<table>
<thead>
<tr>
<th>TERMS COMMONLY USED IN ADMISSION AND REGISTRATION PROCEDURES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Academic load</strong></td>
</tr>
<tr>
<td><strong>Accredited</strong></td>
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<tr>
<td><strong>Add and drop deadlines</strong></td>
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<td><strong>Admission</strong></td>
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<td><strong>Admissions file</strong></td>
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<td><strong>AP exam</strong></td>
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<td><strong>Application deadline</strong></td>
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<tr>
<td><strong>CLEP test</strong></td>
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<tr>
<td><strong>Concentration</strong></td>
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<tr>
<td><strong>Corequisite</strong></td>
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<tr>
<td><strong>Curriculum</strong></td>
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<tr>
<td><strong>English Proficiency Test</strong></td>
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<tr>
<td><strong>Evening school</strong></td>
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<tr>
<td><strong>Full-time</strong></td>
</tr>
<tr>
<td><strong>Grade point</strong></td>
</tr>
<tr>
<td><strong>Honors course or section</strong></td>
</tr>
</tbody>
</table>
## Lower division

1. A course normally taken during the freshman and sophomore years. In the course numbering system, lower division courses carry 100 and 200 numbers. Credit for lower division courses completed at another institution may be labeled "LD credit."
2. A term referring to a student's location in the progression of coursework leading to an undergraduate degree and implying freshman or sophomore classification.

## Major

The principal education interest of a student as represented by a specified set of courses and concentration. The major is not a subdivision of the major subject area.

## Minor

A secondary subject area (to the major) represented by a specified set of courses. A minor is not a subdivision of the major subject area.

## Option

A concentration of elective courses within a major which emphasizes one aspect of the major, chosen by a student according to his/her interests.

## Orientation

A meeting (or series of meetings) designed to acquaint a new student with the facilities, policies, sources of information and assistance, and academic and social atmosphere.

## Prerequisite

A requirement to be completed (or a level of skill or knowledge to be demonstrated) before enrollment in a course, a degree program, or association with a college.

## Proficiency exam

A test given to an admitted student to evaluate knowledge or skills normally acquired through completion of a particular course.

## Progression

An internal evaluation process in some colleges or degree programs by means of which a student's academic standing is examined to determine if prior work is complete and if the student should proceed towards completion of the remaining degree requirements. The most common evaluation point is at the end of the sophomore year.

## Quality points

Academic performance records are compiled through use of a scale assigning 4 "quality points" per semester hour of credit for an "A" grade ranging to 1 quality point per semester hour of credit for a "D" grade.

## Registration

The process of officially gaining entrance into one or more courses.

## Semester

The division of the calendar year used in academic scheduling. A semester is roughly 4 months in duration.

## Semester hour

The unit of academic credit at UT, Knoxville.

## TOEFL test

An internationally administered examination measuring ability to use the English language. Required of any international student applying whose native language is not English. For information and to make arrangements to take the examination, contact:

The Test of English as a Foreign Language
Educational Testing Service
Princeton, NJ 08540

## University honors

Non-departmental enrichment courses available (by invitation only) from the University Honors Program.

## Upper division

1. Courses normally taken during the junior and senior years (300 and 400 numbers). A student taking primarily junior and senior courses is said to be an upper division student. Credit for upper division courses may be labeled "UD credit" on a transfer evaluation.
2. The state of being classified as a junior or senior.
# MAJORS, MINORS AND CONCENTRATIONS

<table>
<thead>
<tr>
<th>DEPARTMENT (UNIT)</th>
<th>MAJOR</th>
<th>CONCENTRATION WITHIN THE MAJOR</th>
<th>DEGREE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>College of Agricultural Sciences and Natural Resources</strong></td>
<td></td>
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</tr>
<tr>
<td>Agricultural Biology</td>
<td>Agricultural Economics and Business</td>
<td>Production/Management Sciences/Technology</td>
<td>Bachelor of Science in Agriculture</td>
</tr>
<tr>
<td>Agricultural and Extension Education</td>
<td>Agricultural Education</td>
<td>Bachelor of Science in Agriculture</td>
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</tr>
<tr>
<td>Agricultural Extension Education</td>
<td>Animal Science</td>
<td>Bachelor of Science in Agriculture</td>
<td></td>
</tr>
<tr>
<td>Biosystems Engineering</td>
<td>Biosystems Engineering</td>
<td>Agricultural Engineering</td>
<td>Bachelor of Science in Biosystems Engineering</td>
</tr>
<tr>
<td>College of Architecture and Design</td>
<td>Architecture</td>
<td>Bachelor of Architecture</td>
<td></td>
</tr>
<tr>
<td><strong>College of Arts and Sciences</strong></td>
<td></td>
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</tr>
<tr>
<td>Anthropology</td>
<td>Honors</td>
<td>Bachelor of Arts</td>
<td></td>
</tr>
<tr>
<td>Art</td>
<td>Art History</td>
<td>Bachelor of Arts</td>
<td></td>
</tr>
<tr>
<td>Cuisine</td>
<td>Bachelor of Arts</td>
<td></td>
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<tr>
<td>Multimedia Art</td>
<td>Bachelor of Arts</td>
<td></td>
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</tr>
<tr>
<td>Studio Art</td>
<td>Bachelor of Arts</td>
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</tr>
<tr>
<td>Audiology and Speech Pathology</td>
<td>Audiology</td>
<td>Bachelor of Arts</td>
<td></td>
</tr>
<tr>
<td>Speech Pathology</td>
<td>Bachelor of Arts</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Division of Biology</td>
<td>Biological Sciences</td>
<td>Bachelor of Science</td>
<td></td>
</tr>
</tbody>
</table>

