spring and summer one and two week media workshops, special weekend conferences, and community classes. Media offerings include: clay, fiber, fabric, metal, wood, stained glass, leather, papermaking, drawing, painting, graphics and photography. Students may receive audit, undergraduate or graduate credit for spring and summer classes through The University of Tennessee, Department of Art. Facilities include well equipped studios, on campus book and supply store, a large auditorium, art library, and resident accommodations. The Arrowmont Gallery presents changing juried, invitational, theme or media oriented exhibitions. The Gallery and Library are open to the public Monday-Saturday, 8:30 a.m. - 5:30 p.m. Arrowmont receives financial support from chapters of the Pi Beta Phi Fraternity, alumnae clubs, and individual members.

Courses are offered periodically at the Pi Beta Phi Arrowmont School of Arts and Crafts, Gatlinburg, Tennessee. Content varies with faculty. Students should check specific course content as printed in the Arrowmont timetable published each spring.

ASIAN STUDIES
See Cultural Studies.

ASTRONOMY
See Physics and Astronomy.

AUDIOLOGY AND SPEECH PATHOLOGY

Professors:
S. B. Burchfield, Ph. D. Michigan State; B. Silverstein, Ph. D. Purdue.

Assistant Professors:

Associate Professor:
D. Arthur, M. A. Tennessee.

Instructors:
D. King, M. A. Tennessee; T. R. Singletary, M. A. Tennessee.

The Department of Audiology and Speech Pathology offers courses in the scientific study of human communication sciences and disorders. The two undergraduate majors (audiology and speech pathology) are preparatory to graduate work and to professional certification in some aspect of speech, language and hearing disorders. The master's degree is required for most professional certificates and employment positions. Information about the audiology and speech pathology programs may be obtained from the departmental office, 457 South Stadium Hall, and students are strongly encouraged to consult with the undergraduate advisors in the department as early as possible in their programs. Suggested elective courses for students not majoring in Audiology and Speech Pathology include 304, 305, 320, 371, 404, 433, 435, 473 plus no fewer than 8 nor more than 9 hours from the following: 431, 443, 444, 461, 494.

A B. A. major in speech pathology consists of Audiology and Speech Pathology 304, 305, 306, 320, 331, 371, 404, 433, 445, 461, 473, and 494 plus no fewer than 3 nor more than 6 hours from the following: 434, 445.

Additional recommended courses for audiology and speech pathology majors include appropriate coursework from: Anthropology, Biology, Curriculum and Instruction, Educational Psychology, Psychology, Physics, Special Education and Child and Family Studies. Students majoring in Audiology and Speech Pathology are strongly encouraged to consult frequently with their advisors before selecting additional recommended courses.

BACTERIOLOGY
See Microbiology.

BIOCHEMISTRY

Professors:
W. D. Wicks, Ph. D. Harvard (Head); J. E. Churchich, Ph. D. Sheffield (England); L. Huang,(Chancellor's Research Scholar), Ph. D. Michigan State; J. G. Joshi, Ph. D. India; K. J. Monty, Ph. D. Rochester.

Associate Professors:
J. Koontz, Ph. D. Kentucky.

Assistant Professors:
F. Fairfield, Ph. D. Stony Brook; D. Roberts, Ph. D. California (Davis); E. Powell, Ph. D. Lehigh; E. Serpersu, Ph. D. Hackettpe (Turkey).

A B. S. major in biochemistry consists of Biology 210-220, Chemistry 350-360-369, Physics 221-222, Biochemistry 410, 419, 420, 430, 440, and 3 hours chosen from: Biochemistry 452; Botany 310, 319, 410, 430, 439; Zoology 330, 350, 410, 430, 439, 440. Prerequisites to this major are Biochemistry 110-120 or 150, Chemistry 120, 130, Mathematics 141, 142 and either Mathematics 143, 144 or Computer Science 101.

For a minor in biochemistry, the following courses are required: Chemistry 350, 360, 369; Biochemistry 410, 419 plus a course for additional credit from Biochemistry 420, 430, 440, and 452.

BIOLOGY CONSORTIUM

Director, R. W. Beck, Ph. D. Microbiology.

Basic Faculty:

A B. S. major in biology may be obtained by completing one of three concentrations: Cell Biology, Organismal and Systems Biology, or Ecology. Prerequisites for all three concentrations are Biology 101-102 or 110-120, or Botany 110-120 or 118-128, or Zoology 117-118, and Chemistry 120-130. Corequisites are Mathematics 151-152 or 141-142 and Physics 221-222 or equivalent.

Concentration in Cell Biology consists of Biology 210, 220, 230, Chemistry 350, 360, 369, Biochemistry 410, either Chemistry 310-319 or Biochemistry 419, and 12 hours of upper division courses. Upper division courses must be selected from Biochemistry 419, 420, 430, 440, 452; Botany 310-320, 321, 412, 441, 451; Microbiology 310-319, 400, 410, 419, 430-439, 440-445; Zoology 330-331, 350, 360, 400, 403, 404, 410, 420, 440, 445, 446, 460, 465, 490. Not more than 8 hours may be selected from one department. No more than 3 credits of research courses may be counted toward the major.

Concentration in Organismal and Systems Biology consists of Biology 210, 220, 230, Chemistry 350, 360, 369, and 18 hours of upper division courses selected from Biochemistry 310, 419, 420, 452, Botany, any 300- or 400-level courses, but not more than one course from each of 305, 306, 309; Microbiology, any 300- or 400-level courses; Zoology, any 300- or 400-level courses. Not more than 12 hours may be selected from one department. No more than 3 credits of research courses may be counted toward the major.

Concentration in Ecology consists of Biology 201, 220, 230, Chemistry 350, 360, 369, either Geography 433, 434, and 15 hours of upper division courses selected from either Botany 321 or Zoology 445, Botany 330, 346, 401, 402, 403, 431; Forestry 331, 315-316; Geography 433, 434; Microbiology 470, 479; Wildlife and Fisheries Science 443, 444, 445. Zoology 450, 459, 470. At least 8 hours must be chosen from among the departments of Botany, Microbiology, and Zoology.

A Minor consists of Biology 210, 220, 230 and 8 hours of upper-division courses chosen from the list below. Biochemistry 410-419; Botany, any 300- or 400-level courses; Microbiology, any 300- or 400-level courses; Zoology, any 300- or 400-level courses. (In meeting the upper-division minimum requirement, not more than 6 hours
may be credited from any one biological science department, and not more than 3 hours of research courses may be credited.)  
Prerequisites to the minor are introductory biology courses (Biology 110-120 or Botany 118-128 or Zoology 117-118) and Chemistry 120-130.

**BOTANY**

Professors:

K. W. Hughes (Head), Ph. D. Utah;  
J. D. Caponetti, Ph. D. Harvard;  
E. E. Clebsch, Ph. D. Duke, H. R. DeSelm, Ph. D. Ohio State; A. M. Evans, Ph. D. Michigan; W. R. Herndon (Alumni Distinguished Service Professor), Ph. D. Columbia;  
A. J. Sharp (Emeritus), Ph. D. Ohio State;  
W. O. Smith, Ph. D. Duke; P. L. Waine (Benwood Distinguished Professor), Ph. D. Texas.

Associate Professors:

C. C. Amundsen, Ph. D. Colorado;  
A. S. Heilman, Ph. D. Ohio State;  
R. R. Henke, Ph. D. Miami (Ohio);  
B. C. Mullin, Ph. D. North Carolina State;  
E. E. Schilling, Ph. D. Indiana; O. J. Schwarz, Ph. D. North Carolina State.

Assistant Professor:

B. E. Wofford (Curator), Ph. D. Tennessee.

Lecturer:

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

A B.S. major in Botany may be obtained by completing one of the three concentrations: General Program, Organismal Botany, or Cellular and Molecular Botany. Prerequisites for all three concentrations are: Botany 110-120 or 118-128 (recommended), or Biology 120-120; and Chemistry 120-130. Corequisite to the General Program is one of the following sequences: Mathematics 115-121 or 141-142 or 151-152, or Physics 121-122, or Geology 101-102, or Chemistry 350-360-369. Corequisites for both of the other concentrations are: Mathematics 141-142 or 151-152; Physics 121-122 or Geology 101-102; and Chemistry 350-360-369 (Health Science Organic Chemistry Package may be substituted in the Organismal Concentration).

**General Program** requirements are: 2 courses from Biology 210-220-230; Botany 310, 320, 321, 330, 1 hour of 371, 1 hour from 441-442; 4 hours of additional Botany; and 3 hours of upper division non-Botany courses selected from Biochemistry, Microbiology, or Zoology. A minimum of 29 hours completes this major's option.

**Concentration in Organismal Botany** requirements are: Biology 210, 230; Botany 321, 310, 320, 330, 1 hour of 371, 2 hours from 400 or 441-442; and 7 additional hours selected from Botany (305, 306, 309 do not meet this requirement), Biology 220 is recommended for partial fulfillment of this requirement), or upper division Biochemistry, Microbiology, Zoology. A minimum of 38 hours completes this major's option (includes 8 hours of Organic Chemistry).

**Concentration in Cellular and Molecular Botany** requirements are: Biology 210, 220; Botany 321, 310, 320, 330, or 451, 1 hour of 371, 2 hours from 400 or 441-442; Biochemistry 410; and 3 additional hours selected from Botany (305, 306, 309 do not meet this requirement); Biology 230 is recommended for fulfilling this requirement); or upper division Biochemistry, Microbiology, Zoology. A minimum of 38 hours completes this major's option (includes 8 hours of Organic Chemistry).

**Minors** consists of 2 courses from Biology 210, 220, 310, 1 hour of Botany 371, and 6 hours of upper-division Botany (not more than one course from 305, 306, 309) and 3 additional hours of upper-division Botany or related Biological sciences. Prerequisite to the minor is Botany 110, 120, or 118, 128 (recommended) or Biology 110, 120.

**CHEMISTRY**

Professors:

G. Mamantov (Head and Alumni Distinguished Service Professor), Ph. D. Louisiana State; J. E. Bloor, Ph. D. Manchester (England); N. S. Bowman (Emeritus), Ph. D. Princeton; W. E. Bull, Ph. D. Illinois; J. Q. Chambers, Ph. D. Kansas; J. A. Dean (Emeritus), Ph. D. Michigan; J. F. Eastham, Ph. D. California (Berkeley); W. H. Fletcher (Emeritus), Ph. D. Minnesota; F. A. Grimm, Ph. D. Cornell; G. A. Guiochon (Distinguished Scientist, Science Alliance Center of Excellence), Ph. D. Universite de Paris (France); G. W. Kabalka, Ph. D. Purdue; D. C. Kleinfield, Ph. D. Princeton; M. H. Lietzke, Ph. D. Wisconsin; L. J. Magid (Associate Dean), Ph. D. Tennessee; R. M. Magid, Ph. D. Yale; R. M. Pagni, Ph. D. Wisconsin; J. R. Peterson, Ph. D. California (Berkeley); G. K. Schweitzer (Alumni Distinguished Service Professor), Ph. D. Illinois; W. T. Smith (Emeritus), Ph. D. Ohio State; W. A. Van Hook, Ph. D. Johns Hopkins; E. L. Wehry, Ph. D. Purdue; T. F. Williams (Alumni Distinguished Service Professor), Ph. D. London (England); J. H. Wood (Emeritus), Ph. D. North Carolina; B. Wunderlich (Distinguished Scientist, Science Alliance Center of Excellence), Ph. D. Northwestern.

Associate Professors:

J. L. Adcock, Ph. D. Texas;  
S. D. Alexandratos, Ph. D. California (Berkeley); J. E. Battmss, Ph. D. Northwestern; K. D. Cook, Ph. D. Wisconsin;  
J. D. Kovac, Ph. D. Yale; C. A. Lane, Ph. D. California (Berkeley); F. M. Schell, Ph. D. Indiana; M. J. Sepaniak, Ph. D. Iowa State; C. Woods, III, Ph. D. North Carolina State.

Assistant Professors:

C. E. Barnes, Ph. D. Stanford; C. S. Feigerle, Ph. D. Colorado; J. H. Shibata, Ph. D. Washington.

**Bachelor of Science in Chemistry**

Students who desire to major in chemistry may select from either of two courses of study: Bachelor of Science or Bachelor of Science in Chemistry. Only the latter program is approved by the Committee on Professional Training of the American Chemical Society. It is designed to train students to go directly into positions in the chemical industry or to enter graduate study leading to positions in research and college teaching. A student in the B.S. in Chemistry program should, at the time of graduation, have completed a semester of English Composition. The B.S. in Chemistry program is designed for students with different careers goals, the following paragraphs should be carefully considered before selecting courses. A student who decides to major in chemistry should ask the Liberal Arts Advising Center for assignment of a faculty advisor in the Department of Chemistry. For further information, contact the Head of Department of Chemistry, 575 Buell Hall. For information concerning the Cooperative Program in chemistry, see description of the B.S. program below.

**CURRICULUM REQUIREMENTS:** Hours Credit

Freshman  
Chemistry 120-130 or (preferably 121-131 or 128-138)  8  
Mathematics 141-142  8  
English Composition  6  
1Foreign Language (intermediate level sequence)  6  
2Distribution  3  
Sophomore  
Chemistry 140  3  
Chemistry 350-360  6  
Chemistry 369  2  
Chemistry 230  3  
Mathematics 241-251  7  
Physics 131-231  4  
Distribution  3  
Electives  9  
Senior  
Chemistry 430  3  
Chemistry 406  2  
Chemistry 409  3  
Chemistry Electives  6  
Distribution  9  
Electives  9  
Total: 124 hours

1Must be chosen from German, French or Russian; a student who has not had two years of one of these languages in high school will need to complete the elementary sequence before taking the intermediate level sequence.  
2The distribution requirements of the College of Liberal Arts are satisfied by taking: Non-U. S. History (6 hours), Social Science (6 hours), Humanities (6 hours), and Upper Level Distribution (3 hours in either U. S. Studies or Foreign Studies and 3 hours Capstone Experience). The number of credit hours shown in each year of the curriculum are merely intended as guidelines.  
3It is recommended that a portion of these elective hours be applied to advanced courses in biochemistry, mathematics, physics, or chemical, metallurgical, and polymer engineering.
4To be chosen from Chemistry 400, 405, 450, 470, and 495. Chemistry 400 or 405 will also satisfy 3 hours of Upper Level Distribution (Capstone Experience).

B. S. Degree and Chemistry Major

For students wishing to major in chemistry but desiring a more flexible course of study than the B.S. in Chemistry, there is the regular B.S. degree. Because these two programs are designed for students with different careers goals, the following paragraphs should be carefully considered before selecting courses. A student who decides to major in chemistry should ask the Liberal Arts Advising Center for assignment of a faculty advisor in the Department of Chemistry. For further information, contact the Head of Chemistry.
the Department of Chemistry, 575 Buehler Hall.

The B. S. degree is intended primarily for students who may have career objectives in fields other than chemistry, but in fields where chemistry has direct application such as medicine, dentistry, pharmacy, business, and ecology. The B. S. in Chemistry degree is recommended for students planning a career in chemistry. However, with the proper choice of physics, mathematics, and physical chemistry courses, the regular B. S. program is also suitable for such students.

Prerequisites to the major are Chemistry 120-130 or (preferably) 121-131 or 126-138, Chemistry 140, and Mathematics 141-142 or 151-152. Corequisite to the major is Physics 221-222 or 131-231. The major consists of Chemistry 310, 319, 350-360, 369, 370-380 or 371-381, 379, and 10 hours of additional work in chemistry that includes at least one laboratory course or lecture/laboratory course; up to 6 hours of Biochemistry 410-420 or Geology 460 may be applied to the 10-hour requirement.

For students planning careers in chemistry, the recommended courses (from the list above) are Mathematics 141-142, Physics 131-231, and Chemistry 371-381; although not required, certain additional courses are strongly suggested for students planning to become chemists: Mathematics 241-251 and Chemistry 230, 320, 329, and 406. Because professional chemists need a reading knowledge of foreign languages, intermediate level competency should be acquired in German, French, or Russian. Students who are undecided about their career goals should consult a chemistry faculty advisor at the earliest opportunity. Unlike the Bachelor of Science in Chemical Engineering degree, the Chemistry major program is not approved by the Committee on Professional Training of the American Chemical Society.

A minor in chemistry shall consist of the successful completion of 15 hours of chemistry courses numbered 100 and above, including 310, 319 (4 hours) and at least one of the following sequences: 350-360, 369 (8 hours); or 370-380, 379 (8 hours); or 371-381, 379 (8 hours).

Cooperative Program

A cooperative program is available to students who are chemistry majors. After the freshman year, the student alternates a semester in school with a semester in a job in the chemical industry. The program normally requires five years and involves a total of four work semesters and eight school semesters. Students are required to have at least a 2.5 average to enter and remain in the program. Some opportunity exists for students to enter the program later than the end of the freshman year. Interested students should make application to the head of the department at least one semester in advance of the beginning of the first work period. Further information will be supplied on request.

Placement in General Chemistry Sequences

The sequences which meet all requirements of a year of general chemistry and which serve as prerequisites for upper-division courses are 120-130, 121-131, and 128-138; chemistry majors are strongly encouraged to take either of the latter sequences. Courses 100 and 110 emphasize organic and biochemistry, and may be used as prerequisites only for 431.

It is possible to move from one sequence to another if permission for substitution is obtained in advance. For example, a student who finds a need to complete the 120-130 series after having completed 100 may substitute 100 for 120 with approval of the Department of Chemistry and may then take 130. Credit may be received for only one of the courses 100, 120, 121, or 128.

In any chemistry course above the freshman level which has Chemistry 130 as a prerequisite, 110 may be used as a prerequisite with approval of the Department of Chemistry.

Chemistry 128-138 is an honors course designed for the student who has already made considerable progress in science. Class size is limited to promote faculty-student interaction. Selection is based on ACT scores, high school chemistry grade, and, if necessary, performance on a placement examination to be given during the first class meeting. A student receiving a passing grade below 2.5 in Chemistry 130 will complete the year's work by taking 130 or 131.

Beginning students who have had high school chemistry and who have had additional experience (e.g. summer institute study, special research projects, home laboratory) are invited to apply during the summer to the head of the department for permission to take a proficiency examination in one or more semesters of general chemistry. If a satisfactory grade is made on the examination, credit will be allowed for the semester (or course) for which the exam was taken. The Department of Chemistry gives credit in general chemistry to students who present satisfactory scores on the Chemistry Advanced Placement Examination.

CHINESE

See Cultural Studies (Asian Studies).

CLASSICS

Professors:

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

Associate Professors:

C. P. Craig, Ph. D. North Carolina (Chapel Hill); S. D. Martin, Ph. D. Michigan; J. E. Shelton, Ph. D. Vanderbilt; D. W. Tandy, Ph. D. Yale.

The B. A. major concentration in Greek consists of 27 hours including 21 hours of Greek language courses numbered above 200, and including 3 hours of Classics 422 (capstone); 6 hours chosen from Classics 221-222, 331, 334, 491. The student majoring in Greek is strongly encouraged to have as background History 310 before taking the capstone course. The student concentrating in Latin is encouraged to begin or take advanced work in Latin.

There are two intermediate options in the Greek program, both of which fulfill the Liberal Arts Language requirement and prepare students for advanced work in the third and fourth years. The Classical Option is 261 fol-
concentration; consult the Department for details.

AFRICA, AMERICAN AND ANTHROPOLOGICAL STUDIES

Chair: Dr. David W. Tandy (Classics)
Co-chair: Dr. W. L. Humphreys (Religious Studies)

The major concentration in Ancient Mediterranean Civilizations consists of Classics 381 and 382, History 366, and 18 additional hours from the following list, distributed in such a way that no more than 12 hours are in any one of the three divisions: (a) Ancient Near Eastern Cultures: Religious Studies 311, 312, 326; (b) Greek Culture: Classics 221, 222, 232, 233, 253, 331, 334, 383; History 310; Philosophy 120, 320; Political Science 475; Religious Studies 321, 322, 326, and (c) Roman Culture: Classics 222, 233, 254, 383, 462; History 311; Philosophy 120, 320; Political Science 475; Religious Studies 321, 322, 326, 416. Courses of variable content, topics courses, reading and research, off-campus, or foreign study in the Departments of Art, Classics, History, Philosophy, or Religious Studies can be applied to the three divisions as approved. Students are encouraged to satisfy the foreign language requirement with Greek, Latin, or Classical Hebrew.

ASIAN STUDIES

Chair: Dr. Walter C. Neale (Economics)

The Asian Studies major concentration consists of 27 credit hours from the upper-division courses of Asian Studies and approved departmental offerings. Fifteen of the hours must be taken from courses listed within one of the four geographical-cultural areas (Islamic World; South Asia; China; Japan), and no more than 9 of those 15 hours can come from one of the following subdivisions (A or B). Subdivision A includes Art, Literature, Music, Philosophy, and Religious Studies; Subdivision B includes Anthropology, Economics, Geography, History, Political Science, and Sociology. Prerequisite to the concentration is Asian Studies 101-102. Corequisite to the major concentration is competence in a major Asian language of the chosen geographical-cultural area. Competence is defined as the successful completion of the 200-level sequence of that language, or by demonstration of equivalent mastery.

The Asian Studies minor consists of Asian Studies 101-102 and 15 credit hours at the 200 level and above taken from courses within one of the four geographical-cultural areas. No more than 9 credit hours can come from one subdivision.

CINEMA STUDIES

Chair: Dr. Charles Maland (English)

The Cinema Studies minor consists of fifteen hours, including English 281 Introduction to the Film Studies, and Art 292 Film Design. It is strongly recommended that Introduction to Film Studies and Film Design be taken before selection of electives provided for in the minor.

For further information, consult the chairperson of the Cinema Studies Program.
Charles Maland, English Department. Other related departments include Classics as history, philosophy, and sociology may be approved through consultation with Dr. Maland.

Approved Area Courses are: Art 292 Film Design (3); 3-credit Advanced Film Design (3-6); Broadcasting 330 Producing for Radio (3); Broadcasting 433 Producing for Television (3); English 281 Introduction to Film Studies (3); English 334 Film and American Culture (3); and English 489 Special Topics in Film (3).

COMPARATIVE LITERATURE

Chair: Dr. H.C. Rutledge (Classics)

A major concentration in comparative literature consists of 27 hours including Comparative Literature 201 and 401-402, and 9 hours of literature in a foreign language in courses numbered 300 and above. This research is in the following categories: Classics, English, Germanic and Slavic Languages, Religious Studies, Romance Languages.

Certain courses in Philosophy and Speech Communication 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 18 hours including Comparative Literature 201 and either Comparative Literature 401 or 402, 6 hours of literature in a foreign language in courses numbered 300 and above, and 6 hours of literature courses numbered 300 and above in a different department. These 6 hours may be either in English or in a foreign language and should be chosen from the following departments: Classics, English, Germanic and Slavic Languages, Religious Studies, and Romance Languages. Certain Philosophy and Theatre courses may be substituted with the approval of the chairperson of the Comparative Literature Program. Minors in comparative literature are strongly encouraged to continue study of a foreign language beyond the minimum requirement.

LATIN-AMERICAN STUDIES

Chair: Dr. Michael H. Handelsman (Spanish)

The major concentration consists of 27 hours including Latin American Studies 401 and 402, three hours of either History 360 or 361, three hours of an approved Spanish or Portuguese literature/culture course at either the 300 or 400 level, and fifteen additional hours selected from courses offered by three different participating departments. Majors are strongly urged to take as a prerequisite Latin American Studies 251-252.

The minor consists of 18 hours including Latin American Studies 251-252, three hours of an approved Spanish or Portuguese literature/culture course at either the 300 or 400 level, and nine additional hours selected from courses offered by three different participating departments. A practical working knowledge of Spanish or Portuguese acquired independently is a prerequisite for majors and minors. All students are strongly encouraged to earn credit hours through UTK's Latin American Studies Abroad Program at the Federal University of Ceara in Fortaleza, Brazil. Other foreign study programs are also available for Brazil and Spanish-speaking Latin America.

Further information, consult with Dr. Michael Handelsman (601 McClung Tower), Chairperson of the Latin American Studies Program.

LINGUISTICS

Chair: Dr. Bethany K. Dumas (English)

This major concentration offers a broad exposure to the various fields of linguistics (including historical, descriptive, theoretical and applied linguistics) along with an opportunity to study areas where linguistics overlaps with other disciplines such as psycholinguistics, sociolinguistics, and speech pathology. The program of study 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. The program of study provides the additional possibility of emphasizing the teaching of English as a second language for the student interested in language-related employment at the B. A. level.

Students should consult program advisors early in planning a Linguistics major or minor. Audiology and Speech Pathology 305 should be taken as soon as possible. Other 300-level courses should, if possible, be completed before 400-level courses are begun.

Corequisites for the major concentration are Linguistics 200 (highly recommended); selection of the Foreign Studies option to fulfill the upper-level distribution requirement (required); and a two-semester sequence of a non-Indo-European language to be selected from the following: Asian Studies 121-122 (5,5) (Arabic); Asian Studies 131-132 (5,5) (Chinese); Asian Studies 141-142 (4,4) (Hebrew); Asian Studies 151-152 (5,5) (Japanese); Religious Studies 309-310 (3,3) (Hebrew); other non-Indo-European language sequences approved by the Linguistics Committee (required).

The concentration shall consist of 30 hours distributed as follows: (a) 24 hours composed of Audiology and Speech Pathology 305 (3); English 371, 372, and 471 (3,3,3); French, German, Italian, or Spanish 425-426 (3,3); and Linguistics 420-430 (3,3); and (b) 6 hours of the following, selected in consultation with the Linguistics Committee: Anthropology 411 (3); Audiology and Speech Pathology 320, 465, 579, (3,3,3); Educational Curriculum and Instruction 457 (3); Special Education and Rehabilitation 522 (3), 532-533 (3,3); English 371, 372, 472, 475, 486, 508-509, 680 (3 hours each); French 421, 422, 521-522 (3,3); German 435-436 (3,3), 571-572 (3,3); Linguistics 400 (3); Philosophy 479 (3); Psychology 450, 482, 543, (3 hours each); Spanish 421, 422, 531-532 (2,3,3,3); Theatre 426 (4).

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

A minor in Linguistics shall consist of 18 credit hours composed of (1) either English 471 (3) or 3 hours from section (b) of the major, selected in consultation with the Linguistics Committee; and (2) 15 hours as follows: Audiology and Speech Pathology 305 (3); English 371 (3) or 372 (3); French, German, Italian, or Spanish 425 (3) or 426 (3), and Linguistics 420-430 (3,3).

Note: In addition to the above listed courses for the concentration and the minor there are occasional 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.

MEDIEVAL STUDIES

Chair: Dr. Paul Barrette (French)

A major concentration in Medieval Studies consists of Medieval Studies 201 and 403 and 21 hours of upper-division courses concerned primarily with the Medieval experience, divided among the following three categories of course offerings: (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 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.

Latin is the most appropriate language for students in the Medieval Studies concentration and is essential for those who plan to continue their studies in graduate school. In addition, students planning to go on to graduate school are strongly advised to supplement their Medieval Studies concentration with extensive work in one of the traditional disciplines.

A minor in Medieval Studies consists of Medieval Studies 201 and 403 and 12 additional hours distributed among the categories listed above for the major. Each student's program, major or minor, must be approved in advance by the Medieval Studies Coordinating Committee, chairperson Dr. Paul Barrette.

Category #1: History, Philosophy, and Political Science: History 312 Medieval History: 300-1100 (3); History 313 Medieval History: 1100-1400 (3); History 330 History of England to 1868 (3); History 334 History of Germany to 1815 (3); History 369 History of the Middle East (3); History 474 Studies in Medieval and Early European History (3); Philosophy 322 Medieval Philosophy (3); and
Political Science 475 Ancient and Medieval Political Thought (3).

Category 1 Language and Literature: Classics 435 Medieval Latin (3); English 371 Foundations of the English Language (3); English 401 Medieval Literature (3); English 402 Chaucer (3); French 410 Medieval French Literature (3); Italian 411 Dante and Medieval Culture (3); and Italian 402 Petrarch and Boccaccio (3).

Category 3 The Arts: Architecture 415 Seminar in Medieval Architecture (3); Art 371 Early Christian and Byzantine Art to 1350 (3); Art 372 Northern European Painting, 1350-1600 (3); Art 381 Medieval Art of the West, 800-1450 (3); Art 382 The Art of Italy, 1250-1400 (3); and Music History 210 History of the Music to 1750 (3).

RUSSIAN AND EAST EUROPEAN STUDIES
Chair: Dr. William Fierman (Political Science)

The major concentration consists of 30 hours from the following: Geography 375, six hours from History 340-341, Philosophy 393; Political Science 459 and four additional hours from Political Science 467, 574; Russian 311-312; Russian and East European Studies 410; and additional hours in courses numbered 301 and above offered by the Russian section of the Department of Germanic and Slavic Languages. Recommended prerequisites to the major concentration are the completion of Russian 201-202 and Russian Culture 371-372.

URBAN STUDIES
Chair: James A. Spencer (Graduate School of Planning)

Urban Studies is a valuable major concentration for students who plan to work in such areas as housing, real estate, development, neighborhood organization, and environmental design.

A major concentration in Urban Studies consists of a minimum of 30 semester hours, including Urban Studies 250, 350, 450, 460, and at least 15 additional semester hours from the Urban Studies curriculum. A minor consists of 18 semester hours, including Urban Studies 250 and 350 plus additional semester hours from the Urban Studies curriculum.

Women's Studies
Chair: Dr. Martha L. Osborne (Philosophy)

Women's Studies encourages inquiry into the full range of the human experiences by raising new questions and opening new areas of research concerning women. The discipline enriches the traditional liberal arts curriculum by adding new perspectives on women's lives and accomplishments. Women's Studies can broaden the education of both male and female students by helping them to understand the limitations placed on both sexes by narrowly defined sex roles.

The Women's Studies Program offers a wide variety of courses, some interdisciplinary in nature and others originating in supporting departments throughout the university. These courses may be taken as electives, they may be used to satisfy requirements in various colleges, or they may serve as a concentration in Women's Studies within a Cultural Studies major or minor.

The major concentration in Women's Studies consists of 30 semester hours including one of the Images of Women in Literature courses (either 210 or 215), Women in Society (220), Emergence of the Modern American Woman (310), at least three hours of Independent Study (493), and at least one course from each of the three major areas: Women's Heritage (324, 325, 383, 432, 453, 486, 483), Contemporary Issues (375, 382, 410, 425, 434), and Literature and the Arts (330, 332, 422). As its content varies, 400 may be included in any of these areas. Students are encouraged to take at least nine hours in one of these areas.

The Women's Studies minor consists of one of the Images of Women in Literature courses (either 210 or 215), Women in Society (220), and an additional 12 hours of upper-division Women's Studies courses. Special topics courses related to Women's Studies may also be applied toward a major or a minor.

ECOLOGY
Dewey L. Bunting, Director

Basic Faculty:

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

Application forms for admission should be obtained from the Graduate School. Important concern to the Graduate Program requirements should be addressed to the Director, Graduate Program in Ecology, University of Tennessee, Knoxville, Tennessee, 37996-1610. Consult the Graduate Catalog for listing of graduate level courses.

ECONOMICS
See faculty list, page 57.

The program in economics combines a broad liberal education with the rigorous study of current issues of the day such as employment, inflation, currency, 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.

Requirements for a B. A. major in economics consist of: (1) Economics 201 or equivalent honor courses; (2) Economics 310, 311, 312 plus 21 additional hours in upper division economics courses. Majors are encouraged
to satisfy Part II of the Natural Science Distribution requirement with one of the mathematics packages Mathematics 115-121, 121-122, or 141-142. Students planning graduate work in Economics should elect Mathematics 141-142.

An English minor consists of 1) Economics 201; and 2) 9 additional hours in economics at the upper-division level. Minors are encouraged to include Economics 311 and 313.

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

ENGLISH

Professors:

D. M. Scoura (Head), Ph. D. North Carolina;

P. G. Adams (Young Professor and Emeritus), Ph. D. Texas;

J. M. Armistead, Ph. D. Duke;

E. W. Brattom (Associate Head), Ph. D. Cambridge;

D. A. Carroll, Ph. D. North Carolina;

D. R. Cox, Ph. D. Missouri;

K. Curry (Emeritus), Ph. D. Yale;

R. Y. Drake, Jr., Ph. D. Yale;

W. Dykeman (Adjunct), B. A. Northwestern;

A. R. Ensor, Ph. D. Indiana;

J. H. Fisher (John C. Hodges Professor and Emeritus), Ph. D. Pennsylvania;

N. M. Goslee, Ph. D. Yale;

T. J. A. Heffernan, Ph. D. Cambridge;

R. M. Kelly (Young Professor), Ph. D. Duke;

D. F. Goslee (Emeritus), Ph. D. Wisconsin;

J. A. Williamson, M. A. Southern Illinois;

Prerequisites and Corequisites: (1) English 101 and 102, or the equivalents, are prerequisites to all English courses at the 200, 300, and 400 levels; and (2) as a graduation requirement for a B.A., each English major must complete the equivalent of the second year of a foreign language, maintaining a grade average of C in the courses used to fulfill this requirement (D's in some of these courses may be counted if the overall average of all undergraduate courses is better than C). If a student earns a grade average of C in the courses used to fulfill this requirement (D's in some of these courses may be counted if the overall average of all undergraduate courses is better than C), another student earns less than a C average, he or she must repeat courses and/or petition the department for a waiver.

Major Requirements: At least 36 semester hours of course work in the English Department, 30 of which must be at the 300 or 400 level.

For all English Majors: (1) English 201-202 (British Literature), 211-222 (Literature of the Western World, or any two of 231-232-233 (American Literature). This requirement should be satisfied, if possible, before the student takes courses at the 300-400 level; and (2) English 371 or 372 (study of the English language).

Concentration in Literature: Nine English courses at the 300-400 level, including: (1) English 376 (Colloquium in Literature), to be taken, if possible, near the beginning of the student's major program; (2) at least four courses in literature before 1900, including at least two before 1800 (see departmental brochure, Undergraduate Study in English, for a course list), and (3) four other courses, at least one of which is based on an approach to literature other than literary history (see departmental brochure, Undergraduate Study in English, for a course list).

Concentration in Writing: Nine English courses at the 300-400 level, including: (1) a two-semester sequence in expository, technical, or creative writing; (2) three other courses in writing; and (3) four other courses, at least three of which must be literature courses selected in consultation with the advisor.

Individualized Program: The Dean is empowered to approve individualized programs developed by students in consultation with their advisors.

