and consent of instructor.

3451-52 Play Directing (4,4) Must be taken in sequence. Prereq: 2111.

3511-22 Introduction to Costume Design (4,4) Characteristics of stage costumes with particular emphasis on the role of the costume in basic lighting practice. Must be taken in sequence. Prereq: 2231 or consent of instructor.

4133-34 Special Problems in Acting (3,3) Advanced exercises in voice and movement; preparation of major role under performance conditions. Prereq: 3121-22 and consent of instructor.
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.

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.

Summer Repertory Productions (1-4) Continuation of 3153. Available only to members of summer company. Consent of instructor. May be repeated. Maximum credit 4 hours.

Advanced Technical Theatre (4,4) Advanced technical theatre management; advanced scene and property execution; special problems in technical theatre.

Advanced Scene Design (4,4) 4241—Descriptive drawing as an approach to three-dimensional design; theatrical graphic standards and preparation of design drawings. 4242—Perception of surface color; construction of spatial illusion through color with reference to rendering, scene painting, and preparation of painter's elevations. Must be taken in sequence. Prereq: 2211-21, 3221-22, and consent of instructor.

Advanced Lighting Design (4,4) Relationship of light to setting in creating stage environment. Must be taken in sequence. Prereq: 352212 and consent of instructor.

Advanced Play Directing (4,4) Problems of play interpretation: directing period plays; preparation of a play for public performance. Must be taken in sequence. Prereq: 3451-52 and consent of instructor.

Advanced Costume Design (4,4) Advanced problems in costume design and construction; pattern drafting; draping. Prereq: 3511-12.

Dramatic Theory and Criticism (3,3) 4951-52 Playwriting (4,4) Prereq: Consent of instructor.

Graduate Studies


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.

3651 Oral Interpretation of Poetry (4) Prereq: 2031 or consent of instructor.

3671 Oral Interpretation of Drama (4) Prereq: 2031 or consent of instructor.

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

4102 Off-Campus Study (1-16) May be repeated for major credit to maximum of 12 hours. See page 185.

4103 Independent Study (1-16) May be repeated for major credit to maximum of 8 hours. See page 185.

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

4840 Group Performance of Literature (4) Oral interpretation techniques: choral reading, readers theatre, and chamber theatre.

Graduate Study

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 natural and social sciences, business, and industry. It is highly recommended that a student majoring in statistics have a minor in an area of application.

Major:

(a) Required courses: 27 hours to consist of Mathematics 2840-50-60; Statistics 3450-60; Computer Science 4310; Statistics 3550 or Mathematics 4650 or 4750.

(b) Statistics electives: 15 hours from upper-division statistics courses not listed in part (a) above.

(c) Electives: 12 hours to be selected from no more than two of the following groups: Computer Science 3150, 3510, 3520, 4320; Industrial Engineering 3430, 3510, 3520, 3530, 4590; Industrial Management 4610, 4620; Mathematics 3780-90, 4060-70, 4510-20-30 (or 4518-28-38), 4650-70.

Minor:

(a) Required courses: 21 hours to consist of Mathematics 2840-50-60; Statistics 3450-60; Computer Science 4310.

(b) Statistics electives: 9 hours from upper-division statistics courses not in part (a) of the minor.

University Studies (984)

(Non-Departmental)

University studies deal with important 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 UTK community.

1000 The First Course (3) An introduction to university education as an adventure in personal growth and professional development. S/NC.

2010 Technology, Society and the Common Good (3,3) Introduction to the interlocking relationships between population, food production and distribution, environmental pollution, depletion of non-renewable natural resources, global arms race, etc. Two quarter sequence designed for students of all colleges; first quarter-global perspectives; second quarter-decisions for the future. Extensive use of films, field trips, student discussion.

4100 Energy Needs and Our Environment (3) Problems of present and projected energy resources and demands; economic, behavioral, legal, technical, and environmental opportunities and constraints; regional impacts of energy production and consumption. Topical focus will change each quarter. May be repeated with approval of instructor.

Women's Studies

See Cultural Studies.

Zooology (995)

Professors:

J. H. Aebi (Head), Ph.D. Brown; R. M. Bagby, Ph.D. Illinois; D. L. Bunting, II, Ph.D. Oklahoma State; J. G. Carlson (Emeritus), Ph.D. Pennsylvania; A. C. Cole (Emeritus), Ph.D. Ohio State; J. C. Daniel, Jr., Ph.D. Colorado; D. A. Eimer, Ph.D. Minnesota; R. C. Fraser (Emeritus), Ph.D. Minnesota; B. Hochman, Ph.D. California (Berkeley); J. C. Howell (Emeritus), Ph.D. Colorado; E. T. Howley, Ph.D. Wisconsin; K. W. Jeon, Ph.D. London (England); A. W. Jones (Emeritus), Ph.D. Virginia; A. R. Lohr, Ph.D. Iowa; J. N. Liles, Ph.D. Ohio State; S. E. Riecher, Ph.D. Wisconsin; L. E. Roth (Vice Chancellor for Graduate Studies), Ph.D. Chicago; C. A. Shivers, Ph.D. Michigan State; J. T. Tanner (Emeritus), Ph.D. Cornell; H. G. Welch, Ph.D. Florida; M. C. Whiteside, Ph.D. Indiana; G. L. Whinston, Ph.D. Iowa.

Associate Professors:

K. D. Burnham, Ph.D. Iowa; A. C. Eichermacht, 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. Pennslyvania; S. L. Pimm, Ph.D. New Mexico State; G. L. Vaughan, Ph.D. Duke.

Assistant Professors:

T. T. Chen, Ph.D. Florida; L. D. Etkin, Ph.D. Indiana; G. F. McCracken, Ph.D. Cornell, N. B. Greenberg, Ph.D. Rutgers.

Undergraduate Prerequisites to upper-division courses: Biology 1210-20-30 or Zoology 1118-28-38 are prerequisites for all upper-division courses, with the exception of 3090 and 4940.