1Minor available for students in other colleges
2Minor available in Applied Music or Music History and Literature
3Minor available in Chinese, Japanese, and Portuguese
4Minor available: General Music Education
5Minor available: Elementary Education and Secondary Education
<table>
<thead>
<tr>
<th>DEPARTMENT (UNIT)</th>
<th>MAJOR</th>
<th>CONCENTRATION WITHIN THE MAJOR</th>
<th>DEGREE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemistry</td>
<td>Chemistry</td>
<td>Honors</td>
<td>Bachelor of Science</td>
</tr>
<tr>
<td>Chemistry</td>
<td>Chemistry</td>
<td></td>
<td>Bachelor of Science in Chemistry</td>
</tr>
<tr>
<td>Classics</td>
<td>Classics</td>
<td>Classical Civilization; Greek; Latin</td>
<td>Bachelor of Arts</td>
</tr>
<tr>
<td>Computer Science</td>
<td>Computer Science</td>
<td>Honors</td>
<td>Bachelor of Science</td>
</tr>
<tr>
<td>Economics</td>
<td>Economics</td>
<td>Honors</td>
<td>Bachelor of Arts</td>
</tr>
<tr>
<td>English</td>
<td>English</td>
<td>Creative Writing; Literature; Phonetics and Writing; Technical Communication</td>
<td>Bachelor of Arts</td>
</tr>
<tr>
<td>Geography</td>
<td>Geography</td>
<td>Honors</td>
<td>Bachelor of Arts</td>
</tr>
<tr>
<td>Geology Sciences</td>
<td>Geology</td>
<td>Engineering Geology</td>
<td>Bachelor of Science</td>
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<tr>
<td>History</td>
<td>History</td>
<td>Honors</td>
<td>Bachelor of Arts</td>
</tr>
<tr>
<td>Interdisciplinary Programs</td>
<td>Interdisciplinary Programs</td>
<td>African and African-American Studies; American Studies;Ancient Mediterranean Civilizations, Minor; Asian Studies; Minor available in Cinema Studies; Comparative Literature; Environmental Studies; Ethnic Studies; Latin American Studies; Language and World Business-Chinese; Language and World Business-Japanese; Language and World Business-Portuguese; Legal Studies; Linguistics; Medieval Studies; Women's Studies</td>
<td>Bachelor of Arts</td>
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<td>Mathematics</td>
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<tr>
<td>Modern Foreign Language and Literature</td>
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<tr>
<td>Modern Foreign Language and Literature</td>
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<td>Russian</td>
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<tr>
<td>Modern Foreign Language and Literature</td>
<td>Italian</td>
<td>Language and World Business</td>
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<td>Music</td>
<td>Music Education/Instrumental Emphasis; Music Education/Instrumental Emphasis-two-year program; Music Education/Vocal-General; Keyboard Emphasis; Music Education/Instrumental Emphasis-two-year program; Music Education/Vocal-General; Vocal Emphasis</td>
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<td>Philosophy</td>
<td>Philosophy</td>
<td>Honors</td>
<td>Bachelor of Arts</td>
</tr>
<tr>
<td>Physics and Astronomy</td>
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<td>Bachelor of Science</td>
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<td>Political Science</td>
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<td>Honors in Political Science</td>
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<td>Pre-Professional Programs</td>
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<td>Pre-Professional Programs</td>
<td>Pre-M.D.</td>
<td>Pre-M.D./M.S.</td>
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</table>

*Minor only available for students in other colleges

Notes:
- Minor in Elementary Education and Secondary Education
- Minor available in Applied Music or Music History and Literature
- Minor available in Chinese, Japanese, and Portuguese
- Minor available in General Special Education
<table>
<thead>
<tr>
<th>DEPARTMENT/UNIT</th>
<th>MAJOR</th>
<th>CONCENTRATION</th>
<th>WITHIN THE MAJOR</th>
<th>DEGREE</th>
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</thead>
<tbody>
<tr>
<td>Pre-Professional Programs (continued)</td>
<td>Pre-Professional Programs</td>
<td>Pre-Nuclear Medicine Technology</td>
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<td>Pre-Pharmacy</td>
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<td>Pre-Veterinary</td>
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<td>Pre-Cytotechnology</td>
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<td>Pre-Dental Hygiene</td>
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<td>Pre-Medical Records Administration</td>
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<td>Mathematics, Statistics, and Technology</td>
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<td>Exercise Science</td>
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<td>Holistic Teaching/Learning</td>
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<td>Modified and Comprehensive</td>
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<td>Inclusive Early Childhood Education</td>
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<td>Early-Childhood Special Education</td>
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<tr>
<td>Language, Communication, and Literacies Education</td>
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<td>Bachelor of Science in Education</td>
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<td>Rehabilitation, Health and Services</td>
<td>Human Services</td>
<td>Educational Intervening</td>
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<td>Special Education</td>
<td>Education of the Deaf and Hard of Hearing</td>
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<tr>
<td>Sport and Physical Activity</td>
<td>Sport Management (intercollegiates with Human Ecology)</td>
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<td>Bachelor of Science in Education</td>
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</tbody>
</table>

1 Minor available
2 Minor available for students in other colleges
3 Minor available: Driver and Traffic Safety and Health Education
4 Minor available: General Special Education
5 Minor in Elementary Education and Secondary Education
6 Minor available in Applied Music or Music History and Literature
7 Minor available in Chinese, Japanese, and Portuguese
<table>
<thead>
<tr>
<th>DEPARTMENT (UNIT)</th>
<th>MAJOR</th>
<th>CONCENTRATION WITHIN THE MAJOR</th>
<th>DEGREE</th>
</tr>
</thead>
<tbody>
<tr>
<td>College of Engineering</td>
<td>Basic Engineering</td>
<td>Chemical Engineering</td>
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<td>Civil and Environmental Engineering</td>
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<td>Electrical Engineering</td>
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<td>Nuclear Engineering</td>
<td>Nuclear Engineering</td>
<td>Radiological Engineering</td>
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<td>College of Human Ecology</td>
<td>Child and Family Studies</td>
<td>Child Development</td>
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<td>Family Studies</td>
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<tr>
<td></td>
<td>Consumer and Industry Services Management</td>
<td>Hotel and Restaurant Administration</td>
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<td>Recreation and Tourism Management</td>
<td>Commercial Recreation and Tourism Management</td>
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<td>Therapeutic Recreation</td>
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<td>Retail and Consumer Sciences</td>
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<td></td>
<td>Health and Safety Sciences</td>
<td>Community Health Education</td>
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<td></td>
<td>Sport Management (intercollaborative with College of Education)</td>
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<td></td>
<td>Human Resource Development</td>
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<td>Teacher Education</td>
<td>Training and Development</td>
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<td>Nutrition</td>
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<td>College of Nursing</td>
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<td>School of Information Sciences</td>
<td>School of Information Sciences</td>
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<tr>
<td>University Honors</td>
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<tr>
<td>University Studies</td>
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</tr>
</tbody>
</table>