Instructors:

J. L. Bell, Ph. D. Tennessee; M. J. Calfee,

M. A. Tennessee; P. F. Clark, Ph. D. Houston;

K. C. Comb, Ph. D. Oxford; W. W. Demestes, Ph. D. Wisconsin;

M. Emery, M. A. New York; B. A. Fogelman,

Ph. D. New York; R. J. Frontain, Ph. D. Purdue;

G. R. Grieve-Carlton, Ph. D. Boston;

P. J. Hanse, Ph. D. Cornell; G. M. Hoffman,

M. A. Iowa; M. S. Lewis, Ph. D. Tennessee;

E. O. Overby, M. A. Virginia; M. G. Ringer,

Ph. D. Oklahoma State; M. H. Simpson, M. A. Oregon;

P. A. Tschantz, M. A. New Mexico State;

C. J. Wheatley, Ph. D. Wisconsin;

J. A. Williamson, M. A. Southern Illinois.

American, British, and world literatures. To be given "Honors" in English on the transcript, a student must have achieved a 3.0 or better GPA, a 3.5 or better grade point in English scores, and grades of A or B in English 398 and 498.

An English minor consists of at least 15 semester hours of English courses at the 300-400 level.

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

Graduate Study: Students wishing to enter a graduate program in English should address inquiries to the Dean of the Graduate School. To be accepted for graduate study in English, the student should in general have had at least eighteen semester hours in English courses above the freshman and sophomore level with a better than B average and a B average in those undergraduate courses. Students who lack eighteen semester hours of undergraduate English may be required to take and pass with a grade of B or better a designated number of undergraduate courses at The University of Tennessee before being admitted to graduate study. Admission is also dependent on satisfactory GRE scores. Consult the Graduate Catalog for specific requirements.

FRENCH

See Romance Languages.

GEOGRAPHY

Professors:

S. R. Jumper (Head), Ph. D. Tennessee;

C. S. Aiken, Ph. D. Georgia; T. L. Bell, Ph. D. Iowa; E. H. Hammond (Emeritus), Ph. D. California (Berkeley); R. G. Leitch (Emeritus), Ph. D. Northwestern; C. W. Minkel (Vice Provost and Dean for Graduate Studies), Ph. D. Syracuse; C. T. Paludan, Ph. D. Colorado; B. A. Raulston, Ph. D. Northwestern; H. H. Schmudde, Ph. D. Wisconsin; T. J. Wilbanks (Adjunct), Ph. D. Syracuse.

Associate Professors:

L. W. Brinkman, Jr., Ph. D. Wisconsin; C. P. Harden, Ph. D. Pennsylvania; M. Emery, M. A. New York; R. A. Forresta, Ph. D. Rutgers; L. M. Pulsipher, Ph. D. Southern Illinois; J. B. Rehder, Ph. D. Louisiana State.

Assistant Professors:

T. J.Blasing (Adjunct), Ph. D. Wisconsin; C. P. Harden, Ph. D. Colorado (Boulder); S. P. Horn, Ph. D. California (Berkeley).

A B. A. major in Geography consists of Geography 310, 320, 330, 340, 415 and 499, along with an additional 18 hours selected from geography courses at the 300 and 400 levels. At least one course must be chosen from among Geography 361, 363, 365, 372, 373, 375, and 379, and at least nine of the 18 additional hours must be at the 400 level.

Minor: Geography 101-102 are recommended as an introduction to the minor.
which consists of Geography 310, 320, 330¹, and 340, and six additional hours of upper-division work in geography, including at least three hours at the 400 level.

¹Students who have successfully completed Geography 131-132 are considered to have satisfied this course requirement in the geography major or minor.

GEOLoGICAL SCIENCES

Professors:
H. Y. McSweeney (Head), Ph. D. Harvard; R. D. Hatcher (UK/ORNL Distinguished Scientist), Ph. D. Tennessee; H. J. Kleipser (Emeritus), Ph. D. Ohio State; O. C. Kopp, Ph. D. Columbia; K. C. Misra, Ph. D. Western Ontario; R. E. McLaughlin (Emeritus), Ph. D. Tennessee; L. A. Taylor, Ph. D. Lehigh; K. R. Walker (Carden Professor), Ph. D. Yale; J. G. Waits (Emeritus), Ph. D. North Carolina.

Associate Professors:
D. W. Byerly, Ph. D. Tennessee; T. W. Broadhead, Ph. D. Iowa; M. Clark, Ph. D. Pennsylvania State; P. A. Delcourt, Ph. D. Minnesota; S. G. Dienes, Ph. D. Wisconsin; W. M. Dunne, Ph. D. Bristol; T. C. Labotka, Ph. D. Caltech; R. T. Williams, Ph. D. V. P. I.

Assistant Professor:
W. M. Dunne, Ph. D. Bristol.

Prerequisites to a B. S. major are: Geology 101-102; Chemistry 120-130; Mathematics 141-142; three semesters from Physics 131-132; Biology 110-120. This requirement includes a two semester sequence in one area plus a single semester in the other; the single semester may be satisfied by high school course work in that area.

Major requirement consists of: Geography 310, 320, 330, 340, 370 (16 hours); 3 courses from: Geology 410, 420, 440, 450, 460, 470, 480; and 6 hours of geology courses numbered 300 or above. Geology 440 (field camp) is strongly recommended for students planning a career in geology.

Minor requirement consists of: Prerequisites: Geology 101-102. Geology courses: at least 16 hours of courses numbered 200 or higher.

GERMANIC AND SLAVIC LANGUAGES

Professors:
J. E. Falan, Ph. D. Pennsylvania; D. M. Fiene, Ph. D. Indiana; H. W. Fuller (Emeritus), Ph. D. Wisconsin; H. Kratz, Ph. D. Ohio State; Ph. D. Cornell; J. C. Osborne, Ph. D. Northwestern; M. P. Rice, Ph. D. Vanderbilt; U. C. Rittenhoff, Ph. D. Connecticut.

Associate Professors:
D. M. Fiene, Ph. D. Indiana; C. Hodges, Ph. D. Chicago; N. A. Lauckner, Ph. D. Wisconsin; D. E. Lee (Head), Ph. D. Stanford; C. J. Mellor, Ph. D. Chicago; U. C. Rittenhoff, Ph. D. Connecticut.

Assistant Professor:
J. Kolodziej, Ph. D. Indiana.

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

Placement Examination. Students who have had previous work in German or Russian either at high school or at another college should take a placement test to determine what level course they should elect. Placement tests are given for incoming freshmen during orientation in the summer, and also the first week of each semester.

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 B or better on such a test will receive credit for an appropriate number of courses. Superior students are encouraged to proceed as rapidly as their achievement permits. Students who omit any course in a sequence may receive credit for it by passing a proficiency examination.

Foreign Study. Students are encouraged to study abroad, particularly through participation in the University's International Student Exchange Program (ISEP). The department is also prepared to recommend summer study programs and year abroad programs for students who are interested in foreign study. Credits from recognized foreign study programs can readily be transferred to UK. For qualified students, the department also offers German 491 Foreign Study and Russian 491 Foreign Study. Students should consult the department before registering for the foreign study course.

B. A. Major in German. Majors or minors in German should carefully prepare their programs in consultation with a departmental faculty advisor. German 201-202 or the equivalent is a prerequisite to the major. The major shall consist of at least 24 hours of German in courses numbered above 300, including German 363 and usually including German 301-302. Courses in English translation or German 331-332 do not count toward the major. In order to graduate, majors will be required to take a proficiency test in German. It is recommended that German majors also take History 151-152 or 334-335 and 6 hours of 200 level English courses. Majors are also strongly urged to consider a minor in some other area of the humanities.

Minor in German. German 201-202 or its equivalent is a prerequisite to the minor. The minor shall consist of at least 18 hours of German courses numbered above 300, which normally include German 301-302 and 12 additional hours of courses numbered above 300 (excluding 331-332 and courses in English translation).

B. A. Major in Russian. Russian 201-202 is a prerequisite to the major. Russian majors should prepare their programs in consultation with the departmental faculty advisor. The major in Russian shall consist of at least 30 hours of Russian courses, including Russian 301-302, 311-312, 401-402, 451-452, and 6 hours of courses from Russian 221, 222, 226, 321, 322, 326, 371, 372, or other courses numbered above 400. It is recommended that majors also take Russian History 340-341 and 6 hours of sophomore

HISTORY

Professors:
P. H. Bergeron, Ph. D. Vanderbilt; E. V. Chmielewski, Ph. D. Harvard; R. E. Duncan, Ph. D. California (Berkeley); J. R. Finger, Ph. D. Washington; L. P. Graf (Benwood Distinguished Service Professor and Emeritus), Ph. D. Lehigh; L. C. Jackson (Associate Dean, Liberal Arts College). Ph. D. Emory; M. H. Harris, Ph. D. Case Western Reserve; L. A. Ratner (Dean, Liberal Arts), Ph. D. Cornell; W. B. Wheeler, Ph. D. Virginia.

Associate Professors:
S. D. Becker, Ph. D. Case Western Reserve; J. D. Bing, Ph. D. Indiana; J. Bohstedt, Ph. D. Harvard; C. W. Johnson, Ph. D. Michigan; C. G. Fleming, Ph. D. Duke; J. Muldowny (Acting Head), Ph. D. Yale; P. J. Pinkney, Ph. D. Vanderbilt; E. H. Trainer, Ph. D. Emory; J. G. Utley, Ph. D. Illinois.

Assistant Professors:
P. H. Brummett, Ph. D. Chicago; W. W. Farris, Ph. D. Harvard; C. L. Lansing, Ph. D. Michigan; C. D. Matson, Ph. D. Columbia.

The department's program is designed to provide students with a knowledge of their cultural traditions and of their world, past and present, and thus to prepare them for the responsibilities of citizenship in today's complex society. Students take history courses to develop their skills in thinking, reading, writing and speaking; to understand the links between past, present and future; and to assist them in their search for personal identity.

B. A. Major. Majors in history should prepare their programs in consultation with a department faculty advisor. History 151-152 (or their honors equivalents) or 161-162 are prerequisites to a major which consists of 27 hours, including: (1) 6 hours of History 251-252 or (their equivalents); and (2) 21 upper-division hours. The distribution of the upper-division courses shall be in such a way that they include at least one course dealing predominantly with a period prior to
1750 and at least one course in each of the following areas: (a) Europe-Latin America, (b) United States, and (c) Asia-Africa.

Minor. History 151-152 (or honors equivalents) are prerequisites to a minor which consists of 15 hours of courses numbered 200 or above, including at least: (1) 6 hours in United States history; and (2) 9 upper-division hours.

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

Honors Program. The Department of History offers honors sections of the Western Civilization and United States history survey course. Some entering freshmen are invited to participate; other interested students may apply. These survey courses are open to non-majors. An honors major requires successful completion of two special courses at the junior level (307-308), and a senior thesis (407-408). The honors major consists of 33 hours, including 27 hours as outlined above, plus 307-308. All rising juniors who are declared history majors with an overall GPA of at least 3.0 are invited to join the Junior-Senior Honors Program. Students interested in honors work should consult the department's honors coordinator.

ITALIAN
See Romance Languages.

JAPANESE
See Cultural Studies (Asian Studies).

LATIN
See Classics.

LATIN AMERICAN STUDIES
See Cultural Studies.

LINGUISTICS
See Cultural Studies.

MATHEMATICS

Professors:
J. S. Bradley (Head), Ph. D. Iowa; G. E. Albert (Emeritus), Ph. D. Wisconsin, D. F. Anderson, Ph. D. Chicago; G. A. Baker, Ph. D. Cornell; J. H. Carruth, Ph. D. Louisiana State; C. E. Clark, Ph. D. Louisiana State; R. J. Daverman, Ph. D. Wisconsin; D. J. Dessart, Ph. D. Maryland; D. E. Dobbs, Ph. D. Cornell; E. D. Eaves (Emeritus), Ph. D. Texas; H. Freindson, Ph. D. Illinois; T. G. Hallam, Ph. D. Missouri; D. B. Hinton, Ph. D. Tennessee; A. S. Householder (Emeritus), Ph. D. Chicago; L. S. Husch, Ph. D. Florida State; K. Johannson, Ph. D. Bielefeld, West Germany; G. S. Jordan, Ph. D. Wisconsin; B. A. Kupershmidt (Space Institute, Tullahoma), Ph. D. Massachusetts Institute Technology; H. T. Mathews, Ph. D. Tulane; R. M. McConnell, Ph. D. Duke.

D. D. Miller (Emeritus), Ph. D. Michigan; B. S. Rajput, Ph. D. Illinois; C. K. Reddy (Space Institute, Tullahoma), Ph. D. Indian Institute of Technology; P. W. Schaefer, Ph. D. Maryland; S. M. Serbin, Ph. D. Cornell; F. W. Stallmann (Emeritus), Ph. D. Giessen (Germany); K. R. Stephenson, Ph. D. Wisconsin; E. Wachspress, Ph. D. Research Technik Polytechnic Institute; W. R. Wade, Ph. D. California (Riverside); C. G. Wagner, Ph. D. Duke; J. J. Walsh, Ph. D. SUNY (Binghamton); S. Richter, Ph. D. Michigan

Honors Associate Professors:
V. Alexiades, Ph. D. Delaware; N. Aliakos, Ph. D. Brown; J. Dyadak, Ph. D. Warsaw (Poland); L. T. Gross, Ph. D. Cornell; O. Karakashian, Ph. D. Harvard; K. R. Kimble (Space Institute, Tulahoma), Ph. D. Ohio State; Y. Kuo, Ph. D. Cincinnati; S. Lanhart, Ph. D. Kentucky; J. Rosinski, Ph. D. Wroclaw University; H. W. Row, Jr., Ph. D. Wisconsin, H. Simpson, Ph. D. California Institute of Technology; J. Smith, Ph. D. California (Berkeley); B. K. Soni (Space Institute, Tulahoma), Ph. D. Texas; R. P. Soni, Ph. D. Oregon State; C. Sundberg, Ph. D. Wisconsin.

Assistant Professors:
L. Bales, Ph. D. Cornell; J. A. Haefner, Ph. D. Wisconsin; M. Kot, Ph. D. Arizona; S. Mulay, Ph. D. Purdue; B. K. Soni (Space Institute, Tulahoma), R. Sivisky, Ph. D. John Hopkins.

Instructor:
C. G. Doss, M. A. Tennesseee.

B. S. Major: Mathematics 141-142 (or the Honors version, 147-148) is prerequisite to a major in Mathematics. Majors must also have computer programming skills sufficient to take 371; students without other computing experience should take Introduction to Computer Science 100, 101, or 102. The courses required for the major are: 221 Discrete Mathematics I (3); 231 Differential Equations I (3); 241 calculus III; or 247 Honors: Calculus III (4); 251 Matrix Algebra I; or 257 Matrix Algebra II (3); and nine additional hours selected from Mathematics courses numbered 301-442.

Honors B. S. Major: Candidates for an honors degree in Mathematics must fulfill all of the requirements for the B. S. degree in Mathematics, but take 12 (rather than 9) hours in Mathematics courses numbered 421 through 472. The grade point average computed on the 24 hours of Mathematics courses consisting of 323, 341, 351, and 371, plus 12 hours of Mathematics courses numbered 421 through 472, will determine the honors category: GPA at least 3.4 - Honors; GPA at least 3.6 - High Honors; GPA at least 3.8 - Highest Honors.

Students with credit for more than 12 hours in courses numbered 421 through 472 may designate the 12 hours to be included in the above average.

Minor: Mathematics 141-142 (or 147-148) is prerequisite to a minor in Mathematics. A minor in Mathematics consists of (1) 241 and 251; (2) 221 or 231; and (3) nine additional hours in Mathematics courses numbered 300 or higher. The grade in each of the above courses must be at least C.

MEDIEVAL STUDIES
See Cultural Studies.

MEDICAL BIOLOGY/ MEMORIAL RESEARCH CENTER

The Department of Medical Biology of The University of Tennessee College of Medicine-Knoxville Unit was formed from the faculty of The University Memorial Research Center and Hospital in 1978. The Research Center was founded in 1956. The faculty has research, education, and service interests in cancer, blood diseases, metabolism, neuroscience, birth defects, cytogenetics and clinical genetics. Courses in these areas are offered to students at the graduate and undergraduate levels. Elective courses are also available to students in the College of Medicine.

The faculty with the College of Veterinary Medicine participates in the graduate program leading to M. S. and Ph. D. degrees in Comparative and Experimental Medicine. Other advanced degree students can do thesis research in the department by arrangement with other life science departments at the University.

MICROBIOLOGY

Professors:
Dwayne C. Savage (Head), Ph. D. California (Berkeley); A. Brown, Ph. D. Chicago; R. W. Beck, Ph. D. Wisconsin; J. M. Becker, Ph. D. Cincinnati; D. A. Brian, Ph. D. D. V. M. Michigan State; T. C. Monte, Ph. D. Maryland; W. S. Riggsby, Ph. D. Yale; B. T. Rousseau, Ph. D. Pennsylvania; B. V. Sc., Bristol (England); G. S. Sayler, Ph. D. Idaho; D. C. White (Distinguished Scientist), M. D. Tufts, Ph. D. Rockefeller; J. M. Woodward (Emeritus), Ph. D. Kansas; C. J. Wust, Ph. D. Indiana.

Associate Professor:
D. Bemis, Ph. D. Cornell; R. N. Moore, Ph. D. Texas (Austin); G. Stacey, Ph. D. Texas (Austin).

Assistant Professors:
J. P. Weir, Ph. D. Vanderbilt.

B. S. Major: Prerequisites are Biology 150 or 110-120, Chemistry 126-130, and Mathematics 151-152 or 141-142. The major consists of Biology 210-220, Chemistry 350-360-369, Biochemistry 410, Microbiology 310, 319, 410, 425, 430, 439 and 8 additional hours of 400-level Microbiology courses, of which at least 1 hour must be a laboratory course.

MEDICAL TECHNOLOGY

Courses in this major are open only to qualified students who have completed the first three years of the Science-Medical Technology Curriculum, described in the College of Liberal Arts curricula section of this catalog, and who have been approved by the Medical Technology Admissions Committee.
MUSIC

Professors:
J. J. Meacham (Head), M. M. Northwestern;
G. C. Bitzas, M. M. Converse; J. P. Brock,
M. M. Alabama; W. J. Carter (Emeritus),
D. M. A. Eastman; J. Coker, M. A. Sam
Houston; F. M. Combs, M. A. Missouri;
G. H. DeVinne (Emeritus), Schurz
(Chicago); W. J. Dorn, M. A. Columbia;
H. W. Fred, Ph. D. North Carolina;
A. G. Holford (Emeritus), M. M. Northwestern;
C. R. Huber, Ph. D. North Carolina;
J. A. Lannon, M. A. Michigan;
D. B. Northington, D. M. A. Yale;
D. M. Pederson, Ph. D. Iowa; W. J. Starr
Emeritus, M. M. Eastman;
D. D. Stutzenberger, D. M. A. Maryland;
D. Van Vactor (Emeritus), M. M. Northwestern.

Associate Professors:
W. Bommelje, M. M. Tulia; M. C. Fraley,
B. M. Oberlin Conservatory;
P. M. Horodysky, Ph. D. Manhattan School
of Music; D. C. Hough, M. M. Tennessee;
D. H. Hough, M. M. Tennessee; J. A. Jacobs,
D. M. A. Texas; A. E. Johnson, D. M. A.
Stanford; D. K. McClelland, M. A. Columbia;
L. W. Michaelonulos, M. A. Columbia;
W. P. Scarlett, M. M. Louisiana State;
S. R. Searle, M. M. Tennessee; G. M. Sperl,
M. M. Indiana; J. C. Teachey, D. M. A. Florida
State; S. E. Young, Ph. D. North Carolina.

Assistant Professors:
D. Brown, Memphis State; W. W. Hawthorne,
Ph. D. Cincinnati; C. F. Leach, M. M. New
Mexico; W. S. MacMorran, M. M. Wisconsin;
E. Schroeder, Ph. D. Stanford; G. M. Sperl,
M. M. Indiana.

Bachelor of Music Degree

The Department of Music offers curricula leading to the Bachelor of Music degree with concentrations in music theory, composition, electronic music, music history and literature, and applied music (voice; piano; organ; sacred music); chamber music; and music education. This study prepares students for graduate music study or for positions in music for which a professional music degree is required.

The General Education V (6 hours foreign language requirement) is in addition to the University admission requirement. Students may continue at the 200 level in a language begun in high school or elect to begin a new language at the 100 level. Students majoring in vocal performance must complete one year of each of two languages chosen from French, German and Italian. Students majoring in music history and literature must complete two years of either French or German. ENSEMBLES

Ensemble participation during each semester 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 semester; (2) woodwind, brass, and percussion students must acquire a minimum of four 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 four credits in any of the following ensembles: Concert Choir, Choral 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.

APPLIED MUSIC

Applied study is classified as Principal or Secondary.

Students studying their principal (major) instrument register for credit appropriate to their program, 2-4 credit hours; students studying a secondary instrument register for 1 hour of credit. Study at the principal level receives one hour of private instruction per week or a one-hour class lesson plus a half-hour private lesson. Determination of the mode of instruction rests with the department. Study at the secondary level receives one-half hour private instruction per week or its equivalent in class instruction. Applied music courses do not permit non-credit registration or majors elect non-conventional grading.

Non-music students will be accepted at the secondary level if they meet audition requirements established by area faculty (piano, voice, violin, etc.) and instruction time is available.

Undergraduate students seeking entrance to applied music courses must be concurrently registered for no less than six credit hours in academic courses. Exception to these requirements may be made with the approval of the department head. Applied music registration is necessary to completion of degree requirements.

Applications are made on the standard music application form, available at any time. Students must be concurrently registered for no less than six credit hours in academic courses. Exceptions to these requirements may be made with the approval of the department head. Applied music registration is necessary to completion of degree requirements.

Ensemble participation during each semester 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 semester; (2) woodwind, brass, and percussion students must acquire a minimum of four 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 four credits in any of the following ensembles: Concert Choir, Choral 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.

APPLIED MUSIC

Applied study is classified as Principal or Secondary.

Students studying their principal (major) instrument register for credit appropriate to their program, 2-4 credit hours; students studying a secondary instrument register for 1 hour of credit. Study at the principal level receives one hour of private instruction per week or a one-hour class lesson plus a half-hour private lesson. Determination of the mode of instruction rests with the department. Study at the secondary level receives one-half hour private instruction per week or its equivalent in class instruction. Applied music courses do not permit non-credit registration or majors elect non-conventional grading.

Non-music students will be accepted at the secondary level if they meet audition requirements established by area faculty (piano, voice, violin, etc.) and instruction time is available.

Undergraduate students seeking entrance to applied music courses must be concurrently registered for no less than six credit hours in academic courses. Exceptions to these requirements may be made with the approval of the department head. Applied music registration is necessary to completion of degree requirements.

Advancement in applied music is measured by proficiency (Jury) examination. Students who do not meet proficiency requirements at any level may be required additional study at that level. Course level and credit hours will be determined by the applied faculty.

All students studying applied music at the principal level are required to register for Music General 200 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 semester as partial fulfillment of applied music credit requirements.

Applied Music Fees: $45 per semester for half-hour lesson (1 credit hour) $90 per semester for hour lesson (2-4 credit hours). Computer registration and applied music study fees are not refundable.

B. M. Curriculum in Sacred Music (Organ or Piano)

<table>
<thead>
<tr>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
<td>English Composition</td>
</tr>
<tr>
<td>Music Theory 110, 120</td>
<td>6</td>
</tr>
<tr>
<td>Music Theory 130, 140</td>
<td>6</td>
</tr>
<tr>
<td>Music History 200</td>
<td>3</td>
</tr>
<tr>
<td>Music Performance 190°</td>
<td>6</td>
</tr>
<tr>
<td>Music Ensemble</td>
<td>2</td>
</tr>
<tr>
<td>Foreign Language</td>
<td>6</td>
</tr>
<tr>
<td>Music General 200</td>
<td>0,0</td>
</tr>
<tr>
<td>Sophomore</td>
<td>Religious Studies, Non-U.S. History or Social Science</td>
</tr>
<tr>
<td>Music Theory 210, 220</td>
<td>6</td>
</tr>
<tr>
<td>Music Theory 230, 240</td>
<td>2</td>
</tr>
<tr>
<td>Music History 210, 220</td>
<td>6</td>
</tr>
<tr>
<td>Music Performance 290°</td>
<td>6</td>
</tr>
<tr>
<td>Music Ensemble</td>
<td>2</td>
</tr>
<tr>
<td>Music Voice 110-120 or Music Performance 155, 2</td>
<td>6</td>
</tr>
<tr>
<td>Music Education 330</td>
<td>3</td>
</tr>
<tr>
<td>Music General 200</td>
<td>0,0</td>
</tr>
<tr>
<td>Junior</td>
<td>Mathematics, or Natural Science</td>
</tr>
<tr>
<td>Music History Elective</td>
<td>3</td>
</tr>
<tr>
<td>Music Theory 310</td>
<td>3</td>
</tr>
<tr>
<td>Music Keyboard 230-240°</td>
<td>3</td>
</tr>
<tr>
<td>Music History 460, 490</td>
<td>6</td>
</tr>
<tr>
<td>Music Performance 390°</td>
<td>6</td>
</tr>
<tr>
<td>Music Education 310-329</td>
<td>6</td>
</tr>
<tr>
<td>Music Ensemble</td>
<td>2</td>
</tr>
<tr>
<td>Music General 200</td>
<td>0,0</td>
</tr>
<tr>
<td>Music General 301</td>
<td>0</td>
</tr>
<tr>
<td>Senior</td>
<td>General Education</td>
</tr>
<tr>
<td>Music Keyboard 310-320°</td>
<td>2</td>
</tr>
<tr>
<td>Music Keyboard 490-470°</td>
<td>6</td>
</tr>
<tr>
<td>Music Performance 490°</td>
<td>6</td>
</tr>
<tr>
<td>Music Ensemble</td>
<td>2</td>
</tr>
<tr>
<td>Electives</td>
<td>10</td>
</tr>
<tr>
<td>Music General 300</td>
<td>0</td>
</tr>
<tr>
<td>Music General 401</td>
<td>0</td>
</tr>
</tbody>
</table>

Total: 130 hours
**B. M. Curriculum in Sacred Music (Voice)**

<table>
<thead>
<tr>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
<td>English Composition</td>
</tr>
<tr>
<td></td>
<td>Music Theory 110, 120</td>
</tr>
<tr>
<td></td>
<td>Music Theory 130, 140</td>
</tr>
<tr>
<td></td>
<td>Music History 200</td>
</tr>
<tr>
<td></td>
<td>Music Performance 155</td>
</tr>
<tr>
<td></td>
<td>Music Ensemble</td>
</tr>
<tr>
<td></td>
<td>Music Keyboard 110-120</td>
</tr>
<tr>
<td></td>
<td>Music General 200</td>
</tr>
<tr>
<td>Sophomore</td>
<td>Music History (300 or above)</td>
</tr>
<tr>
<td></td>
<td>Music 111</td>
</tr>
<tr>
<td></td>
<td>Music General 401</td>
</tr>
</tbody>
</table>

Total: 128 hours

---

**B. M. Curriculum in Sacred Music (Instrumental)**

<table>
<thead>
<tr>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
<td>English Composition</td>
</tr>
<tr>
<td></td>
<td>Music Theory 110, 120</td>
</tr>
<tr>
<td></td>
<td>Music Theory 130, 140</td>
</tr>
<tr>
<td></td>
<td>Music History 200</td>
</tr>
<tr>
<td></td>
<td>Music Performance 155</td>
</tr>
<tr>
<td></td>
<td>Music Ensemble</td>
</tr>
<tr>
<td></td>
<td>Music Keyboard 110-120</td>
</tr>
<tr>
<td></td>
<td>Music General 200</td>
</tr>
<tr>
<td>Senior</td>
<td>Music History (300 or above)</td>
</tr>
<tr>
<td></td>
<td>Music 111</td>
</tr>
<tr>
<td></td>
<td>Music General 401</td>
</tr>
</tbody>
</table>

Total: 126 hours

---

**B. M. Curriculum in General Education**

<table>
<thead>
<tr>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
<td>Mathematics, or Natural Science</td>
</tr>
<tr>
<td></td>
<td>Music History Elective</td>
</tr>
<tr>
<td></td>
<td>Music Theory 310</td>
</tr>
<tr>
<td></td>
<td>Music Theory 450, 460</td>
</tr>
<tr>
<td></td>
<td>Music Performance 555</td>
</tr>
<tr>
<td></td>
<td>Music Ensemble</td>
</tr>
<tr>
<td></td>
<td>Music General 200</td>
</tr>
<tr>
<td>Electives</td>
<td>6</td>
</tr>
<tr>
<td>Senior</td>
<td>General Education</td>
</tr>
<tr>
<td></td>
<td>Mathematics, or Natural Science</td>
</tr>
<tr>
<td></td>
<td>Music History Elective</td>
</tr>
<tr>
<td></td>
<td>Music Theory 450, 460</td>
</tr>
<tr>
<td></td>
<td>Music Performance 555</td>
</tr>
<tr>
<td></td>
<td>Music Ensemble</td>
</tr>
<tr>
<td></td>
<td>Music General 200</td>
</tr>
<tr>
<td></td>
<td>Electives</td>
</tr>
<tr>
<td></td>
<td>Senior</td>
</tr>
</tbody>
</table>

Total: 130 hours

---

**B. M. Curriculum in Sacred Music (Voices and Instruments)**

<table>
<thead>
<tr>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
<td>English Composition</td>
</tr>
<tr>
<td></td>
<td>Music Theory 110, 120</td>
</tr>
<tr>
<td></td>
<td>Music Theory 130, 140</td>
</tr>
<tr>
<td></td>
<td>Music History 200</td>
</tr>
<tr>
<td></td>
<td>Music Performance 155</td>
</tr>
<tr>
<td></td>
<td>Music Ensemble</td>
</tr>
<tr>
<td></td>
<td>Music Keyboard 110-120</td>
</tr>
<tr>
<td></td>
<td>Music General 200</td>
</tr>
<tr>
<td></td>
<td>Music General 401</td>
</tr>
</tbody>
</table>

Total: 128 hours

---

**B. M. Curriculum in Computer Science**

<table>
<thead>
<tr>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
<td>English Composition</td>
</tr>
<tr>
<td></td>
<td>Music Theory 110, 120</td>
</tr>
<tr>
<td></td>
<td>Music Theory 130, 140</td>
</tr>
<tr>
<td></td>
<td>Music History 200</td>
</tr>
<tr>
<td></td>
<td>Music Performance 155</td>
</tr>
<tr>
<td></td>
<td>Music Ensemble</td>
</tr>
<tr>
<td></td>
<td>Music Keyboard 110-120</td>
</tr>
<tr>
<td></td>
<td>Music General 200</td>
</tr>
<tr>
<td></td>
<td>Electives</td>
</tr>
<tr>
<td></td>
<td>Senior</td>
</tr>
</tbody>
</table>

Total: 128 hours

---

**B. M. Curriculum in Music Education**

<table>
<thead>
<tr>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
<td>English Composition</td>
</tr>
<tr>
<td></td>
<td>Music Theory 110, 120</td>
</tr>
<tr>
<td></td>
<td>Music Theory 130, 140</td>
</tr>
<tr>
<td></td>
<td>Music History 200</td>
</tr>
<tr>
<td></td>
<td>Music Performance 155</td>
</tr>
<tr>
<td></td>
<td>Music Ensemble</td>
</tr>
<tr>
<td></td>
<td>Music Keyboard 110-120</td>
</tr>
<tr>
<td></td>
<td>Music General 200</td>
</tr>
<tr>
<td></td>
<td>Electives</td>
</tr>
<tr>
<td></td>
<td>Senior</td>
</tr>
</tbody>
</table>

Total: 128 hours

---

**B. M. Curriculum in Music Performance**

<table>
<thead>
<tr>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
<td>English Composition</td>
</tr>
<tr>
<td></td>
<td>Music Theory 110, 120</td>
</tr>
<tr>
<td></td>
<td>Music Theory 130, 140</td>
</tr>
<tr>
<td></td>
<td>Music History 200</td>
</tr>
<tr>
<td></td>
<td>Music Performance 155</td>
</tr>
<tr>
<td></td>
<td>Music Ensemble</td>
</tr>
<tr>
<td></td>
<td>Music Keyboard 110-120</td>
</tr>
<tr>
<td></td>
<td>Music General 200</td>
</tr>
<tr>
<td></td>
<td>Electives</td>
</tr>
<tr>
<td></td>
<td>Senior</td>
</tr>
</tbody>
</table>

Total: 128 hours

---

**B. M. Curriculum in Music History**

<table>
<thead>
<tr>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
<td>English Composition</td>
</tr>
<tr>
<td></td>
<td>Music Theory 110, 120</td>
</tr>
<tr>
<td></td>
<td>Music Theory 130, 140</td>
</tr>
<tr>
<td></td>
<td>Music History 200</td>
</tr>
<tr>
<td></td>
<td>Music Performance 155</td>
</tr>
<tr>
<td></td>
<td>Music Ensemble</td>
</tr>
<tr>
<td></td>
<td>Music Keyboard 110-120</td>
</tr>
<tr>
<td></td>
<td>Music General 200</td>
</tr>
<tr>
<td></td>
<td>Electives</td>
</tr>
<tr>
<td></td>
<td>Senior</td>
</tr>
</tbody>
</table>

Total: 128 hours

---

**B. M. Curriculum in Multiple Keyboard Instruments (Piano, Organ, Harpsichord)**

<table>
<thead>
<tr>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
<td>English Composition</td>
</tr>
<tr>
<td></td>
<td>Music Theory 110, 120</td>
</tr>
<tr>
<td></td>
<td>Music Theory 130, 140</td>
</tr>
<tr>
<td></td>
<td>Music History 200</td>
</tr>
<tr>
<td></td>
<td>Music Performance 155</td>
</tr>
<tr>
<td></td>
<td>Music Ensemble</td>
</tr>
<tr>
<td></td>
<td>Music Keyboard 110-120</td>
</tr>
<tr>
<td></td>
<td>Music General 200</td>
</tr>
<tr>
<td></td>
<td>Electives</td>
</tr>
<tr>
<td></td>
<td>Senior</td>
</tr>
</tbody>
</table>

Total: 128 hours
**B. M. Curriculum in Music History and Literature**

<table>
<thead>
<tr>
<th>Freshman</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>English Composition</td>
<td>6</td>
</tr>
<tr>
<td>Music Theory 110, 120</td>
<td>6</td>
</tr>
<tr>
<td>Music Theory 130</td>
<td>3</td>
</tr>
<tr>
<td>Music History 200</td>
<td>3</td>
</tr>
<tr>
<td>Music History 130</td>
<td>3</td>
</tr>
<tr>
<td>Applied Music</td>
<td>3</td>
</tr>
<tr>
<td>Music History 200</td>
<td>3</td>
</tr>
<tr>
<td>Music Theory 200</td>
<td>2</td>
</tr>
<tr>
<td>Music History 200</td>
<td>2</td>
</tr>
<tr>
<td>Music Performance 200</td>
<td>2</td>
</tr>
<tr>
<td>Music Ensemble</td>
<td>2</td>
</tr>
<tr>
<td>Foreign Language</td>
<td>2</td>
</tr>
<tr>
<td>Music General 200</td>
<td>0.0</td>
</tr>
</tbody>
</table>

**Sophomore**

| Music Theory 210, 220 | 2 |
| Music Theory 200 | 2 |
| Music History 200 | 2 |
| Music Performance 200 | 2 |
| Music Ensemble | 2 |
| Foreign Language | 2 |
| Music General 200 | 0.0 |

**Junior**

| Music Theory 210, 220 | 2 |
| Music Theory 200 | 2 |
| Music History 200 | 2 |
| Music Performance 200 | 2 |
| Music Ensemble | 2 |
| Elective | 2 |
| Music General 200 | 0.0 |

**Senior**

| Mathematics, Natural Science | 3 |
| Music History Elective | 3 |
| Music Theory 310 | 3 |
| Music Theory 210, 220 | 3 |
| Music Theory 200 | 3 |
| Music Performance 200 | 3 |
| Music Ensemble | 3 |
| Music General 301 | 3 |
| General Education | 3 |

**Total: 129 hours**

1. Humanities-Arts (non-music), Literature, Philosophical Perspectives or Interdisciplinary Studies.
2. Must be two years in either French or German.