Additional prerequisites are included with course descriptions. Courses numbered in the 4000s are no more advanced than those in the 3000s except as may be indicated by prerequisites.

Major: Consists of Biology 3110, 3120, 3130; 18 hours of upper-division zoology courses and 3 quarters of chemistry or biochemistry at the 2000 level or above. Of the 18 hours of upper-division zoology courses, a minimum of 6 hours must be at the 4000 level and must include at least one laboratory or field course. 1 to 3 hours of Zoology 3990 must also be included. Prerequisites to this major are: Biology 1210-20-30 or Zoology 1118-28-38 (Zoology 2920-30 may be substituted for Zoology 1118 or Biology 1220) and Chemistry 1110-20-30. Corequisites are Mathematics 1441-51, or 1840-50 or 1550-60 (Mathematics 1841-51 is the recommended choice) and a year sequence in physics (except 1410-20-30). Note: Students majoring in zoology are advised to exercise care in fulfilling the Science and Mathematics Triad requirements. Mathematics 1840-50 or 1841-51 or 1540-50-
60 and Chemistry 1110-20-30 or equivalent (20 or 21 hours altogether) must be completed by all zoology majors.

Minor: Consists of 24 hours of zoology, or zoology and biology, courses. (Zoology courses must be at the upper-division level; but 3000-level biology courses may be used, e.g. Biology 3110, 3120, 3130.) Prerequisites to this minor are Biology 1210-20-30 or Zoology 1116-28-36 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.

1116-28-38 Honors: Fundamentals of Zoology (4,4,4) Course designed for superior students in any field who are interested in obtaining a solid foundation in zoology. On completing this sequence students may register for core Biology 3110-20-30. Honors zoology is open to all students with a minimum ACT composite score of 27 or with a minimum GPA of 3.2 in college. Students must achieve at least a B in any quarter to be eligible for the next quarter. Students who do not satisfy above requirements must complete the sequence with appropriate quarters of Biology 1210-20-30. Must be taken in sequence. 1116 (Fall)-Processes, Structure and development. 1128 (Winter)-Genetics and phylogeny, 113B (Spring)-Ecology, independent projects. Each quarter consists of six hours of combined lecture and lab. Students who receive credit for this sequence may not receive additional credit for Biology 1210-20-30 or Botany 1110-20 or 1118-28.

2460-70-80 Human Anatomy and Physiology for Nurses (4,4,4) Same as 2460-70-80 except 2 and 2 labs. 2461-71-81 Human Anatomy and Physiology for Nurses (4,4,4) Same as 2460-70-80 except 2 and 2 labs.

2501-20-30 Human Biology (3,3,3) For non-majors. Not available for major credit in zoology and biology. 2501—What we are; diversity of life forms, uniqueness of man, cell biology, reproduction, development, principles of genetics. 2502—How we live; physiology of movement, utilization of food, respiration, circulation, excretion. 2510—Survival: infection and immunity, aging, nutrition, reproductive biology, cancer, nutritional inadequacies, human ecology, genetic engineering. May be taken in any sequence.

2920-30 Human Physiology (4,4) Fundamentals of the physiology of human life. Must be taken in sequence. Prereq: One year of college chemistry. 3 hours and 1 lab.

2990 Human Anatomy (4) Gross and Microanatomy of the Human. Prereq: 1 year of an introductory Biology course or Zoology 2920-30 or equivalent. 2 hours and 2 labs. (Does not carry credit for Biology or Zoology Majors).

3050 Comparative Vertebrate Embryology (5) Developmental morphology of selected vertebrates. 2 hours and 3 labs.

3060 Comparative Vertebrate Anatomy (5) Phylegony and anatomy of organ systems. Dogfish shark and cat primarily used in laboratory. Three hours and 2 labs.

3080 Principles of Animal Physiology (5) Physiology of organ systems of animals including man. Prereq: Biology 3120; coreq: Chemistry 3221, Physics 2210-20-30 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, behavior; classification of insect orders and representative families; interpretation and use of keys: 3 hours and 2 labs.

3150 Invertebrate Zoology (5) Biology of invertebrates (e.g. insects) with emphasis on ecology and behavior. Prereq: Biology 3130. 3 hours and 2 labs.

3220 Physiological Reproduction (3) (Same as Animal Sciences 3220.)

3230 Histology (4) Study of animal tissues. Prereq: Biology 3120. 2 hours and 2 labs.

3410 Bioethics (3) Relationship between biological discoveries and human values. Open discussion of selected dilemmas arising from new knowledge about medicine, behavior, resources, and technology.

3720 Ethology and Sociology of Behavior (3) Basic concepts of the evolutionary approach to behavior with special reference to controversial issues in application to zoology, the social sciences, and the arts. (Same as Psychology 3720.)

3920 Human Endocrinology (4) Basic course in human endocrinology with emphasis on the practical diagnosis of hormone levels for analysis of glandular function and treatment of endocrine abnormalities. Three lectures and 1 discussion. Prereq: a course in physiology. (Does not carry credit in the Zoology major or minor.)

3990 Zoology Colloquium (1) Weekly discussions of contemporary interest. Open to sophomores, juniors, and seniors. Each Zoology major is required to take a minimum of one hour. Grading: S/NC. May be repeated. Maximum 3 hours.

4007-8-9-10-11-12-13-15-16-17 Minicourses in Zoology (2,2,2,2,2,2,2,2,2,2,2) Selected, advanced topics in zoology, concentrated in time and subject matter. Course and 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 drawn primarily from invertebrates and vertebrates. Prereq: 3050. 2 hours and 2 labs.

4110-20-30 Undergraduate Research Participation (2,2,2) Experience in active research projects under supervision of staff members. Prereq: Junior or senior standing and prior consent of instructor.