1 Minor available
2 Minor available for students in other colleges
3 Minor available in Adolescence Health
4 Minor available in Elementary Education and Secondary Education
5 Minor available in Applied Music or Music History and Literature
6 Minor available in Chinese, Japanese, and Portuguese
7 Minor available in Dance
8 An Interdisciplinary Studies minor in Gerontology is available.
The College of Agricultural Sciences and Natural Resources traces its history to 1869 when the University was designated as Tennessee's Federal Land-Grant Institution. Under terms of the Federal Land-Grant Act, the University was funded for the first time to offer instruction in agriculture. This later expanded to include research for the development of new knowledge and extension for dissemination of such knowledge to rural people. Two separate administrative units—the Agricultural Experiment Station and the Agricultural Extension Service—were organized and assigned responsibility for research and extension functions, respectively. More recently, a College of Veterinary Medicine was established. There are many shared resources and professional interactions between various units of the Institute. For example, most of the faculty in the College of Agricultural Sciences and Natural Resources hold joint appointments in the Agricultural Experiment Station and they are actively involved in significant basic and applied research in agriculture and the associated natural resources. On campus and field research laboratories are utilized in the Instructional programs of the College, while extension and research activities provide many students excellent part-time job opportunities.

The unique association the College has with the UT Knoxville campus and the other units of the Institute of Agriculture make it possible for the College to offer comprehensive high-quality undergraduate and graduate programs.

CURRICULUM IN AGRICULTURE

Broad opportunities for individuals to prepare for a future in agriculture, forestry, and wildlife and fisheries science are offered in the College of Agricultural Sciences and Natural Resources. The College provides curricula leading to the degrees of Bachelor of Science in Agriculture, Bachelor of Science in Bioresearch, Bachelor of Science in Forestry, Bachelor of Science in Ornamental Horticulture and Landscape Design, and Bachelor of Science in Wildlife and Fisheries Science. The professional degree program in Biotechnology Engineering receives strong support from the College of Engineering and is fully accredited by the Accreditation Board of Engineering and Technology. The forest resources management and wildlife recreation concentrations are fully accredited by the Society of American Foresters.

A pre-professional curriculum in veterinary medicine is offered in the College. This program is designed to prepare students for admission to the College of Veterinary Medicine located on the Knoxville campus.

Students pursuing programs leading to the degree of Bachelor of Science in Agriculture major in one of several specialized areas of agriculture offered in the college. These major areas are agricultural economics and business, agricultural education, animal science, food technology and science, and plant and soil science. Specific courses required for each of these areas are given under the departmental headings in this section of the catalog. Students majoring in agriculture must complete the curriculum outlined by the department in which they are majoring in order to receive a degree. In all areas of specialization, particular emphasis is placed upon the sciences as a background for agricultural instruction; other courses are included to provide a liberal education. All subject matter departments have the opportunity to select elective courses appropriate to the educational objectives of individual students. The choice of electives in each curriculum should be made with the guidance of the faculty advisor. Students pursuing a pre-professional curriculum leading to the degree of Bachelor of Science in Bioresearch Engineering may select the concentration offered in agricultural engineering, biological engineering, or food engineering. Students seeking the Bachelor of Science in Forestry may choose concentrations in forest resources management or wildlife recreation. All academic and graduate requirements of the University as stated in the front section of this catalog must be met by agricultural students, and they must complete the requirements in one of the organized curricula. Students transferring into the College of Agricultural Sciences and Natural Resources from other than the UT Knoxville campus must have a grade point average of 2.0.

The use of transfer credit in technical subject matter areas appropriate to each organized curriculum will be considered and approved by the advisor of that curriculum and the Dean of the College of Agricultural Sciences and Natural Resources. When desirable, validating or proficiency examinations may be requested to determine competence in an area and to avoid unnecessary repetition. Such examinations should be taken during the first semester in residence and must be conducted under the supervision of the head of the department in which the course is offered. A minimum of 18 semester hours of upper division technical agriculture appropriate to a specified major requirement, and approved by the major advisor, must be completed in residence to fulfill the requirements of baccalaureate degrees offered in the college. A minimum grade point average of 2.0 for all courses taken in the department offering the major/concentration is required.

Satisfactory/No Credit Courses

Students may include a maximum of 21 hours in non-directed electives taken on a satisfactory/no credit basis in the total hours required for graduation.

GRADUATE STUDY IN AGRICULTURE

MASTER OF SCIENCE PROGRAMS

Pursuit of a graduate study leading to a Master of Science degree is afforded in all departments in the College of Agricultural Sciences, DOCTORAL PROGRAMS

Graduate study programs lead to the Doctor of Philosophy degree in several sciences, agricultural economics, bioresearch engineering, food technology and science, and plant and soil science.
the major-curriculum advisor and the agricultural extension advisor should be consulted.

A very careful choice of electives enables a student with an above average academic record to complete a double or triple major by satisfying all the requirements in each curriculum. For this purpose, the advisors of each curriculum should be consulted, the dean at the College of Agricultural Sciences and Natural Resources should be informed, and each advisor should maintain a complete record of the student’s progress. The multiple major will normally require more than 132 hours credit for graduation.