**B. M. Curriculum in Music Theory**

<table>
<thead>
<tr>
<th>Freshman</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>English Composition</td>
<td>6</td>
</tr>
<tr>
<td>Music Theory 110, 120</td>
<td>6</td>
</tr>
<tr>
<td>Music Theory 130</td>
<td>2</td>
</tr>
<tr>
<td>Music History 200</td>
<td>2</td>
</tr>
<tr>
<td>Music Theory 200</td>
<td>2</td>
</tr>
<tr>
<td>Music History 200</td>
<td>2</td>
</tr>
<tr>
<td>Music Performance 200</td>
<td>2</td>
</tr>
<tr>
<td>Music Ensemble</td>
<td>2</td>
</tr>
<tr>
<td>Foreign Language</td>
<td>2</td>
</tr>
<tr>
<td>Music General 200</td>
<td>0.0</td>
</tr>
</tbody>
</table>

**Sophomore**

| Music Theory 210, 220 | 2 |
| Music Theory 200 | 2 |
| Music History 200 | 2 |
| Music Performance 200 | 2 |
| Music Ensemble | 2 |
| Elective | 2 |
| Music General 200 | 0.0 |

**Junior**

| Music Theory 210, 220 | 2 |
| Music Theory 200 | 2 |
| Music History 200 | 2 |
| Music Performance 200 | 2 |
| Music Ensemble | 2 |
| Elective | 2 |
| Music General 200 | 0.0 |

**Senior**

| Music Theory 210, 220 | 2 |
| Music Theory 200 | 2 |
| Music History 200 | 2 |
| Music Performance 200 | 2 |
| Music Ensemble | 2 |
| Elective | 2 |
| Music General 200 | 0.0 |

**Total: 129 hours**

1. Humanities-Arts (non-music), Literature, Philosophical Perspectives, Interdisciplinary Studies.

**B. M. Curriculum in Organ**

<table>
<thead>
<tr>
<th>Freshman</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>English Composition</td>
<td>6</td>
</tr>
<tr>
<td>Music Theory 110, 120</td>
<td>6</td>
</tr>
<tr>
<td>Music Theory 130</td>
<td>2</td>
</tr>
<tr>
<td>Music History 200</td>
<td>2</td>
</tr>
<tr>
<td>Music Performance 200</td>
<td>2</td>
</tr>
<tr>
<td>Music Ensemble</td>
<td>2</td>
</tr>
<tr>
<td>Foreign Language</td>
<td>2</td>
</tr>
<tr>
<td>Music General 200</td>
<td>0.0</td>
</tr>
</tbody>
</table>

**Sophomore**

| Music Theory 210, 220 | 2 |
| Music Theory 200 | 2 |
| Music History 200 | 2 |
| Music Performance 200 | 2 |
| Music Ensemble | 2 |
| Elective | 2 |
| Music General 200 | 0.0 |

**Junior**

| Mathematics, Natural Science | 6 |
| Music History Elective | 6 |
| Music Theory 310 | 6 |
| Music Theory 210, 220 | 6 |
| Music Performance 200 | 6 |
| Music Ensemble | 6 |
| Music General 301 | 6 |
| General Education | 6 |

**Senior**

| Music Theory 210, 220 | 6 |
| Music Theory 200 | 6 |
| Music History 200 | 6 |
| Music Performance 200 | 6 |
| Music Ensemble | 6 |
| Elective | 6 |
| Music General 400 | 6 |

**Total: 129 hours**

1. Humanities-Arts (non-music), Literature, Philosophical Perspectives, Interdisciplinary Studies.

**B. M. Curriculum in Piano Pedagogy and Literature**

<table>
<thead>
<tr>
<th>Freshman</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>English Composition</td>
<td>6</td>
</tr>
<tr>
<td>Music Theory 110, 120</td>
<td>6</td>
</tr>
<tr>
<td>Music Theory 130</td>
<td>2</td>
</tr>
<tr>
<td>Music History 200</td>
<td>2</td>
</tr>
<tr>
<td>Music Performance 200</td>
<td>2</td>
</tr>
<tr>
<td>Music Ensemble</td>
<td>2</td>
</tr>
<tr>
<td>Music General 200</td>
<td>0.0</td>
</tr>
</tbody>
</table>

**Sophomore**

| Music Theory 210, 220 | 2 |
| Music Theory 200 | 2 |
| Music History 200 | 2 |
| Music Performance 200 | 2 |
| Music Ensemble | 2 |
| Elective | 2 |
| Music General 200 | 0.0 |

**Junior**

| Music Theory 210, 220 | 2 |
| Music Theory 200 | 2 |
| Music History 200 | 2 |
| Music Performance 200 | 2 |
| Music Ensemble | 2 |
| Elective | 2 |
| Music General 200 | 0.0 |

**Senior**

| Music Theory 210, 220 | 2 |
| Music Theory 200 | 2 |
| Music History 200 | 2 |
| Music Performance 200 | 2 |
| Music Ensemble | 2 |
| Elective | 2 |
| Music General 200 | 0.0 |

**Total: 130 hours**

1. Humanities-Arts (non-music), Literature, Philosophical Perspectives, Interdisciplinary Studies.

**B. M. Curriculum in Piano**

<table>
<thead>
<tr>
<th>Freshman</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>English Composition</td>
<td>6</td>
</tr>
<tr>
<td>Music Theory 110, 120</td>
<td>6</td>
</tr>
<tr>
<td>Music Theory 130</td>
<td>2</td>
</tr>
<tr>
<td>Music History 200</td>
<td>2</td>
</tr>
<tr>
<td>Music Ensemble</td>
<td>2</td>
</tr>
<tr>
<td>Music General 200</td>
<td>0.0</td>
</tr>
</tbody>
</table>

**Sophomore**

| Music Theory 210, 220 | 2 |
| Music Theory 200 | 2 |
| Music History 200 | 2 |
| Music Performance 200 | 2 |
| Music Ensemble | 2 |
| Elective | 2 |
| Music General 200 | 0.0 |

**Junior**

| Music Theory 310 | 3 |
| Music History Elective | 3 |
| Music Keyboard 420, 430 | 4 |
| Music Ensemble 399 | 2 |
| Music Performance 380 | 6 |
| Music Ensemble 399 | 6 |
| General Education | 6 |

**Senior**

| Music Keyboard 440, 450 | 4 |
| Music Education 310 | 3 |
| Music General 200 | 0.0 |
| Music General 400 | 0.0 |

**Total: 130 hours**

1. Humanities-Arts (non-music), Literature, Philosophical Perspectives, Interdisciplinary Studies.
<table>
<thead>
<tr>
<th>Bachelor of Music Curriculum</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Freshman</strong></td>
<td></td>
</tr>
<tr>
<td>English Composition</td>
<td>6</td>
</tr>
<tr>
<td>Music Theory 110, 120</td>
<td>6</td>
</tr>
<tr>
<td>Music Theory 130, 140</td>
<td>6</td>
</tr>
<tr>
<td>Music History 200</td>
<td>3</td>
</tr>
<tr>
<td>Music History 110, 120</td>
<td>2</td>
</tr>
<tr>
<td>Music Keyboard 110, 120</td>
<td>2</td>
</tr>
<tr>
<td>Music Ensemble</td>
<td>2</td>
</tr>
<tr>
<td>Senior Music Principle (100 level)</td>
<td>8</td>
</tr>
<tr>
<td>Total: 124-128 hours</td>
<td></td>
</tr>
<tr>
<td><strong>Sophomore</strong></td>
<td></td>
</tr>
<tr>
<td>Music Theory 210, 220</td>
<td>6</td>
</tr>
<tr>
<td>Music Theory 230, 240</td>
<td>2</td>
</tr>
<tr>
<td>Music History 210, 220</td>
<td>6</td>
</tr>
<tr>
<td>Music Keyboard 210, 220</td>
<td>2</td>
</tr>
<tr>
<td>Applied Music Principle (200 level)</td>
<td>8</td>
</tr>
<tr>
<td>Music Ensemble</td>
<td>2</td>
</tr>
<tr>
<td>Non-U. S. History, Social Science</td>
<td>3</td>
</tr>
<tr>
<td>Mathematics, Natural Science</td>
<td>3</td>
</tr>
<tr>
<td>Music General 200</td>
<td>0</td>
</tr>
<tr>
<td>Total: 126 hours</td>
<td></td>
</tr>
<tr>
<td><strong>Junior</strong></td>
<td></td>
</tr>
<tr>
<td>Music Theory 310, 320</td>
<td>6</td>
</tr>
<tr>
<td>Music History Elective</td>
<td>3</td>
</tr>
<tr>
<td>Applied Music Principle (300 level)</td>
<td>8</td>
</tr>
<tr>
<td>Music Electives</td>
<td>3</td>
</tr>
<tr>
<td>Music Instrument 400, 410</td>
<td>3</td>
</tr>
<tr>
<td>Music Ensemble</td>
<td>2</td>
</tr>
<tr>
<td>Total: 130 hours</td>
<td></td>
</tr>
<tr>
<td><strong>Senior</strong></td>
<td></td>
</tr>
<tr>
<td>Music History 420</td>
<td>3</td>
</tr>
<tr>
<td>Music Performance 495</td>
<td>6</td>
</tr>
<tr>
<td>Music Performance 355</td>
<td>8</td>
</tr>
<tr>
<td>Music Education 310</td>
<td>3</td>
</tr>
<tr>
<td>Music Ensemble</td>
<td>2</td>
</tr>
<tr>
<td>Mathematics, Natural Science</td>
<td>3</td>
</tr>
<tr>
<td>Music General 301</td>
<td>0</td>
</tr>
<tr>
<td>Music General 200</td>
<td>0</td>
</tr>
<tr>
<td>Total: 130 hours</td>
<td></td>
</tr>
</tbody>
</table>

**B. M. Curriculum in Voice**

<table>
<thead>
<tr>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
</tr>
<tr>
<td>English Composition</td>
</tr>
<tr>
<td>Music Theory 110, 120</td>
</tr>
<tr>
<td>Music Theory 130, 140</td>
</tr>
<tr>
<td>Music History 200</td>
</tr>
<tr>
<td>Applied Music Principle (100 level)</td>
</tr>
<tr>
<td>Music Ensemble</td>
</tr>
<tr>
<td>Applied Music Principle (200 level)</td>
</tr>
<tr>
<td>Music Ensemble</td>
</tr>
<tr>
<td>Elementary Language</td>
</tr>
<tr>
<td>Total: 127 hours</td>
</tr>
<tr>
<td><strong>Sophomore</strong></td>
</tr>
<tr>
<td>Music Theory 210, 220</td>
</tr>
<tr>
<td>Music History 230, 240</td>
</tr>
<tr>
<td>Music ensemble</td>
</tr>
<tr>
<td>Non-U. S. History, Social Science</td>
</tr>
<tr>
<td>Total: 127 hours</td>
</tr>
<tr>
<td><strong>Junior</strong></td>
</tr>
<tr>
<td>Music Theory 310, 320</td>
</tr>
<tr>
<td>Music History Elective</td>
</tr>
<tr>
<td>Applied Music Principle (300 level)</td>
</tr>
<tr>
<td>Music Ensemble</td>
</tr>
<tr>
<td>Total: 127 hours</td>
</tr>
<tr>
<td><strong>Senior</strong></td>
</tr>
<tr>
<td>Music History 420</td>
</tr>
<tr>
<td>Music Performance 495</td>
</tr>
<tr>
<td>Music Performance 355</td>
</tr>
<tr>
<td>Music Education 310</td>
</tr>
<tr>
<td>Music Ensemble</td>
</tr>
<tr>
<td>Mathematics, Natural Science</td>
</tr>
<tr>
<td>Music General 301</td>
</tr>
<tr>
<td>Music General 200</td>
</tr>
<tr>
<td>Total: 130 hours</td>
</tr>
</tbody>
</table>

**B. M. Curriculum in Strings**

<table>
<thead>
<tr>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
</tr>
<tr>
<td>English Composition</td>
</tr>
<tr>
<td>Music Theory 110, 120</td>
</tr>
<tr>
<td>Music Theory 130, 140</td>
</tr>
<tr>
<td>Music History 200</td>
</tr>
<tr>
<td>Applied Music Principle (100 level)</td>
</tr>
<tr>
<td>Music Ensemble</td>
</tr>
<tr>
<td>Music General 200</td>
</tr>
<tr>
<td>Total: 127 hours</td>
</tr>
<tr>
<td><strong>Sophomore</strong></td>
</tr>
<tr>
<td>Music Theory 210, 220</td>
</tr>
<tr>
<td>Music Theory 230, 240</td>
</tr>
<tr>
<td>Music History 210, 220</td>
</tr>
<tr>
<td>Music Keyboard 210, 220</td>
</tr>
<tr>
<td>Applied Music Principle (200 level)</td>
</tr>
<tr>
<td>Music Ensemble</td>
</tr>
<tr>
<td>Elementary Language</td>
</tr>
<tr>
<td>Total: 127 hours</td>
</tr>
<tr>
<td><strong>Junior</strong></td>
</tr>
<tr>
<td>Music Theory 310, 320</td>
</tr>
<tr>
<td>Music History Elective</td>
</tr>
<tr>
<td>Applied Music Principle (300 level)</td>
</tr>
<tr>
<td>Music Ensemble</td>
</tr>
<tr>
<td>Total: 127 hours</td>
</tr>
<tr>
<td><strong>Senior</strong></td>
</tr>
<tr>
<td>Music History 420</td>
</tr>
<tr>
<td>Music Performance 495</td>
</tr>
<tr>
<td>Music Performance 355</td>
</tr>
<tr>
<td>Music Education 310</td>
</tr>
<tr>
<td>Music Ensemble</td>
</tr>
<tr>
<td>Mathematics, Natural Science</td>
</tr>
<tr>
<td>Music General 301</td>
</tr>
<tr>
<td>Music General 200</td>
</tr>
<tr>
<td>Total: 130 hours</td>
</tr>
</tbody>
</table>

**B. M. Curriculum in Woodwind, Brass and Percussion Instruments**

<table>
<thead>
<tr>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
</tr>
<tr>
<td>English Composition</td>
</tr>
<tr>
<td>Music Theory 110, 120</td>
</tr>
<tr>
<td>Music Theory 130, 140</td>
</tr>
<tr>
<td>Music History 200</td>
</tr>
<tr>
<td>Applied Music Principle (100 level)</td>
</tr>
<tr>
<td>Music Ensemble</td>
</tr>
<tr>
<td>Music General 200</td>
</tr>
<tr>
<td>Total: 127 hours</td>
</tr>
<tr>
<td><strong>Sophomore</strong></td>
</tr>
<tr>
<td>Music Theory 210, 220</td>
</tr>
<tr>
<td>Music Theory 230, 240</td>
</tr>
<tr>
<td>Music History 210, 220</td>
</tr>
<tr>
<td>Music Keyboard 210, 220</td>
</tr>
<tr>
<td>Applied Music Principle (200 level)</td>
</tr>
<tr>
<td>Music Ensemble</td>
</tr>
<tr>
<td>Elementary Language</td>
</tr>
<tr>
<td>Total: 127 hours</td>
</tr>
<tr>
<td><strong>Junior</strong></td>
</tr>
<tr>
<td>Music Theory 310, 320</td>
</tr>
<tr>
<td>Music History Elective</td>
</tr>
<tr>
<td>Applied Music Principle (300 level)</td>
</tr>
<tr>
<td>Music Ensemble</td>
</tr>
<tr>
<td>Total: 127 hours</td>
</tr>
<tr>
<td><strong>Senior</strong></td>
</tr>
<tr>
<td>Music History 420</td>
</tr>
<tr>
<td>Music Performance 495</td>
</tr>
<tr>
<td>Music Performance 355</td>
</tr>
<tr>
<td>Music Education 310</td>
</tr>
<tr>
<td>Music Ensemble</td>
</tr>
<tr>
<td>Mathematics, Natural Science</td>
</tr>
<tr>
<td>Music General 301</td>
</tr>
<tr>
<td>Music General 200</td>
</tr>
<tr>
<td>Total: 130 hours</td>
</tr>
</tbody>
</table>

**PHILOSOPHY**

Professors:

Assistant Professors:
- H. P. Hamlin, Ph. D. Georgia; E. R. Jones III, Ph. D. Chicago; M. Lavin, Ph. D. Stanford.

**Major Prerequisite:** Three hours of logic, normally 130 or 135. Requirements: 24 hours of courses numbered 200 or above, including three hours of ethics, normally 240 or 440, and six hours in the history of philosophy, three in ancient, normally 320, and three in modern, normally 324. Majors are required to discuss their programs with a member of the philosophy faculty.

**Minor**
- 18 hours in courses 200 or above. Minors should discuss their program with a member of the Philosophy faculty.

**PHYSICS AND ASTRONOMY**

Professors:
- W. M. Bugg (Head), Ph. D. Tennessee; G. R. Bingham, Ph. D. Tennessee; W. E. Blass, Ph. D. Michigan State; J. E. Brau (on leave), Ph. D. Massachusetts Institute of Technology; M. A. Breazeale (on leave), Ph. D. Michigan State; J. Burgdorfer, Ph. D. Free Universitati Berlin; T. A. Callcott, Ph. D.
PHYSICS

B. S. Major The undergraduate physics major provides a thorough introduction to all of the core disciplines of physics so that students are prepared to pursue related specialties at a later point in their career. Students with special interests are encouraged to pursue those interests through research projects and/or independent study under the direction of members of the physics faculty thorough Physics 493.

Prerequisites to the major are: Physics 131-132 or 137-138; Mathematics 141-142.
The major consists of: Physics 231-232 or 237-238; Mathematics 231 and 241; Physics 311 (students intending to pursue graduate studies in Physics should also take 312 and 421 as electives); Physics 321, Physics 431-432, Physics 411-412 (340 and 341 or 342 may be substituted for students who do not intend to pursue graduate study); 361-362 or 461-462-463. Physics 401-402 are recommended. Total major hours: 42-43.

Minor: A minor in physics shall consist of Physics 231-232 or 237-238 and 10 hours from physics and astronomy courses numbered 300 and above. These 21 hours must include at least one course in each of four areas of the discipline: United States Government and Politics/Public Administration; American Government and Politics/Public Administration; International Relations; and Political Theory.

To graduate with Honors in Political Science, the student must have a minimum GPA of 3.3 in Political Science, and a minimum cumulative GPA of 3.0.

Major in Political Science with a Concentration in Public Administration: Students majoring in Political Science who wish to prepare for a career in the public service may select to follow the concentration in Public Administration. Political Science 101 or 107 and 102 and Economics 201 are prerequisites to a major in Political Science with a concentration in Public Administration. Corequisite courses are Mathematics 121 and 122 and Accounting 201 and 202. Majors must earn a "C" or better in prerequisite and corequisite courses. The concentration consists of 24 semester hours of course work in Political Science and 12 hours of upper division course work in Economics. In Political Science, students must include one course in each of the four fields of Political Science: American Government and Politics/Public Administration, Comparative Government and Politics, International Relations, and Political Theory. Students must also take Political Science 340, 440, 441 and 442 In Economics students must take Economics 311, 471, and 472.

POLITICAL SCIENCE

Professors:
L. J. Henderson, Jr. (Head), Ph.D. California (Berkeley); D. H. Carlisle (Emeritus), Ph.D. North Carolina; M. R. Fitzgerald, Ph.D. Oklahoma; A. H. Hopkins, Ph.D. Syracuse; R. A. Gorman, Ph.D. New York; V. R. Iradell, Ph.D. Chicago; W. Lyons, Ph.D. Oklahoma; H. Plaa, Ph.D. Utah; N. M. Robinson (Emeritus), Ph.D. Syracuse; T. A. Smith, Ph.D. Ohio State; O. H. Stephens, Jr. (Alumni Distinguished Service Professor), Ph.D. Johns Hopkins; T. D. Ungs, Ph.D. Iowa; D. M. Welborn, Ph.D. Texas.

Associate Professors:

Assistant Professors:

B. A. Major: Political Science 101 or 107 and 102 are prerequisites to the major which consists of 24 hours of courses numbered 300 and above. These 24 hours must include at least one course in each of the four areas of the discipline.


PSYCHOLOGY

Professors:
Associate Professors:
J. M. Barlow, Ph. D. Tennessee; M. G. Johnson, Ph. D. Hopkins; J. Kandilakis, Ph. D. Tennessee; K. A. Lawler, Ph. D. North Carolina; S. Loucks, Ph. D. Tennessee; A. McIntyre, Ph. D. Yale; W. G. Morgan, Jr., Ph. D. Tennessee; R. S. Saudargas, Ph. D. Florida State; C. B. Travis, Ph. D. California (Davis).

Assistant Professors:
L. Beavers-Laurence, Ph. D. Tennessee; W. Berez, Ph. D. Tennessee; L. M. Coleman, Ph. D. Harvard; J. W. Erickson, Ph. D. Tennessee; J. D. Laurence, Ph. D. Tennessee; R. E. Levey, Ph. D. California; T. J. Murray, Ph. D. Case Western Reserve; M. R. Nash, Ph. D. Ohio; E. F. O'Connor (Research Assistant Professor), Ph. D. Massachusetts; F. P. Wattous, Ph. D. Tennessee; M. H. Waugh, Ph. D. Florida.

Major: Psychology 110 or 117 is prerequisite to a major consisting of 36 credit hours:
(1) Psychology 210 or 220; (2) Two basic courses chosen from the following: 300; 310; 320; 330; 360; (3) Three courses on research, quantitative methods, and their application: Psychology 385 (or equivalent) and 395, plus one of the following: 396, 399, 445, 469, 459, or 498; (4) Two upper-division courses chosen from the following: 400, 410, 420, 430, 440, 450, 461, 470, 480, 496; and (5) Three elective courses in Psychology, including at least two courses numbered 400 through 496.

For students who plan to seek graduate training in Psychology: Applicants to most graduate programs in Psychology are expected to take the Graduate Record Examination in Psychology by December of the year preceding the year they plan to graduate. The Psychology Department recommends that a prospective graduate student complete as many of the requirements for the major as possible before taking the examination. In addition to the minimum requirements for the major, the following courses are strongly recommended for prospective graduate students in psychology: one year of biology or zoology; one year of Calculus; one course in Computer Science; three or four additional Psychology courses chosen from 400, 410, 420, 430, 440, 445, 450, 461, 470, 480, 496.

Minor: Consists of 110 or 117; 210 or 220; 395 plus 12 additional upper-division hours.

RELIGIOUS STUDIES

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

Associate Professors:
J. L. Fitzgerald, Ph. D. Chicago; R. W. Gwynne, Ph. D. Washington; J. O. Hodges, Ph. D. Chicago; M. L. Levering, Ph. D. Harvard.

Assistant Professors:
S. R. Bokenkamp, Ph. D. California (Berkeley); R. L. J. Hackett, Ph. D. Aberdeen

Adjunct:
L. M. Tober, Ph. D. Vanderbilt.

Major: Religious Studies 211 is recommended as a course for each of the two concentrations available. The basic concentration is designed to assure that students attain skills to analyze and interpret religious phenomena in different cultures and in different historical periods, including how sacred texts and traditions, and interpretations of critical reasoning, inform and are informed by religion. The basic concentration consists of at least 24 hours of religious studies courses at the 300 level or above, including one course from each of the first five categories listed below, and two courses from category six:
(1) The roots of western religion, 311, 321, or 322; (2) religion and culture in South Asia, 374 or 376; (3) religion and culture in East Asia, 379 or 383; (4) religion and culture in the United States, 351 or 352; (5) critical thinking about religion, 301, 305, 342, or 371; and (6) two 400 level seminars on methods of interpreting religious phenomena, at least one of which must be 499. The remaining 3 hours which complete this major shall not include related language courses.

As an alternative to the basic concentration, a student-initiated concentration is available for students with special educational or vocational goals, such as those who intend to enter a graduate or professional school (seminary, law, medicine) which recommends a specific course of undergraduate study. A faculty member in religious studies will assist a student to formulate this major consisting of at least 27 hours of credit at the 300 level or above, including 499. Up to 9 hours in this major may be taken in approved courses from other programs or departments in the College of Liberal Arts. Students whose vocational goals would best be served by such a major must discuss this option with a faculty member in the department, who will submit any specific proposal to the faculty in religious studies for approval.

Further details on the major and on department courses are available in the department office, located in 501 McClung Tower, or from any member of the religious studies faculty.

Minor: Fifteen hours of courses at the 300 level or above, not including related language courses. It is recommended that students minor in religious studies discuss their program with a member of the department faculty.

ROMANCE LANGUAGES

Professors:
John B. Romeiser (Head), Ph. D. Vanderbilt; P. E. Barrette, Ph. D. California (Berkeley); P. Brady, Ph. D. Université de Paris (Sorbonne); O. Cazenave, Ph. D. Pennsylvania; C. W. Cobb, Ph. D. Tulane; J. C. Elliott, M. A. Illinois; W. H. Hefflin, Jr., Ph. D. Florida State; C. B. Irving (Emeritus), Ph. D. Princeton; F. D. Maurino (Emeritus), Ph. D. Columbia; C. R. M. Pins (Emeritus), Ph. D. California (Berkeley); M. Petrovska, Ph. D. Kentucky; A. M. Vazquez-Big, Ph. D. Minnesota; A. H. Wallace, Ph. D. North Carolina; Y. M. Washburn, Ph. D. North Carolina.

Associate Professors:
E. J. Campion, Ph. D. Yale; R. M. E. DeRuycke, Ph. D. Illinois; S. DiMaria, Ph. D. Wisconsin; D. M. DiPuccio, Ph. D. Kansas; C. K. Duncan, Ph. D. Illinois; M. H. Handelsman, Ph. D. Florida; K. D. Levy, Ph. D. Kentucky.

Assistant Professors:
F. Brizio, Ph. D. Washington; O. Cazenave, Ph. D. Pennsylvania; Charlotte G. Cox (Emeritus), M. A. Tennessee; C. Holmlund, Ph. D. Wisconsin; E. Johnson, Ph. D. Tennessee; Margo Millieret, Ph. D. Texas (Austin); F. Perez-Pineda, Ph. D. Pennsylvania; A. Rodriguez, Ph. D. Brown; C. V. Rogers, Ed. D. Georgia; Paula Wilson (Emeritus), M. A. Tufts.

Instructors:
A. McKeely, M. A. Tulane; M. T. Rabot, Cert. de Lic. Poitiers.

French Major: Consists of 27 hours in courses numbered 311 and above. All majors must have the following courses (or their equivalent with consent of the department): 311-312, 313, 341 or 342 or 345; 421; 422-440.

Literature concentration students must also have 6 hours of literature at the 400 level, 3 hours of which must be either 410, 411, 412, 413, 414, or 415; 3 hours of language-oriented or civilization courses at the 300 or 400 levels.

Language concentration students must also have 9 hours of language-oriented or civilization courses at the 300 or 400 levels.

Italian Major: Consists of 27 hours in courses numbered 311 and above. All majors must take 311, 312, 341, 342, and 401.

Italian Minor: Consists of 18 hours in courses numbered 311 and above. Students pursuing a minor must consult with a departmental advisor.

Portuguese Minor: Consists of 18 hours in courses numbered 300 or above. Students pursuing a minor must consult with a departmental advisor.

Spanish Major: Consists of 26 hours in courses numbered 311 or above. The following are required: 311-312, 421, 422. Students must also have a minimum of 3 hours of civilization, either 431 or 471; a minimum of 6 hours of conversation and composition from 323, 324, 423 or 424; and a minimum of 6 hours of literature from 432, 433, 434, 435, 436, 450, 472, 473, 474, 479. Majors are encouraged to take as many hours as possible, especially the surveys, 435-436 and 473-474. Students must also take 459 and 460.

Spanish Minor: Consists of 18 hours in courses numbered 311 or above. Students pursuing a minor must consult with a departmental advisor.
remaining courses to be chosen among conversation and composition, civilization, phonetics, or literature. 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 the consent of the department. Courses in Spanish literature in English translation, however, may not be counted toward either a major or minor.

Placement Examination: Students who have had two or more year's work in French, Italian, or Spanish in high school or one year's work in another college should register in French, Italian, or Spanish 211. During the first week of the semester a placement test will be given, and students will be advised if a change in registration is indicated.

Proficiency Examinations: Students who have acquired a knowledge of French, Italian, or Spanish through private study, tutoring, residence in foreign countries, or the like should initiate a request for a proficiency test in the Office of the Dean of Admissions and Records. A student earning a grade of C or better on such a test will receive credit for a limited number of courses. Superior students are encouraged to proceed as rapidly as their achievement permits.

RUSSIAN
See Germanic and Slavic Languages.

RUSSIAN AND EAST EUROPEAN STUDIES
See Cultural Studies.

SOCIOLGY
Professors:
T. C. Hood (Head), Ph. D. Duke; D. M. Betz, Ph. D. Michigan State; J. A. Black, Ph. D. Iowa; D. J. Champion, Ph. D. Purdue; D. Clelland, Ph. D. Michigan State; D. W. Hastings, Ph. D. Massachusetts; D. R. Ploch, Ph. D. North Carolina; N. E. Shover, Ph. D. Illinois (Urbana); S. E. Wallace, Ph. D. Minnesota.
Associate Professors:
S. Kurth, Ph. D. Illinois (Chicago); R. G. Perrin, Ph. D. British Columbia.
Assistant Professors:
Instructor:
D. K. Harris, M. A. Tennessee.

Major: Prerequisites to the major are six lower-division hours in sociology which must include either 100 or 110, followed by 200. The major consists of 24 upper-division hours in sociology and must include 321 and 331. Students should complete these two courses by the end of their junior year.

CONCENTRATION IN CRIMINAL JUSTICE
All prerequisites and upper-division courses required for general majors are required for this concentration. In addition, the concentration consists of 18 hours of upper-division sociology. College Scholars 498 is the appropriate course to use to receive credit for the work.

COLLEGE SCHOLARS HONORS
Director: Dr. Harry C. Jacobson
College Scholars is a major with selective admission. For details contact the director. All Scholars must enroll in one of the College Scholars Seminars 317-318 each term. They are encouraged to complete work in College Scholars Honors 491-492-493. Each student must complete a substantial piece of research, scholarship or creative imagination. College Scholars 498 is the appropriate course to use to receive credit for this work.

SPANISH
See Romance Languages.

SPEECH COMMUNICATION
Professors:
L. W. Lester (Head), Ed. D. Tennessee; F. D. Julian, Ph. D. Tennessee; G. A. Yeomans (Emeritus), Ph. D. Louisiana State.

Associate Professors:
M. L. Ambrester, Ph. D. Ohio; J. E. Buckley, Ph. D. Northwestern; N. C. Cook, M. A. Alabama; R. W. Glenn, Ph. D. Northwestern.

Assistant Professor:
R. S. Ambler, Ph. D. Ohio State.

Major: Speech Communication 100 is prerequisite to a major which consists of Speech Communication 270, 300, 310, 330, either 350 or 490, and 12 additional hours in Speech Communication courses, of which 9 hours must be in courses numbered 300 and above. No more than 5 hours from Speech Communication 200, 271-272, 371-372, 491, 492, and 493 may be counted toward the major. Students interested in broad applications (e.g., teacher certification or religious training) may complete their required hours from a wide range of Speech Communication courses. In addition, specially designed options are available in (1) Interpersonal/Organizational Communication and in (2) Public Communication. Students should inquire in the Department Office for information and recommended advisors.

Minor: Speech Communication 100 is prerequisite to a minor which consists of 18 additional hours of Speech Communication courses at least 12 of which must be at the 300 level and above. No more than 3 hours from Speech Communication 200, 271-272, 371-372, and 491-492-493 may be counted toward the minor. Additional information for planning minor areas of focus which will complement a wide variety of majors in other Liberal Arts fields as well as in other colleges is available in the Department Office.

STATISTICS
See faculty list on page 59.

Liberal Arts students may major or minor in statistics under the supervision of the faculty of the Statistics Department in the College of Business Administration. The major is designed to prepare students for graduate studies in statistics or for professional work in various applications of statistical methods, including applications in the natural and social sciences, business and industry. Contact the Statistics Department for further information on careers in statistics and appropriate courses to take. It is highly recommended that a student majoring in statistics have a minor in an area of application.

Major: (a) Required courses consist of 19 hours from Mathematics 241, 251; Statistics 251, 252, 411; Statistics 471 or Mathematics 323 or 425; (b) Statistics electives consist of 6 hours from upper-division statistics courses not listed in part (a); and (c) Electives consist of 9 hours to be selected from no more than two of the following groups: Computer Science 111, 331, 401, 403; Management 481; Mathematics 323, 404, 421, 425, 445-545, 447-448, 471-472.

Minor: (a) Required courses consist of 13 hours from Mathematics 241, 251; and (b) Statistics electives consist of 6 hours from upper-division statistics courses not in part (a) of the minor.