4140 Practicum in Zoology (1-3) Participation in practical application of zoology in community institutions, government organizations, and industry. Approximately 5 hours of involvement per week. Prereq: Biology 3110, 3120, 3130, and senior standing.

4190 Mammalogy (4) Classification, evolution, distribution, reproduction, population, and behavior. 2 hours and 2 labs or field periods.

4200 Ichthyology (5) Classification, collection and identification, distribution, life histories, and economic importance of fishes. Prereq: Biology 2130 or consent of instructor. 2 hours and 3 labs.


4209 Comparative Animal Physiology Laboratory I (1) Coreq: 4202. 2400 Animal Ecology (4) Environmental factors determining distribution and numbers of animals; intra- and interspecific relationships and methods. Prereq: Biology 3120. 2 hours and 2 labs.


4280 Comparative Animal Physiology Laboratory II (1) Prereq: 3080 and consent of instructor; coreq: 4250.

4270 Immunology (3) (Same as Microbiology 4270.)

4280 Comparative Endocrinology (5) Comparative analysis of the physiology and morphology of endocrine glands in vertebrates and invertebrates. Their role and interaction in maintenance of the organism and its species. Prereq: 3060 or equivalent. 3 hours and 1 (3-hr.) lab.

4289 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.

4369 General Genetic Laboratory (2) Mainly Drosophila experiments designed to illustrate basic principles of inheritance. Prereq: Biology 3110. 2 labs.

4380 Organic Evolution (3) Modern concepts of animal evolution. Prereq: Biology 3110.

4390 Human Genetics (3) Principles and problems of inheritance in man. Prereq: Biology 3110.

4410 General Parasitology (4) Morphology, taxonomy, and epidemiology of parasitic worms and protozoa, with emphasis on host-parasite relationships. 3 hours and 1 lab. Prereq: Biology 3130 or consent of instructor.

4560 Introduction to Aquatic Ecology (3) Introduction to the physicochemical nature of the inland waters. Biotic communities are described and their interrelations explored. Prereq: Chemistry 3110-20-30 and Biology 3120. Two hours and 2 labs.

4700 Arachnology (4) Biology of spiders, mites, scorpions, and relatives. Prereq: 3110 or 3130. 2 hours and 2 labs.

4720 Comparative Animal Behavior (4) Methods and principles. (Same as Psychology 4720.)

4729 Comparative Animal Behavior Laboratory (4) Laboratory and field studies. Coreq: 4720 (Same as Psychology 4729.)

4801-20-30 Insect Morphology and Taxonomy (4,4,4) 4810—Internal morphology of both generalized and specialized forms. 4820—Taxonomy of major orders. 4830—Taxonomy of minor orders and immature forms. Prereq for 4802-30: 3110 or consent of instructor. 2 hours and 2 labs.

4940 Physiology of Exercise (4) Functions of body in muscular work; physiological aspects of fatigue, training, and physical fitness. Prereq: 2920-30 or 3080. 3 hours and 1 lab.

5000 Thesis

5017 Colloquium in Ethology (1)

5050 Zoology Seminar (1)

5075 Zooplankton Ecology (4)

5080 Graduate Research Participation (3)

5110-20-30 Special Problems (2,2,2)

5150 Zoological Bibliography (1)

5160 Fresh-Water Invertebrates (4)

5210 Plant Parasitic Nematodes (4)

5250 Physiology of Hormones (4)

5270 Advanced Neuroanatomical Physiology (5)

5280 Insect Physiology (4)

5290 Quadrinary Problems (4)
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<td>5350</td>
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<td>5380</td>
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<td>6650</td>
<td>Seminar in Aquatic Biology (2)</td>
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<td>6710</td>
<td>Seminar in Ecology (2)</td>
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<tr>
<td>6810</td>
<td>Seminar in Entomology (2)</td>
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<td>6910</td>
<td>Seminar in Radiation Biology (2)</td>
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</table>
The College of Nursing at The University of Tennessee, Knoxville, was established in July 1971 in response to a long-recognized and well-established need for nurses prepared at the collegiate level and as part of a statewide comprehensive plan approved for the University of Tennessee system by its Board of Trustees and for the state by the Tennessee Higher Education Commission.

The undergraduate program offered by the college is fully accredited by the National League for Nursing. It combines the unique resources of the University with those of several cooperating health agencies in a manner which enables both faculty and students to become aware of and responsive to an evolving dynamic culture, rapid scientific and technological advances, and changing concepts of health of human beings, and of society.

The baccalaureate nursing program has as its central focus and frame of reference human beings, society, and health. It is based on the belief that nursing has equal concern for the prevention of illness, the promotion of health, and the care of the sick.

General education courses, nursing courses, and electives are organized in a manner designed to promote creative thinking and innovative approaches at both the theoretical and practical levels. General education courses are incorporated into the nursing curriculum at both lower- and upper-division levels. Certain aspects of general education, primarily in the natural and behavioral sciences, are prerequisite to any courses in the nursing major. Other supporting courses are taken concurrently with nursing courses.

Since nursing is a humanistic science and an art, nursing courses provide theoretical content which draws heavily from the theories and principles of related sciences and disciplines. This content is organized, integrated, and synthesized in a manner which promotes a comprehensive understanding of 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 clearly specified lower-division 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. All degree seeking students in the College of Nursing should also consult College Association requirements on page 28 of this catalog.

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 removed the D or F. 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.

ASSOCIATION AND PROGRESSION PROCEDURES

1. Nursing students must achieve a course grade of C or better in all required lower-division courses, exclusive of electives.
2. During the academic year in which students are 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 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 as soon as they begin their lower-division courses. Transfer students who believe they have met lower-division requirements should submit a petition to begin upper-division courses as soon as they are 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 progression during the next review period.

(4) Transfer students who have been accepted by the University must complete all course requirements 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. They 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 2610; Nutrition 1230 for Nutrition 3020.