OPTIONAL MINORS

Agricultural students may have single or multiple minors in agriculture or in other college-legal on the transcripts without regard to course overlap among majors and minors. A minor in a department of the College of Agricultural Sciences and Natural Resources requires a minimum of 16 credit hours in courses numbered 200 and above with the majority of credit hours at the 300 and 400 level. At least 6 of the credit hours required for the minor must be completed at UT Knoxville. Specific requirements are listed by each department offering a minor. Minors offered in the College of Agricultural Sciences and Natural Resources are open to students of other colleges who have the approval of their advisor and department.

MINIMUM REQUIREMENTS FOR BACCAULAEATE DEGREE PROGRAMS

All B.S. degree programs offered in the College have the following requirements regardless of their major areas. Courses in the basic sciences, business, communication, agriculture may be open to agricultural students and are taught on the main University campus.

SELECTION OF CURRICULUM

Agricultural students and their advisors have their areas of special interest may choose the curriculum most adaptable to their needs when they choose a curriculum. For students with training in the social sciences as a fixed component of a curriculum should be consult, the selection of the dean of the college.

Requests for substitutions or special examinations for such purposes should be submitted for consideration during the first semester of study in the selected curriculum.

INDEPENDENT STUDY

Independent study and special topics courses and seminars offered in each department provide exceptional students the opportunity to explore in greater depth subject matter of unusual significance to agriculture. Students gain experience and are encouraged to assume responsibilities not available in formally organized courses. Association with students and faculty from all phases of agriculture and the renewable natural resources in the College of Agricultural Sciences and Natural Resources is recommended for additional information.

ACADEMIC COUNSELING AND PERSONAL GUIDANCE

It is necessary, however, that freshman students work with faculty members throughout the first year. Those who are in doubt will be assigned to an adviser from the major department. An open to all students in the College of Agricultural Sciences and Natural Resources are taught on the main University campus.

The facilities of the University on the main campus are available to agricultural students. The following courses are offered in the Graduate Catalog. Residence, language, research, examination, and for assignment to an appropriate advisor. Requests for substitutions or special examinations for such purposes should be submitted for consideration during the first semester of study in the selected curriculum.

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and technical agriculture. Through course selection, students may prepare for employment in the rapidly expanding field of agricultural business or in the field of farm production and related areas. The business oriented student will be prepared for the management phases of agricultural business. Employment opportunities include work in marketing of agricultural products, agriservice firm management, agricultural credit agencies and banks, farm real estate and appraisal services, public and private market analysis, and farm information services utilizing mass communications.

Farm management oriented students will be prepared for positions such as farm managers, county agricultural agents, managers of farm supply and purchasing firms, agricultural journalists, and farm loan agents. The curriculum also provides the necessary background for graduate work in agricultural economics.

Minor consists of 10 credit hours including Economics 201, Agricultural Economics 342, 350, 410, and a 3-hour elective in Agricultural Economics.

Agricultural Extension

Minor consists of 10 credit hours including Economics 201, Agricultural Economics 342, 350, 410, and a 3-hour elective in Agricultural Economics.

Agricultural Education

The Department of Agricultural and Extension Education has two educational areas of emphasis: namely, Agricultural Extension Education and Agricultural Education.

Agricultural Extension Education

The agriculture and undergraduate curriculum in offered in Agricultural Extension Education, and undergraduate courses are available as electives in each formal curriculum. The courses are designed to develop an understand of the functions, responsibilities, and techniques of the Agricultural Extension Service; and to provide prospective Extension employees with experience in selected fieldwork in Extension.

Agricultural Education

Students who complete the requirements for graduation in Agricultural Education receive a Bachelor of Science Degree in Agriculture with a Major in Agricultural Education. The curriculum is designed to prepare persons to assume educational and leadership roles in many phases of the agricultural industry, including agriculture, business, schools, agencies, and farming and ranching. Emphasis is placed on preparing students to teach agricultural education or serve as an educator with the Agricultural Extension Service. Students may choose to concentrate in the teacher education option (certification) or the professional services option. The teacher education option is designed to prepare students to meet certification requirements for agricultural education.

Teacher Certification is given through the College of Education. Students must file for admission to Teacher Education in the College of Education. (See Admission to Teacher Education and Student Teaching sections.) Students who choose the professional services option may substitute additional technical agriculture and/or internship hours equivalent to the maximum number of student teaching required in this curriculum. With advisor approval, additional additional hours, required specifically for certification, responsibilities, and additional courses in the humanities, social sciences or technical agriculture are available. This option provides a broad-based curriculum designed for those students who wish to prepare to careers in the Agricultural Extension Service, agriservice, government agencies, and farming and ranching. This option does not prepare a student to meet certification requirements.

Agricultural and Biosystems Engineering

http://www.ag.cornell.edu

Professors:


Associate Professors:


Assistant Professor:

D.R. Raman, Ph.D. Cornell, P.E.

Advisors:


The College of Agricultural Sciences and Natural Resources, with the cooperation of the College of Engineering, offers a four-year curriculum leading to the degrees of Bachelor of Science in Biosystems Engineering. The curriculum is accredited by the Engineering Council of the Accreditation Board for Engineering and Technology (ABET). Employment opportunities are available in industry, government agencies, research and testing organizations, and educational and non-profit institutions.

The major requirement for freshman admis- to the Biosystems Engineering program in 3 1/2 units, including trigonometry and geom- etry. Otherwise, the general admission require- ments of the University apply. Faculties of the Agricultural and Biosystems Engineering Department have established the following educational objectives to the Biosystems Engineering program.
OBJECTIVES

The Biosystems Engineering Program at the University of Tennessee, Knoxville, is committed to linking engineering sciences and mathematics to real-world problems involving natural and man-made biologically-based systems. We strive to educate students to become engineers with the ability to serve humbly by applying engineering knowledge to solve problems facing society. This education is accomplished by providing a strong grounding in engineering fundamentals and incorporating hands-on, real-world design scenarios throughout the curriculum.