THEATRE
Professors:
Assistant Professors:

Major: Theatre 100 is prerequisite to a concentration which consists of (1) Theatre 210, 211, 220, 245, 250, 260, 310, and 311; (2) 12 additional hours of Theatre courses numbered 200 and above, 8 hours of which may be in cognate areas approved by the department; (3) at least one half of the hours in the major must be at the 300 level or above; (4) only 8 hours of 380, 381, 480, 481 are applicable in the major.

Minor: Theatre 100 is prerequisite to a minor which consists of 18 additional hours of Theatre courses numbered 300 or above, 6 of which must be in history and criticism. General requirements for the master's degree are given in the Graduate Catalog.
ZOOGY

Professor:  A.C. Echternacht (Head), Ph.D. Kansas;  
R.M. Bagby, Ph.D. Illinois; D.L. Bunting, II, 
Ph.D. Oklahoma State; J.G. Carlson 
(Emeritus), Ph.D. Pennsylvania; D.A. Etnier, 
Ph.D. Minnesota; M.A. Handel, Ph.D. 
Kansas State; B.Hochman, Ph.D. California 
(Berkeley); K.W. Jen, Ph.D. London 
(England); D.C. Joy (Distinguished Scientist, 
Science Alliance Center of Excellence), 
Ph.D. Oxford (England); J.R. Kennedy, 
Ph.D. Iowa; J.N. Liles, Ph.D. Ohio State; 
J.A. MacCabe, Ph.D. California (Davis); 
S.L. Pimm, Ph.D. New Mexico State; 
S.E. Rechert, Ph.D. Wisconsin; L.E. Roth, 
Ph.D. Chicago; C.A. Shivers, Ph.D. 
Michigan State; J.T. Tanner (Emeritus), 
Ph.D. Cornell; G.L. Vaughan, Ph.D. Duke; 
H.G. Welch (Emeritus), Ph.D. Florida; 
G.L. Whitson, Ph.D. Iowa.

Assistant Professors:  
C. Boake, Ph.D. Cornell; J. Drake, Ph.D. 
Purdue; R. Ganguly, Ph.D. Nebraska.

Research Associate Professors:  
T. Ashley, Ph.D. Florida State; R. Tindall, 
Ph.D. Pennsylvania State.

Research Assistant Professor:  
J.L. Gittleman, Ph.D. Sussex (Brighton, 
England).

Prerequisites to upper division courses:  
Biology 110-120 or Biology 150 or Zoology 
117-118 are prerequisites for all upper divi-
sion courses (with the exception of 480). 
Additional prerequisites are included with 
course descriptions.

Major:  Prerequisites to the major are 
Biology 110-120 or 150 or Zoology 
117-118 and Chemistry 120-130. Corequisites are 
Mathematics 151-152 or 141-142 and a year 
sequence in physics (except 141-142). 
Physics 221-222 are recommended and are 
required for admission to some professional 
schools.

The major consists of Biology 210-220- 230, 18 hours of upper division Zoology 
courses and two semesters of chemistry or 
biochemistry at the 200 level or above. (Ac-
ceptable second year chemistry sequences 
include: Chemistry 350-360-369; Chemistry 
350 and 310-319; Chemistry 350 and Nutri-
tion 200; Chemistry 350, 431 and 
Biochemistry 310; Chemistry 310-319 and 
Biochemistry 310). All Zoology majors are 
required to take at least 4 hours at the 400 
level, including at least one laboratory or 
field course. The upper division Zoology 
courses must include at least one course 
from three of the following four areas: (1) 
Cellular and Developmental Biology (330, 
420); (2) Physiology (440, 445); (3) Animal 
Diversity (350, 369); and (4) Evolution and 
Behavior (450, 460).

Minor:  Prerequisites to the minor are 
Biology 110-120 or 150 or Zoology 117-118 
and Chemistry 120-130 or 100-110. The 
minor consists of Biology 210-220-230 and 9 
hours of upper division Zoology.

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 specific semesters. Students 
should plan in advance the proper sequence. 
Information on the semesters a course is to be 
offered is available in the departmental 
office.
College of Nursing

Sylvia E. Hart, Dean
Barbara M. Reid, Associate Dean for Student Affairs
Johnnie N. Mozingo, Associate Dean for Undergraduate Programs

Professors:
S. E. Hart (Dean), Ph. D. New York;
B. E. Brown, Ed. D. Temple;
D. H. Goodfellow, Ph. D. Peabody;
M. E. Groer, Ph. D. Illinois; J. N. Mozingo,
B. M. Reid, Ph. D., Texas; Ph. D. Waiden.

Associate Professors:
M. M. Davis, Ph. D. Tennessee; P. G. Droppleman, Ph. D.
Tennessee; M. M. Fenske, Ph. D. Vanderbilt;
M. F. Foster, Ph. D. Texas; M. L. Jolly, Ed. D.
Ellis; L. T. Jowens, Ph. D. Texas,
T. Sharp, Ed. D. Tennessee; D. H. Shoffner,
Ph. D. Tennessee.

Assistant Professors:
M. T. Boynton, M. N. Emory; J. Branson,
M. S. N. Vanderbilt; K. P. Conlon, M. S. N.
SUNY (Buffalo); G. A. Evans, M. S. N.
Tennessee; S. M. Helton, M. S. N. Texas
Woman's; S. M. Hodson-Fitzgerald, M. S.
Tennessee; J. Jozwiak, Ph. D. Tennessee,
M. Kollar, M. S. N. Vanderbilt; H. E. Overton,
M. S. N. Tennessee; M. A. Pierce, M. S. N.
Tennessee; V. M. Redford, M. S. Colorado;
J. H. Rice, M. N. Emory; P. L. Smith, M. S. N.
Medical College of Georgia;
M. S. Theodoropulous, M. S. N. Boston,
S. P. Thomas, Ph. D. Tennessee.

Instructors:
S. M. Bowen, M. S. Tennessee.
K. BuHemoer, M. S. N. Vanderbilt;
K. M. Davis, M. S. N. University of North
Carolina-Chapel Hill; N. Gaylord, M. S. N.
Colorado.

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. The undergraduate program combines the unique resources of the UTK campus with those of the university's comprehensive teaching hospital and several other cooperating health care agencies in a manner that enables both faculty and students to participate fully in all facets of the health care delivery system. The program is accredited by the National League for Nursing and has full approval status from the Tennessee Board of Nursing.

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 and develop creative thinking and other cognitive, affective, and psychomotor processes that are essential for effective nursing practice and for full and meaningful involvement as a contributing member of society.

A broad base of general education, a thorough study of human behavior, emphasis on health maintenance, health promotion, and health restoration and a strong family and community orientation are essential components of baccalaureate education in nursing. By maintaining a high quality, relevant program that is responsive to the increasing complexity of health care delivery, the ever changing health needs of society, and the changing and expanding role of the nurse, graduates of the program 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; and
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 students are required to successfully complete eight semesters of full-time study or the equivalent in part-time study. Students may complete the entire program at UTK or they may take most or all of the lower division component of the program at any regionally accredited college or university. One-hundred-twenty semester hours are required for graduation. The program is designed to accommodate high school graduates, transfer students from within or external to UTK, and registered nurses who hold associate degrees in nursing or who are graduates of diploma nursing programs.

PROGRESSION POLICIES AND PROCEDURES

1. During the spring semester of the year the student expects to meet all lower division course requirements, she/he must complete a Petition for Progression form and submit it to the college's Student Affairs Office no later than the second Friday of UTK's spring semester. If the number of petitions exceeds the number of students that can be accommodated students will be selected on the basis of:
   a. cumulative GPA for courses completed;
   b. grades in required courses;
   c. number of course withdrawals and repetitions;
   d. grade improvement over time; and
   e. probability of completing all lower division requirements prior to the following fall.

2. If a student is selected for progression to upper division nursing courses but then fails to successfully complete all lower division requirements prior to the fall semester, the student will not be permitted to enroll in nursing courses and must submit another petition the following year.

3. Registered nurses must also complete all lower division courses but, at the discretion of the faculty RN advisor, they may enroll in Nursing 305 once they are within 16 semester hours of meeting these requirements. Nursing 305 must be successfully completed before RN's may challenge or take Nursing 312, 402, or 412.
GRADING AND CONTINUATION POLICIES

1. The minimum acceptable grade for all courses in the curriculum except humanities electives is a "C". The satisfactory/no credit grading option is not available for nursing courses.

2. No nursing course may be repeated more than once. If a "D" or "F" grade is earned on the second attempt the student will be required to withdraw from the program.

3. Any student who receives a grade of "D" or "F" for more than two nursing courses will be required to withdraw from the program even if previous courses for which "D"s" or "F"s" were awarded have been repeated with a grade of "C" or higher.

4. If a student receives an Incomplete "I" in a nursing course, the "I" must be removed prior to enrolling in any course for which the uncompleted course is a prerequisite.

5. If a student's clinical performance for any nursing course is found to be unsatisfactory, the grade for that course will be an "F" regardless of any other grades earned in other components of the course. If the unsatisfactory clinical performance is characterized by unethical, unprofessional, or unsafe behavior, behavior that actually or potentially places the client in jeopardy, the student will be required to withdraw from the program.

6. Requirements for competence or certification in cardio-pulmonary resuscitation are included in the Undergraduate Student Handbook.

HEALTH AND INSURANCE REQUIREMENTS

Students must meet specific physical examination and immunization requirements as specified by state law and by the rules and regulations set forth by the various clinical agencies. All non-nurse students must participate in the college's group malpractice and liability insurance program. All registered nurses must provide proof that they have appropriate malpractice-liability insurance coverage. Specific information concerning these requirements will be provided to the students at appropriate times by the nursing faculty and/or the Associate Dean for Student Affairs.

COURSE LOAD

The maximum credit hours per semester for which a nursing student may register without special permission is 18.

THE BACHELOR OF SCIENCE IN NURSING CURRICULUM

<table>
<thead>
<tr>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
</tr>
<tr>
<td>English 101, 102.................................. 6</td>
</tr>
<tr>
<td>Mathematics 110, 115.................................. 6</td>
</tr>
<tr>
<td>Chemistry 100, 110.................................. 8</td>
</tr>
<tr>
<td>Humanities........................................... 6</td>
</tr>
<tr>
<td>Psychology 110........................................... 3</td>
</tr>
<tr>
<td>Sociology or Anthropology.......................... 3</td>
</tr>
<tr>
<td>Sophomore</td>
</tr>
<tr>
<td>Zoology 240............................................ 3</td>
</tr>
<tr>
<td>Zoology 230............................................ 5</td>
</tr>
<tr>
<td>Microbiology 210...................................... 3</td>
</tr>
<tr>
<td>Nutrition............................................. 3</td>
</tr>
<tr>
<td>Child and Family Studies 210......................... 3</td>
</tr>
<tr>
<td>Sociology or Anthropology.......................... 3</td>
</tr>
<tr>
<td>History................................................. 6</td>
</tr>
<tr>
<td>Multicultural or Integrative Studies.............. 3</td>
</tr>
<tr>
<td>Junior</td>
</tr>
<tr>
<td>Philosophy 345....................................... 3</td>
</tr>
<tr>
<td>Nursing 301, 302, 304, 311, 313.................... 29</td>
</tr>
</tbody>
</table>

Registered nurses must successfully complete all of the non-nursing courses listed above as well as the nursing courses listed below. Courses with an asterisk may be challenged.

<table>
<thead>
<tr>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Senior</td>
</tr>
<tr>
<td>Multicultural or Integrative Studies............... 3</td>
</tr>
<tr>
<td>Nursing 401, 403, 404, 411............................ 24</td>
</tr>
</tbody>
</table>

Total: 120 hours

Registered nurses may earn up to eleven semester hours of upper-division nursing credits by means of validation examinations that are designed to measure prior learning. More information about the examinations may be obtained from the Student Affairs Office or from the faculty advisor for registered nurses.

The following courses are open to all university students: 214, 301, 317.

GRADUATE

General requirements for the Master of Science in Nursing degree are given in the Graduate Catalog.
The program prepares students for social work careers in such diverse areas as schools, youth programs, family service agencies, nursing homes, courts, mental health centers, and welfare agencies. The degree provides graduates a competitive advantage in many jobs, the possibility of up to one year’s standing in some master’s degree programs in social work, and the potential to be licensed in a number of states throughout the nation.

The social work curriculum builds on a strong liberal arts base. The humanities and social and behavioral sciences are emphasized to help students understand human diversity and the transactions between people and their environment. The curriculum combines classroom experience and agency-based field placements. Courses provide a knowledge base in social work practice theory, human behavior, social welfare policy, and research. Educationally directed field placements, which consist of over 600 clock hours of supervised field instruction in agency settings throughout greater Knoxville, provide extensive and challenging opportunities for students to apply the lessons of the classroom to the problems of society. The program is accredited by the Council on Social Work Education.

The undergraduate social work program (BSSW) started in 1982 in the College of Liberal Arts. It was granted initial accreditation by the Council on Social Work Education in January 1984, and reaffirmation was given in 1987. The program was transferred to the College of Social Work in September 1985. The three programs, BSSW, MSSW and Ph. D., in the College represent the full continuum of social work education.

The College of Social Work is housed in Henson Hall, located on the corner of Cumberland Avenue and Volunteer Boulevard on the UTK campus in Knoxville. This building houses the administrative and faculty offices, along with classrooms for the BSSW, MSSW and Ph. D. programs. Video and computer resources are available to facilitate instruction.

GRADUATE PROGRAM
The College of Social Work offers a fully accredited two-year graduate professional degree at the master’s level (MSSW). The College also offers a graduate program leading to a Doctor of Philosophy in Social Work (Ph. D.). Information concerning graduate programs is given in the College of Social Work Bulletin and also in the Graduate Catalog. Masters Degree Programs are offered on the campus in Knoxville and in Nashville and Memphis. The Ph. D. Program is offered in Knoxville.

GRADING POLICY
The satisfactory/no credit option is not permitted in the major. The minimum acceptable grade for all social work courses is a C. Courses, other than field, in which a D or F is achieved may be repeated once. Field courses must be completed with a C or better, and may not be repeated. A student receiving an incomplete (I) in any social work course must remove the incomplete before enrollment in subsequent field practice.

COURSE LOAD
The maximum credit hours per semester allowed for any student is 18. Special permission must be obtained for any over load.

PROGRESSION REQUIREMENTS
Students admitted to the University may request a faculty advisor from the College of Social Work. Students in the College must move through Initial and Full Progression. The following factors identify progression criteria for all social work students:
INITIAL PROGRESSION
1. Successful completion of Social Work 200 and 250 with a grade of C or better.
2. Cumulative grade point average of 2.0 or above.
3. Successful completion of a minimum of 60 semester hours. Initial progression must be completed prior to enrollment in any 300-level social work courses.
4. Favorable review of the student's application for entry into the junior level social work courses by the faculty admissions committee. The application requires an essay discussing the student's interest in and preliminary understanding of the profession.

FULL PROGRESSION
1. Successful completion of junior level social work courses with a grade of C or better.
2. Cumulative grade point average of 2.0 or above.
3. Successful completion of a minimum of 90 semester hours. Full progression must be completed prior to enrollment in 400-level social work courses.
4. Favorable approval by the BSW faculty prior to entry into senior level classes. This process will include a review of the student's performance in junior field practice.

Full progression is based on the recognition that social work has an intensive field component in which students demonstrate aptitude and ability to work with other people. While review is ongoing, full progression provides an additional opportunity to review the students' potential for entry-level practice.

CURRICULUM

Freshman

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>English 101, 102</td>
<td>6</td>
</tr>
<tr>
<td>Foreign Language (Intermediate Level)</td>
<td>6</td>
</tr>
<tr>
<td>Mathematics 110</td>
<td>3</td>
</tr>
<tr>
<td>History 151-152 or 161-162</td>
<td>6</td>
</tr>
<tr>
<td>Physiology or Biology Sequence with lab1</td>
<td>8</td>
</tr>
<tr>
<td>Women's Studies 220</td>
<td>3</td>
</tr>
</tbody>
</table>

Sophomore

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zoology 210, 220</td>
<td>6</td>
</tr>
<tr>
<td>Anthropology 130</td>
<td>3</td>
</tr>
<tr>
<td>Humanities (Literature Package)2</td>
<td>6</td>
</tr>
<tr>
<td>Humanities (Philosophy Package)3</td>
<td>6</td>
</tr>
<tr>
<td>Psychology 220</td>
<td>6</td>
</tr>
<tr>
<td>Social Work 200, 250</td>
<td>6</td>
</tr>
<tr>
<td>Economics 201</td>
<td>4</td>
</tr>
</tbody>
</table>

Junior

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Work 312, 313, 314</td>
<td>9</td>
</tr>
<tr>
<td>United States Studies4</td>
<td>3</td>
</tr>
<tr>
<td>Foreign Studies4</td>
<td>3</td>
</tr>
<tr>
<td>Political Science 101</td>
<td>3</td>
</tr>
<tr>
<td>Sociology 336 or Psychology 385</td>
<td>3</td>
</tr>
<tr>
<td>Social Work 310, 380</td>
<td>3</td>
</tr>
<tr>
<td>Child and Family Studies 220</td>
<td>3</td>
</tr>
</tbody>
</table>

Senior

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Work 412, 416</td>
<td>6</td>
</tr>
<tr>
<td>Social Work 480, 481</td>
<td>8</td>
</tr>
<tr>
<td>Social Work 460</td>
<td>2</td>
</tr>
<tr>
<td>Anthropology 312</td>
<td>3</td>
</tr>
<tr>
<td>Electives</td>
<td>9</td>
</tr>
</tbody>
</table>

Total: 124 hours

1The following sequences may be selected: Astronomy 151-152; Botany 110-120; Chemistry 120-130; Geography 131-132; Geology 101-102; Physics 121-122.
2The following literature packages may be selected: Classics 253-254; English 201-202; English 221-222; English 231-232 or 233; Germanic and Slavic Languages 221-222; Religious Studies 312-313; French 291-292; Spanish 291-292.
3The following philosophical perspective packages may be selected: classics 221-222; Philosophy 110-111; Philosophy 120-121; Philosophy 240-344; Philosophy 380-382.
4One course selected from: Anthropology 310; Anthropology 315; Geography 363; History 370; History 382; History 440; Philosophy 390; Political Science 311; Political Science 374; Religious Studies 352; Sociology 343; Sociology 340; Speech 466.
5One course selected from: Anthropology 314; Classics 381; Classics 382; English 302; Geography 372; Geography 373; Geography 375; Geography 376; Germanic and Slavic Languages 363; History 320; History 374; Philosophy 326; Political Science 350; Political Science 361; Political Science 469; Religious Studies 332; French 432; Spanish 431; Spanish 471; Sociology 446.
University Honors

Bruce Wheeler, Director

TENNESSEE SCHOLARS PROGRAM

Each year, twenty-five outstanding high school students are selected for a four-year program of honors work. The students may have any major in any college offering the Bachelor's degree. In addition, Tennessee Scholars' work includes: a minimum of four lower division honors courses; a close relationship with a faculty mentor; a one credit hour Tennessee Scholars seminar each term for four years; and a senior honors paper or project. The Tennessee Scholars Program is administered by the University Honors Committee which includes representatives from each of the ten baccalaureate colleges and schools. Students are selected on the bases of high school GPA and the difficulty of the high school course of study, academic references, and a personal statement. Students who are selected as Tennessee Scholars are awarded substantial four-year scholarships.

Retention in Tennessee Scholars Program

Tennessee Scholars are selected on the bases of past academic performance and their potential for academic excellence. As Tennessee Scholars, they are expected to adhere to the written policies and requirements of the Tennessee Scholars Program and are encouraged to enroll in courses that will stimulate and challenge them as well as broaden their horizons. As a result, the University Honors Committee will not be concerned if grades in occasional courses fall below superior range. However, all Tennessee Scholars are expected to maintain a cumulative grade point average of 3.25.

A student in the Tennessee Scholars Program whose cumulative GPA falls below 3.25 will be allowed to continue in the Program and receive its benefits so long as he or she earns a 3.25 GPA or better every semester, thus eventually raising the cumulative GPA to the required 3.25. If, while the cumulative GPA is less than 3.25, a student fails to earn a 3.25 or better in any semester, he or she will be removed from the Tennessee Scholars Program and lose all its benefits, unless the student can demonstrate extenuating circumstances to the University Honors Committee.

Senior Project Deadlines in Tennessee Scholars Program

The following is a list of mandatory deadlines for the senior research project in the Tennessee Scholars Program:

1. No later than the end of the second year in residence, a student must have chosen a UTK faculty member to serve as mentor for the senior research project, and that faculty member must have agreed in writing to serve as the student’s mentor.

2. No later than the end of the third year in residence, a student, together with the faculty mentor, will choose two other faculty members who, together with the faculty mentor, will serve as the student’s research project committee. The purpose of the committee is to aid students in formulating, designing, and executing their projects and to evaluate the projects when completed. Similarly, by the end of the third year in residence, a student must submit a written abstract or proposal for the senior research project to his/her faculty committee for suggestions and approval.

3. No later than the end of the first semester of a student’s senior year, a first draft of the senior research project must be submitted to the faculty mentor, and the faculty mentor must report that fact to the University Honors Director. In addition, a student must have chosen a UTK faculty member to serve as the student’s research project mentor, and the student must have agreed in writing to serve as the student’s mentor.

4. Within four weeks of the end of a student’s final semester, the student must submit the completed project to the student’s committee, the student’s peers in the Tennessee Scholars Program, and invited guests. Upon the conclusion of the presentation, the student’s faculty mentor will submit a letter to the Director of the University Honors Program certifying that the research project has been completed and has been accepted by the committee. One copy of the research project must be filed in the University Honors Office and additional copies should be given to the student’s committee.

Failure to meet these guidelines will result in the delay of a Tennessee Scholar’s graduation.

UNIVERSITY HONORS COURSES

Seminars and colloquia focused on various topics, issues, and problems, and limited in size to 15-20 students. These are taught by faculty from all ten undergraduate colleges and schools, and may be repeated. University Honors courses are open to all undergraduate students on the basis of high school GPA, ACT/SAT scores, UTK GPA of 3.25 or better, or by strong professorial recommendation.

1 April 10 for students graduating in the Spring semester, and November 15 for students graduating in the fall semester. Students graduating in August (at the end of summer school) are urged to complete their projects by the April 10 deadline, although, in special cases and with the written consent of the faculty mentor, exceptions to this rule may be made.

2 There may be types of projects that do not lend themselves to a formal (public) defense. Hence the decision whether or not to have a public defense should be decided by the research committee and the Director of the University Honors Program.
University Studies

Glenn C. Graber, Director

The University Studies Program has three general objectives: (1) to foster interdisciplinary teaching and scholarship, especially across college boundaries; (2) to promote active, integrative, and personal learning; and (3) to nurture the personal and intellectual development of faculty and students.

In pursuit of these objectives, University Studies sponsors three types of activities: FAculty Colloquies, which are ongoing, structured, interdisciplinary conversations on a topic or nexus of topics; LEARNING COMMUNITIES, which are year-long clusters of courses in which a group of faculty and students work together to integrate material from several disciplines; and INTERDISCIPLINARY COURSES, often team-taught, many stemming from the colloquy discussions.

Faculty Colloquies explore important contemporary issues which are sufficiently fundamental to involve the attention of faculty and students from all colleges. Current colloquies are: Technology, Society and the Common Good; Aging and Society; Land and People (Tennessee Appalachian Forum); Learning, Thinking, Creating; Forum on International Development; Humanistic Perspectives on Science and Society; Appalachian Studies; and Freshman Year Experience.

The University Learning Community at the sophomore level has as its goals: (a) To form a community of learners, including both faculty and students; (b) To promote active involvement in learning by making use of case studies, active class exercises, small-group projects, and other alternatives to a lecture method of instruction; (c) To promote integrative learning by focusing on a common theme from the point of view of a variety of disciplines throughout a year-long series of courses; and (d) To integrate classroom learning with wellness activities and social interaction with other students and faculty of the learning community.

For further information, contact: Dr. Glenn C. Graber, Director; University Studies Program; 401 Student Services Building; PHONE: 974-4932.
Reserve Officers Training

DEPARTMENT OF MILITARY SCIENCE

ARMY ROTC
LTC Hugh E. Howard, III, Professor of Military Science

The military program at The University of Tennessee predates that of any other state university in the country, having been introduced in 1844. In that year, Professor Albert Miller Lea, a West Point graduate, organized an infantry company. With the outbreak of the Mexican War, the entire company, as well as thousands of other Tennesseans, volunteered for service in the war. Thus, Tennessee became known as the "Volunteer State".

When The University of Tennessee reopened after the Civil War, a system of military discipline was adapted. A Code of Military Regulations was drawn up and a copy was provided each student when he matriculated. The whole institution was put under regular West Point discipline. The student body was organized into a battalion of cadets, which consisted of four companies fully officered, armed and equipped under the command of the commandant and his staff of cadet officers. The University of Tennessee remained as a Military Garrison for a period of six years, until 1877. Military Science continued to be taught, since the University of Tennessee was a Land Grant Institution and instruction in Military Science was required by the 1862 Act of Congress.

The National Defense Act of 1916 changed the old military organization into a ROTC unit. For the first time, the Federal Government began to pay a part of the uniform cost for basic course students; uniforms and other equipment were provided by the Government for Juniors and Seniors, and a monthly subsistence allowance was given to advanced course students.

From 1928-1930, Major (later Brigadier General) Robert R. Neyland was the the Professor of Military Science and football coach at The University of Tennessee. Today, Neyland Stadium stands in tribute to his great accomplishments.

The purpose of Army ROTC 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 a basic understanding of associated professional knowledge, a strong sense of personal integrity, honor, and individual responsibility, and an appreciation of the requirements for national security; and to establish a sound basis for the students' future professional development.

ROTC draws young men and women for training from all geographical, economic, and social strata of our society as well as from the many educational disciplines required for the modern Army. The program insures that men and women educated in a liberal and broad spectrum of American institutions of higher learning are commissioned annually into the officer corps.

SATISFACTORY/NO CREDIT COURSES

Since Military Science is not a major course of study that leads to a degree in a specific academic discipline, the number of satisfactory/no credit courses is decided by the college of the student's academic major. All ROTC courses are offered on a letter grade basis only.

COURSE LOAD

No more than one Military Science course may be taken during any given semester, unless an exception to policy is approved by the Professor of Military Science on a case-by-case basis. Students enrolled in the advanced program (upper division Military Science 300 and 400 level courses) and ROTC scholarship cadets are required to be full-time students, taking at least 12 hours each semester.

COURSE SUBSTITUTION

On the basis of previous honorable active military service in any branch of the Armed Services, or participation in a Junior ROTC Program at a Secondary School, a student may request exemption from portions of the Basic Course (Military Science 100 and 200 level courses). Placement credit may also be authorized for completion of basic training and advanced individual training. Exemption allowed will be determined by the Professor of Military Science. Military Science courses taken at other colleges or universities are transferable as approved by the Professor of Military Science.

REQUIREMENTS FOR ENROLLMENT AND CONTINUANCE

The general requirements for enrollment and continuance in the Army ROTC program are:

1. Basic Military Studies
   a. Be a citizen of the United States.
   b. Be physically qualified.
   c. Freshman and Sophomore standing. Student with higher standing requires consent of instructor.

2. Advanced Military Studies Cadets applying for enrollment in the Advanced ROTC Program who seek a Commission must:
   a. Have successfully completed Military Science 110, 120, 210, 220 or have accomplished one of the following: Prior Military Service, ROTC Basic Military Studies - Practicum (MS 200), 3-Year High School ROTC Basic Course.
   b. Have two years remaining at the University (either undergraduate, graduate or in pursuit of additional course work).
c. Have completed a minimum of 30 semester hours.
d. Be under 30 years old at time of commissioning.
e. Be enrolled as a full-time student, either at The University of Tennessee or at a nearby institution in a cooperative program.
f. Meet military screening and physical requirements.
g. Maintain a 2.0 G.P.A.
h. Maintain B average in Military Science Courses as a scholarship student.

NOTE: Regularly enrolled students who meet the academic prerequisites may take individual courses as electives with the permission of the department head and academic advisor.

REQUIREMENTS FOR ALL MILITARY SCIENCE COMMISSIONEES

The following Military Science (MS) Advanced Course Curriculum must be successfully completed:

**Military Science 310 (4) - Advanced Military Studies I**

**Military Science 320 (4) - Advanced Military Studies II**

**Military Science 400 (4) - Advanced Camp-Practicum**

**Military Science 410 (4) - Command and Staff Functions**

**Military Science 420 (4) - Military Ethics and Law**

In addition to a baccalaureate degree, there are required and recommended courses in designated fields of study that students must complete prior to commissioning. Students meet these prerequisites by successful completion of required and elective courses taken from the university curriculum in the required areas of concentration.

Courses in the following designated fields of study are required of students seeking a commission in the United States Army:

a. One course in written communications.
b. One course in human behavior.
c. One course in military history.
d. One course in a foreign language (scholarship students only).
e. One course in Math Reasoning.
f. One course in Computer Literacy.

Careers in management and national security studies are strongly recommended but are not required.

SPECIAL PROGRAMS

Pay and Entitlements All students enrolled in the Army ROTC program are furnished textbooks by the Army through the Military Property Officer. Students enrolled in the ROTC Advanced Course receive uniforms and equipment plus an allowance of $100 per month during the academic year. While attending the ROTC summer studies each cadet receives approximately $650 for Advanced Summer Studies, $450 for Basic Summer Studies, plus meals and clothing are provided.

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 subsidy, 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 cadets.

**Simultaneous Membership Program**
The "SMP" option combines the Army ROTC living allowance ($100/month) 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. SMP cadets participate with the reserve forces is one weekend per month and two weeks each summer.

Early Commissioning Program Utilization of placement credit for the Basic Military Studies, many cadets enter Advanced Military Studies in their sophomore year. The "ECP" enables cadets 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 enrolled in college pursuing a four year degree.

Branch Selection The curriculum of the Army ROTC Program is designed to qualify the cadet for appointment as an officer. Selection for assignment to the various branches of the Army is based upon: the personal interests of the cadet; the major course of study; academic accomplishments; leadership potential; and the needs of the Service. Under this system a cadet may be commissioned in any branch 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 qualify him or her for the branch to which he or she is assigned.

Extra Curricular Activities Numerous military-related activities are available to cadets throughout the school year. These include the Tennesse Rangers, Rifle Company, UT Color Guard, Pershing Rifles and Sponsor Corps. These organizations provide both student to student contact and a valuable opportunity to acquire military skills. Additionally, each term, a number of Field Training Exercises are conducted allowing such military skills as Small Unit Tactics.

**MILITARY SCIENCE CURRICULUM**

<table>
<thead>
<tr>
<th>Hours Credit</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal Course</td>
<td>Freshmen</td>
</tr>
<tr>
<td>Military Science 110, 120</td>
<td>.....</td>
</tr>
<tr>
<td>Military Science 210, 220</td>
<td>.....</td>
</tr>
</tbody>
</table>

**Department of Air Force**

**AIR FORCE ROTC PROGRAM**

Professor of Air Force Aerospace Studies: Lt. Colonel Rex W. Jones (Head), M.S. University of Kentucky.

Assistant Professors: Captain James E. Goss, M.S. University of Florida; Captain Richard E. Lee, M.S.

<table>
<thead>
<tr>
<th>Total: 30 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summer</td>
</tr>
<tr>
<td>Military Science 310, 320</td>
</tr>
</tbody>
</table>

**Basic Military Studies - Practicum**

<table>
<thead>
<tr>
<th>Hours Credit</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summer</td>
<td></td>
</tr>
<tr>
<td>Military Science 200</td>
<td>.....</td>
</tr>
<tr>
<td>Junior</td>
<td></td>
</tr>
<tr>
<td>Military Science 310, 320</td>
<td>.....</td>
</tr>
<tr>
<td>Summer</td>
<td></td>
</tr>
<tr>
<td>Military Science 400</td>
<td>.....</td>
</tr>
<tr>
<td>Senior</td>
<td></td>
</tr>
<tr>
<td>Military Science 410, 420</td>
<td>.....</td>
</tr>
</tbody>
</table>

VARIATIONS TO THESE SEQUENCES OF STUDY MAY BE APPROVED BY THE PROFESSOR OF MILITARY SCIENCE ON A CASE-BY-CASE BASIS. TOTAL MILITARY SCIENCE HOURS OFFERED IS 34. MAXIMUM TOTAL MILITARY SCIENCE HOURS APPLICABLE FOR COMMISSION IS 30. MINIMUM TOTAL MILITARY SCIENCE HOURS APPLICABLE FOR COMMISSION IS 20. LOWER DIVISION CRÉDIT HOURS GRANTED BY THE UNIVERSITY FOR MILITARY SERVICE ARE DEPENDENT UPON TIME SPENT IN SERVICE AND SERVICE SCHOOLS ATTENDED.

**PROGRESSION REQUIREMENTS**

1. Minimum semester hours/GPA for entrance into Basic Military Studies - Practicum (Military Science 200); 30 semester hours/2.00 GPA.
2. Minimum overall GPA for entrance into the advance course (Military Science 310, 320, 400, 410, 420); 2.00.
3. Minimum GPA in Military Science Courses: 2.00.
4. Minimum overall GPA for commissioning: 2.00.
5. Quarterly counseling sessions with military advisor required for Advance Course and scholarship students only.
6. Officer Selection Battery test.

**DEPARTMENT OF AIR FORCE**

**AIR FORCE ROTC PROGRAM**

Professor of Air Force Aerospace Studies: Lt. Colonel Rex W. Jones (Head), M.S. University of Kentucky.
University of Southern California; Captain Richard L. Modell, M. S. AF Institute of Technology.

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 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 being medically qualified, 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. During their last two years of college, students enroll in the Four-Year Program and compete for entrance into the Professional Officer Course (POC) which is normally taken during the last two years of college. 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 being medically qualified, 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. During their last two years of college, students enroll in the Four-Year Program and compete for entrance 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 being medically qualified, 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. During their last two years of college, students enroll in the Four-Year Program and compete for entrance 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 being medically qualified, 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 the Professor of Aerospace Studies, applicants seeking enrollment in the Two-Year Program are evaluated using the same criteria used for the four-year program except the length of the field training course is six weeks. Additionally, every POC applicant must agree to take and successfully complete a course in mathematical reasoning or its equivalent before graduation and commissioning.

Since the processing procedure must be completed approximately six months in advance of intended enrollment, interested students must apply early in the academic year preceding the fall term in which they intend to enter the program. Application should be made in person to the Department of Aerospace Studies.