Registered nurses must successfully complete 3230-40-60, 4440, 4510-20, 4660, 4760, and 4860. After successfully completing Nursing 2810, registered nurses may challenge Nursing 3110, 4110, and 4230. The following course requirements are waived for registered nurses with a Nursing 3110, 3410, and Psychology 3650. All students admitted to the nursing program may substitute zoology 2461, 2471, 2481 for zoology 2920-30-80.

COURSE LOAD

The maximum credit hours per quarter allowed for any student without special permission is 18.

BACHELOR OF SCIENCE IN NURSING CURRICULUM

The following curriculum leads to the Bachelor of Science in Nursing degree. A minimum of 189 quarter hours of credit is required.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>English 1010 or 1011; 1030; 1031; 1032, 1033</td>
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<tr>
<td>Chemistry 1510-20-30</td>
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<td>Child and Family Studies 2110</td>
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<td>Nursing 4240, 4250</td>
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<td>Nursing 4440, 4660, 4760, 4860</td>
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<tr>
<td>Electives</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; J. A. Greene, Ph.D. Vanderbilt; E. G. Grover, Ph.D. Illinois; K. J. Kent, Ph.D. Illinois; J. N. Mozingo, Ph.D. Walden; B. M. Reid, M.S.N. Columbia.

Assistent Professors: M. T. Boyton, M.S.N. Emory; S. L. Bruning, M.S.N. Columbia; K. P. Conlon, M.S.N. SUNY (Buffalo); M. M. Donnellan, M.S.N. SUNY (Buffalo); P. G. Doppelt, Ph.D. Pennsylvania; G. A. Evans, M.S. Tennessee; M. M. Fenske, M.S. Florida; S. M. Hodson, M.S. Tennessee; M. L. Jolly, M.S.N. Tennessee; M. F. Koller, M.N. Vanderbilt; D. R. Ode, M.S.N. Emory; H. E. Overton, M.P.H. Tennessee; M. A. Pierce, M.S.N. SUNY (Buffalo); V. M. Redford, M.S. Colorado; C. D. Repp, M.D. State; Sharp, Ed.D. Tennessee; D. H. Shoffner, M.S.N. Tennessee; P. L. Smith, M.S.N. Medical College of Georgia.

Instructors: S. M. Bowden, M.S.N., Tennessee; J. C. Cowen, M.S.N. Tennessee; L. L. Harrison, Ph.D. Tennessee; J. Jozwik, M.S.N. Tennessee; L. C. Lindsay, M.P.H. Tennessee; S. A. Offutt, M.S.N. Texas Women's; M. S. Theodoropolus, M.S.N. Boston.

Lecturer: D. B. Stephens, M.S.N. 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 MSN degree candidates who have completed an undergraduate major in nursing: 2410 and 4200-10.

2410 Integrated Biomedical and Health Science (1-5) Examination and application of selected theories from physics, cellular biochemistry, physiology and nutrition to the nursing process. Two modules each rank one credit. Prerequisite: One year of biology or chemistry or consent of instructor.

2800 Introduction to Clinical Nursing (4) Theory and laboratory activities for development of cognitive and psychomotor nursing skills; emphasis on determinations of health, nurse-client interactions, and nursing assessment in non-acute health care settings. 3 hours and 1 lab. Prerequisite: Major status and completion of lower-division requirements, or consent of instructor.

2810 Transition to Professional Nursing (4) Review of current status of profession; analysis of nursing process as applied to a shifting health care delivery system; exploration of UT's philosophy of professional nursing and of the conceptual framework of the baccalaureate program. 3 lectures, 1 lab. Prerequisites: RN status and completion of lower-division requirements, or consent of instructor.

2820 Baccalaureate Nursing Program (4) Emphasis on the nursing process and its application to hospitalized adults with uncomplicated health problems; continued development of psychomotor skills and knowledge of the role of the nurse as team member and patient educator. 4 hrs. and 4 labs. Prerequisite: 2800 (waived for MSN candidates). Corequisites: 3110, 3410, or 4200.

3110 Pharmacology (4) Biochemical and pharmacological effects of drugs and medications on the human body. Positive and negative pharmacological reactions and interaction effects between and among drugs. Prerequisite: Chemistry 1610-20, Zoology 2920-30.

3210 Acute Care Nursing I (6) Content and clinical laboratory experience related to nursing care of patients whose health problems require hospitalization. Physiological and behavioral deviations which underlie or are associated with more common, relatively uncomplicated acute illness are identified in the role of the nurse as team member and patient educator. 4 hrs. and 4 labs. Prerequisite: 2800 (waived for MSN candidates).

3220 Acute Care Nursing II (10) Analysis of physiological and behavioral deviations which underlie or are associated with more complex and critical illnesses. Laboratory experiences provide opportunities to apply increased knowledge and skills to the care of patients whose health problems require hospitalization. Physiological and behavioral deviations which underlie or are associated with more complex and critical illnesses are identified in the role of the nurse as team member and patient educator. 3 lectures, 4 labs. Prerequisite: 3210.

3230 Acute Care Nursing Theory I (5) Nursing principles, theories, and concepts required for care of critically ill, hospitalized adults and children. Prerequisite: 2810. For RN's in BSN program only.

3240 Acute Care Nursing Theory II (6) Continuation of 3230 requires further knowledge of physiological and behavioral deviations which underlie or are associated with illnesses that threaten life. Prerequisite: 3230. For RN's in BSN program only.

3250 Clinical Practice in Acute Care Nursing (3) Application of nursing theory, principles and concepts to care of hospitalized children and adults. 3 lectures. Prerequisite: 3240. For RN's in BSN program only.

3410 Children and Health (4) Theory and laboratory experiences related to systematic, comprehensive assessment of children and adolescents at various levels of health and illness. Emphasis on normal growth and development, interactional relationships with parents, children, and health workers, and responses to illness and hospitalization. Corequisite: 3010, 3110, 3310, 3410, or 4200.