Our graduates are technically competent in engineering design. They:

• understand the steps in the engineering process;
• can define a problem;
• can gather the information required to solve a problem;
• can critically evaluate information from various sources;
• are creative and can synthesize solutions to a problem;
• can perform engineering analyses;
• can design components, machines, or systems to solve a problem;
• understand the importance of social, environmental, economic, and safety issues;
• and appreciate the role of uncertainty and risk in engineering applications.

Our graduates have the skills needed by professional engineers. Our program strives to:

• provide an understanding of the engineering profession;
• teach of the rewards of engineering accomplishment;
• provide an understanding of the nobility of the profession;
• teach of the ability to work effectively in teams of diverse disciplines;
• provide an understanding of the importance of ethical conduct in a professional practice;
• teach the importance of written, and graphical communication skills;
• teach the importance of taking initiative on projects;
• teach in technical capabilities;
• teach personal time management skills;
• and teach professional development skills.

The curriculum provides instruction in the analytical and design skills needed to solve engineering problems related to biological and agricultural systems. Comprehensive design of systems and their components is emphasized in the senior year. Three concentrations are available: Agricultural Engineering, Biological Engineering, and Food Science. A concentration should be selected early in the academic program since there are differences as early as the sophomore year. Each concentration in the curriculum has provisions for elective courses to be taken in specified subject areas. Students must consult with their advisors each semester regarding the selection of courses and should submit a plan for all such electives no later than their second year of study.

Graduates may pursue careers in design and development of management practices that minimize soil erosion and conserve water resources; biological waste treatment systems; safer agricultural machinery with lower environmental impact; and improved food and agricultural processing systems.

Students majoring in biosystems engineering are eligible to participate in the Engineering Cooperative Scholarship program and other student activities in the College of Engineering. Biosystems Engineering majors interested in the Cooperative Engineering Scholarship program should consult with their faculty advisor or the Dean of this Agricultural and Biosystems Engineering Department (phone (423) 974-7099; e-mail cmote@utk.edu).

BIOSYSTEMS ENGINEERING WITH CONCENTRATION IN AGRICULTURAL ENGINEERING

Hours Credit

Freshman

Engineering Fundamentals 101, 102 12
Biosystems Engineering 101 4
Chemistry 105 4
English 101, 102 8
Mathematics 141, 142 8
Sophomore

Agriculture 101 3
Biosystems Elective 4
Engineering Science 231, 232 6
Historical Studies Elective 3
Humanities Elective 3
Biology 105 4
Mathematics 200, 231, 241 6
Physics 211 31
Junior

Biosystems Engineering 302, 451 6
Biosystems Engineering Core Elective 6
Electrical Engineering 381 4
Fluid Statics Elective 4
Biosystems Engineering 303, 451 7
Industrial Engineering 405 3
Thermodynamics Elective 3
Thermal Electives 6
Senior

Biosystems Engineering 401, 402 8
Biosystems Engineering 451, 452 or 453 or 459 3
Biological Science 400 4
Swedish 210 or 240 3
English 390 2
Economics 501 3
Social Science Elective 3
Thermal Elective 3
Total: 134 hours

Or equivalent honors courses.

If Mathematics placement test score is unsatisfactory, take Mathematics 120 prior to 141 (See advisor for alternate course schedule). Mathematics 130 will count as additional hours toward graduation.

Select from CE 330 Introduction to Soil Science; Biology 130; Botany 110; Microbiology 210 and other biological science courses as approved by advisor.

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These electives must be approved in advance by instructor. May also include Physics 320. Must be completed with a grade of C or better. These electives must be approved in advance by advisor. May also include Physics 320. Must be completed with a grade of C or better. These electives must be approved in advance by advisor. May also include Physics 320. Must be completed with a grade of C or better.

BIOSYSTEMS ENGINEERING WITH CONCENTRATION IN FOOD ENGINEERING

Hours Credit

Freshman

Engineering Fundamentals 101, 102 12
Biosystems Engineering 101, 102 8
Chemistry 120 4
English 101, 102 6
Mathematics 141, 142 8
Sophomore

Agriculture 101 3
Biosystems Engineering 201, 243 4
Chemistry 120 4
Economics 201 4
Biosystems Elective 4
Biological Science 210; Botany 110; Microbiology after consultation with your advisor.

Senior

Biosystems Engineering 311, 401, 402 15
Biological Systems Elective 4
Historical Studies Elective 3
Mathematics 200, 231 6
Thermal Electives 6
Industrial Engineering 490 3
Polsv 210 or 240 3
Total: 134 hours

Or equivalent honors courses.

If Mathematics placement test score is unsatisfactory, take Mathematics 120 prior to 141 (See advisor for alternate course schedule). Mathematics 130 will count as additional hours toward graduation.

Select from Biology 130 or 141 (generic biology option) or Biology 110, 120 (general biology, required).

Select from CE 380 Hydraulics or ES 341 Fluid Mechanics.

Typically upper division courses in engineering or related areas. May also include Physics 320. Must be completed with a grade of C or better. These electives must be approved in advance by advisor. May also include Physics 320. Must be completed with a grade of C or better. These electives must be approved in advance by advisor. May also include Physics 320. Must be completed with a grade of C or better.

BIOSYSTEMS ENGINEERING WITH CONCENTRATION IN BIOLOGICAL ENGINEERING

Hours Credit

Freshman

Engineering Fundamentals 101, 102 12
Biosystems Engineering 101, 102 8
Chemistry 105 4
English 101, 102 8
Mathematics 141, 142 8
Sophomore

Biosystems Engineering 201, 243 4
"W" Science Elective 4
Biosystems Engineering 251 3
Economics 101 4
Mathematics 200, 231, 241 8
Physics 211 3
Junior

Biosystems Engineering 303, 451 7
Electrical Engineering 301 3
Thermodynamics Elective 3
Chemistry 320 5
Economics 201 4
Microbiology 210 3
Senior

Biosystems Engineering 311, 401, 402, 453 15
Electrical Elective 3
Biosystems Engineering 401, 402 8
Environmental Science Elective 3
Industrial Engineering 490 3
Total: 134 hours

Or equivalent honors courses.