WOMEN IN AFROTC

AFROTC at The University of Tennessee has been coeducational since 1970. Women complete the same courses as men and have the same opportunities. Upon successful completion of the AFROTC program and degree requirements, women are commissioned in the Air Force as Second Lieutenants. Pay and job opportunities are equal for women and men. Virtually all career fields in the Air Force are open to women, including pilot and navigator positions.

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 book fee. In addition, scholarship cadets receive a non-taxable $100 stipend 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. Applications for these scholarships should be made directly to the Department of Aerospace Studies.

In order to retain an AFROTC scholarship, students must maintain the minimum grade point average prescribed by the university and 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. Enrollees are required to deposit $75 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 early withdrawal or disenrollment from the program. Professional Officer Course cadets receive a subsistence allowance of $100 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 of active duty. Those graduates going into pilot assignments will be required to serve eight 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.
Advanced Studies

THE COLLEGE OF LAW

Marilyn Yarbrough, Dean
Mary Jo Hoover, Associate Dean
Julia P. Hardin, Associate Dean
Patrick Harbin, Associate Dean
John A. Sebert, Jr., Associate Dean
N. Douglas Wells, Assistant Dean

The College of Law has, since 1890, continuously sought to provide high quality legal education in a University community. The college offers a professional curriculum leading to the degree of Doctor of Jurisprudence. The College of Law and the College of Business Administration offer a coordinated dual degree program leading to the conferral of both the Doctor of Jurisprudence and the Master of Business Administration degrees.

Information regarding admission, financial aid, academic policies, extracurricular activities, and student services is available in the "College of Law Bulletin." A copy may be obtained from the Admissions Office, The University of Tennessee, College of Law, 1505 W. Cumberland Avenue, Knoxville, Tennessee 37996. Completed application should be received before February 1 of the year of expected admission.

THE GRADUATE SCHOOL

C. W. Minkel, Vice Provost and Dean of The Graduate School
Wayne T. Davis, Associate Dean of The Graduate School
Linda R. Painter, Associate Dean of The Graduate School
Diana Lopez, Director, Graduate Admissions and Records
S. Kay Reed, Graduate Recruitment Coordinator
Ann L. Lacava, Thesis/Dissertation Coordinator
Rose Ann Trantham, Assistant Director, Graduate Admissions and Records
Irene Kaplan, Assistant Director, Graduate Admissions and Records

The University of Tennessee, Knoxville, is the official land-grant institution for the State of Tennessee. It is a comprehensive institution offering a wide range of graduate programs leading to the Master's and doctoral degrees. The University offers Master's programs in 94 fields of specialization and doctoral work in 81. Approximately 5,700 graduate students are enrolled, both on and off campus. Administration of graduate student policies and procedures, and associated record keeping, is the responsibility of the Dean of The Graduate School. Much of the day-to-day administration of graduate study is conducted by department heads or faculty advisors and committees responsible for particular programs. In addition to departmental units, numerous interdisciplinary programs, institutes and centers have been developed on campus and in locations throughout the state.

The Graduate School brings together faculty and graduate students as a community of scholars with a common interest in creative work and advanced study. Graduate programs are available to students desiring full-time study toward the Master's and doctoral degrees or professional certification, those interested in continuing education for updating and broadening knowledge, and those pursuing postdoctoral research. Traditionally, universities have provided graduate programs primarily for full-time, degree-oriented students. Serving the needs of students engaged full-time in intensive study and pursuit of a degree continues to be a major emphasis of UTK's graduate effort. At the same time, the University employs a variety of modes, traditional and non-traditional, in offering quality programs designed to serve students.

Complete information concerning graduate study at The University of Tennessee, Knoxville is available in the Graduate Catalog published annually. For a copy, write or visit the Office of Graduate Admissions and Records, 218 Student Services Building, The University of Tennessee, Knoxville, Tennessee 37996-0220 or call (615) 974-3251.

GRADUATE SCHOOL OF BIOMEDICAL SCIENCES

Raymond A. Popp, Acting Director

FULL-TIME FACULTY

Professors:
D. Billen, Ph. D. Tennessee; D. E. Olins, Ph. D. Rockefeller.
Assistant Professor:
C. Soumoff, Ph. D. California (Los Angeles).
Research Professor:
Research Associate Professor:
E. C. Uberbacher, Ph. D., Pennsylvania.

The Graduate School of Biomedical Sciences offers programs leading to the Master of Science and Doctor of Philosophy degrees. The School publishes supplementary information in addition to the regular Graduate Catalog. All inquiries concerning admission should be addressed to: Director, The University of Tennessee—Oak Ridge Graduate School of Biomedical Sciences, ORNL, P. O. Box Y, Oak Ridge, Tennessee 37831. Consult the Graduate Catalog for listing of graduate level courses.

COMPARATIVE AND EXPERIMENTAL MEDICINE JOINT GRADUATE PROGRAM

Coordinating Committee:
H. Kitchen (Chairperson); J. E. Fuhr; R. A. Griesemer; J. E. Lawler; R. L. Michel.

The Comparative and Experimental Medicine degree program (M.S. and Ph.D.) is jointly administered by the College of Veterinary Medicine, the College of Medicine/Knoxville Unit, and the UTK Graduate School. The graduate program is intended to prepare students for teaching and/or research careers in the health sciences, emphasizing the comparative approach to the study of pathology, immunopathology, aberrant metabolism, oncology, genetic disorders. For complete information, refer to the Graduate Catalog.

The UTCHS College of Medicine/Knoxville Unit offers the courses listed on page 162-163.

ENERGY, ENVIRONMENT, AND RESOURCES CENTER

E. William Colglazier, Director

The Energy, Environment, and Resources Center was created to encourage interdisciplinary research directed at solutions to problems related to energy and the environment. The Center provides assistance to faculty interested in developing research and public service projects, manages research and development projects that involve several disciplines, and assists Tennessee government and industry in specific problems related to energy, environmental, resource, and technology policy issues. The Center has a close working relationship with Oak Ridge National Laboratory and the Tennessee Valley Authority.

GRADUATE SCHOOL OF LIBRARY AND INFORMATION SCIENCE

Gary R. Purcell, Director

Professors:

Associate Professors:

Assistant Professor:
M. H. Karrenbrock, Ed. D. University of Georgia.

The Graduate School of Library and Information Science provides a program leading to the preparation of librarians and information scientists for work in all types of libraries and information centers.

THE UNDERGRADUATE PROGRAM

The undergraduate library education program leads to a minor in the College of Education or the College of Liberal Arts. Students in other colleges may elect a minor in library and information science with the approval of their faculty advisors. The undergraduate minor is planned for the following groups of people: (1) students preparing for positions as school librarians in elementary and secondary schools; (2) teachers who wish to become better acquainted with books and other instructional materials; (3) school administrators who wish to explore the place of the library in the instructional program; (4) prospective candidates for the graduate programs in library education; (5) persons seeking a position at the level of Library Associate as described in the manpower policy of the American Library Association.

The minimum requirements for a full-time position as school librarian in the state of Tennessee (both elementary and secondary) can be met through fulfilling the requirements for teacher certification and completion of the following library courses: 330, 340, 475, 510, 530, 551, 564, and 574.

THE GRADUATE PROGRAM

The goal of the program is to prepare graduates to function effectively in libraries and information centers. For further information, write for a Graduate Catalog.

LIFE SCIENCES

Coordinating Council:
H. I. Adler (Chair); Physiology: R. Bagby; Biotechnology: D. K. Dougall; Cellular, Molecular and Development Biology: J. M. Becker; Environmental Toxicology: W. R. Farkas; Ethology: G. B. Burghardt; Plant Pathology and Genetics: C. J. Schwarz.

The programs leading to the M. S. and Ph.D. degrees in life sciences include advanced study in the interdepartmental and intercollegiate programs which augment the programs of individual departments.

The graduate program in Life Sciences supports studies and research in the following concentrations: physiology; biotechnology (M. S. only); cellular, molecular and development biology; ethology; environmental toxicology; and plant physiology and genetics. Students interested in any of these areas should contact either the Chair of Life Sciences or the Director of the area of interest. For complete information, refer to the Graduate Catalog.

GRADUATE SCHOOL OF PLANNING

James A. Spencer, Director

Professors:

Associate Professors:
G. E. Bowen, M. A. George Washington; P. Fisher, Ph. D. Florida State.

The Graduate School of Planning offers a program of studies leading to the professional degree of Master of Science in Planning. For complete information, refer to the "Graduate Catalog".

SPACE INSTITUTE

Kenneth E. Harwell, Dean
Richard M. Roberds, Associate Dean

The Space Institute is a graduate education and research institution established in 1964 on a 365 acre lakeshore campus in Middle Tennessee. UT SI has evolved into an internationally recognized institution for graduate study and research in engineering, physics, mathematics, and computer science. The accredited academic programs and educational policies of the Space Institute have their origins in appropriate departments of The University of Tennessee, Knoxville. The more than 40 faculty members of the Institute carry out these accredited academic programs through classroom teaching, informal seminars, active research, and directing the research of their students in an environment of creative work and advanced study. Graduate programs are available to students devoting full-time effort toward M. S. and Ph. D. degrees, those interested in continuing education for updating and broadening knowledge, and those who wish to pursue post-doctoral research. Graduate degree programs are available with majors in Aerospace Engineering, Aviation Systems, Computer Sciences, Electrical Engineering, Engineering Science, Industrial Engineering (engineering management concentration), Mathematics, Mechanical Engineering, and Physics. In addition to the fundamental studies characteristic of each
discipline, research opportunities are available in many areas including aerodynamics, atmospheric science, fluid mechanics, computer graphics, knowledge engineering, energy conversion processes, thermal sciences, space systems, remote sensing, propulsion, computational fluid dynamics, and other aspects of atmospheric and space flight.

The Institute has an established Center of Excellence in Laser Applications and offers graduate studies and research opportunities in laser diagnostics, laser materials interactions, pico second processes, and coherent and non-linear optics.

The Institute was established in part to increase the research and engineering resources of Tennessee through education and practice in relevant scientific and technical areas and in part to interface University faculty and student research with the Air Force Arnold Engineering Development Center. The faculty, research activities, and facilities of the Institute and those available at Arnold Center through appropriate contractual arrangements provide students an unusual opportunity for significant research in these areas. Students who enroll at UTSI are admitted to The Graduate School, The University of Tennessee, Knoxville. Graduate Research Assistantships are available for qualified students. Further information may be obtained from the Dean, The University of Tennessee Space Institute, Tullahoma, Tennessee 37388.

WATER RESOURCES RESEARCH CENTER

E. William Colglazier, Director

The Water Resources Research Center is a federally designated institute for the conduct of water research for the state. The purposes of the Center are: (1) to assist and support all the academic institutions of the state, public and private, in pursuing water resources research which addresses a wide range of problems of interest to the state, region, and nation; (2) to provide information, dissemination and technology transfer services to state and local government bodies, academic institutions, professional groups, environmental organizations, and others, including the general public, who have an interest in water resources matters; and (3) to promote education in fields relating to water resources and to encourage the entry of promising students into careers in these fields.

TRANSPORTATION CENTER

E. William Colglazier, Director

The Transportation Center, utilizing an interdisciplinary approach to transportation research, brings together both University faculty and students in a setting conducive to the solution of problems associated with the transportation of goods and people. The Center provides support for undergraduate and graduate students, as well as faculty, in projects associated with research in the field of transportation. Such support, while providing needed financial assistance to students, enables the Transportation Center to undertake research that ultimately contributes to the solution of the nation's transportation problems.
## Majors and Degree Programs

<table>
<thead>
<tr>
<th>College of Agriculture</th>
<th>DEGREE</th>
<th>Food Systems Administration</th>
<th>M.S.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural Extension Education</td>
<td>M.S.</td>
<td>Home Economics</td>
<td>M.S.</td>
</tr>
<tr>
<td>Agricultural Economics</td>
<td>M.S., Ph.D.</td>
<td>Human Ecology</td>
<td>Ph.D.</td>
</tr>
<tr>
<td>Agricultural Engineering</td>
<td>M.S.</td>
<td>Interior Design</td>
<td>M.S.</td>
</tr>
<tr>
<td>Agricultural Engineering Technology</td>
<td>M.S.</td>
<td>Nutrition</td>
<td>M.S.</td>
</tr>
<tr>
<td>Animal Science</td>
<td>M.S., Ph.D.</td>
<td>Textiles and Apparel</td>
<td>M.S.</td>
</tr>
<tr>
<td>Entomology and Plant Pathology</td>
<td>M.S.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Food Technology and Science</td>
<td>M.S., Ph.D.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Forestry</td>
<td>M.S.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ornamental Horticulture and Landscape</td>
<td>M.S.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Design</td>
<td>M.S., Ph.D.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plant and Soil Science</td>
<td>M.S.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wildlife and Fisheries Science</td>
<td>M.S.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>College of Business Administration</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accounting</td>
<td>M.Acc.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Business Administration</td>
<td>M.B.A., J.D.-M.B.A., Ph.D.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Economics</td>
<td>M.A., Ph.D.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Management Science</td>
<td>Ph.D.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Statistics</td>
<td>M.S.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>College of Communications</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communications</td>
<td>M.S., Ph.D.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>College of Education</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adult Education</td>
<td>M.S.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Art Education</td>
<td>M.S.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Business Education</td>
<td>M.S.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>College Student Personnel</td>
<td>M.S., Ed.S., Ed.D.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Curriculum and Instruction</td>
<td>Ph.D.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td>M.S., Ed.S., Ed.D.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Educational Administration and</td>
<td>M.S., Ed.S., Ed.D.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supervision</td>
<td>M.S., Ed.D.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Educational Psychology</td>
<td>M.S., Ed.D.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Educational Psychology and Guidance</td>
<td>Ed.S.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Guidance</td>
<td>M.S.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health Education</td>
<td>Ed.D.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Industrial Education</td>
<td>M.S.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical Education</td>
<td>M.S., Ed.D.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public Health</td>
<td>M.P.H.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recreation &amp; Leisure Studies</td>
<td>M.S.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rehabilitation Counseling</td>
<td>M.S.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Safety Education and Service</td>
<td>M.S., Ed.S.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>School Health Education</td>
<td>M.S.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Special Education</td>
<td>M.S.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vocational-Technical Education</td>
<td>M.S., Ed.S., Ed.D.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>College of Engineering</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aerospace Engineering</td>
<td>M.S., Ph.D.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chemical Engineering</td>
<td>M.S., Ph.D.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Civil Engineering</td>
<td>M.S., M.S., Ph.D.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electrical Engineering</td>
<td>M.S., Ph.D.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engineering Science</td>
<td>M.S., Ph.D.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environmental Engineering</td>
<td>M.S.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Industrial Engineering</td>
<td>M.S.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mechanical Engineering</td>
<td>M.S., Ph.D.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Metallurgical Engineering</td>
<td>M.S., Ph.D.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nuclear Engineering</td>
<td>M.S., Ph.D.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Polymer Engineering</td>
<td>M.S., Ph.D.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>College of Human Ecology</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child and Family Studies</td>
<td>M.S.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Food Science</td>
<td>M.S.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>College of Liberal Arts</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anthropology</td>
<td>M.A., Ph.D.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Art</td>
<td>M.F.A.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Audiology</td>
<td>M.A.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biochemistry</td>
<td>M.S., Ph.D.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Botany</td>
<td>M.S., Ph.D.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chemistry</td>
<td>M.S., Ph.D.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Computer Science</td>
<td>M.S., Ph.D.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>English</td>
<td>M.A.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>French</td>
<td>M.S., Ph.D.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Geography</td>
<td>M.S., Ph.D.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Geology</td>
<td>M.S., Ph.D.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>German</td>
<td>M.A.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>History</td>
<td>M.A., Ph.D.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mathematics</td>
<td>M.A., Ph.D.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Microbiology</td>
<td>M.S., Ph.D.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Modern Foreign Languages</td>
<td>M.S., Ph.D.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Music</td>
<td>M.Mus., M.A.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Philosophy</td>
<td>M.A., Ph.D.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physics</td>
<td>M.S., Ph.D.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Political Science</td>
<td>M.A., Ph.D.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Psychology</td>
<td>M.A., Ph.D.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public Administration</td>
<td>M.P.A.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sociology</td>
<td>M.A., Ph.D.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spanish</td>
<td>M.A.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Speech and Hearing Science</td>
<td>Ph.D.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Speech Pathology</td>
<td>M.A.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Theatre</td>
<td>M.P.A.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zoology</td>
<td>M.S., Ph.D.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>College of Nursing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nursing</td>
<td>M.S.N., Ph.D.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>College of Social Work</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social Work</td>
<td>M.S.S.W., Ph.D.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Memphis, Nashville, and Knoxville)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>School of Biomedical Sciences</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biomedical Sciences</td>
<td>M.S., Ph.D.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>School of Library and Information Sciences</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Library Science</td>
<td>M.S.L.S.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>School of Planning</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Planning</td>
<td>M.S.P.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Division of Continuing Education, Knoxville

Dean:
Joseph P. Goddard, Ed. D., Tennessee

Associate Dean:
William D. Barton, Ed. D., Tennessee

Executive Assistant:
Judy B. Constantine

The Division of Continuing Education, Knoxville, is the administrative unit of UTK that extends academic courses, educational services, and other programs to the non-traditional student. While most people who participate in the programs are adults, persons of all ages and academic levels can be counted among the people who enroll in the credit and non-credit offerings of the Division.

Programs and courses are based upon student needs and desires, whether for self-motivated learning; for leisure and recreational programs; or for professional promotion, certification, licensure, relicensure, or mid-career changes. The Division provides these educational opportunities through program coordination and development of the four departments: Department of Conferences, English Language Institute, Non-Credit Programs, and the University Evening School. Specific programs and services of each department are described on the following pages.

DEPARTMENT OF CONFERENCES

Assistant Director:
N. Dahlin-Brown, B. of Arch., Tennessee

Conference Consultant:
R. Reynolds, M. S., Tennessee

Coordinators:
W. Brown, M. S. Tennessee
E. Keener, B. A., Temple University
L. Law, B. S. Tennessee
G. Mosby, M. Ed. Texas South. University
G. Trantham, B. S. Tennessee

Staff Assistant:
M. Purdy

UT Conferences, is a department of the Division of Continuing Education, University of Tennessee, Knoxville. UT Conferences provides management services to any individual or group who desires to hold a high quality convention, conference or meeting anywhere in the state of Tennessee.

Utilizing the state-wide University system facilities, major hotels and convention centers across Tennessee, UT Conferences provides a unique contribution to continuing education and public service. Programs are custom designed to meet the needs of the participants in order to achieve maximum learning benefits. Affordable services are tailored within the budget guidelines. The overall plan is administered with the participants personal and professional enhancement as the objective. Programs which meet appropriate criteria qualify for Continuing Education Credits. The Division of Continuing Education maintains a record of CEU's earned and provides records upon written request.

Conferences' staff provides professional guidance and management for small group meetings as well as for major conventions of several thousand delegates. Consulting services begin with the initial planning and budgeting. They continue as UT Conferences acts in the sponsor's behalf in negotiating and contracting all arrangements for lodging, food services, speakers, promotional materials, travel, meeting rooms and the myriad of details that must be monitored in order to assure a successful event. The site management team is the first on the scene prior to the event and is prepared to register the early arrivals. Room sets, audio visual equipment, sound systems, refreshment breaks, tours, banquets - every detail is executed as planned and problem solving is made easy through experienced management. A final evaluation after the event reflects a positive performance, a balanced budget and a growth experience for your organization.

This turn-key support allows the sponsors to concentrate on quality of program content and to serve as host to attendees.

UT Conferences has joined hands with UT Educational Video and Photography to provide teleconferencing services for the University and community. Professional groups and interested individuals may arrange to receive (downlink) satellite programming on campus or to transmit (uplink) to earth stations around the world.

Additional information may be obtained from the Department of Conferences, 2014 Lake Avenue, or by calling (615) 974-5261.

ENGLISH LANGUAGE INSTITUTE

Director:
Dale A. Myers, Ph. D., Florida

Assistant Director:
Jan G. Hitt, B. A., Tennessee

Instructors:
Anwar F. Accawi M. Ed., Tennessee
Mostafa Rahbar, M. Ed., Tennessee

The English Language Institute (ELI) is a non-credit language-study program of the University of Tennessee, Knoxville. It is designed to assist students in their pursuit of career goals or educational objectives in the United States.

The ELI offers intensive courses for the improvement of student skills in the English language. International students, visitors, and professionals have successfully learned English through study in the ELI.

The courses emphasize the development of communicative ability in listening, speaking, reading, and writing. Faculty members are trained in teaching English to speakers of other languages with differing national backgrounds and varying proficiency in English.

The curriculum consists of eight proficiency levels: 101-108, Introductory through Pre-Academic.
Each level meets 4-5 periods each day with options from the following: English Structure (Grammar), Listening Comprehension, Writing/Composition (Rhetoric), and Conversation Practice for Communicative Purposes. Reading and Vocabulary

In addition, classes also assist students in pronunciation, test-taking strategies, U.S., culture orientation, and university study skills.

Additional information may be obtained at 907 Mountcastle Street; telephone (615) 974-3404.

NON-CREDIT PROGRAMS

Director: G. D. Cooper, Ed.D., Tennessee

Coordinators: D. T. Howard, M. S., Tennessee
D. J. von Weisenstein, M. S., Tennessee

The Department of Non-Credit Programs provides a comprehensive array of courses and seminars designed and planned to serve the needs or demands of individuals in Knoxville and surrounding communities, as well as those of business and industry throughout Tennessee. Most courses are offered on a seasonal term (Fall, Winter, Spring, Summer) basis, in the evening on the University campus and at selected off-campus locations. The quality of these programs is maintained by utilizing University faculty where possible and citizens of the community who have gained a reputation for certain interests or technical skills. Business seminars are offered to the public in the major cities throughout the state of Tennessee. These can also be delivered "on-site" for business or industrial clients, and instructional services are tailored to the needs of each individual group.

The types of courses offered by the department range from developing personal skills, such as communications, computer literacy, and management development, to human interest courses, such as plants and gardening, health, exercise and fitness. There are also courses which meet certain requirements of the state or other agencies for certification in given fields, such as real estate, aviation, CEBS (Certified Employee Benefit Specialist) and CCA (Certified Credit Administrator). The business seminars range from "hands-on" computer training topics pertinent to management development for business and industry. "In-house" courses delivered to business and industry help provide for professional development for the workforce. The department co-sponsors an ongoing program, the Smoky Mountain Field School, with the Great Smoky Mountains National Park. The School consists of intensive weekend and five-day field courses emphasizing outdoor exploration of the Smoky Mountains. Continuing Education Units (CEU's) are awarded to students satisfactorily completing courses and seminars offered by the department. A CEU is defined by the Southern Association of Colleges and Schools as "ten contact hours of participation in an organized, continuing education experience under responsible sponsorship, capable direction, and qualified instruction." A permanent record of CEU's is maintained by the department. A transcript of all CEU's earned at The University of Tennessee, Knoxville, may be obtained upon written request. Statewide legislation gives Tennessee citizens who are 60 years of age or older, or those who are totally disabled, the opportunity to audit courses at UTK free of charge on a space available basis. Legal verification of either of these conditions is required for enrollment. Additional information may be obtained at 2016 Lake Avenue, Telephone (615) 974-6688.

UNIVERSITY EVENING SCHOOL

Director: S. C. Bills, Ed. D., Tennessee

Associate Directors: J. C. Sekula, Ph. D., Tennessee
M. K. Warden, Ed. D., Tennessee

Assistant Directors: L. U. Jurand, M. S., Tennessee
J. R. Rosamond, M. S., Tennessee

Administrative Assistant: B. H. Beeler

Assistant Professor: C. B. Mamantov, Ed. D., Tennessee

Director, Oak Ridge Resident Graduate Program: S. C. Bills, Ed. D., Tennessee

Assistant Director, Oak Ridge Resident Graduate Program: V. Mays, M. S., Tennessee

The University Evening School, in conjunction with academic colleges and departments, administers credit programs for those students attending classes on- and off-campus in a variety of non-traditional formats. Support services are provided to assist students in their educational pursuits. On-Campus Evening Program. Classes are offered during late afternoon and evening hours for those students who work or have other commitments during the day. The following undergraduate degrees are available: Bachelor of Science in Education with a major in Accounting, General Business, Economics, or Management; Bachelor of Science in Liberal Arts — Bachelor of Arts with majors in Art, Economics, Mathematics, Psychology, or Sociology. Some departments within the Colleges of Business Administration, Education, and Engineering offer all courses for an advanced degree during the evening. The College of Business Administration also offers all courses required for the MBA degree with a concentration in Management and Venture Analysis. For other majors, consult the appropriate academic department.

Mini-Term. The University Evening School offers two Mini-Terms during December/January and May. Students may enroll in one concentrated credit course during the Mini-Term period. Courses and instructors listed for the Mini-Term are carefully selected to reflect a broad academic base of individualized offerings suited to an intensive program of study. Courses cover traditional material and information included in regular semester offerings; however, these courses may be supplemented with films, team teaching, field trips, interactive projects and specialized areas of study, affording students an opportunity to immerse themselves in the discipline selected.

Off-Campus Programs. The Evening School conducts such programs as directed-study and graduate courses in many locations away from the Knoxville campus. The courses are scheduled in response to requests and identifiable needs of adult part-time students who live some distance from the University. All course offerings and instructors are approved by the appropriate academic departments, and the credit awarded is resident credit.

The College of Education (Off-Campus) offers a Bachelor of Science in Education with a major in Vocational-Technical Education and the following graduate degree programs are available: Doctor of Education with a major in Educational Administration and Supervision (Chattanooga); Specialist in Education with a major in Educational Administration and Supervision (Chattanooga); Doctor of Education with a major in Vocational-Technical Education (Chattanooga); Master of Science in Education with a major in Curriculum (Athens); Master of Science in Education with a major in Vocational-Technical Education (Statewide).

The Evening School administers an off-campus center at Oak Ridge where courses leading to advanced degrees in science and engineering are offered. At Oak Ridge, graduate students have the opportunity to participate in short periods of intensive study. They may earn college credit within a shorter time frame than the traditional semester system. Workshops offer flexibility of timing, location, and content; and summer workshops are particularly popular with teachers and school administrators. Although most workshops are held on the UTK campus, geography is not a limiting factor.

Student Services. A comprehensive program of services is provided by The University Evening School for both on- and off-campus students.

Registration. Registration by mail is offered as a convenience for evening School students. Secondary registration at both on- and off-campus locations is also available.

Advising. An advising counseling program is available for the benefit of all evening students who need assistance with academic and/or personal matters. The program can accommodate students during regular daytime hours (8:30-5:30) and in the evenings by appointment, as well as at various centralized off-campus locations. The College of Liberal Arts, Business, Education, and Engineering also cooperate with the Evening
School by providing extended hours several times a week to advise students. A veterans' advisor assists in academic planning for Evening School students who receive educational benefits under the G. I. Bill.

**Financial Aid.** Evening School students who encounter difficulty in pursuing academic goals because of financial restrictions may be eligible for assistance through the Evening School Scholarship Fund. Interested students may also obtain applications for the Pell Grant in the Evening School Office.

**ELDERLY AND DISABLED PERSONS**

Legislation gives Tennessee citizens who are 60 years of age or older, or those who are totally disabled, the opportunity to attend courses at the University at no charge on an audit, space available basis. Legal verification of either of these conditions is required for enrollment. Students who are 65 or over, or who are totally disabled, and who desire to receive UT credit for their courses, may pay a reduced charge of $7 per credit hour up to a maximum of $75 for a full-time load. Registration for day and evening classes is handled by the Evening School. The University Evening School office is located at 451 Communications and University Extension Building on the UTK campus and may be reached by calling (615) 974-5361 or 1-800-334-1724. All inquiries concerning these programs are welcome.
ACCOUNTING

201 Principles of Financial Accounting (3) Introduction to financial accounting theory and practice with emphasis on understanding and reporting of financial information. Prerequisite to all other courses in accounting. Prerequisite: Mathematics 110 or 121. E

202 Principles of Managerial Accounting (3) Introduction to managerial and cost accounting concepts with emphasis on uses of accounting data by managers in planning operations, controlling activities, and decision making. Prerequisite: 201. E

311-312 Intermediate Financial Accounting (3,3) Theory, principles, and procedures related to valuation of assets, liabilities and equities; measurement of periodic income; and preparation of financial statements. Prerequisite: 202 for 311; and 311 with a grade of C or better and Management 303 for 312. E

321 Cost and Managerial Accounting (3) Analysis of costing for products, projects, and management control. Topics include cost behavior, cost prediction, budgeting, and responsibility accounting. Prerequisite: 202. Corequisite: Management 303. E

341 Accounting Information Systems (3) Development and use of accounting information systems for collection, organization, and distribution of economic information about organizations for internal and external decision making. Prerequisite: 321, Management 303, junior standing, F, Sp

400 Special Topics (3) Critical consideration of selected current topics. May be selected from managerial/cost, financial, systems or auditing. May include written reports and cases. Prerequisite: 312, 321, and 341 and consent of instructor.

411 Auditing (3) Role of auditing in society, operational auditing, professional auditing standards, auditor's legal responsibilities, audit evidence and reporting, role of internal control and statistical sampling in auditing, applications to specific transaction cycles. Prerequisite: 312, 341. F, Sp

414 Advanced Accounting (3) Issues and alternatives in advanced theory and problem areas including financial accounting theory, partnership accounting, business combinations, consolidated financial statements, and not-for-profit accounting. Major writing requirement. Prerequisite: 312. F, Sp

431 Federal Income Taxation (3) Fundamentals of gross income, deductions, credits, and tax determination. Introduction to taxation of corporations and partnerships. Prerequisite: 311 or consent of instructor. E

ADVERTISING

250 Advertising Principles (3) Survey of the role of advertising in American business and society. Relationship between advertising and marketing; functional components of the advertising process: research, media, creative, and management.

340 Advertising Research Methods (3) Secondary data and primary research techniques for advertising decisions. Prerequisite: 250 with a grade of C or better and Statistics 201.

350 Advertising Creative Strategy (3) Basic concepts of creative strategy with intensive practice in developing creative platforms, writing and designing advertisements, and judging creative work. Prerequisite: 250 with a grade of C or better.

360 Advertising Media Strategy (3) Assessment of markets, vehicle audiences and mathematical techniques for advertising planning. Instruction in media planning, buying, and evaluation. Prerequisite: 340 with a grade of C or better.

380 Advertising Professional Seminar (1) Exploration of career choices in mass communications. Resume and letter writing, interviewing, and portfolio preparation. Prerequisite: Progression as a major in the Department of Advertising.

450 Advertising Management (3) Case-study approach to advertising decisions. Data analysis and interpretation, generating alternative strategies, oral and written presentation of recommendations. Prerequisite: 350 and 360 with grades of C or better. Open to marketing seniors in the College of Business Administration with consent of Head of Department of Advertising.

470 Advertising Campaigns (3) Group-based development, execution and evaluation of an advertising campaign for a regional or national client. Prerequisite: 450 with a grade of C or better.

490 Special Topics (3) Detailed study of a specialized area of advertising. Topics vary by semester and include advanced media strategy, advanced creative strategy, direct marketing, and advertising and social issues.

AFRO-AMERICAN STUDIES

201 Introduction to Afro-American Studies (3) Multidisciplinary approach to the Afro-American experience through the Civil War period which examines such issues as traditional African societies, the institution of slavery, the development of Afro-American culture, the beginnings of Afro-American protest tradition, and the Civil War and Reconstruction.

202 Introduction to Afro-American Studies (3) Multidisciplinary approach to the Afro-American experience from the Civil War through the Civil Rights era which focuses on such topics as Afro-American rural and urban societies, the Afro-American church and education and Afro-American intellectual and protest movements.

310 Introduction to Afro-American Music (3) (Same as Music History 310.)

314 Peoples and Cultures of Africa (3) (Same as Anthropology 314.)

315 Afro-American Anthropology (3) (Same as Anthropology 315.)

322 Minority Group Politics in the United States (3) (Same as Political Science 322.)

343 Race and Ethnicity (3) (Same as Sociology 343.)

350 History of Jazz (3) (Same as Music History 350.)

352 Afro-American Religion in United States (3) (Same as Religious Studies 352.)

353 Topics in Afro-American Religion (3) (Same as Religious Studies 353.)

364 Contemporary Issues in Afro-American Education (3) 1954 to the present. Examines issues relevant to the current dilemma of providing quality education for the Afro-American student including professional school quotes, intelligence testing, homogeneous grouping, Afro-American college survival, busing, Black English/Standard English controversy. Writing emphasis course; at least one in-class essay examination and 3000 words of writing outside the classroom.

371-372 African History (3,3) (Same as History 371-372.)

373 African Religions (3) (Same as Religious Studies 373 and Anthropology 373.)

379 Geography of Africa (3) (Same as Geography 379.)

420 Families: Race, Class and Culture (3) (Same as Child and Family Studies 420.)
421 Comparative Studies in African and Afro-Ameri-
can Societies (3) Comparative studies of African and
Afro-American societies in such areas as education,
religion, and social stratification. Includes the respec-
tive views of Africans and African Americans with an
overview of the concept of Pan-Africanism. Writing-
emphasis course: at least one in-class essay exami-
nation and 3000 words of writing outside the classroom.

429 History and Philosophy of Afro-American Edu-
cation (3) Focuses on attempts by Afro-Americans to
secure an education for themselves and their children
from the era of slavery to the Supreme Court decision in
1954. Examines black perceptions of the impor-
tance of education and special obstacles confronting
Blacks who seek education in the primary, second-
sary, and post-secondary level. Writing-emphasis course:
at least one in-class essay examination and 3000
words of writing outside the classroom.

431 Research Seminar in Afro-American Studies (3)
writing outside the classroom. Teaches basic approaches to the research process
and methods for the research paper. Includes research on the Afro-American struggle to survive. Includes
examination and 3000 words of writing outside the
classroom.