3790 Sexual Adaptation in Illness and Health (3) Anatomy, physiology, and biochemistry of human sexuality; clinical sex problems of various age groups; sexual and reproductive health with emphasis on psychosocial and medical considerations and treatment of sexual assault; sexuality and chronic illness. Prerequisite: Upper-division nursing student or consent of instructor.

3900 Clinical Practice Elective (1-3) Supervised clinical practice in acute care settings; further development of clinical practice skills is emphasized. Prerequisites: 3220. S/H only.

4100 Physiological Principles Applied to Health Sciences (4) Application of all lower-division physiological principles to varying stages of health and illness. Prerequisite: RN status or consent of instructor. Not for credit for students who have taken 3210 and/or 3220.
4200-10 Integrated Psychosocial and Developmental Theories I, II, (2,2) Examination and application of selected behavioral theories as applied to the nursing process. Prereq: 4210. Open only to MSN candidates lacking an undergraduate major in nursing; others with consent of instructor. Prereq: 18 hours of behavioral science courses.

4230 Psychosocial and Long-Term Nursing (10) Students needs of clients whose primary health problems are of a developmental, behavioral, or long-term nature. Emphasis on prevention, health promotion, and rehabilitation. Laboratory experiences in a variety of psychiatric, extended care, and outpatient clinics. 5 lectures, 5 labs. Prereq: All 3000-level Nursing courses or their equivalent. For nursing majors only.

4250 Community Mental Health Nursing (6) Theories and principles of mental health and illness, crisis intervention, and rehabilitation and their application to nursing practice in a variety of settings. Prereq: 3220. For MSN candidates without a BSN degree.

4260 Nursing the Child Bearing Family (6) Theories and principles of family development, family dynamics, child bearing, and child rearing and their application to nursing practice in hospital and community settings. 3 hrs. and 3 lab. Prereq: 3220. For MSN candidates without a BSN degree.

4330 Nursing in the Specialties (2-4) Application of principles from behavioral, physical, social, and nursing sciences to solution of nursing problems. Includes exploration of nursing intervention needed to maintain or restore homeostasis in clients experiencing selected physiological and/or behavioral deviations. Specific topics to be determined by faculty and students. May be repeated with consent of instructor. Maximum credit 12 hours. Prereq: Consent of instructor.

4350 Oncology Nursing (3) In-depth exploration of the cancer problem: medical and nursing intervention. Relates cellular kinetics to theories of carcinogenesis and metastasis, and examines treatment modalities and nursing intervention employed in all phases of the disease. Interdisciplinary approach analyzed. Prereq: Nursing 4230, RN status or consent of instructor.

4440 Scientific Inquiry in Nursing (3) Introduction to language of research, types of research design, methodological approaches, sampling, data analysis, and significance of findings. Evaluation of existing and ongoing nursing research studies. Prereq: Senior standing or MSN candidate.

4450 Nursing and Chronic Illness (4) Theories and principles of gerontology, chronicity and rehabilitation; nursing management of selected short and long-term health problems in a variety of clinical and community settings. Prereq: 4200 or coreq: 4210. For MSN candidates without a BSN degree.

4510 Community Health Nursing: Family (3) Application of the nursing process to care of clients and their families in the home setting; utilization of community health services in planning comprehensive goal directed care; principles related to prevention and control of common communicable diseases are presented. 1.5 hrs. and 1.5 lab. Prereq: All 3000-level nursing courses: Prereq: or coreq: 4110 or 4280. For nursing majors only.

4520 Community Health Nursing: Aggregates (3) Community studies utilizing the epidemiological approach for comprehensive assessment of and intervention for aggregates at high risk for maturational or situational health and nursing problems; political and legislative community health issues are explored. 1.5 hrs. and 1.5 lab. Prereq: All 3000 level nursing courses. Prereq: or coreq: 4230 or 4260. For nursing majors only.

4660 Professional Nursing Seminar (3) Critical examination of legislative, legal, ethical, social, and educational issues and trends which have immediate or long-range implications for professional nursing practice. Prereq: 10 hours of 4000-level nursing courses. For nursing majors only.

4750 Nursing Management (5) Theory and practice of management principles with application to nursing care of groups of patients/clients; organization, planning, decision making and leadership are emphasized; nursing staff qualifications, staff utilization and nursing service delivery patterns are analyzed. Supervised entry-level nursing management roles are practiced clinically. 3 hrs. and 3 lab. Prereq: 10 hours of 4000 level nursing courses. For nursing majors only.

4770 Comprehensive Health Assessment (4) Principles and theories underlying health screening of children and adults, including health history, interviewing, and physical examination. Practicum included. 3 hours and 1 lab. (4 hours each). Prereq: All 3000-level nursing courses or their equivalent or consent of instructor.

4790 Health Assessment Practicum I (1-3) Selected clinical experiences in health assessment based on individual student needs and interests. Prereq: 4770 or equivalent and permission of instructor.

4850 Independent Study in Nursing (3) In-depth study of some aspect of nursing in which student has developed special interest. Study is pursued independently utilizing guidelines developed by the student with appropriate faculty guidance, supervision, and evaluation. May be repeated with consent of instructor.
Independent Departments

Department of Air Force Aerospace Studies

Air Force ROTC Program

Professor of Air Force Aerospace Studies: Colonel R. E. Cuffin (Head), M.A. Arizona, M.S. Troy State.

Assistant Professors: Major L. E. Cool, M.B.A. Texas; Major T. M. Bente, M.A. Webster College; Captain C. L. Little, M.A. Northern Colorado.