If Mathematics placement test score is unsatisfactory, take Mathematics 120 prior to 141 (See advisor for alternate course schedule). Mathematics 130 will count as additional hours toward graduation.

Select from Mathematics 200, 231, 241 (See advisor for alternate course schedule). Mathematics 130 will count as additional hours toward graduation.

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BIOSYSTEMS ENGINEERING WITH CONCENTRATION IN ENGINEERING SCIENCE

Hours Credit

Freshman

Engineering Fundamentals 101, 102 12
Biosystems Engineering 101, 102 8
Chemistry 120 4
English 101, 102 6
Mathematics 141, 142 8
Sophomore

Agriculture 101 3
Biosystems Engineering 201, 243 4
Chemistry 120 4
Economics 201 4
Biosystems Elective 4
Biological Science 210; Botany 110; Microbiology after consultation with your advisor.

Senior

Biosystems Engineering 311, 401, 402 15
Biological Systems Elective 4
Historical Studies Elective 3
Mathematics 200, 231 6
Thermal Electives 6
Industrial Engineering 490 3
Polsv 210 or 240 3
Total: 134 hours

Or equivalent honors courses.

If Mathematics placement test score is unsatisfactory, take Mathematics 120 prior to 141 (See advisor for alternate course schedule). Mathematics 130 will count as additional hours toward graduation.

Select from Mathematics 200, 231, 241 (See advisor for alternate course schedule). Mathematics 130 will count as additional hours toward graduation.

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In the Fall, select one 3-credit course from the following:
2. The last 30 hours of the three-year pre-veterinary program are:

- Completion of the first two semesters in the major in Animal Science, after being awarded a B.S. degree in Agriculture with a major in Animal Science or Animal Science Restricted Elective.

- Electives should be chosen with career objectives in mind and in consultation with the Animal Science core courses.

- Note: A student may not enter the CVM as a pre-veterinary student unless all required pre-veterinary courses are completed with a grade of B or better.

- Effective admissible courses are limited to those meeting departmental requirements as physical science and math restricted electives.

- May be chosen from approved list of courses meeting departmental requirements as Social Sciences.

2.4 Junior Year

- Animal Science 320-3 hours
- Animal Science 330-4 hours
- Animal Science 340-3 hours
- Animal Science 350-360 and Laboratory 366 (3.32)-8 hours
- General Chemistry 120-130 (4.4)-8 hours
- Organic Chemistry 240 or 260 (4.4)-8 hours
- Biology 240-4 hours
- Animal Science 380-3 hours

- Free Electives

- Total: 39-101 hours

- May be chosen from approved list of courses meeting University requirements as Social Sciences.

- May be chosen from approved list of courses meeting University requirements as Humanities.

- May be chosen from approved list of courses meeting University requirements as History.

- May be chosen from approved list of courses meeting University requirements as Humanities.

- 5. Satisfactory completion of the first two semesters in the CVM professional program.

- 6. No later than December 31 of the student's senior year.

2.2 Physical Science and Math Restricted Elective

- General Chemistry 141-142 or 151-152-8 hours
- Organic Chemistry 240-260 (4.4)-8 hours
- Physics 210 or 240-3 hours
- Mathematics 141-142 or 151-152-8 hours
- Total: 39-101 hours
May be chosen from Biology 101, 130 or Botany 110.
May be chosen from approved list of courses meeting University requirements as Social Sciences.
May be chosen from approved list of courses meeting University requirements as Humanities.
May be chosen from approved list of courses meeting University requirements as English.
May be chosen from approved list of courses meeting University requirements as Writing intensive.
May be chosen from approved list of courses meeting Departmental requirements for FST elective.

FOOD SCIENCE AND TECHNOLOGY WITH PREPROFESSIONAL CONCENTRATIONS

These programs in Pre-Dental, Pre-Medical, Pre-Pharmacy and Pre-Veterinary Medicine allow students to be awarded a B.S. degree in Agriculture with a major in Food Science and Technology, after three years and the successful completion of the first year (two semesters) in UT Memphis dental, medical or pharmacy programs or UT Knoxville College of Veterinary Medicine. The last 30 hours of the three-year course curriculum must have been taken at UT Knoxville. A total of 132 hours must be completed by the end of the first year of professional school. No later than December 31 of the student’s first year in professional school, the student must contact the Dept. of Food Science and Technology in order to check on graduation requirements for this program.

Although a B.S. degree is not required for admission to the Colleges of Dentistry or Medicine, most of the students accepted into these programs have the baccalaureate degree before admission. Therefore students are encouraged to plan to complete all requirements for B.S. degree before entering in order to enter both colleges. A B.S. degree can be obtained before enrolling in the Doctor of Dental Medicine (D.M.D.) program.

Should the student not gain admittance after the Junior year, the student could complete the requirements for a major in Food Science and Technology during the Senior year.

FORESTRY, WILDLIFE, AND FISHERIES

Professors:
G.M. Hopper (Head); Ph.D. Virginia Polytechnic Institute and State University; M.S. Emporia State University
B.A. Buenger (Emeritus); B.S. North Carolina State University; M.S. North Carolina State University; Ph.D. North Carolina State University
R.J. Strange, Ph.D. (Emeritus); Ph.D. North Carolina State University; B.S. University of Tennessee

Associate Professors:
D.A. Buentener, Ph.D. Virginia Polytechnic Institute and State University; B.S. University of Tennessee
W.R. Hundley, Ph.D. Michigan State University; B.S. Michigan State University
M.N. Rand, Ph.D. North Carolina State University; B.S. North Carolina State University

Assistant Professor:
David Buckley, Ph.D.

Forestry Advisors:
Buckley, D., Osmland, R., and Schroeder, H.

Wildlife and Fisheries Advisors:
Buckley, D., Osmland, R., and Wilkin, W.

The mission of the Department of Forestry, Wildlife, and Fisheries is to advance the management, utilization, and conservation of natural resources in Tennessee, the region, and beyond through programs in teaching, research, and extension.
ENROLLMENT MANAGEMENT PLAN

All majors in the Department of Forestry, Wildlife, and Fisheries, and major in wildlife and fisheries science lead to the degree of Bachelor of Science in Wildlife and Fisheries Science. The forestry major requires the following: Forest Resources Management Concentration and Wildlife Recreation Concentration.