435-36 Student Teaching in Agricultural Education
(6,6) Full time teaching practicum in an approved high school. Applied practices needed by vocational agri-
cultural teachers. Satisfactory/No Credit grading only. Prereq: Admission to Teacher Education and 345 and

492 Agricultural and Extension Education Intern-
ship (2-8) Supervised work experience in approved
county Extension offices, agricultural businesses, or
agricultural related agencies. (Requires living off-
campus for a full semester.) Prereq: 411 and con-
sent of instructor. Sp, Su

493 Independent Study (1-3) Individualized study of
a special project or problem in Agricultural and Exten-
siion Education. Must be selected in consultation with the instructor and consent of instructor. May be repeated for credit. Maximum 6 hours. E

AGRICULTURAL ECONOMICS

210 Introduction to Agricultural Economics (3) Appli-
cation of economic principles to supply, demand,
determination, and market structure to agriculture, natu-
ral resources, rural community development, and
international trade and development. Economic aspects of current issues and problems associated with
production, marketing, consumption, resource use, and
government intervention in rural, urban, and interna-
tional sectors. Prereq: Economics 201. F, Sp

310 Farm and Agribusiness Law (3) Survey of law
applicable to the farmer, agribusiness manager, and
agricultural industry. Property, contracts, torts, drain-
age and water rights, landlord-tenant relationships,
taxation and insurance, forms of business organiza-
tion, estate planning, corporate and personal income
tax planning, regulatory laws, and other selected topics.
Prereq: Junior standing or consent of instructor. F

342 Farm Business Management I (3) Principles and
procedures for determining the most profitable farm orga-
nization and management of various managerial proces-
ses; farm records and their uses; budgeting; economic aspects of acquisition and management of
capital, land, labor and machinery resources. Prereq:
Economics 201 and Junior standing. F

350 Marketing of Agricultural Products (3) Survey of
U.S. food and fiber marketing system; marketing func-
tions; industry structure, market channels; marketing
options of farmers; basic analysis of marketing prob-
lems. Prereq: 210 or consent of instructor. Sp

352 Commodity Futures Markets (2) Futures market
as an instrument in marketing of primary industry
products; process of trading that reduces the risk of
adverse price changes; price analysis from two view-
points; supply and demand and history (fundamentalists
and chartists). Prereq: Junior standing. F, Sp

412 Agricultural Finance (3) Macro-finance, financial
objectives, sources of debt and equity funds, capi-
tal investments, capital allocation, debt repayment,
credit analysis, borrower and lender loan application
analysis, insurance strategies, computer applica-
tions, kinds and sources of agricultural credit, and
financial intermediation. Prereq: Economics 201; Junior standing or consent of Instructor. F

430 Agricultural and Trade Policy (3) Values, goals,
and policy process; historical development and cur-
tent characteristics of commodity, credit, food, and
trade policy; relationship between domestic and international trade policy. Prereq: 210 or con-
sent of instructor. Sp

440 Agricultural Production Economics (3) Application
of microeconomic theory to problem of resource allo-
cation, enterprise selection, scale of operation of
agricultural firms, economic growth, and the eco-
tical agricultural production relationships. Prereq: 210
and Economics 311. F

442 Farm Business Management II (3) Advanced topics
and methods for farm business analysis using micro
and mainframe computers; linear programming appli-
cations in farm planning; spreadsheet analysis of whole
farm businesses, systems analysis and management
control, risk analysis and management; income tax
management; farm growth and intergenerational trans-
f. Prereq: 342. Sp

450 Agricultural Price Analysis (3) Demand and supply
models in agriculture; price determination; spa-
tial equilibrium; temporal price patterns; pricing
institutions. Prereq: 350 and Economics 311. F

452 Agribusiness Firm Management (3) Operations
of firms selling farm supplies and merchandising agri-
cultural products. Analytical tools and decision rules
for decision making. Prereq: Economics 201. Sp

460 Rural Economic and Community Development
(3) Historical and theoretical perspective on prob-
lems facing rural communities; links between farm
and nonfarm sectors; models and tools for analyzing
rural development. Prereq: 210 or consent of instruc-
tor. F

470 Natural Resource Economics (3) Nature of natural
resources; economics as a basis for natural resource
use; externalities in natural resource use; factors influ-
encing environmental quality; alternative policies and
policy tools for resource use or improving environmental quality. Prereq: 210 or consent of instruc-
tor. Sp

493 Independent Study (1-3) Directed individual or
team research and report writing. Sp

AGRICULTURAL ENGINEERING

200 Specialty Areas of Agricultural Engineering (1) Actu-
al and opportunity to explore one of the specialty
areas. Required for each area, projected career
activities. 1 hour. F

300 Environmental Relationships (2) Applications of
thermodynamics to energy and power systems; non-
cequilibrium thermodynamics cycles, biothermodynamics, the plant-animal-environment interaction. 2 hours. Sp

310 Power Units and Machinery (2) Components and
characteristics of internal combustion engines and
teachers power transmission systems; functional
analysis; capabilities of agricultural machines; trac-
tor implementation systems performance. Prereq: Mechanical Engineering 351. 1 hour and 1 lab. Sp

320 Structures and Environment (2) Environmental
control systems: ventilation, heat and moisture bal-
ances; heat loads and insulation; functional requirements of agricultural buildings; material selection and cost.
Prereq: Junior standing. 1 hour and 1 lab. Sp

330 Processing (2) Application of basic engineering
principles to the handling and processing of raw agri-
cultural products; physical properties; thermal processing, cur-
ing, and storage; storage and handling. Prereq: Engineer-
ing Science and Mechanics 341. Nuclear Engineering 342. 1 hour and 1 lab. Sp

340 Soil and Water Conservation Engineering (2) Hydro-
logics, agroecological and engineering principles related
to agricultural water management problems including
soil erosion control, irrigation, drainage, and water
quality. Prereq: Plant and Soil Science 251. Engineering Science and Mechanics 341. 2 hour and 1 lab (on alternate weeks). Sp

Agricultural Engineering 135
Courses of Instruction

350 Properties of Biological Materials (2) Mechanical, thermal, and electrical properties of biological systems and their effect on engineering design and utilization. Prereq: Engineering Science and Mechanics 321. 1 hour and 1 lab. F

400 Professional Development (1) Engineering ethics; professional registration opportunities for graduate students; professional development opportunities; continuing education. 1 hour. F

410 Electronic Measurements and Control for Agriculture (2) Sensing and controlling physical and environmental parameters electronically; sensor selection and installation; digital and analog electronic conditioning; computer control; application of programmable controllers. Prereq: Electrical Engineering 302 or senior standing. 2 hours including project laboratory.

420 Agricultural Engineering Design Fundamentals (2) Nature of design; creativity, analysis and synthesis; design team organization; selection and functional analysis of design project. Prereq: Senior standing. 1 hour and 1 lab. F

425 Agricultural Engineering Design Project (2) Synthesis of design; structure, kinematic, control system analysis; preparation of design drawings, specifications, model of device; written and oral report of project. Prereq: 420. 1 hour and 1 lab. Sp

430 Mobile Hydraulic Power System Design (2) Functional and operational characteristics of mobile hydraulic system components including pumps, valves and actuators; analysis and synthesis of power transmission and control circuits. Prereq: Engineering Science and Mechanics 341. 1 hour and 1 lab. Sp, AO

435 Design of Mechanisms for Agricultural Machines (2) Types of mechanisms; transmission angles; synthesis of plane mechanisms; introduction to space mechanisms. Prereq: Mechanical Engineering 450 or equivalent. 1 hour and 1 lab. Sp, AE

440 Irrigation and Drainage Design (2) Design of irrigation and drainage systems including crop response, climate, water quantity and quality, and system characteristics. Prereq: 340 or equivalent. 2 hours and 1 lab (lab on alternate weeks). Sp, AO

445 Processing and Materials Handling Design (2) Systems and components for processing and utilization of crops including product characteristics, energy and mass balance, storage, handling and economic merit. Prereq: 330. 1 hour and 1 lab. Sp, AO

450 Electrical Distribution and Utility Design (2) Design of on-farm electrical systems; control, motors, stray voltages; electrical loads and safety. Prereq: Electrical Engineering 301. 1 hour and 1 lab. Sp, AE


460 Design of Agricultural Structures (2) Design fundamentals for wood, steel and concrete components, compression and tension members; beam and column design; pole structure design; fasteners and joint design. Prereq: 302. 1 hour and 1 lab. Sp, AO

470 Special Problems in Agricultural Engineering (1-3) Selection, analysis solution and report of problem. May be repeated. E

480 Selected Topics in Agricultural Engineering (1-3) Current trends and problems in agricultural engineering. May be repeated. E

AGRICULTURAL ENGINEERING TECHNOLOGY

201 Materials and Fabrication (3) Properties of materials including wood, metals, concrete, plastics and lubricants; drafting and plain reading; fabrication techniques and processes involving hand tools, power equipment, and arc and gas welding. 1 hour and 2 labs.

211 Surveying and Engineering Technology in Agriculture (3) Surveying technology including measurement of distances, angles, and areas; differential and profile leveling; topographic surveying and mapping; engineering properties of soil and water conservation, agricultural machinery, and structures; emphasis upon analytical techniques and problem solving. 2 hours and 1 lab. F

222 Food and Process Engineering Technology (3) Application of basic engineering principles to agricultural and food processes. Fluid handling, drying, evaporation, thermal processing, heating and cooling, refrigeration systems, and materials handling. Prereq: Physics 121, Mathematics 121. 2 hours and 1 lab. F

322 Agricultural Machinery and Tractors (3) Agricultural machinery and power units; adaptation to agricultural practices; management considerations; field efficiency; capabilities; adjustment and servicing. Prereq: Mathematics 212. 2 hours and 1 lab. Sp

422 Agricultural Waste Management and Pollution Control (3) Waste renovation fundamentals; characteristics of animal manure, techniques for collecting, transporting, storing, and utilizing livestock waste. Prereq: Mathematics 212. 2 hours and 1 lab. F

452 Small Internal Combustion Engines (3) Concepts and mechanics of small internal combustion engines; selection, operation, adjustment, troubleshooting, and repair of single-cylinder engines. Prereq: Physics 121 or consent of instructor. 2 hours and 1 lab. Sp

462 Agricultural Chemical Application Technology (3) Equipment for application of liquid, solid, and gaseous agricultural chemicals; system components; operational characteristics; calibration; selection and management; safety considerations; materials handling and disposal methods. Prereq: Physics 121 or consent of instructor. 2 hours and 1 lab. Sp

AGRICULTURE

101 Perspectives in Agriculture and Associated Natural Resources (3) Historical development, current national and international issues, and trends for the future. 3 hours.

300 Microcomputers in Agriculture (1) Microcomputer technology as related to agricultural applications. Topics include: microcomputer terminology, architecture, computer peripherals, operating systems, and an overview of application software. Credit not given for both Computer Science 100 and Agriculture 300.

400 Microcomputer Applications in Agriculture (2) Advanced topics in microcomputer applications for agriculture, including programming and selection, communications, data base management, electronic spreadsheets, project management, and other application software. Prereq: Computer Science 100 or Agriculture 300. 1 hour and 1 lab.

480 Agricultural Management Systems Analysis (3) Interdisciplinary management oriented course for the application of systems analysis concepts to planning and operation of farm business. Team work, application of technical knowledge to a practical farm situation and evaluation of interrelationships among various subsystems. Open to juniors and seniors by invitation only.

AIR FORCE AEROSPACE STUDIES


103-104 Leadership Laboratory (1,1) 1 hour and 1 lab.

201-202 Air Force Aerospace Studies (1,1) Introduc- tion to aerospace from a historical perspective starting before the Wright Brothers and continuing into the 1980's.

203-204 Leadership Laboratory (1,1)

205 Field Training (Academic Program) (1-4) Role of United States military forces in contemporary world, with particular attention to the Air Force. Emphasis on the organization and mission, various component forces of U.S. military power, organization of America's defense structure, policies of major powers, and elements and processes in making of defense policy. Conducted at Field Training bases in the country. Open only to two-year program graduates.

301-302 Air Force Aerospace Studies (3,3) Air Force leadership at junior officer level, including theoretical, professional, and legal aspects, with attention to comprehensive skills. Military management fundamentals, principles, and techniques. Prereq: Air Force ROTC approval.

401-402 Air Force Aerospace Studies (3,3) Role and function of professional officer in a democratic society; socialization process, public attitudes, and values 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 formulation of U.S. defense policy; impact of technological and international developments upon strategic preparedness; emphasis on developing communicative skills. Prereq: Air Force ROTC approval.

AMERICAN STUDIES

310 Introduction to American Culture: Voices of Dissent (3) Explores dynamics and nature of American cul- ture through discussion of various forms of dissent. Topics include abolition, women's rights, civil disobe- dience, and nuclear disarmament. Writing-emphasis course; at least one 2500 word and 3000 words of writing outside the classroom.

334 Film and American Culture (3) (Same as English 334.)

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

ANIMAL SCIENCE

101 Orientation to Animal Science (1) For Animal Science majors and Prevet students in their first year. Discussion of student services, activities, and careers; student participation in planning the college experience. Satisfactory/No Credit. Sp

241 Breeds of Farm Animals (2) Evolution and formation of breeds of cattle, goats, horses, poultry, sheep and swine. Breeding structure, history, development, characteris- tics, and improvement programs of various breeds and strains. Prospects for purebred industry and impact of crossbreeding programs. 1 hour and 1 lab. Sp, A-E.

261 Fundamentals of Food Animal Evaluation (3) Structure and production of principles of food animal industries. Criteria for food animal evaluation, market classes and grades of cattle, poultry and pork production, lamb and mutton, and effects of evaluation and objective techniques for evaluation of beef cattle, dairy cattle, poultry, sheep and swine. Introduction to and utilization of species specific performance programs. 1 hour and 2 labs. F, Sp

281 Farm Animal Health and Management Practices (2) Evolution and formation of breeds of cattle, goats, horses, poultry, sheep and swine. Breeding structure, history, development, characteristics, and improvement programs of various breeds and strains. Prospects for purebred industry and impact of crossbreeding programs. 1 hour and 1 lab. Sp, A-E.

321 Anatomy and Physiology of Farm Animals (3) Skeletal and joints; muscles; blood and microcircula- tion; the nervous, endocrine, cardiovascular, respiratory and reproductive systems; demonstrations of physical-chemical phenomena. Prereq: Biology 120. 2 hours and 1 lab. F
232 The Physiology of Reproduction and Lactation (3) Reproduction and lactation, endocrinology, physiology, nutrition, genetics, and milk quality. Prereq: Consent of instructor. F

233 Animal Nutrition and Feeds (3) Properties, functions, and deficiencies of essential nutrients; feedstuffs. Prereq: Chemistry 110. 3 hours lecture/week.

234 Ration Formulation and Linear Programming Applications (3) Nutrient requirements and ration formulation for beef and dairy cattle, sheep, horses, swine, poultry, and laboratory animals. Mathematical and computer solutions for formulating complex rations with constraints. Prereq: 211 and 121 or Introductory Computer Science course or consent of instructor. 1 hour and 2 labs. Sp

241 Applied Reproduction in Farm Animals (3) Concepts in animal production and reproduction, systems of production, production practices, and herd improvement programs. Prereq: Consent of instructor. 1 hour and 2 labs. F

242 Dairy Cattle Production and Management (3) Distribution and management program. Structures of industry, enterprise establishment, systems of production, production practices, and herd improvement programs. Prereq: Consent of instructor. 2 hours and 1 lab. F

243 Pork Production and Management (3) Distribution and management program. Structures of industry, enterprise establishment, systems of production, production practices, and herd improvement programs. Prereq: Consent of instructor. 2 hours and 1 lab. F

244 Poultry Production and Management (3) Structures of the poultry enterprises including rearing, housing, feeding, and marketing. Prereq: Senior standing and permission of instructor. Completion of Animal Science sophomore and junior core courses recommended. Prereq: 2 hours and 1 lab. Sp

245 Lamb and Wool Production and Management (3) Integration of principles of selection, nutrition, breeding, physiology and ethology into a comprehensive sheep production and management program. Economic importance of the industry, kinds of enterprises, management of feed and pasture resources, health maintenance and first aid, breeding and flocking and horse farm structures and equipment. Prereq: Completion of Animal Science sophomore and junior core courses or consent of instructor. 2 hours and 1 lab. Sp

246 Beef Cattle Production and Management (3) Principles of nutrition, physiology, breeding, handling, and history of breeds of common household pets, zoos animals and animals used in scientific research. Specific species differences in husbandry. Laws and agencies governing use of laboratory animals. Laboratory analysis of blood metabolites commonly used to monitor health and nutritional status. Prereq: Completion of Animal Science sophomore and junior core courses or consent of instructor. 2 lectures and 1 lab. Sp

247 Companion, Zoo and Lab Animal Management (3) Principles of nutrition, physiology, breeding, handling, and history of breeds of common household pets, zoos animals and animals used in scientific research. Specific species differences in husbandry. Laws and agencies governing use of laboratory animals. Laboratory analysis of blood metabolites commonly used to monitor health and nutritional status. Prereq: Completion of Animal Science sophomore and junior core courses or consent of instructor. 2 hours and 1 lab. Sp

248 Special Problems in Animal Science (1-3) Special research and/or special reports based on supervised independent study; approved supervised work experience in state-federal laboratories or in private industry. Written report is required. May be repeated for a maximum of 6 credits. Prereq: Senior standing and consent of instructor and department head. E

249 Seminar (1) Review of literature and oral and written presentations and current research. Prereq: Senior standing. One 2 hour lab. F, Sp

ANTHROPOLOGY

110 Human Origins (3) Survey of humanity's background, fossil primates, fossil human remains, and living races of humans.

120 Prehistoric Archaeology (3) Introduction to methods and techniques used to identify and date archaeological cultures, reconstruct past lifeways and describe cultural evolution. Overview of the prehistory of Africa, western Europe, southwest Asia, and the Americas from earliest dated human cultures to rise of complex civilizations.

130 Cultural Anthropology (3) Major concepts and methods in the study of culture; survey of cross-cultural studies, social formations, environments, social organization, economic, political, and religious institutions; language, ideology and arts. Contributions of anthropology to resolving contemporary human problems.


220 Prehistory of Tennessee (3) History of archaeological research in Tennessee and survey of prehistoric Indian cultures from initial occupation of the state to European contact.

230 American Cultures (3) Anthropology in the study of US and American indigenous societies including Native American communities, social classes, power structures, etc.

302 Religion of Primitive Peoples (3) (Same as Religious Studies 302.)

306 Genetics and Society (3) (Same as Botany 306.)

310 North American Indians (3) Comparative overview of Indian cultures of North America. Topical coverage ranges from prehistory and aboriginal life-styles to problems of reservation and modernization. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

311 Southeastern Indians (3) Survey of Southeastern Native American cultures at the time of European contact. Emphasis on Cherokee culture and on the social, economic, and religious organization of aboriginal groups. Prereq: 130 or consent of instructor.

312 Appalachian Culture (3) Traditional Southern Appalachian subsistence patterns and economy, social organization, beliefs and values, folklore and customs, socio-cultural impacts of industrialization and modernization. Prereq: 130 or consent of instructor. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

313 Peoples and Cultures of Mesoamerica (3) Pre-Columbian and Hispanic cultures of Mexico, Guatemala, El Salvador and Honduras. Patterns of cultural continuity and cultural change throughout Mesoamerica's history. Prereq: 130 or consent of instructor. (Same as Latin American Studies 313.) Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

314 Peoples and Cultures of Africa (3) Ethnographic survey of peoples of sub-Saharan Africa, focusing on cultural diversity, human ecology, and contemporary issues. Prereq: 130 or consent of instructor. (Same as Afro-American Studies 314.) Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

315 Afro-American Anthropology (3) Anthropological perspectives on lifestyles and social status of persons of African descent in North America, South America, and the Caribbean. Prereq: 130 or consent of instructor. (Same as Afro-American Studies 315.) Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

360 North American Prehistory (3) Prehistoric cultures of North America from initial occupation of the continent to European contact. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

361 Historical Archaeology (3) Historical archaeology of Euro-American, Afro-American, and Asian peoples in the United States from 16th to 19th centuries.

362 Principles of Archaeology (3) Research strategies used in developing method and theory, constructing cultural histories, identifying site function and settlement subsistence patterns, and evaluating explanations of cultural change. Prereq: 120 or consent of instructor.

373 African Religions (3) (Same as Religious Studies 306.)

400 Readings in Anthropology (1-6) Problem-oriented directed readings in anthropology. Prereq: Anthropology majors with senior standing or consent of instructor. May be repeated. Maximum 6 hours.

410 Principles of Cultural Anthropology (3) Explorations of cross-cultural patterns and methods in cultural anthropology, with application to analysis of specific ethnographies. Prereq: 130.

411 Linguistic Anthropology (3) Basic linguistic concepts applied to research in cultural anthropology, particular emphasis on the ethnography of language, and culture. Prereq: 130 or Linguistics 200. (Same as Linguistics 411.)
**Courses of Instruction**

412 Folklore in Anthropology (3) Introduction to anthropological study of folklore, using folklore and folklore materials from various tribal, peasant, and complex societies. Prereq: 130 or consent of instructor.

413 Dynamics of Culture (3) Definition and in-depth study of major forms of culture change, ranging from evolution and diffusion to religious revitalization and political revolt. Continuity and change in diverse cultural settings examined through use of ethnological, ethnocultural, and social science cases. Prereq: 130.

430 Fieldwork in Archaeology (3-9) Practicum work in archaeological data recovery and analytical techniques. Prereq: Consent of instructor. May be repeated. Maximum 9 hours.

440 Cultural Ecology (3) Concepts and methods in studying dynamic interaction between prehistoric and present day cultures and their environments. Topics include ecological theory, methods of analysis, and review of selected case studies. Prereq: 120, 130, 410, or consent of instructor.

450 Current Trends in Anthropology (3) Analytical, integrative review of current directions of research and theory in anthropology.

460 Selected Topics in Archaeology (3) Regional or theoretical issues in archaeology for undergraduate students. Topics may include practical experience in laboratory study of archaeological materials. May be repeated. Maximum 6 hours. Prereq: 120 or consent of instructor.

461 African Prehistory (3) African cultural history from the earliest evidence of human activity to the time of European contact. Emphasis on the stone age of Africa south of the Sahara. Prereq: 120 or consent of instructor. (Same as Afro-American Studies 461.) Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

462 Early European Prehistory (3) Origins and evolution of human culture in Europe through the beginnings of settled life. Primary focus on Paleolithic/Mesolithic chronology and lifeways. Prereq: 120 or consent of instructor. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

481 Rise of Complex Civilizations (3) Development of complex societies in Old World from origins of agricultural economics to rise of States. Focus on Mesolithic, Neolithic, and Metal Age lifeways in Africa, Europe, and Asia. Prereq: 120 or consent of instructor. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

484 Principles of Zoocarcheology (3) Basic osteological studies of major vertebrate groups, with emphasis on the aboriginal's use of animals in subsistence and culture. Identification and interpretation of archaeological material derived from mollusk and vertebrate remains, with introduction to laboratory use of comparative collections. Prereq: 120 or consent of instructor.

485 Human Osteology (4) Intensive examination of the human skeleton. Prereq: 110 or consent of instructor. 3 hours and 1 hour lab.

486 Museology I: Museums, Purpose and Function (3) (Same as Art 481.)

487 Museology II: Exhibition Planning and Installation (3) (Same as Art 482.)

488 Museology III: Field Projects (1-12) (Same as Art 484.)

490 Primate Evolution (3) Living and fossil primate taxa; taxonomy; ecology; and comparative anatomy. Survey of primate fossil record with emphasis on the origin or major primate lineages. Prereq: 110.

491 Foreign Study (1-15)

492 Off-Campus Study (1-15)

493 Independent Study (1-15)

494 Primate Behavior (3) Social organization and behavior of selected primates including group composition, size, and structure; patterns of mating; other social interactions; communication; and cultural behavior. Application of primate studies to human ethology. Prereq: 110 or consent of instructor.

495 Human Paleontology (4) Introduction to human fossil record from the earliest human remains to the earliest representative of modern human form. Prereq: 110.

496 Biology of Human Variability (3) Introduction to human populations; human adaptation, biological features of major primate groups, relationships of major lineages. Prereq: 110. (Same as Afro-American Studies 496.)

**ARCHITECTURE**

101 Introduction to Architecture (3) Scope and definition of architecture in relation to contemporary society, building industry, and allied design professions. Architectural design as a creative process. Orientation to courses and programs of the school.

102 Visual Design (3) Principles of visual design and techniques of representation. Coreq: 172. Sp

111 Architecture and the Built Environment (3) An introduction to architecture and the built environment for non-architecture majors. Significance of our surroundings, forces that create them. Creative aspects of design. Survey of examples from local to global. Strategies for individual and collective involvement.

171 Design Fundamentals I (3) Definition, ideas, and processes of design. Sketch design studies and free-hand drawing. Introduction to drafting techniques; graphic and visual skill development. Coreq: 101. F

172 Design Fundamentals II (3) Design principles and processes in two and three dimension design exercises. Coreq: 102. Prereq: 171. Sp

203 Second Degree Program: Seminar I (2) Theory and practice in architecture. Selected readings in history, theory, and design methodology with emphasis on contextual issues and architectural ordering principles. Coreq: 281. F

204 Second Degree Program: Seminar II (2) Selected readings in history, theory, and design methodology with emphasis on contextual issues and architectural ordering principles. Coreq: 282. Sp

211 History of Architecture I (3) Architectural thought and ideas of building and community form. Ancient times to the Renaissance. Prereq: History 151, 152. F

212 History of Architecture II (3) Architectural thought and ideas of building and community form. Renaissance to mid-twentieth century. Prereq: 211. Sp

213 History and Theory of Contemporary Architecture (3) Architectural thought in design practice in late twentieth century. Examples of contemporary works and review of theoretical issues. Prereq: 212. F

231 Computer Applications in Architecture (3) Survey of the role of the computer in architecture, its potentials and limitations. Recent developments in computer graphics with specific applications and demonstrations. F

232 Introduction to Architectural Technology (3) Place of building technology in architectural design. Introduces concepts and theory of structures; building materials and construction; and environmental controls. Sp


312 Materials and Methods of Construction (3) Properties of interior and exterior building materials and their relation to construction methods and detailing. Theory of material selection and application and the role of materials and methods play in the design process. Prereq: 232. Sp

323 Advanced Computer Applications (3) Computer applications in architecture, with special emphasis on structural calculations. Prereq: 231.


332 Architectural Structures II (4) Continuation of analysis and design of simple structures of steel. wood and concrete based upon specific loading requirements. Use of construction and building codes, handbooks and design manuals - selection of structural members. Prereq: 331. Sp

333 Advanced Structural Design I (3) Analysis and selection of basic building structures. Structural and constructional aspects of building, including structures in steel, concrete, masonry, and timber to satisfy loading and building code requirements. Prereq: 332 or equivalent.

334 Advanced Architectural Structures (3) Philosophy of structural design in relation to materials and form. Advanced mathematical and experimental analysis of structures, including use of computer programs. Prereq: 323 or equivalent.


336 Advanced Design of Concrete Buildings (3) Prefabricated and on-site concrete construction and maintenance. Foundations, floor and wall systems. Domes and shell roofs. Prereq: 323 or equivalent.


400 Service Practicum (2) Experience in architectural or equivalent office for a minimum of 3 months to be completed prior to fifth year entry. E

403 Introduction to Preservation (3) History, theory, and legal aspects of architectural preservation and restoration.

404 Preservation Technology (3) Techniques of preservation: methods of analysis, history of materials and technology used in old buildings.

405 Descriptive Analysis of Historic Buildings (3) Identification and analysis of characteristic elements of buildings from various architectural periods, with emphasis on American architecture. Survey techniques.

406 Ideas in Architecture (3) Historical and critical review of major movements and ideas in architecture through the ages. Open to all students.

409 Cultural Comparison of Housing Patterns (3) Patterns of spatial organization and discrete elements of design for specific cultures with emphasis on housing. Cultural, social, economic, climatic, and technical forces as sources of form.

410 History and Theory of Urban Form (3) Patterns of community development. Selected historical and contemporary examples. Basic urban design issues and exemplary design approaches examined through lectures, readings, essays, and sketch studies including historical change in urban form and design.

411 Architecture Since 1945 (3) Recent architectural developments and views of the future.

412 Non-Western and Indigenous Architecture (3) Building responsive to climate, material availability, and economic level, as designed by anonymous builders. Examples from pre-historic times to the present including the fertile Crescent; the Indus valley; Hindu, Buddhist, and Mughal architecture of India, China, and Japan.

413 Tennessee Architecture (3) History of settlement patterns and building in Tennessee. Selected examples examined through reading assignments, lectures, discussion, and field trips. Historical research using primary material.

414 History of Architectural Technology (3) Building materials and construction techniques from antiquity to the present.

415 Medieval Architecture (3) History of architecture from the decline of Rome to the beginning of the Renaissance. (Same as Medieval Studies 415.)

416 Forms of Utopian Art (3) Conceptual Art, Minimal Art, and Super Realism. Visionary and fantastic architecture. Concepts of the future and the theoretical basis for design throughout history. Selected examples of landscape architecture analyzed in terms of design.

420 American Architecture II (3) Stylistic periods from the Gothic Revival through the twentieth century.

421 History of Landscape Architecture (3) Intellectual, societal, and geographical influences which provide the theoretical basis for design throughout history. Selected examples of landscape architecture analyzed in terms of design.

422 Modern East European Architecture (3) Twentieth century architecture in Russia, Czechoslovakia, Poland, Hungary, East Germany, Rumania, Bulgaria, Yugoslavia.

425 Special Topics in Architecture (1-4) Individual projects under faculty direction. Credit awarded to project. Project level of effort. May be repeated. Maximum credit 6 hours.

426 Special Topics in History, Theory and Criticism (1-4) Special topics in history-related subjects. May be repeated. Maximum credit 6 hours.

431 Structural and Mechanical Applications (4) Analysis and selection of structural and mechanical systems for a specific case study to integrate technical information into a unified design solution. Prereq: 332, 342. Coreq: 471.

433 Earthquake-Resistant Structures (3) Analysis and design of shear walls, columns, and frames. Use of earthquake-resistant systems. Design of seismic resistant structures. Prereq: Civil Engineering 433.

434 Elementary Structural Matrix Methods (3) Introduction to a variety of structural matrix methods of analysis of structures. Review of matrix algebra and vectors; development of member stiffness and flexibility matrix; use of stiffness and flexibility matrices. Prereq: Consent of instructor. (Same as Civil Engineering 434.)

435 Planning and Design of Tall Buildings (3) Architectural, structural, and urban design considerations in design of tall buildings. Environmental and service systems; wind, fire and earthquake resistance; structural and construction considerations; building standards; steel, concrete, and masonry structures; foundations. Prereq: Consent of instructor.

436 Building Energy Analysis (3) A study of the design and evaluation of energy consuming systems. Prereq: Architectural Design 301.


439 Advanced Lighting (3) In-depth analysis and innovative concepts in design of lighting. Prereq: 342.

441 Architectural Development (3) Principles and practice of the architect as a developer. Impact of economics, financial and urban policy on the design and development of real estate. Open to all students.

442 Project and Construction Management (3) Principles, methods, and application of project and construction management in the building process. Project manager's and construction manager's function, responsibilities, and activities investigated through case studies. Methods and theories of estimating project cost and building cost in current practice. New techniques of cost analysis.


444 Architectural Development (3) Principles and practice of the architect as a developer. Impact of economics, financial and urban policy on the design and development of real estate. Open to all students.

445 Codes, Zoning, and Fire Protection (3) Theory, review, and research of city, county, state, regional, and national codes and zoning. Prereq: Consent of instructor.

446 Marketing Services (3) Theories of marketing for architectural practice. Case studies. Public relations procedures.

447 Architectural Design V (6) Design project from conceptual through design development phase. Prereq: 406. Completed project will address all issues of environmental and service systems. Prereq: Consent of instructor.


449 Advanced Architectural Design Topics (6) Special areas which affect architectural design, such as alternative approaches to design, energy, urban design, urban development, structural, historic preservation, and specific building types. Work from this program may relate to the student's Comprehensive Design Project. Prereq: 472. Certain architectural electives may be stipulated as prerequisites for specified sections.

450 Comprehensive Design Project I (6) Student selected project under faculty direction. Exploration of design hypothesis and concept of a substantial building design. (See Architecture 480.)

451 Comprehensive Design Project II (6) Student selected project under faculty direction. Exploration of design hypothesis and concept of a substantial building design. (See Architecture 480.)

452 Professional Practice (4) Management and organizational theories and practices for delivering professional design services. Selected examples of landscape architecture analyzed in terms of design.

453 Codes, Zoning, and Fire Protection (3) History and an introduction to various codes and zoning; history and development of zoning; history and development of zoning emphasizing architect's responsibility; history and development of zoning emphasizing architect's responsibility for specific project application. Prereq: 447.

454 Architectural Photography (3) Photography as a design medium; characteristics of fine art photography. Design ideas and preparation for Architecture 482. Prereq: 447.

455 Architectural Design XI (6) Design project from conceptual through design development phase. Prereq: 448. Completed project will address all issues of environmental and service systems. Prereq: Consent of instructor.

ART


102 Studio Fundamentals: Two Dimensional Design (2) Surface composition and color. Primarily for art, architecture, interior design, and art education majors.

103 Studio Fundamentals: Three Dimensional Design (2) Projects relating to the student's Comprehensive Design Project. Prereq: 102. May be repeated once. Prereq: Consent of Dean.


105 Fiber: Three Dimensional Non-Woven Structures (3) Contemporary approaches to fiber art including experimentation and experimentation with various fiber media and techniques in development of sculptural fiber forms.

106 Introduction to Metalsmithing and Jewelry (3) Basic metalsmithing and jewelry fabrication techniques including resins, casting, forging, chasing, embossing, carding, drawing, rolling, sinking, soldering, fusing, polishing, and patination. Project studio problems to develop a personal style of expression.

107 History of Graphic Design/Illustration (2) Major movements and perception of reality. Fundamental aspects of design-line, tone, space, form, and composition. Primarily for art, architecture, interior design, and art education majors.


112 Western Art I (3) Major monuments in Western art with emphasis on Europe from prehistory through the Middle Ages. Writing emphasis course. At least one in-class essay examination and 3000 words of writing outside the classroom.
173 Western Art (2-3) Major monuments in Western Art from the Renaissance on to the 20th century. Prereq: 100 to 120. May be offered at convenience of department. Prereq: Determined by department for individual topic. May be repeated. Maximum 12 hours.

219 Special Topics in Drawing/Painting (3) Student or instructor-initiated course offered at convenience of department to enhance and expand the painting, drawing, and watercolor curriculum. Prereq: Determined by department for individual topic. May be repeated. Maximum 12 hours.

221 Ceramics I: Handbuilding (3) All ceramic handbuilding techniques including forming methods, glazing, clay preparation, firing, small and large scale pieces. Ceramic history through slide lectures.

222 Ceramic II: Throwing (2) Thrown ceramic forms including functional utilitarian pottery techniques, glazing and firing methods. Prereq: 221 for art majors; 191-Ceramics for non-art majors.