PURPOSE
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 then may compete for entry into the Professional Officer Course (POC) which is normally taken during the last two years of college. Selection into the POC is highly competitive and is based on qualification on an Air Force medical examination, scores achieved on the Scholastic Aptitude Test (SAT) or American College Test (ACT), scores achieved on the Air Force Officer Qualifying Test (AFOQT), successful completion of a four-week field training course at an Air Force base, and the recommendation of the Professor of Aerospace Studies.

The Two-Year Program: The Two-Year Program consists of the Professional Officer Course (POC), the last two years of the Four-Year Program. It 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.

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; for 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.
Flight Training: Flight training is offered free of charge to qualified pilot candidates who are AFROTC cadets. The cadet receives 13 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 creditable 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
Flight Instruction Ground School—3 quarter hours
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, laboratory and 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 Students: Competitive four-year scholarships are available to high school male and female students who enroll in certain scientific and engineering career fields. Some scholarships are also available to male and female students who enroll in certain non-technical majors. Four-year scholarship applications are contained in the "Air Force ROTC Four-year College Scholarship Program Application Booklet." Booklets may be obtained directly from Air Force ROTC Public Affairs, 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. Application materials 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 texts and uniforms. Enrolees are required to 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 $120 per month during the academic year. In addition they are paid mileage 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)

1240-20-30 Air Force Aerospace Studies (2.2) Surveys the history, 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 build. 1 hour and 1 hour lab (Leadership Laboratory).

2210-20-30 Air Force Aerospace Studies (3,2.2) Introduction to study of air power. Course is developed from a historical perspective starting before the Wright Brothers to the 1960s. 1 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 Forces, its organization, and its component forces of U.S. military power, organization of America's defense structure, policies of major powers, and elements and processes in national security. Conducted at Field Training bases in the country. Approximately 60 class hours.

2320-20-30 Air Force Aerospace Studies (3,3.3) Air Force leadership and management; including technical, professional, and legal aspects, with attention to communicative skills. Military management functions, principles, and techniques are covered. 3 hours and 1 lab (Leadership Laboratory).

2324 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—enables student to learn weather phenomena affecting flight, weather information, and services available to pilots; Flight Computer, Navigation, and Radio Navigation—covers the requirements to plan a cross-country, use of appropriate maps, charts, logs, and regulations that must be known to operate safely and legally.

2350 Flight Instruction Ground School (Instrument) (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 written examination for the instrument pilot's license. Pre-req: 3240 or an FAA private license.

2355 Commercial 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 written examination for the instrument pilot's license. Pre-req: 3240 or an FAA private license.

4210-20-30 Air Force Aerospace Studies (3,3.3) Role and function of professional officer in a democratic society; socialization process, public attitudes, and value orientations associated with professional military service; requisites for maintaining national security forces; decision-making processes of Department of Defense; political, economic, and social constraints affecting 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 ROTC Program
Professor of Military Science: Colonel Richard W. Griffin (Head), M.S. Georgia Institute of Technology
Assistant Professors of Military Science: LTC G. E. Crask, M.S. Livingston University, LTC T. P. Spain, M.S. Wichita State University; MAJ R. Y. Buff, MBA Winthrop College; S. D. Piet, B.S. Southern Missouri; MAJ G. L. Krueger, MPA Western Kentucky University, CPT S. L. Hill, M.S. University of Tennessee; MAJ L. H. Hover, M.A. Central Michigan University; MAJ T. M. Jorgensen; MAJ Webster College; MAJ E. N. McGlothlin, Virginia Tech University; CPT C. Pittman, M.A. Howard 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 components.

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 enable students to develop the qualities of character and leadership for successful 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 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. 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 students.

EARLY COMMISSIONING PROGRAM
By utilization of placement credit for the ROTC Basic Course, many students enter the Advanced Course in either their freshman or sophomore year. The "ECF" enables students who complete the ROTC program to be commissioned in a reserve component prior to awarding of a baccalaureate degree. These
newly commissioned officers begin their military service in the Army Reserve or Army National Guard while still pursuing their undergraduate degree.

SIMULTANEOUS MEMBERSHIP PROGRAM

As an option which combines the Army ROTC subsistence allowance ($100/mo.) with membership in the Army Reserve or Army National Guard and allows the student to receive pay from both programs, ROTC cadets serve as "officer-trainees" in direct leadership/management positions. Participation with the reserve forces is one weekend per month and two weeks each summer.

UNIVERSITY CREDIT

The University of Tennessee grants the following credit for military science:

Military Science I—3 quarter hours (MS 1110)
Military Science II—6 quarter hours (MS 2110-20)
Military Science III—12 quarter hours (MS 3110-20-30)
Military Science IV—12 quarter hours (MS 4110-20-30)
Army ROTC Basic Summer Studies Basic 6 quarter hours. (MS 4000)
Army ROTC Advanced Summer Studies—6 quarter hours (MS 4000)

MILITARY SCIENCE CORE CURRICULUM

Basic Military Studies

MS 1110 Fundamentals of Military Organization
Leadership and Management.............3
MS 2110-20 Applied Leadership and Management (3,3,3)..............6

Advanced Military Studies

MS 3110-20-30 Advanced Leadership and Management (4,4,4).............12
MS 4000 Army ROTC Advanced Summer Studies.........................6
MS 4110-20-30 Seminar in Leadership and Management (4,4,4)............12

TOTAL: 39 hours

Substitution

MS 2000 may be substituted for Basic Military Studies of the Military Science Core Curriculum. Certain other courses within the University may be substituted for Military Studies with permission of the Professor of Military Science. Students seeking an appointment as Second Lieutenant 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 academic deans of the separate schools and colleges.

ACADEMIC REQUIREMENTS FOR APPOINTMENT AS SECOND LIEUTENANT

The principal element for appointment is the basic military course, since each degree field at the University is designed to provide a well balanced education in diversified fields, specific hour requirements outside the Military Science Core Curriculum are few. Prospective Lieutenants are required to take at least one course in each of the following five fields of study: human behavior, written communications skills, military history, national security policy and management. Although not required, students in the Advanced Studies Program are expected and encouraged 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, engineering/technical, foreign languages, mass communications or accounting. In cases where a student is pursuing a discipline which is narrowly restricted (excluding Military Sciences Core Curriculum) with few elective options, any conflict in scheduling or course selection will be resolved in favor of academic degree requirements.