FOREST RESOURCES MANAGEMENT CONCENTRATION

The Forest Resources Management Concentration provides an opportunity to obtain an education related to the management of the broad spectrum of wildlife resources. In addition to the core of required courses, there are about 18 elective credit hours for broad studies or specialized training in one or more areas of forest resources. These areas encompass studies in wildlife, fisheries, and natural resources management.

Courses for Forestry Concentration include:
- Introduction to microcomputers (Ag 990 or equivalent);
- General ecology (Biology 230 or equivalent);
- Students must complete all but 3 core courses by the end of the semester in which they apply for acceptance into upper division courses. They must complete all core courses before entering upper division courses. They will need to take the prerequisites to the individual upper division courses.

FORESTRY

The profession of forestry is the science, the art, and the practice of managing and using for human benefit the natural resources which occur on and in association with forest lands. Forest engineers are derived from the multiple resources of the forest: wood, water, wildlife, fisheries, forage, and environmental amenities. Forest engineers are managers of these resources. Thus, our principal institutional objective is to provide a broad education needed to deal effectively with the complex of forest resources.

A minor in Forestry consists of 16 credit hours as follows: FWF 211 or FWF 226, FWF 311 and 10 hours from FW F 312, 313, 412 and 416 and Forestry designated courses. Prerequisites will not be waived.

FORESTRY RECREATION CONCENTRATION

The Forestry Recreation Concentration is an interdisciplinary program that prepares students to work in natural resource based recreation settings on public and private lands, including local, state, and national parks, and other state and federal agencies and private and non-profit organizations providing outdoor recreation opportunities. Students prepare for professional positions in the planning, development, interpretation, and management of private and public lands for recreation purposes. Students also learn the basic principles and techniques associated with the use of leisure time and the relationship of natural resource to the constructive use of leisure time. Emphasis will be placed on obtaining experiences in complementary areas such as education, cultural and natural history interpretation, foreology, wildlife, fisheries, communications, and public relations, agricultural extension, and professional ethics.

A minor in Recreation Concentration is available for students who have met all preliminary requirements for progression, including having relevant career goals and letters of reference for progression, will be ranked based on the combined score of their cumulative grade point average (GPA) and GPA in core courses. The combined score will be 50% cumulative GPA (minimum 2.2) and 50% cumulative GPA (minimum 2.2) in core courses. Applicants with the highest scores will be accepted into the program. The number of applicants accepted into each program will be based on resources available. Applicants will be notified of their acceptance by the start of registration for Spring semester.

Applicants who are not accepted into the program and who believe their circumstances prevented their acceptance into the program may appeal the decision to the forestry committee. A written statement in which this case is made for acceptance is required for all applicants. Appeal decisions will be rendered within one week of the rejection notice.

Applicants receiving a positive response from the appeals committee will be accepted into the program. Students are required to submit a student manuscript for publication within one week of the rejection notice.

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FOREST RESOURCES MANAGEMENT CONCENTRATION

The Forest Resources Management Concentration provides an opportunity to obtain an education related to the management of the broad spectrum of wildlife resources. In addition to the core of required courses, there are about 18 elective credit hours for broad studies or specialized training in one or more areas of forest resources. These areas encompass studies in wildlife, fisheries, and natural resources management.

Courses for Forestry Concentration include:
- Introduction to microcomputers (Ag 990 or equivalent);
- General ecology (Biology 230 or equivalent);
- Students must complete all but 3 core courses by the end of the semester in which they apply for acceptance into upper division courses. They must complete all core courses before entering upper division courses. They will need to take the prerequisites to the individual upper division courses.

FORESTRY

The profession of forestry is the science, the art, and the practice of managing and using for human benefit the natural resources which occur on and in association with forest lands. Forest engineers are derived from the multiple resources of the forest: wood, water, wildlife, fisheries, forage, and environmental amenities. Forest engineers are managers of these resources. Thus, our principal institutional objective is to provide a broad education needed to deal effectively with the complex of forest resources.

A minor in Forestry consists of 16 credit hours as follows: FWF 211 or FWF 226, FWF 311 and 10 hours from FW F 312, 313, 412 and 416 and Forestry designated courses. Prerequisites will not be waived.

FORESTRY RECREATION CONCENTRATION

The Forestry Recreation Concentration is an interdisciplinary program that prepares students to work in natural resource based recreation settings on public and private lands, including local, state, and national parks, and other state and federal agencies and private and non-profit organizations providing outdoor recreation opportunities. Students prepare for professional positions in the planning, development, interpretation, and management of private and public lands for recreation purposes. Students also learn the basic principles and techniques associated with the use of leisure time and the relationship of natural resource to the constructive use of leisure time. Emphasis will be placed on obtaining experiences in complementary areas such as education, cultural and natural history interpretation, foreology, wildlife, fisheries, communications, and public relations, agricultural extension, and professional ethics.

A minor in Recreation Concentration is available for students who have met all preliminary requirements for progression, including having relevant career goals and letters of reference for progression, will be ranked based on the combined score of their cumulative grade point average (GPA) and GPA in core courses. The combined score will be 50% cumulative GPA (minimum 2.2) and 50% cumulative GPA (minimum 2.2) in core courses. Applicants with the highest scores will be accepted into the programs. The number of applicants accepted into the programs will be based on resources available. Applicants will be notified of their acceptance by the start of registration for Spring semester.