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

231 Photography I (3) Art of black and white photography. Field and studio shooting, history of photography, basic developing, and enlarging techniques.

232 History of Photography (3) Photography as a fine art. Emphasis on work of Stieglitz, Strand, Weston, and White. (Does not apply to art history requirement.) Prereq: 231.

239 Special Topics in Photography (3) Student or instructor-initiated course offered at convenience of department. Prereq: Determined by department for individual topic. May be repeated. Maximum 12 hours.

241 Sculpture I (3) Problems which explore basic materials and techniques including clay modeling, plater construction, moldmaking. Limited work in plastics, wood, or metal.

242 Life Sculpture I (3) Modeling techniques in clay and wax, working from figure. Possibilities of expression with human figure as subject. Modeling process as both observational and material handling technique. Prereq: 101. 102, 103, or consent of instructor. May be repeated. Maximum 6 hours.

243 Metal Cast Sculpture I (3) Metal casting methods and construction.

244 Wood Sculpture I (3) Wood as sculptural medium. May include lost wax, styrofoam sand, ceramic shell casting methods. May be repeated. Maximum 6 hours.

245 Steel Sculpture I (3) Problems to introduce steel and construction.

246 Mixed Media Sculpture I (3) Use of two or more materials and techniques including clay modeling, molding, construction, and found objects.

289 Special Topics in Sculpture (3) Student on instructor initiated course offered at convenience of department. Prereq: Determined by department for individual topic. May be repeated. Maximum 12 hours.

251 Beginning Graphic Design (3) Survey of graphic media on canvas. Prereq: 214 and 314 or consent of instructor.

252 Production (3) Design and layout; practice of mechanical preparation of art for various printing processes; skills and craftsmanship emphasized. Prereq: 251.

253 Advertising Design (3) Fundamentals of lettering and layout for newspaper, magazine, television, outdoor advertising. Non-art majors only.

261 Individual Projects in Graphic Design/ Illustration (3) Prereq: Consent of instructor. May be repeated. Maximum 6 hours.

259 Special Topics: Graphic Design/Illustration (3) Student or instructor initiated course offered at convenience of department for individual topic. May be repeated. Maximum 12 hours.

262 Intaglio I (3) Metal plate intaglio printing as a material for the creation of sculpture. Development of relief and in-the-round sculptural form.

264 Enamel coating, applications, finishing, and chopping methods of construction.

265 Jewellery (3) Metalworking and jewelry techniques emphasizing integration of casting and fabrication methods (including stonetting, fastenings, and mechanisms) with individual studio problems to develop a personal style of expression. Prereq: 106. May be repeated. Maximum 6 hours.

268 Fabric: Individual Class Projects (3-6) Prereq: Determined by department for individual topic. May be repeated. Maximum 12 hours.

269 Special Topics in Printmaking (3) Student or instructor-initiated course offered at convenience of department. Prereq: Determined by department for individual topic. May be repeated. Maximum 12 hours.

279 Special Topics in Art History (3) Student or instructor-initiated course offered at convenience of department. Prereq: Determined by department for individual topic. May be repeated. Maximum 12 hours.

289 Special Topics in Printmaking (3) Student or instructor-initiated course offered at convenience of department. Prereq: Determined by department for individual topic. May be repeated. Maximum 12 hours.

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

297 Special Topics in Photography (3) Student or instructor-initiated course offered at convenience of department. Prereq: Determined by department for individual topic. May be repeated. Maximum 12 hours.

300 Inter-area Portfolio Review (0) Review of prior studio work. Successful completion required prior to registration for junior and senior courses. Prereq: Consent of department. Satisfactory/No credit only.

301 Fabric: Individual Class Projects (3-6) Prereq: 104, 201, 203 or consent of instructor. May be repeated. Maximum 6 hours.

302 Fiber: Individual Class Projects (3-6) Prereq: 105, 202, 204 or consent of instructor. May be repeated. Maximum 6 hours.

308 Silversmithing (4) Intensive metal smithing techniques including forging, raising, shell forming, lathe, mokume, and lamination with individual studio problems to develop a personal style of expression. Prereq: 106, 205 or consent of instructor. May be repeated. Maximum 6 hours.

311 Drawing III (4) Development of personal drawing techniques and concepts through class problems. Prereq: 212 and 312 or consent of instructor. May be repeated. Maximum 8 hours.

312 Drawing Portfolio Review (0) Review of prior work in drawing. Successful completion required prior to registration for junior and senior courses. Prereq: Consent of department. Satisfactory/No credit only.

313 Painting III (4) Individual expression with varied media techniques. Prereq: 314 or consent of instructor. May be repeated. Maximum 8 hours.

314 Painting Portfolio Review (0) Review of prior work in painting. Successful completion required prior to registration for junior and senior courses. Prereq: Consent of department. Satisfactory/No credit only.

315 Watercolor I (4) Individual expression with water-based media on paper. Prereq: 216 and 316 or consent of instructor. May be repeated. Maximum 8 hours.

316 Watercolor Portfolio Review (0) Review of prior work in watercolor. Successful completion required prior to registration for junior and senior courses. Prereq: Consent of department. Satisfactory/No credit only.

320 Ceramics Portfolio Review (0) Review of prior work in ceramics. Successful completion required prior to registration for junior and senior courses. Prereq: Consent of department. Satisfactory/No credit only.


350. Sculpture Portfolio Review (0) Review of prior work in sculpture. Successful completion required prior to registration for junior and senior courses. Prereq: Consent of department. Satisfactory/No credit only.


342. Life Sculpture II (3) Advanced modeling techniques. Work in clay. Study and working from the figure. Includes casting a minimum of one piece. Prereq: 242 and 340 or consent of instructor. May be repeated. Maximum 6 hours.


344. Wood Sculpture II (3) Extension of skills and techniques begun in 244. Prereq: 244 and 340 or consent of instructor. May be repeated. Maximum 6 hours.

345. Steel Sculpture II (3) Further exploration of construction in steel and other metals. Prereq: 245 and 340.

346. Mixed Media Sculpture II (3) Further problems in the sculptural use of two or more distinctive materials. Prereq: 246 and 340.

350. Graphic Design/Illustration Portfolio Review (0) Review of prior work in graphic design illustration. Successful completion required prior to registration for junior and senior courses. Prereq: 252 or consent of instructor. Satisfactory/No credit only.


352. Corporate Design (3) Concepts of corporate graphics. Problems include all areas of graphic design and illustration. Prereq: 351.

353. Black and White Illustration (3) Black and white media and techniques as applied to product and editorial illustration. Prereq: 350.

354. Color Illustration (3) Flat and process color media and techniques as applied to product and editorial illustration. Prereq: 353.


356. Introduction to Computer Enhanced Design (1) The computer as a graphic design tool. Prereq. or Coreq. 355.

360. Printing/Portfolio Review (0) Review of prior work in printmaking. Successful completion required prior to registration for junior and senior courses. Prereq: Consent of department. Satisfactory/No credit only.

362. Intaglio II (4) Color intaglio printing from a single metal plate, including a la poupee', chine colle', and relief rolls. Prereq: 262 and 360. May be repeated. Maximum 8 hours.

363. Lithography II (4) Color lithography from stone and plates using mylar registration. Extra techniques; including xerox and monotype transfers, acid tinting, reversals, chine colle', and photo-lithography. May be repeated. Maximum 8 hours.

364. Screen Printing II (4) Advanced work with basic screen printing techniques including photo-screening. Emphasis upon image development and personal concept. Prereq: 264 and 360. May be repeated. Maximum 6 hours.

371. Early Christian and Byzantine Art, to 1350 (3) Art in Italy and the Eastern Empire from the beginnings of Christian art to c. 1350. Mosaic and painting, sculpture and architecture. (Same as Medieval Studies 371.)

372. Northern European Painting, 1350-1600 (3) From courtly art of late Middle Ages to Northern Renaissance. Jan van Eyck, Roger van der Weyden, and Durer; early printmakers. (Same as Medieval Studies 372.)

374. Art of Northern Europe, 1600-1765 (3) Concentrated study of Bruegel, Rubens, Rembrandt, Georges de La Tour, Vermeer, Poussin, and Hals.

375. History of Modern Sculpture in Europe and America (3) From 1800 to 1900: Neoclassicism to Rodin. From 1900 to present: emphasis on Cubism, Constructivism, Expressionism, Pop, Primary Forms, Environments, and Earthworks.

381. Medieval Art of the West, 800-1400 (3) Western European art of the "Dark Ages," Romanesque, and Gothic periods. (Same as Medieval Studies 381.)

382. The Art of Italy: 1250-1450 (3) Development of exploration of naturalism. Revival of antiquity and development of theories of perspective in the Early Renaissance. Including Duccio, Giotto, Masaccio, Donatello, Botticelli. (Same as Medieval Studies 382.)


384. Art of Southern Europe: 1575-1700 (3) Concentrated study of Caravaggio, Bernini, and Italian Baroque developments in all media. Spanish Baroque painting and sculpture with special attention to Velazquez.

385. Chinese Art (3) Survey from pre-Shang Dynasty to contemporary movements in China, Taiwan, and Hong Kong. New discoveries are stressed. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

386. Japanese Art (3) Survey from ancient to contemporary Japan: clan to the Shogunate period. Aspects of modern. Variety of media emphasized. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.


404. Advanced Computer Enhanced Design (3) Exploration of computer systems, software and techniques. Prereq: 356 or consent of instructor.

405. Advanced Computer Enhanced Design (3) Prereq: 301 or consent of instructor. May be repeated. Maximum 6 hours.

406. Goldsmithing (3-6) Advanced metalsmithing processes with individual studio problems to develop a personal style of expression. Prereq: 8 hours of metalsmithing or consent of instructor. May be repeated. Maximum 12 hours.

409. Special Topics in Fiber/Fabric (2) Student or instructor-initiated course offered at convenience of department. Prereq: Determined by department for individual topic. May be repeated. Maximum 12 hours.

411. Drawing IV (6) Individualized pursuit of personal drawing techniques and concepts, supplemented by individual and group critiques and weekly life drawing sessions. Prereq: 311. May be repeated. Maximum 12 hours.

413. Painting IV (6) Advanced painting stressing individual concepts and personal expression with varied media. Prereq: 313. May be repeated. Maximum 12 hours.


419. Special Topics in Drawing and Painting (3) Student or instructor-initiated course offered at convenience of department to expand and enhance the painting, drawing, and watercolor curriculum. Prereq: Determined by department for individual topic. May be repeated. Maximum 12 hours.


422. Ceramics: Advanced Projects (3-6) Each student is responsible for developing a thematic investigation of a specific concept using appropriate methods, materials, and processes with individual studio problems to develop a personal style of expression. Prereq: 421. May be repeated. Maximum 12 hours.

423. Ceramics: Surface Design (3) High and low fire glaze techniques. Use of stains, slips, underglazes, airbrush, and lusters, etc. Relationship between form and surface emphasized. Individual direction expected. Prereq: 321 and 322.

424. Ceramics: Clay and Glazes (3) Clay chemistry, clay bodies, glaze theory, glaze calculation, intensive formulating, mixing and testing of clay bodies and glaze formulas. Prereq: 321 and 322.


429. Special Topics in Ceramics (3) Student or instructor-initiated course offered at convenience of department. Prereq: Determined by department for individual topic. May be repeated. Maximum 12 hours.


439. Special Topics in Photography (3) Student or instructor-initiated course offered at convenience of department. Prereq: Determined by department for individual topic. May be repeated. Maximum 12 hours.

441. Advanced Sculpture (3-6) Individual development of sculptural problems and techniques. Prereq: 8 hours of 300 level sculpture. May be repeated. Maximum 12 hours.


453 Advertising Illustration (3) Concepts of advertising illustration media and techniques as applied to project illustration. Prereq: 354.


455 Professional Seminar (3) Political, social, economic, and ethical problems of the contemporary designer. Seminars with guest speakers. Senior portfolio reviews, resume design. Prereq: 350.

456 Graphic Design/Illustration Practicum (1-12) Practical work experience in the design or illustration field. Only by prearrangement with the department. Prereq: Senior standing and consent of instructor. May be repeated. Maximum 12 hours.

459 Special Topics in Graphic Design/Illustration (3) Student or instructor-initiated course offered at discretion of department. Prereq: Determined by department for individual topic. May be repeated. Maximum 12 hours.

462 Intaglio (3-6) Exploration of individual projects through advanced color etching and intaglio processes and techniques. Prereq: 362. May be repeated. Maximum 12 hours.

463 Lithography (3-6) Exploration of individual projects through advanced color etching and litho processes and techniques. Emphasis upon greater development of image and personal concept. Prereq: 364. May be repeated. Maximum 12 hours.

464 Screen Printing (3-6) Individual development of screen printing processes and techniques. Emphasis upon greater development of image and personal concept. Prereq: 350. May be repeated.

468 Special Topics in Printmaking (3) Student or instructor-initiated course offered at convenience of department. Prereq: Determined by department for individual topic. May be repeated. Maximum 12 hours.

471 History of North American Art (3) Survey of landmark in painting, architecture, sculpture, and design from prehistory to 1900.

472 History of 20th Century American Art (3) Development in architecture, painting, and design from 1900.

473 19th Century American Painting (3) From West and Copley to emergence of "The Eight".

474 History of Modern Architecture in Europe and America (3) Survey of 19th-century styles, Sullivan and skyscraper; 20th century: Viennese leaders, the Bauhaus, Gropius, Van der Rohe, Le Corbusier, and Wright; Aalto to Kahn, Tange and Metabolism, Archigram, Sori, and Venturi.

475 History of the 19th Century Painting in Europe and America (3) Emphasis on France: Neoclassicism, Romanticism, Friedrich, Constable, Turner, Corot and Barbizon landscape, Hudson River Group, Pre-Raphaelite Brotherhood, Manet, Courbet, Impressionism, Eakins, Homer, Seurat through Cezanne.

476 History of 20th Century Painting in Europe and America (3) Fauvism, Die Brucke, Cubism, Der Blaue Reiter, Futurism, Dada and Surrealism, geometric abstraction, social commentary painting, Abstract Expressionism in the USA and parallels in Europe; Pop, Op, Minimal and Concept Art.

479 Special Topics in Art History (3) Student or instructor-initiated course offered at convenience of department. Prereq: Determined by department for individual topic. May be repeated. Maximum 12 hours.

481 Museology I: Field Projects (1-12) Special field projects including restoration, preservation, registration, and other related research on or off campus. Prereq: 481 and 482. May be repeated. Maximum 12 hours. (Same as Anthropology 484.)


486 Art of Indian Asia (3) History of Indian art with consideration of the art of Central Asia and Southeast Asia. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

489 Studies in Art History (3) Concentration in individually selected area. Prereq: 12 hours of art history and consent of instructor. May be repeated. Maximum 6 hours.

491 Foreign Study (1-15)

492 Off-Campus Study (1-15)

493 Independent Study (1-15)

494 Individual Problems (3) Prereq: Consent of instructor. May be repeated. Maximum 12 hours.

495 Visiting Artist Seminar (2) Study of and discussion of contemporary art issues conducted by different visiting artists each semester. (Does not apply toward art history requirement.) May be repeated. Maximum 8 hours.

496 Advanced Airbrush (3) Advanced techniques of airbrush drawing; skills and use in illustrations emphasized. Prereq: 396.

499 Special Topics (3) Student or instructor-initiated course offered at convenience of department. Prereq: Determined by department for individual topic. May be repeated. Maximum 12 hours.

ART ARROWMONT PI BETA PHI SCHOOL OF ARTS AND CRAFTS

200 Special Topics (2-4) Student- or instructor-initiated course offered at convenience of department. May be repeated.

210 Drawing (2-4) Beginning to intermediate. May be repeated.

220 Ceramics (2-4) Beginning to intermediate. May be repeated.

230 Photography (2-4) Beginning to intermediate. May be repeated.

240 Painting/Watercolor (2-4) Beginning to intermediate. May be repeated.

250 Metal Design (2-4) Beginning to intermediate. May be repeated.

260 Fibers (2-4) Beginning to intermediate. May be repeated.

270 Fabric (2-4) Beginning to intermediate. May be repeated.

280 Enameling (2-4) Beginning to intermediate. May be repeated.

290 Wood (2-4) Beginning to intermediate. May be repeated.

400 Special Topics (3-4) Student or instructor-initiated course offered at convenience of department. May be repeated.

410 Drawing (2-4) Intermediate to advanced. May be repeated.

420 Ceramics (2-4) Intermediate to advanced. May be repeated.

430 Photography (2-4) Intermediate to advanced. May be repeated.

ART EDUCATION

300 Art for the Elementary Classroom Teacher (2) Methods of teaching art in elementary classrooms including developmental theory, philosophical concerns and selected media experiences.

301 Foundation of Art Education (3) Basic philosophy and structure including directed learning activities in two and three dimensional design, art appreciation, and teaching methodology.

302 Concepts of Drawing and Painting (3) Processes in teaching of drawing and painting including consideration of pertinent literature and research.

303 Concepts of Sculpture and Crafts (3) Processes in teaching of sculpture and crafts including pertinent literature and research. Prereq: 301 and admission to Teacher Education Program.

304 Concepts of Printmaking, Graphic Design and Lettering (3) Processes in teaching printmaking, graphic design and lettering including pertinent literature and research. Prereq: 301 and admission to Teacher Education Program.

350 Field Experience (1) Tasks related to teaching and to teacher roles. May be repeated. Maximum 2 hours. Prereq: Admission to Teacher Education Program. Satisfactory/No Credit only.

400 Curriculum Planning and Teaching Strategies (3) Program development, instructional methods, professional literature, contemporary issues, simulation and micro teaching situations. Prereq: 301 and admission to Teacher Education Program. F

410 Pre-Internship Seminar (1) Orientation describes the objectives and policies of the internship program. May be completed the term immediately preceding the internship. Prereq: Admission to Teacher Education Program. Satisfactory/No Credit only.

418 Internship I: Grades K-12 (3-6) Test of materials and theories of teaching. Internship is completed in local public schools. Application for internship should be made upon admission to Teacher Education Program. Prereq: 410 and admission to Teacher Education Program. Satisfactory/No Credit only.

428 Internship II: Grades K-12 (3-6) Demonstration of professional competence in planning, instruction and classroom management. Internship is completed in local public schools. Prereq: 481 and admission to Teacher Education Program. Satisfactory/No Credit only.

490 Special Topics (3) May be repeated. Maximum 6 hours.

493 Independent Study (3) May be repeated. Maximum 9 hours.

ASIAN STUDIES

101-102 Asian Civilization (3,3) Comparative study of development of religion, social institutions, and high culture in India, China, Japan, and the Islamic world. 101-Rise of classical civilizations. 102-Traditional culture and their modern developments. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.
121-122 Elementary Modern Standard Arabic I, II (5,5) Literary Arabic, language of the press, broadcasting, literature and formal situations. Meets every day, three days with instructor and two with native informant in addition to language lab. Must be taken in sequence.

131-132 Elementary Chinese I, II (5,5) Must be taken in sequence.

141-142 Elementary Modern Hebrew I, II (4,4) Taped language program. Must be taken in sequence.

151-152 Elementary Japanese I, II (5,5) Must be taken in sequence.

161-162 Elementary Persian (4,4) Taped language program. Must be taken in sequence.

221-222 Intermediate Modern Standard Arabic I, II (5,5) Literary Arabic, the language of the press, broadcasting, literature and formal situations. Meets every day, three days with instructor and two with native informant in addition to language lab. Must be taken in sequence. Prereq: 121-122 or equivalent or consent of instructor.

231-232 Intermediate Chinese I, II (5,5) Prereq: 131-132 or equivalent or consent of instructor. Must be taken in sequence.

241-242 Intermediate Modern Hebrew I, II (4,4) Taped language program. Prereq: 141-142 or equivalent or consent of instructor. Must be taken in sequence.

251-252 Intermediate Japanese I, II (5,5) Prereq: 151-152 or consent of instructor. Must be taken in sequence.

261-262 Intermediate Persian (4,4) Taped language program. Prereq: 151-162 or equivalent or consent of instructor. Must be taken in sequence.

311-312 Chinese Literature in Language Translation (3,3) 311-Classical literature. 312-vernacular and modern literature. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

313-314 Japanese Literature in Language Translation (3,3) 313-Classical/traditional: masterpieces of poetry, fiction, drama, and “Haiku”. 314-Modern: masterpieces of fiction since 1850. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

316 The Literature of India in English Translation (3) Major genres and masterpieces of Indian literature—epic poetry, drama, court poetry, modern novel. Concentration on ancient and classical periods of Indian literary history.

319 Islamic Literature in English Translation (3) Selections from Koran, classical Arabic and Persian poetry, and classical Arabic, Persian, and Turkish prose, including history, philosophy, mysticism, and belles-lettres.

321 Spoken Lebanese-Palestinian Arabic (4) Infor- mal Arabic for use in daily life. Emphasis on appropriate response and understanding of cultural context. All work is oral, including exams, but grammatical analysis is based on standard (written) Arabic. Prereq: 121-122 or consent of instructor.

322 Advanced Modern Standard Arabic (4) Advanced grammar and readings in modern Arabic. Prereq: 221-222 or consent of instructor.

331-332 Advanced Chinese I, II (4,4) Prereq: 231-232 or equivalent or consent of instructor. Must be taken in sequence.

351-352 Advanced Japanese I, II (4,4) Includes conversation, drill, and composition practice with native speaker as well as reading and translation. Prereq: 251-252. Must be taken in sequence.

421 Readings in Islamic Literature (3) Prereq: Mastery of intermediate-level of Arabic or consent of instructor. May be repeated. Maximum 9 hours.

431 Readings in Chinese Literature (3) Prereq: Mastery of intermediate-level of Chinese or consent of instructor. May be repeated. Maximum 9 hours.

451 Readings in Japanese Literature (3) Prereq: Mastery of intermediate-level of Japanese or consent of instructor. May be repeated. Maximum 9 hours.

471 Selected Topics in Asian Studies (3) Content varies. May be repeated. Maximum 9 hours.

491 Foreign Study (1-15)

492 Off-Campus Study (1-15)

493 Independent Study (1-15)

ASTRONOMY

151-152 Introductory Astronomy (4,4) Survey of the composition, structure, and dynamics of the universe which introduces the basic vocabulary of astronomy and scientific method. Components of the solar system including results from interplanetary exploration; hypotheses and theories of the origin and evolution of our solar system; light of stars and the Sun; stellar birth, evolution and death as a chain of events; characteristics of galaxies and the origin of the universe examined in light of modern astrophysics and particle physics. A minimum of mathematical training is required. Must be taken in sequence. 4 hours lecture. 

161-162 Introductory Astronomy with Laboratory (4,4) Survey course, with accompanying laboratory, treating the composition, structure and dynamics of the universe and introducing the basic vocabulary of astronomy and principles of scientific method. Components of the solar system including results from planetary exploration spacecraft; hypotheses and theories of the origin and evolution of the solar system in light of current knowledge and scientific reasoning; stellar birth, evolution, and death as a chain of events; characteristics of galaxies and of the beginning of the universe in light of modern astrophysics and particle physics. Principles for interpretation of astronomical observations are reinforced in laboratory. Must be taken in sequence. 3 hours lecture, 2 hours lab. Only one of the three sequences 151-152, 161-162, or 217-218 may be taken for credit.

217-218 Honors: Introductory Astronomy (4,4) Introduction to astronomy and astrophysics. Historical perspectives in understanding the celestial universe, with emphasis on the laws of physics as they apply to the universe, from the solar system to the universe; structure of the solar system and celestial motions; evolution and properties of stars; galactic structure and models of the universe; observational techniques and interpretation of underlying physical laws in accompanying lab. 3 hours lecture, 2 hours lab. Coreq: Mathematics 141 or 130 or equivalent. Credit given for only one sequence of lower division astronomy. This sequence satisfies the liberal arts requirement for a natural science sequence.

411 Astrophysics (3) Development of analytical physical models of the universe: structure, stellar and interstellar matter, and planetary systems. Topical and interdisciplinary approach includes consideration of quasars, pulsars, black holes and current developments in the field. Acceptable for major credit in physics. Prereq: Physics 202 and consent of instructor.

490 Special Topics in Astronomy (1-3) Topics of current interest in Astronomy and Astrophysics. May be repeated for credit with consent of department. Maximum 9 hours.

AUDIOLINGUISTIC AND SPEECH PATHOLOGY

126 Speech for Foreign Students (3) Sounds and intonation patterns of American English and relation of spelling to sound. Designed to improve students' ability to speak and understand English. Satisfactory/No credit.

304 Introduction to Communication Disorders (3) Nature, etiology, and incidence of speech, hearing and language disorders.
310 Introduction to Biochemistry (3) Biochemical principles underlying physiological events in animal tissues. Metabolism of carbohydrates, lipids, proteins, and nucleic acids. Prerequisites: 118-128, or Honors Zoology 117-118, or the equivalent of 2 years of high school biology and satisfactory ACT scores; Chemistry 120-130. 3 hours, 1 hour discussion each week. May be taken in any sequence or combination with 210 and 230.

230 General Ecology (3) Relations between organisms and their environment, including human environmental problems. Prerequisites: 110-120 or 150, or Botany 110-120 or 118-128, or Honors Zoology 117-118, or the equivalent of 2 years of high school biology and satisfactory ACT scores; Chemistry 120-130. 3 hours, 1 hour discussion/field trip each week. May be taken in any sequence or combination with 210 and 220.

BOTANY

110-120 General Botany (4,4) 110 - Introduction to taxonomy through tree identification; basic organization and function of cells; plant growth and development; physiology; respiration; photosynthesis; genetics (including linkage, mitosis, Mendelian inheritance, and population genetics). 120 - Origin of life, survey of plant kingdom (algae, fungi, mosses, ferns, conifers, and flowering plants); ecology; life histories; evolution; and importance to man. Students may not receive credit for both Botany 110-120 and Biology 110-120; Biology 118-128, or Biology 110-120, or Botany 110-120, or F, Su. 120, Su. 120, Sp.

118-128 Honors: General Botany (4,4) Same as General Botany 110-120 with emphasis on special topics and philosophical context including special presentations on history of science, problems of freshness, and college. Prerequisite: with a score of 27 or better on the natural science section of ACT, and sophomores who have a cumulative GPA of 3.50 (or 3.50 in the sciences) or who are approved through an interview with a member of the botany faculty. Students may not receive credit for both Botany 118-128, or Biology 110-120, Botany 110-120, or Biology 110-120, or F, Su; 120 Sp, Su. 120, Sp.

305 Socio-Economic Impact of Plants (3) Significance of plants in origin and development of human cultures, evolution, and role of plants in present civilization. Occasional field trips. Sp, Su Mini-Term

452 Independent Research in Botany (1-4) Special experimental problems under direction of a staff member. Limited to undergraduates and by consent of instructor. May be repeated. Maximum 12 hours. Prerequisites: Coreq: 410. Sp, 419.

BIOLOGY

110-120 General Biology (4,4) Biology 110 - Biology of cells; chemical basis of life; cell structure and function; energy metabolism; cell division; Mendelism and molecular genetics; kingdom of monera, protista, and fungi. Biology 120 - Plant and animal anatomy (tissues, organs, and organ systems), physiology, growth, and reproduction; ecology; population genetics; behavior; and evolution. Recommended, but not required to be taken together. Prerequisites: Students who receive credit for 110-120 may not receive credit for Biology 110 or 118-128, or Honors Botany 118-128, or Honors Zoology 117-118.

150 Biology for Majors (5) General biology emphasizing biological principles. Open to students who have a year of high school biology and a score of 26 or better on the natural science section of the ACT. Prerequisites: Students who receive credit for 150 may not also receive credit for Biology 110, Botany 110-120, Honors Botany 118-128, or Honors Zoology 117-118.

210 Cell Biology (3) Organization and function of the cell and basic principles of biology. Prerequisites: 110-120 or 118-128, or Honors Zoology 117-118 or the equivalent of 2 years of high school biology and satisfactory ACT scores; Chemistry 120-130. 3 hours lecture, 1 hour discussion each week. May be taken in any sequence or combination with 210 and 230.

230 General Ecology (3) Relations between organisms and their environment, including human environmental problems. Prerequisites: 110-120 or 150, or Botany 110-120 or 118-128, or Honors Zoology 117-118, or the equivalent of 2 years of high school biology and satisfactory ACT scores; Chemistry 120-130. 3 hours, 1 hour discussion/field trip each week. May be taken in any sequence or combination with 210 and 220.

401-402 Field Studies in Botany: (Specific Topic to be announced) (3,3) Field study and taxonomy of special plant groups. Selected field topics will vary and may include: Bryology, Lichenology, Teratologie, Agrostology, Mycology, Psychoiology, Aquatic and Terrestrial plants, Synantherology, Woody Plants, and Botanical Photography. May be repeated, but no specific topic may be repeated for credit. Maximum 9 hours.


412 Plant Anatomy (3) Cells, tissues and organs; their development in vegetative and reproductive structures of vascular plants—emphasis on seed plants. Prerequisites: 110-120 or Biology 110-120.

426 Paleobotany and Palynology (3) Same as Geology 426.

431 Plant Ecology (3) Interactions between individuals, species, communities and their environments. Circulation of energy and matter in ecosystems. Weekly field trips or laboratory periods, and at least two weekend field trips. Prerequisites: 330 or equivalent. Sp.

441-442 Undergraduate Research Participation (1-2) Experience in active research projects under supervision of staff members. Prerequisites: Junior or senior biology major, 3.0 GPA, consent of instructor. May be repeated. Maximum 8 hours. E

451 Plant Tissue Culture (3) Methods for the culture of cells, tissues, and organs including media preparation and maintenance of cultures. Lecture and lab. Prerequisites: 110-120 or equivalent. Consent of instructor. May be repeated. Maximum 8 hours. E

BROADCASTING

275 Introduction to Radio and Television (3) History, economics, structure and regulation of broadcasting including radio, television, cable, satellites and related technologies. Includes role of broadcasting in society. Prerequisites: Communications 100.

310 Radio News (3) Writing, reporting, and performing news for radio. Lecture, and lab course with experience in total news operation of WUTF-FM. Prerequisites: 275 and Communications 200.

320 Radio and Television Advertising (3) Principles of successful radio, television, and cable advertising with an emphasis on principles of effective station promotion techniques. Includes theory and techniques of writing effective radio and television commercials. Prerequisites: 275 and Communications 200.

330 Producing for Radio (3) Functions, theories, tools, and techniques of working as producers and directors for radio. Students write, perform and produce on WUTF-FM. Overview of audio equipment and production techniques. Prerequisites: 275 and Communications 200.

410 Television News (3) Writing, reporting, performing and producing news for television. Lecture and lab course providing students with experience as reportorial producers for a television news program. Includes an overview of electronic news gathering equipment and techniques as well as video editing. Prerequisites: 310.

420 Radio and Television Sales and Promotion (3) Principles and practices of television, radio, and cable sales and promotion. Includes practice in sales, sales management, pricing, rate cards, use of rating and sales presentation. Includes theory and analysis of effectiveness of station promotion techniques. Prerequisites: 320.

430 Producing for Television (3) Principles of television studio and field production, both technical and creative. Writing, producing, editing and TV writing classes.

493 Independent Study (1-15) Prereq: Consent of instructor. See page 57.

492 Off-Campus Study (1-15) Prereq: Consent of instructor. May be repeated. Maximum 6 hours. E Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

405 Topics in the Development of Chemistry (3) Historical development of topics such as the atomic theory; chemical industry; interrelationship of population, energy, and food. Subject matter may vary from one offering to another. Assignments include readings from original literature (Dalton, Faraday, Kekulé) and from current journals and monographs. Includes the use and misuse of evidence, the impact of chemistry on society, how scientists reach conclusions, and the nature of scientific controversy. Consent of instructor will be required. Coreq: Senior standing in chemistry. F Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

494 Senior Seminar (1) Discussions by faculty and students of current research and topics from recent literature. Oral and written reports required. All chemistry majors are encouraged to enroll. Coreq: Senior standing in chemistry. May be repeated. Maximum 2 hours.

499 Advanced Chemical Experimentation (3) Labo- ratory course in application of modern experimental techniques to solution of chemical problems. Synthesis and characterization of organic and inorganic compounds, with emphasis on independent study and use of chemical literature. Prereq: 230, 320, and 360. 3 labs. F

430 Advanced Inorganic Chemistry (3) Atomic and molecular structure, bonding theories, descriptive chem- istry of the element; Seminar in current research and topics from recent literature. Oral and written reports required. All chemistry majors are encouraged to enroll. Coreq: Senior standing in chemistry. May be repeated. Maximum 2 hours.

406 Senior Seminar (1) Discussions by faculty and students of current research and topics from recent literature. Oral and written reports required. All chemistry majors are encouraged to enroll. Coreq: Senior standing in chemistry. May be repeated. Maximum 2 hours.

499 Advanced Chemical Experimentation (3) Labo- ratory course in application of modern experimental techniques to solution of chemical problems. Synthesis and characterization of organic and inorganic compounds, with emphasis on independent study and use of chemical literature. Prereq: 230, 320, and 360. 3 labs. F

430 Advanced Inorganic Chemistry (3) Atomic and molecular structure, bonding theories, descriptive chem- istry of the element; Seminar in current research and topics from recent literature. Oral and written reports required. All chemistry majors are encouraged to enroll. Coreq: Senior standing in chemistry. May be repeated. Maximum 2 hours.

406 Senior Seminar (1) Discussions by faculty and students of current research and topics from recent literature. Oral and written reports required. All chemistry majors are encouraged to enroll. Coreq: Senior standing in chemistry. May be repeated. Maximum 2 hours.
relationships among various aspects of development: physical, cognitive, emotional, social; normative, nonnormative development. F, Sp, Su

211 Development in Infancy and Early Childhood (3) Development from conception through early childhood emphasizing cognitive, emotional, social, physical aspects of ontogeny; normative, nonnormative development. Includes observation. F

213 Development in Middle Childhood and Adolescence (3) Development during middle childhood and adolescence; interpersonal relationships among cognitive, emotional, social, physical aspects of ontogeny; normative, nonnormative development. Includes observation. Prerequisite: 211. Sp

220 Marriage and Family: Roles and Relationships (3) Emerging, declining roles, changing relationships among family members across life cycle from various theoretical perspectives; impact of gender roles on marital relationships, marital quality, power, decision-making, communications, conflict management, combining work-family roles. (Same as Women's Studies 230.) F, Sp

240 Human Sexuality (3) Sexuality through cultural, social, familial, and psychological factors. F, Sp, Su

312 Adulthood and Aging (3) Adult life in society from youth through elderly; adjustment to internal, environmental, social, physical aspects of ontology; normative, nonnormative development; includes observation. Prerequisite: 220.