ENROLLMENT AND CONTINUANCE REQUIREMENT

The general requirements for enrollment and continuation in the Army ROTC program are:

1. Basic Military Studies—MS I and II
   a. Be a citizen of the United States.
   b. Be physically qualified.
   c. Be not less than 18 years of age and have not reached 23 years of age at the time of enrollment.

2. Advanced Military Studies—MS III and IV
   a. Have completed the 3 year High School ROTC Basic Course, or an off-campus six-week field training course, or have the required amount of prior military service.
   b. Have two academic years of college remaining (either graduate or undergraduate).
   c. Be enrolled as a full-time student, either at The University of Tennessee or at a nearby institution in a cooperative program.
   d. Meet military screening and physical requirements.

Regularly enrolled students who meet the academic prerequisites and do not desire a commission may take individual courses as electives with the permission of the department head and academic adviser.

PLACEMENT CREDIT FOR MILITARY TRAINING

On the basis of previous honorable active military service in any branch of the Armed Services, or participation of the Junior ROTC Program at Secondary Schools, a student may request exemption from portions of the Basic Course. Exemption allowed will be determined by the Professor of Military Science.

PAY AND ENTITLEMENTS

All students enrolled in the Army ROTC program are furnished texts by the Army through the Military Property Officer. Students enrolled in the ROTC Advanced Course receive uniforms and equipment plus an allowance or $100 per month during the academic year. While attending the ROTC summer studies each cadet receives approximately $650, plus meals and transportation.

The curriculum of the Army ROTC program is designed to qualify the student for appointment as an army officer. Upon appointment the new officer is also assigned to one of several branches of the army for which he or she is qualified and in which a need for officers exists.

After graduation and commissioning, the officer will attend a service school for further specialized military training which will further qualify the officer for the branch to which he or she is assigned.

Curriculum

Military Science Studies (688)

1110 Fundamentals of Military Organization
Leadership and Management (3) Development of American military institutions, policies, experiences, and traditions in peace and war from colonial times to present. Historical examples of effective and ineffective leadership and application of principles of war. Practical exercises in leadership development.

2000 Army ROTC Basic Summer Studies (6) Role of the United States Army as a component of our National Defense system with particular attention on organization, functions of the various branches of the Army, and our national resources. Concentrated study of the techniques of military planning, elements of successful leadership styles, the development of personal and interpersonal skills, the management of organizations, leadership affecting human behavior. (44 hours of instruction are presented each week). Conducted at Fort Knox, Kentucky by faculty from colleges and universities participating in the Army ROTC program. This course is taken in lieu of all or part of the Army ROTC Basic Program (MS 1110, MS 2110, MS 2120). Students may not receive more than a total of 9 credit hours for any combination of MS 2000 and MS 1110, MS 2110, or MS 2120. Successful completion of MS 2000 qualifies, an individual for admission to the Advanced Military Science Program


4000 Army ROTC Advanced Summer Studies (6) A six-week field study program conducted at an Army installation in the continental United States. 44 hours of instruction are scheduled each week. A prerequisite to commissioning. Normally scheduled upon completion of 3130. Instruction presented by ROTC faculty from colleges and universities nationwide. Program of study is an extension of leadership and management curricula with emphasis on practical application. Prereq: 3130.

4110 Theory and Dynamics of the Military Team (4)
Organization and management of division military team, 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 exercises. Prereq: 4000 or consent of instructor.

4120-30 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

Robert S. Hutchison, Vice President for Public Service and Continuing Education
Charles W. Hartsell, Assistant Vice President for Continuing Education, Administration
Raymond A. Shirley, Assistant Vice President for Continuing Education, Media

The Division of Continuing Education is responsible for the development and coordination of all statewide continuing education programs. The Division is concerned with developing (establishing) policy that will extend educational opportunities, including attainment of college degrees, to qualified students of all ages and walks of life who pursue knowledge outside the traditional campus setting. All statewide continuing education programs of the University should be 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

Director:

Associate Directors:
D. F. Holden, Ph.D. Kansas;
B. W. Wallace, M.S. Tennessee; R. H. Considine, Ph.D. Tennessee.

CEU Programs: Continuing Education Units are approved for credit. Continuing credit is available 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.

Radio Services

Director:
R. A. Shirley, M.A. Tennessee.

Associate Directors:
J. A. Chasteen, S. D. Williamson, Jr., B.M. Tennessee;
N. L. Dryer, B.M. Indiana.

Assistant Directors:
J. C. Adkins, M.S. Tennessee;

Staff:
D. Burns, P. Doyle, M.S. Tennessee; R. J. England;
W. G. Hauser, B.A. New Mexico; M. Kiser, B.S. Tennessee; R. W. Stagg.

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 WUTC, 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 educational radio programs for broadcast on an audio tape network of 168 Tennessee radio stations.

Television Services

Director: R. A. Shirley


Chief Engineer: T. M. Cupp


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 6000 students are taught each year in 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 for 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
Ken Ehalt, Associate Director/Public Service
Merlin H. Mitchell, Associate Director/Administrative Services
Aubrey H. Mitchell, Associate Director for Collection Development

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 1,421,342 books, 1,304,234 microforms, 6,100 audio tapes, 122,400 slides, 1,264 video tapes, more than 2 million manuscripts, and various historical ephemera, maps, and oral history tapes. More than 21,000 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 401 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 175,000 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, associate directors (for collection development and 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 collections 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.
The University of Tennessee Computing Center (UTCC) provides computing facilities and services for the University's teaching, research, public service, and administrative activities.

UTCC offices and principal computing facilities are located on the first two floors of the Stokely Management Center (SMC) and on the P2 level and first floor of Andy Holt Tower. The computers at SMC include two IBM 370/3031's, an IBM 4341/2, a DECsystem-10 with dual KL10 processors in a symmetrical multi-processor (SMP) configuration, and a DEC PDP 11/55. An IBM 360/40 located in Andy Holt Tower is used exclusively for administrative work. Data entry services are provided with two Nixdorf 600/55 key-to-disk systems also located in Andy Holt Tower. In addition, UTCC maintains eight remote job entry stations for batch work and eleven sites for interactive computing services to the other campuses in the UT System through remote job entry facilities.

The IBM 3031's operate under SVS (Release 1.7 of OS/VS2) with HASP II Version 4, the IBM 4341 operates under VM/SP, and the IBM 360/40 operates under DOS with POEWER II. The DECsystem-10 operates under TOPS-10 with Galaxy. Time sharing features on the IBM computers include Coursewriter III and VM/CMS, with FORTRAN, PL/I, COBOL, and SAS/GRAHP. The DECsystem-10 time sharing system provides APL, FORTRAN, BASIC, COBOL, MACRO, and other special purpose application programs, including extensive graphics software support. Each IBM 3031 has six million bytes of memory, the IBM 4341/s has eight million bytes of memory, and the DECsystem-10 has 1024K words of memory.

A graphics center with ten Tektronix graphics terminals, five storage and five refresh, two digitizing tablets, and a graphics plotter is located in Ferris Hall. Additional graphics equipment, including three terminals, a large digitizing tablet, and a plotter, is located in the user work area in the Art and Architecture Building. A Calcomp 1051 plotter is used to produce graphics output from jobs run on both IBM and DECsystem-10 computers.

UTCC periodically offers intensive training seminars on the utilization of the IBM and DECsystem-10 computers for faculty, staff and graduate students. UTCC also 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 may 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.
The Institute for Public Service

Executive Director: R. S. Hutchison, M.B.A. Chicago.

Associate Director: T. B. Ballard, B.S. Tennessee.

Business Manager: G. W. Baskette.

Business Assistants: C. E. Shoopman, Jr., B.A. Vanderbilt; M. M. Hoes.


The Institute for Public Service was established in 1971 within the Office of the Vice President for 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 conducted specifically at the request and for the benefit of non-University organizations in Tennessee.

The Institute provides: (1) a system-wide focal point for public services; (2) a means to coordinate the various system-level public service activities; and (3) an organizational base for communication and program development that relates to both outside service clientele of the University system.

The Institute comprises the system-level public service operations listed below.

County Technical Assistance Service

Executive Director: J. H. Westbrook, Jr., B.S. Tennessee.

Associate Director: R. M. Wormsley, B.S. Cumberland.

Assistant Director for Administration: T. D. McNair, M.A. Austin Peay State.

Legal Specialist: P. E. Davis, J.D. YMCA Law School; R. E. Fults, J.D. Tennessee; W. C. McIntyre, J.D. YMCA Law School.


Senior Field Advisors: J. R. Carnical, B.S. Austin Peay State; M. R. Garland, M.C.M. East Tennessee State; B. C. Rodgers, B.S. Tennessee Technological.

County Field Advisers: J. E. Headrick, B.S. Tennessee; C. R. Phebus, M.S. Vanderbilt; S. L. Yarbrough, M.S. Tennessee.

Special Projects Coordinator: M. J. Frank, B.A. 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 Eighth 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, Martin and Knoxville.

Municipal Technical Advisory Service

Executive Director: E. O. Miner, Ph.D. Utah.


Specialist Consultants: D. W. Huffer; J.D. Tennessee (Intergovernmental Relations); J. Kersh, 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. C. Lock, Jr., B.S., C.E. Oklahoma State (Public Works); W. Ownby, J.D. Tennessee (Ordnance Codification); M. T. Pentecost, B.S. Murray State (Finance and Accounting); E. Poett, J.D. Tennessee (Municipal Law).


Librarian: C. C. Hewlett, M.S. Tennessee.

The 75th General Assembly (1949) established a Municipal Technical Advisory Service at The University of Tennessee. The legislature 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 intergovernmental relations. Headquarters for
the agency is 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. Clapp, M.B.A. Tennessee
- R. E. Eddy, M.B.A.
- East Tennessee State
- P.E. CPA
- R. L. Highers, B.S.
- Tennessee Technological
- P.E
- C. R. Vandiver, B.S.
- Middle Tennessee State
- P.E
- R. E. Rinella, B.S.
- Tennessee
- P.E

**Management Consultant:**
J. E. Ross, M.B.A. Tennessee Technological, P.E.

**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 of 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 is headquartered in Nashville. Regional offices are maintained in Cookeville, Jackson, Johnson City, Martin and Knoxville.

**Center for Government Training**

**Executive Director:**
G. M. Mabrey, III, M.C.M. East Tennessee State.

**Associate Director:**
A. C. North, Jr., B.S. Middle Tennessee State.

**Assistant Director:**
G. T. Himes, Jr., B.S., Belmont.

**Senior Regional Manager:**
D. R. Waynick, B.S.

**Regional Managers:**
- D. J. Edmondson, B.S. Tennessee (Chattanooga)
- J. W. Fort, M.A. Austin Peay State
- J. W. Pryor, J.D. Memphis State.

**Project Manager:**
J. H. Wintker, M.S. Tennessee.

**Assistant Project Manager:**
P. S. Blanton, MSSW 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.

**Critical Care Education Center**

**Director:**
N. J. Shepard, B.S. Middle Tennessee.

**Assistant Director:**
P. P. Vaughan, M.S.N. Vanderbilt.

**Coordinators:**
V. S. Rice, 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 1979. 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; and (2) 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.