320 Parent Education (3) Factors in contemporary American families impacting on parent-child relations; review of programs for strengthening parenting skills. Prerequisite: 220 or consent of instructor. Sp

345 Family Resource Management (3) Theory and application of managerial function in family settings; analysis of goals, resource use, information systems, constraints within families. Observation and analysis of diverse family practices. Prerequisite: 220 or consent of instructor. Sp

350 Early Childhood Education I: Environments for Children (3) Classroom management, behavior guidance, organization of day care environments, communications, instruction, interaction with children, child stress reduction and management in classroom, includes participation. Prerequisites: 110 and 213 or consent of instructor. F

352 Family, School, and Community Relations (3) Techniques for developing community relationships and advocating for children and families, including handicapped individuals. Includes observation and program participation. Prerequisite: 220 or consent of instructor. Sp

360 Family Stress (3) Family's response to stressful circumstances; skills for intervention into family systems; violence, abuse, divorce, illness, death. Prerequisite: 220 or consent of instructor. Sp

380 Family Finance (3) Alternatives for meeting family financial responsibilities across the life-cycle. Prerequisite: 220 or CFS majors. F

420 Families: Ethnicity, Race, Class and Culture (3) Cultural, socioeconomic, ethnic variations; emerging needs and programs. Prerequisite: 220, 320, Junior standing or consent of instructor. (Same as Afro-American Studies 4701.) F, A

420 Family Interaction (3) Dynamics within family systems: marriage, parent-child relationships; communication and conflict management within families. Prerequisite: 220. Sp

440 Teaching in Community-Based Programs (3) (Same as Home Economics Education 440.) Sp

450 Assessment in Early Childhood Programs (3) Physical, cognitive, social, language development in handicapped and nonhandicapped children birth to 5 years; early childhood interventions; knowledge and supervised practicum in assessment. Prerequisite: 351 or consent of instructor. F

451 Early Childhood Education III: Mainstreaming Exceptional Children (3) Individualized curriculum planning based on knowledge of normative, nonnormative development, assessment, effective teaching strategies for facilitating development. Includes participation. Prerequisite: 450.

460 Directed Study in Child and Family Studies (1-3) Individual learning experience arranged for students under supervision of faculty. May be repeated with different topics. Maximum 8 hours. Prerequisite: 9 hours in Child and Family Studies and consent of instructor. F, Sp, Su

470 Student Teaching (15) Responsibility for planning and guiding groups of infants, toddlers, or preschoolers under supervision of Master Teacher. Includes weekly seminar. Prerequisite: 351. Satisfaction/No Credit only. F, Sp, Su. F and Sp student teaching begins on first day of registration and ends on last day of final examination period (student teaching follows the CDL calendar and does not include Spring break). Su student teaching begins the day following Sp commencement and ends on the day before Su commencement. No other classes may be taken during student teaching. F, Sp

475 Day Care Administration (3) Theories, methods, and materials for administrators of early childhood education programs; writing funding proposals, staff selection, financial management, recruiting and enrolling children, supervision of aides; impact of federal and state communication, conflict resolution. Includes participation experience. Prerequisite: 351 or consent of instructor. Sp

480 Practicum in Family Science (6 or 15) Supervised experiences working with children or families, designed to meet special interests of students; includes weekly seminar. Prerequisite: 15 hours in Child and Family Studies. Satisfactory/No Credit only. F, Sp

485 Special Topics in Child and Family Studies (1-6) Supervised experiences working with children or families, designed to meet special interests of students; includes weekly seminar. Prerequisite: 15 hours in Child and Family Studies. May be repeated. Maximum 6 hours. F, Sp, Su

497 Honors: Child and Family Studies (3, 3) Issues or topics affecting children and/or families, designed to meet particular interests of the student. Prerequisite: 15 hours in Child and Family Studies and consent of instructor. May be repeated. Maximum of 6 hours. F, Sp, Su

CLASSICS

221 Early Greek Mythology (3) Archaic Greek religion with emphasis on how they reflect the early Greek vision of the universe and humanity's place in it. Origins and development of Greek myths and the rise of organized religion, from Bronze Age to about 450 B.C. Readings include Hesiod and Aeschylus. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom. F

222 Classical Greek and Roman Mythology (3) Use of myths in literature, religion, and mythology of Greece and Rome from the last quarter of the first century B.C. to about 350 A.D. Two foci are the latter half of the fifth century B.C. and the last quarter of the first century B.C. Includes Oriental intrusions into Greece and Rome, including early Christianity. Readings include Sophocles, Euripides, Pindar, poetry, and modern scholarship. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom. F

223 Archaeology and Art of Ancient Greece (3) Survey of Greek archaeology from prehistoric times to the Roman period (ca. 3000-100 B.C.). For prehistoric times emphasis on architecture and artifacts used to recreate the culture of the Minoan and Mycenaean civilizations and that of the following Dark Age. For Archai, Classical, and Hellenistic periods emphasis on development of architecture, sculpture, and vase painting; includes many vulnerable examples of both archaic and classical archaeology and art. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

233 Archaeology and Art of Etruria and Rome (3) Survey of the archaic and classical periods of Etruscan and the Roman World from prehistoric times to the fall of the Roman Empire (1000 B.C.-500 A.D.). Reconstruction of the Etruscan civilization, art, and architecture, and arts of development of Roman architecture, and urban planning in Latin Etruria. Prerequisites: 253 or consent of instructor. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

253-254 Greek and Roman Literature in English Translation (3, 3) Greek and Latin roots from which medical and scientific terminology is derived. Extensive practice in analysis of terms. Prerequisite: Use in Latin nomenclature.

311 Archaeology of the Aegean Bronze Age and Early Greece (3) Includes Troy, the Cycladic islands, the Greek mainland, and Cyprus ca. 3000-1000 B.C. Rise and fall of the Minoan and Mycenaean civilizations and their effect on the Aegean World and Cyprus. Evidence for relative dating and foreign contacts. Architecture, wall paintings, and artifacts. Prerequisite: One of the following: 232, 581, ancient history (Ancient Near East or Ancient Greece), or consent of instructor. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

334 Cities and Sanctuaries of the Ancient Greek World (3) Archaeological survey of the development of the Greek city and sanctuary from prehistoric times through the Roman period (ca. 2000 B.C.-200 A.D.). Includes topography and plans of major cities and sanctuaries, functions of buildings, development of city planning, quality of city life, religious rites and festivities including the Olympic games. Ancient sites include Mycenae, Athens, Priene, Alexandria, Perge, Olympia, Delphi. Students are recommended to have taken one of the following: 221, 232, 233, 281. History 310. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

361 Greek Civilization (3) Major aspects of ancient Greek civilization: religion, fine arts, political life, pan-Mediterranean relations, the prominence of Athens; the role of modern archaeology in interpretation; emphasis on the sixth and fifth centuries B.C. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

382 Roman Civilization (3) Major aspects of ancient Roman civilization: political institutions, art and architecture, history, culture and daily life, emphasizing the late Republic and early Empire. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

383 Women in the Greek and Roman World (3) The condition of women in the apparently male-dominated world of literature, art, architecture, and philosophy of Greece and Rome. Evidence from literature, vase paintings, and other arts is examined. Class meets for five second century A.D. with emphasis on Athens in the fifth century B.C. and Roman Italy in the first and second centuries A.D. (Same as Women's Studies 383.)

422 Seminar in Classical Studies (3) Field of Classical studies today: recent achievements in the areas of both philology and archaeology; impact of the decipherment of Linear B; new understandings of the writing system of Crete; evidence for Linear A; reading outside the classroom.

480 Practicum in Family Science (6 or 15) Supervised experiences working with children or families, designed to meet special interests of students; includes weekly seminar. Prerequisite: 15 hours in Child and Family Studies. May be repeated. Maximum 6 hours. F, Sp, Su

497 Honors: Child and Family Studies (3, 3) Issues or topics affecting children and/or families, designed to meet particular interests of the student. Prerequisite: 15 hours in Child and Family Studies and consent of instructor. May be repeated. Maximum of 6 hours. F, Sp, Su

450 Assessment in Early Childhood Programs (3) Physical, cognitive, social, language development in handicapped and nonhandicapped children birth to 5 years; early childhood interventions; knowledge and supervised practicum in assessment. Prerequisite: 351 or consent of instructor. F

451 Early Childhood Education III: Mainstreaming Exceptional Children (3) Individualized curriculum planning based on knowledge of normative, nonnormative development, assessment, effective teaching strategies for facilitating development. Includes participation. Prerequisite: 450.
May be repeated. Maximum 6 hours. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

441 Special Topics in Classical Civilization (1-3) Topics in art, literature, religion, and society of Greece and Rome. May be repeated up to three times with consent of department.

446 Studies in Classical Archaeology (3) Variable content course. Offering subject matter not taught in an existing course, or concentration on one aspect of the existing survey. May be repeated. Maximum 9 hours. Prerequisites according to topic.

462 Roman Law (3) Development of Roman law through examination of cases from the writing of the Roman jurists, the world's first legal professionals. Emphasis on understanding legal institutions in relationship to Roman society. Cases cover aspects of Roman property and contract law.

491 Foreign Study (1-15)

COMPUTER SCIENCE

100 Introduction to Computing (4) History of computers, overview of computing, current trends, hardware, software, computing tools currently available. Organization and characteristics of modern digital computers. Introduction to programming, emphasis on developing good programming habits. Problem solving and algorithm development. Building abstractions with procedures and data. 100 and 102 may not both be taken for credit. 100 for students with little or no background in computing.


102 Introduction to Programming (4) Problem solving and algorithm development. Organization and characteristics of modern digital computers. Emphasis on developing good programming habits. Building abstractions with procedures and data. Programming in a modern computing language. 100 and 102 may not both be taken for credit. 3 hour lab required.

110 Computer Organization (3) Number systems, internal representation of numbers in computers, hardware components, hardware organization, introduction to assembly language. Microprogramming control units. Computing with register machines. Introduction to digital circuits. Prereq: 100 or 102. 3 hour lab required.

112 Data Structures (3) Structured programming, data structures and applications. Introduction to assembly language, microprogramming control units. Computing with register machines, introduction to digital circuits. Prereq: 100 or 102. 3 hour lab required.

203 COBOL (3) Computer programming in COBOL. File handling, I/O systems, subroutines. Prereq: 100 or 102 or consent of instructor.


291 Lower-Division Special Topics (1-3) Topics vary. Programming languages, operating systems and application software packages. Prereq: 100 or 102. 3 lab hours.

311 Discrete Structures (3) Propositional and predicate calculus, algorithms, graphs, trees. Prereq: Mathematics 222 and either 100 or 102.

320 Problem Solving (3) General approaches to problem solving, emphasis on formalizing intuitive heuristics. Structure of problems and goals, generation of alternatives, and dealing with incomplete information. Prereq: 111 or 112. (Required core course for the Machine Intelligence concentration.) 3 hour lab required.

331 Digital Design (3) Logic design, microprocessors and microprocessor interfacing, interrupts. Prereq: 111 and 112. 3 lab hours.

340 Introduction to Information Systems Design (3) Principles of analysis and design of information systems. Prereq: 331. 3 hour lab required.

360 Systems Programming (3) Linkers, loaders, multitasking, I/O facilities, interrupt handling, monitors, editors. Prereq: 111 or 112. (Required core course for the Computer Systems concentration.) 3 hour lab required.

371 Numerical Algorithms (3) Same as Mathematics 371.

380 Theory of Computation (3) Recursive functions, Turing machines, computational complexity, P vs. NP theorem. Prereq: 111 and 311. (Required core course for the Theory of Computing concentration.)


401 Applications of Computer Graphics (3) Commercial software, techniques, hardware. Prereq: 100 or 101 or 102. May not be taken for credit by Computer Science majors. 3 hour lab required.

402 Applications for Artificial Intelligence (3) Commercial software, techniques, hardware. Prereq: 100 or 101 or 102. May not be taken for credit by Computer Science majors. 3 hour lab required.

403 Applications of Microcomputers (3) Microcomputers, DOS, commercial software and hardware. Prereq: 100 or 101 or 102. May not be taken for credit by Computer Science majors. 3 hour lab required.

404 Applications of Database Systems (3) Commercial software, systems, techniques. Prereq: 100 or 101 or 102. May not be taken for credit by Computer Science majors. 3 hour lab required.

411 Senior Thesis I (3) Frontiers of computer science technology and research. Students begin writing a senior thesis. Prereq: Senior standing. Writing emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

412 Senior Thesis II (3) Continuation of 411. Writing emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

421 Introduction to Artificial Intelligence (3) Introduction to AI languages. Basic techniques of heuristic search, gaming, and theorem proving. Prereq: 320. 3 hour lab required.

422 Expert Systems (3) Production rule model and its extension into expert systems. Deriving explanations, examples of expert system tools and building expert systems. Other methodologies—frames, scripts, decision expressions. Prereq: 421. 3 hour lab required.

423 Natural Language Processing (3) Phrase-structured and slot grammars, error-correcting interfaces and semantics. Applications in database and expert systems. Prereq: 361 and 421.

424 Robotics Software (3) Software for robotic control. Prereq: 331 and Mathematics 142. 3 hour lab required.

425 Functional Languages (3) Functional, applicative and object-oriented languages such as LISP and SMALL-TALK used for research applications. Prereq: 111 and 112 and Mathematics 222. 3 hour lab required.

426 Computer Graphics (3) Interactive computer graphics. Transformations, perspectives, shading, vector generation. Graphics hardware such as tablets and chips with goal of understanding techniques for designing computer systems for graphics capability. Prereq: 331. 3 hour lab required.

433 Computer Systems Architecture (3) Parallel processing, memory, I/O, pipelines, specialized architectures. Prereq: 331 or 360.

434 Networks and Communications (3) ISO open system interconnection model, protocols, study of several existing wide area network, local area networks. Prereq: 331 and 360.
435 Microcomputer Systems (3) Disk operating systems, peripheral devices, local area networks and communication protocols. Introduction to multiprocessor microcomputer systems. Prereq: 331 and 360. 3 hour lab required.

436 Computer Systems Hardware Design (3) Investigation of computer systems hardware, including bus structures, I/O devices, interrupt support hardware, direct memory access logic, timing budgets, and system controls. Lab includes the construction, testing and debugging of either or both of: a prototyped subsystem; a system based on commercially available microcomputer component devices. Prereq: 435. Includes 3 hour lab.

439 Microprogramming (3) Microprogramming concepts and techniques for control systems of large and small machines. Bit-slice architecture, sequences, etc. Prereq: 351. 3 hour lab required.

441 Science Information Systems (3) Design of scientific data banks, document repositories, information retrieval and electronic dissemination services. Control and dissemination of scientific information at the national and international level. Prereq: 340.

442 Introduction to Database Management Systems (3) File searching and organization, hierarchical, network, and relational models; relational calculus and algebra, data definition and manipulation languages; implementation and security considerations; performance, integrity, and reliability metrics; intelligent database systems. Prereq: 340 and 311.

443 Introduction to Information Storage and Retrieval (3) Information storage and retrieval, statistical, syntactic, and logical analysis of information content, evaluation of retrieval effectiveness. Prereq: 340.


451 Pattern Recognition and Analysis (3) Elements of syntactic pattern recognition, learning algorithms, decision theory, classification rules. Prereq: 111, 112 and 113. 3 hour lab required.

452 Image Processing and Analysis (3) Methods for digitizing, storing, processing, and displaying images. Image enhancement, restoration. Prereq: 451. 3 hour lab required.

460 Human Factors in Software (3) Interface between people and machines and the ease of use of software in the environment for which it is intended. Prereq: 111 and 112.


462 Software Engineering (3) Software design and application process from initial requirement and specification statements to coding, testing, implementation, and maintenance. Prereq: 111 and 112.

463 Programming Languages (3) Study and comparison of programming languages and their environments. Human interfaces, formalisms, domain of applicability, object manipulation, syntax, etc. Prereq: 111 and 112.


465 Parallel Computation I (3) Examination of non-numerical algorithms for parallel computation, operating systems, design and classification of parallel processors, compilers, concurrent computation. Prereq: 433.


471 Numerical Analysis (3) (Same as Mathematics 471.)

472 Numerical Algebra (3) (Same as Mathematics 472.)

473 Computer Modeling and Simulation of Physical Systems (3) Interactive techniques for the simulation of various kinds of physical systems. Prereq: 111, 112 and 311; and Mathematics 371.

476 Management of Uncertainty of Computer Systems (3) Origins of uncertainty and methods for dealing with the various classes of uncertainty. Topics may include hazards in switching circuits, vagueness in natural language processing, approximate reasoning models. Prereq: 111, 112 and Mathematics 222.

482 Graph Theory and Applications (3) Planarity, network flow, critical paths, etc. Prereq: 111, 112 and 311.


493 Independent Study (1-15) Special project in area of student's primary interest. Directed by Computer Science faculty, perhaps jointly with student's faculty advisor. Intended for students with a specific project to pursue in conjunction with a faculty member. Project may be from a department other than Computer Science in which a case a faculty member from the appropriate department will help oversee the project. May be repeated. Maximum of 6 hours may be applied to the major. Prereq: Consent of instructor.

494 Special Topics in Computer Science (1-3) May be repeated. Maximum 9 hours.

CULTURAL STUDIES

100 Selected Topics (1-3) May be repeated. Maximum credit 6 hours.

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

491 Foreign Study (1-15) Acceptable for credit in any cultural studies concentration or minor except Afro-American studies. Registration by consent of director of cultural studies and the respective chairperson.

492 Off-Campus Study (1-15) Acceptable for credit in any cultural studies concentration or minor except Afro-American studies. Registration by consent of director of cultural studies and the respective chairperson.

493 Independent Study (1-15) Acceptable for credit in any cultural studies concentration or minor except Afro-American studies. Registration by consent of director of cultural studies and the respective chairperson.

DANCE

101 Practicum: Dance Production (1) Supervised technical and promotional production aspects of university dance company. May be repeated. Maximum 2 hours.

201 Practicum: Dance Performance (2) Preparation and presentation of university dance company performances. Participation through audition only. May be repeated. Maximum 16 hours.

210 Ballet Level I (2) Instruction and practice in elementary classical ballet techniques. May be repeated. Maximum 4 hours.

220 Jazz: Level I (2) Instruction and practice in elementary jazz dance styles and techniques. May be repeated. Maximum 4 hours.

230 Modern: Level I (2) Instruction and practice in elementary modern dance techniques. May be repeated. Maximum 4 hours.

240 Tap: Level I (2) Instruction and practice in elementary tap dance techniques.
ECT 370 Environment and Conservation (3) Introduction to natural and artificial environments and natural resource conservation. Limited to students in the College of Education.

ECONOMICS

100 Survey of Economic Ideas (3) Ideas of major economists in context of socioeconomic conditions of their times. Emphasis on nontechnical treatment. May not be substituted for Economics 201.

201 Introductory Economics: A Survey course (4) Theory of consumer behavior, theory of firms, supply and demand, costs of production, market models, national income and employment theory, money and banking, monetary and fiscal policy, debt, and international economics.

207 Honors: Introductory Economics (4) Honors course for students of superior ability and interest. Students accepted on the basis of their records.

311 Intermediate Microeconomics (3) Theories of consumer behavior, demand, production, costs, price and behavior of firms in perfectly competitive, monopsonistic and imperfectly competitive markets, input prices, income distribution, welfare and general equilibrium. Prereq: 201.


321 International Economics (3) Balance of payments, exchange rate determination, monetary and fiscal policies, monetary arrangements, comparative advantage, tariff and nontariff trade distortions, protection arguments, regional integration. Prereq: 201.

323 Economic Development (Third World) (3) Theories of economic development, policies and strategies used to promote economic improvement in less developed countries. Prereq: 201. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

324 Comparative Economic Systems (3) Economic processes under alternative strategies and allocations mechanisms. Prereq: 201. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

325 Economic History of the North Atlantic Community (3) Origins of capitalism, mercantilism, Industrial Revolution, development of factory system, rise of organized business and labor, integration of the Atlantic economy. Prereq: 201. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

331 Government and Business (3) Antrust and regulatory economics, problems in regulation and social control of business organization, oligopoly models. Prereq: 201. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.

341 Survey of Labor Economics (3) Extension of economic principles to labor markets, public policy questions, demand and supply, theory of wage differentials, unemployment, unions in the private sector, investment in individuals, education and training, mobility. Prereq: 201.

343 Labor Relations and Collective Bargaining (3) See Management 311.


361 Regional and Urban Economics (3) Overview of regional differences. Theory of industrial and agricultural location and human migration, economic basis for land use patterns, central places, and urban form, regional and urban structure, growth, and methods of analysis, examination of urban problems. Prereq: 201.

381 Econometrics (3) Methods of specification, estimation, testing and forecasting of economic relationships. Includes specification of models, estimation methods, statistical inferences of empirical results, forecasting procedures and common econometric problems, such as multicollinearity, heteroscedasticity, and autocorrelation. Prereq: 201, Statistics 201, Mathematics 121-122 or 141-142.

400 Special Topics (3) Topic varies. Prerequisite determined by department. Each time course is offered. Numerical grade is given to law students. Prereq: 201.

415 History of Economics (3) Methods of study of doctrinal history. Origins and evolution of major doctrines, Classical and Neoclassical economics, economics of Keynes and his followers, some principal developments of second half of twentieth century. Major writing requirement. Prereq: 201 and consent of instructor.

423 Political Economy of World Development (3) Topics vary. Latin America, Asia, Soviet Union and Eastern Europe. Analysis of major economic strategies, policies, and problems. Major writing requirement. Prereq: 201. Writing-emphasis course: at least one in-class essay examination and 3000 words of writing outside the classroom.


462 Economics of Resources and Environmental Policy (3) Economic analysis of environmental policy and allocation of resources. Benefits and costs of economic development, urban structure, and use of natural resources and impacts of growth on environment. Major writing requirement. Prereq: 201.

471 Public Finance: Optimal Government Functions and Expenditure Analysis (3) Problems of collective consumption, external effects, public investment, social decision making. Prereq: 201.

472 Public Finance: Taxation and Intergovernmental Relations (3) Individual taxes and tax system, non-tax sources of revenue, fiscal federalism. Prereq: 201.

482 Introduction to Mathematical Economics (3) Application of algebra, matrix algebra, differential and integral calculus to micro and macroeconomics. Prereq: 201, Mathematics 121-122 or 141-142.

493 Independent Study (1-3) Opportunity for qualified students to pursue topics of special interest. Prereq: Senior standing, 3.0 GPA in economics courses, and consent of instructor. Maximum total credit 3 hours.

EDUCATION

302 School and American Society (3) (Same as Educational Curriculum and Instruction 302.)

303 Teacher Effectiveness and Curriculum Design (1) (Same as Educational Curriculum and Instruction.)

304 Microcomputers and Instructional Design (1) (Same as Educational Curriculum and Instruction 304.)

402 Social Theory and Educational Practice (1) (Same as Educational Curriculum and Instruction 402.)

315 Psychology of Learning and Classroom Management for Teachers (3) (Same as Educational and Counseling Psychology 315.)

325 Principles of Education Test Construction for Teachers (2) (Same as Educational and Counseling Psychology 325.)

370 Survey of Exceptional People (2) (Same as Special Education 370.)

EDUCATIONAL AND COUNSELING PSYCHOLOGY

210 Psychology of Human Development for Teachers (3) Understanding and application of the psychology of human development to teaching/learning process in educational settings. Prereq: 201. SP, SU.

212 Career and Personal Development (3) Systematic approaches to facilitating career development and life planning. E

215 Learning Skills and Study Systems (3) Approach to enhancing academic performance through study skills, efficient reading and understanding of personal factors. E

305 Laboratory in Educational and Counseling Psychology (1) Practice in acquiring knowledge and skill in research as interpersonal relations, career decision-making, communication and self-awareness. Individual and small-group format. May be repeated twice for satisfactory credit only. E

315 Psychology of Learning and Classroom Management for Teachers (3) Understanding and application of the psychology of learning and classroom management to the teaching/learning process in educational settings. Prereq: 210 or equivalent admission to Teacher Education Program. (Same as Education 315.)

325 Principles of Educational Test Construction for Teachers (2) Construction of classroom tests for diagnosing student learning needs and for evaluating mastery of subject matter. Prereq: 315 and admission to Teacher Education Program. (Same as Education 325.)

404 Special Topics (1-3) Instructor initiated course offered at convenience of the department on various topics of current interest. Contact department for listing of topics to be covered. May be repeated. Maximum 15 hours. E

410 Sex Role Development: Implications for Education and Counseling (3) Theories and research concerning the development of sexual role and its relevance in educational and counseling settings. E

431 Personality and Mental Health (3) Perspectives of research related to personnel relations to education and other social institutions. E

432 The Disadvantaged Student: Psychoeducational Perspectives (3) Theory and research regarding etiology, psychosocial behavior and appropriate interventions. E

460 Self-Management in the Helping Professions (3) Applications of self-management strategies to career, social, emotional and health domains for both helping professionals and their clients. Prereq: Introductory course in psychology or permission of instructor. E

493 Independent Study (1-15) Independent investigation of problems in educational and counseling psychology. May be repeated. Maximum credit 15 hours. E

EDUCATIONAL CURRICULUM AND INSTRUCTION

141 Efficient Reading and Study Skills (2) Improvement of reading comprehension and rate, intensive vocabulary environment, study skills as they relate to content area subjects. Satisfactory/No Credit only. F, Sp
202 Field Study in Education (1-3) Problems of persons in active service in the field. Includes methods of teaching, curriculum materials, school-community relationships and school organizations. May be repeated. Maximum 6 hours. E

302 School and American Society (3) Historical, philosophical, and social perspectives on contemporary educational issues. (Same as Education 302.) F, Su

303 Teacher Effectiveness and Curriculum Design (1) Literature and research on effective teaching. Relations to be established among principles and processes of curriculum design. Prereq: Admission to Teacher Education Program. (Same as Education 303.) F, Sp

304 Microcomputers and Instructional Design (1) Basic operations and application of microcomputer as related to curriculum development and instructional design. Prereq: Admission to Teacher Education Program. (Same as Education 304.) F, Sp

325 Teaching Science and Social Studies in Elementary and Middle Schools (3) Methods and materials for teaching science and social studies in elementary and middle schools. Teaching approaches common to both fields including inquiry, multi-sensory activities, group activities. Prereq: Admission to Teacher Education Program. F, Sp

326 Teaching Language Arts/Reading in Elementary and Middle Schools (3) Language and language development as applied to teaching of oracy (listening-speaking) and literacy (reading process/reading and writing). Includes methods and materials. Prereq: Admission to Teacher Education Program. F, Sp

329 Teaching Developmental Reading in the Elementary and Middle Schools (3) Methods and background on how to teach word recognition skills, comprehension, study skills and to use materials. Includes units on phonics, evaluation and basal readers. Prereq: Admission to Teacher Education Program. F, Sp

335 Teaching Elementary and Middle School Mathematics (3) Techniques of teaching composition, language, and mathematics. Unit planning, daily planning, grouping, classroom management are included. Prereq: Admission to Teacher Education Program. F, Sp

351 Laboratory and Field Studies in Elementary Education (3) Courses of instruction for elementary and middle schools. Study and application of various teaching methods with specific content areas. Prereq: Admission to Teacher Education Program and permission of instructor. Satisfactory/No Credit only. E

352 Field Experiences in Teaching: Secondary I (1) Field experiences in tasks related to teaching and teacher roles. Prereq: Admission to Teacher Education Program. Satisfactory/No Credit only. Su

353 Field Experience in Teaching: Secondary II (1) Field experiences in tasks related to teaching and to teacher roles. Prereq: 352 and admission to Teacher Education Program. Satisfactory/No Credit only. Su

355 Introduction to Secondary Schools (3) Aspects of teaching in grades 7-12, including curricular program and roles and responsibilities of secondary school teachers and administrators. Prereq: Admission to Teacher Education Program. Sp, Su

402 Social Theory and Educational Practice (1) Concurrent with internship; designed to integrate student's own experience with foundational theory and policy. Prereq: Admission to Teacher Education Program. (Same as Education 402.) F, Sp

404 Problems in Improvement of Instruction (1-3) Special conferences, workshops or inservice programs designed for improvement of instruction. May be repeated. Maximum 6 hours. Satisfactory/No Credit. E

410 Pre-Internship Seminar (1) Objectives and policies of the internship program. Must be completed the semester prior to the internship. Prereq: Admission to Teacher Education Program. Satisfactory/No Credit only. Sp, Su

419 Teaching Laboratory (3) Learning and practicing research based effective teaching behaviors. Video taping in simulated school settings. May be repeated. Maximum 6 hours. E

421 Elementary and Middle School Science and Social Studies Instruction (3) Methods and materials for teaching science and social studies. Development of functional knowledge and individual entry of the two fields. Not open to students with recent course or background in The Teaching of Elementary School Science and Social Studies. Prereq: Admission to Teacher Education Program. F, Sp

424 Studies in Elementary Education (1-3) Variable topics on teaching in Early Elementary (K-3), Middle Elementary (4-8), and Skills (K-3). Prereq: Admission to Teacher Education Program and permission of instructor. May be repeated. Maximum 6 hours. E

429 Language Arts/Reading/Instruction in Elementary and Middle Schools (3) Language and language development as applied to teaching of oracy (listening-speaking) and literacy (reading process/reading and writing). Not open to students who have had recent course in language arts methods. Prereq: Admission to Teacher Education Program. F, Sp

430 Elementary and Middle School Developmental Reading Instruction (3) Word recognition (including phonics), comprehension, evaluation, and materials. Not open to students who have had recent course in reading methods. Prereq: Admission to Teacher Education Program. F, Sp

434 Topics in Reading Education (1-6) May be repeated. Maximum 6 hours. Prereq: Admission to Teacher Education Program and a course in Reading Education. E

435 Elementary and Middle School Mathematics Instruction (3) Procedures for helping children learn mathematics. Unit planning, daily planning, grouping, general factors related to classroom management. Not open to students with a recent course in teaching of elementary school mathematics. Prereq: Admission to Teacher Education Program. F, Sp

445 Early Childhood Education: Program Development and Teaching in Kindergarten (3) Curriculum planning, classroom organization and management practices for teaching young children; relationship of kindergarten to total elementary school. Prereq: Admission to Teacher Education Program. E

451 Education in Cultural Perspective (3) Contribution of anthropological concepts to understanding of educational processes; major conceptual frameworks; selected ethnographic research on process of schooling. F

453 Adolescent Literature (3) Literature written or appropriate for adolescents. E

454 Teaching Strategies and Issues in Social Studies Education (3) Goals, objectives, techniques, materials, and evaluation; directed observation in public schools. Prereq: Admission to Teacher Education Program. F

455 Teaching of Foreign Language, Grades 7-12 (3) Instructional methods, lesson planning, peer-teaching, materials for teaching foreign language and culture; evaluation techniques. Required for certification in modern foreign languages and Latin. Prereq: Completion or near completion of foreign language hours for certification and admission to Teacher Education Program. F

456 Teaching Speech and Drama Grades 7-12 (3) Purposes, techniques, material and evaluation for teaching Speech and Drama in secondary school. Required for certification in Speech. Prereq: Admission to Teacher Education Program. F

459 Teaching English in the Secondary School (3) Techniques of teaching composition, language, and literature. Prereq: Admission to Teacher Education Program. F

460 Teaching Reading and Literature in the Secondary School (3) Teaching basic reading skills and literature. Prereq: Admission to Teacher Education Program. Satisfactory/No Credit only. F, Sp, Su

461 Developing Reading Skills in Content Fields (3) Teaching reading and study skills in content areas of the four year program. Extensive assessment of test books. Emphasis on middle school and high school. F, Sp, Su

471 Internship I: Elementary (3-6) Methods and theories of teaching. Internship is completed in local public schools. Application for internship should be made upon admission to the Teacher Education Program. Prereq: 410 and satisfactory/No Credit admission to Teacher Education Program. Satisfactory/No Credit only. F

472 Internship II: Elementary (3-6) Demonstration of professional competence in planning, instruction, and classroom management in local public schools. Prereq: 471 and admission to Teacher Education Program. Satisfactory/No Credit only. Sp

473 Student Teaching in the Elementary School (3-18) Semester equivalent to Educational Curriculum and Instruction 4810 or 4820. Intended for students in the four year program or equivalent. Not to be substituted for Educational Curriculum and Instruction 4711. Internship I or 472. Internship II. Prereq: Admission to Teacher Education Program, permission of Mentoring Team, and 203 (1). Satisfactory/No Credit only.

474 Student Teaching, Grades 7-12 (3-6) Semester equivalent to Educational Curriculum and Instruction 4711 or 472. Internship I or 472. Internship II. Prereq: Admission to Teacher Education Program and 203 (1). Satisfactory/No Credit only.

475 Utilization of Instructional Media (3) Basic communication process, need for instructional media, instructional development, selection and utilization of basic media, and basic software production techniques. (Same as Library and Information Science 475.) F, Sp

476 Instructional Media in Elementary Education (1) Basic operation of audiovisual hardware, selection and utilization of materials, and basic production skills needed for effective communication in the elementary classroom. Media Lab experience in production of AV software. F, Su

481 Internship II: Grades 7-12 (3-6) Methods and theories of teaching. Internship is completed in the local public schools. Application for internship should be made upon admission to the Teacher Education Program. Prereq: 410 and admission to Teacher Education Program. Satisfactory/No Credit only. F

482 Internship II: Grades 7-12 (3-6) Demonstration of professional competence in planning, instruction, and classroom management. Internship is completed in local public schools. Prereq: 481 and admission to Teacher Education Program. Satisfactory/No Credit only. Sp

485 Teaching of Mathematics, Grades 7-12 (3) Preparation of teaching plans, evaluation, materials for teaching mathematics and directed observation in schools. Prereq: Admission to Teacher Education Program. F

486 Introduction to Instructional Computing (3) Classroom uses of computers, applications for teachers, overview of computer operation and software for teachers of all grades. F, Sp

493 Independent Study (1-3) Topics to be assigned. May be repeated. Maximum 12 hours. E

494 Supervised Readings (1-3) Topics to be assigned. May be repeated. Maximum 12 hours. E

495 Special Topics (1-3) Topics to be assigned. May be repeated. Maximum 12 hours. E

496 Teaching Science Grades 7-12 (3) Methods, materials, recent trends in science and environmental education programs for secondary schools. Prereq: Admission to Teacher Education Program. F, Sp

517 Seminar (1-3) Curriculum, instructional technology, elementary education, secondary education, or educational policy. Satisfactory/No Credit only. F