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**ORNAMENTAL HORTICULTURE AND LANDSCAPE DESIGN**

**Professors:**
- M. L. Abrams, Ph.D., Ohio State (Head); R. M. Augs, Ph.D., Washington State; L. M. Catlin, Ph.D., Rutgers; E. T. Graham (Emeritus); Ph.D., Pennsylvania.
- P. M. Greenish, Ph.D., Australia; G. L. McDaniel, Ph.D., Oklahoma State; Associate Professor.
- F. W. Rogers, M.S., Tennessee; S. M. McDaniel, Ph.D., North Carolina State; D. Williams, Ph.D., Pennsylvania.
- Associate Professors:
  - J. W. Day, Ph.D., Mississippi State; S. M. Graue, M.A., Georgia; T. W. Starman, Ph.D., Texas A&M; W. T. White, Ph. D., Maryland.
- Assistant Professors:

**U. T. Agricultural Extension Service Faculty:**
- G. D. Crater, Ph.D., Ohio State, Professor; T. J. Walt, Ph.D., Oklahoma State, Associate Professor; J. E. Brown, Ph.D., Michigan State, Assistant Professor; D. E. Farn, Ph.D., Auburn, Assistant Professor.

**Advisors:**

The Department of Ornamental Horticulture and Landscape Design (OHLD) of the University of Tennessee provides quality academic instruction to undergraduate and graduate students. The department is staffed by experienced instructors who are committed to the success of their students. OHLD advisors give students' sound advice in the selection of career specialities, effective courses, and provide students the best education possible. Professors want their students to be successful and enjoy positive student-teacher relationships. They keep track of job openings and assist students during the job selection process. Since most OHLD teachers are also research scientists, undergraduate students interested in advanced studies are directed into appropriate courses to prepare for admission to graduate school. Students are encouraged to work with faculty researchers in a variety of laboratories, greenhouse or field experiments.

The OHLD curriculum is organized into four different concentrations. Each concentration offers a different academic approach to address the breadth of opportunities available to OHLD undergraduate students. A minimum of 132 credit hours including internship is required for each concentration. Full-time summer internships are available at selected local, national, and corporate organizations. Part-time summer or semester internships are available from OHLD. Other university depart-ments and laboratories and local commercial firms. For more information, contact the main office at the College of Agricultural Sciences and Natural Resources.

**ORNAMENTAL HORTICULTURE AND LANDSCAPE DESIGN MINOR**

A minor in OHLD shall consist of 18 hours of courses in Ornamental Horticulture and Landscape Design: OHLD 110, Introduction to Ornamental Horticulture and one additional concentration. Students may choose one concentration from the following: ornamental plants used by the landscape industry or sold through retail outlets, landscape construction and maintenance (installation and maintenance of residential and commercial landscapes), landscape design (creation of aesthetic concepts and practical plans for improved outdoor areas), public horticulture (the promotion of horticulture to enhance education and enjoyment of plants) or retail horticulture (the marketing and wholesale of ornamental plants and gardening accessories directed to the consumer). Students select courses to meet the challenges of the different areas of ornamental horticulture by working closely with their academic advisors. Internships at various horticultural facilities provide students the opportunity to put theory into practice and screen possible job opportunities.

Positions that OHLD graduates hold are numerous. Sample positions include: landscape design, sales, service, or lawn construction, design and/or maintenance workers in horticulture; estate managers; and employees of golf course construction, design firms, public relations managers, educators, program director, high school or college teachers and professors, wholesale nursery operations, sales representatives or managers with inter- or cross-site responsibilities, wholesale nursery operations, educators, program director, high school or college teachers and professors. The college encourages students to work closely with their academic advisers. Internships at various horticultural facilities provide students the opportunity to put theory into practice and screen possible job opportunities.

In addition to courses, students are encouraged to work closely with their academic advisers. Students are also encouraged to work with faculty researchers in a variety of laboratories, greenhouses, or field experiments.

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http://ohld.utk.edu

**Student Career Opportunities**

The four concentrations reflect the various career paths open to graduates. Opportunities exist within horticulture (the field of growing, marketing and designing with flowers and plants), turfgrass management (growing and managing turfgrasses for ornamental, sports, parks, athletic fields, and residential and commercial lawns), wholesale nursery production (the production of trees, shrubs and other woody ornamental plants used by the landscape industry or sold through retail outlets), landscape construction and maintenance (installation and maintenance of residential and commercial landscapes), landscape design (creation of aesthetic concepts and practical plans for improved outdoor areas), public horticulture (the promotion of horticulture to enhance education and enjoyment of plants) or retail horticulture (the marketing and wholesale of ornamental plants and gardening accessories directed to the consumer). Students select courses to meet the challenges of the different areas of ornamental horticulture by working closely with their academic advisors. Internships at various horticultural facilities provide students the opportunity to put theory into practice and screen possible job opportunities.

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http://ohld.utk.edu
## HORTICULTURAL SCIENCE AND MANAGEMENT CONCENTRATION

The Horticultural Science and Management Concentration is designed for the student desiring to pursue areas such as turfgrass management, floriculture, nursery production, landscape contracting and construction, or desire a general ornamental horticulture curriculum. This concentration should be followed by those students interested in entering their graduate school. Careful selection of OHL courses and other electives in consultation with your academic advisor will prepare graduates for the career of their choice.

### Freshman Hours Credit

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>OHL 110</td>
<td>3</td>
</tr>
<tr>
<td>History 110-120</td>
<td>3</td>
</tr>
<tr>
<td>Chemistry 100-110 or 120-130</td>
<td>4</td>
</tr>
<tr>
<td>English 101-102</td>
<td>6</td>
</tr>
<tr>
<td>Math 119 and (123 or 125)</td>
<td>6</td>
</tr>
</tbody>
</table>

### Sophomore Hours Credit

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Select 2 from OHL 200, 220, or 260</td>
<td>6</td>
</tr>
<tr>
<td>Agriculture 305</td>
<td>3</td>
</tr>
<tr>
<td>Accounting 201-202</td>
<td>3</td>
</tr>
<tr>
<td>Plant &amp; Soil Sciences 200 and 210</td>
<td>4</td>
</tr>
<tr>
<td>Statistics 201</td>
<td>3</td>
</tr>
<tr>
<td>14 hours Elective</td>
<td></td>
</tr>
</tbody>
</table>

### Junior Hours Credit

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Select 4 from OHL 320, 330, 340, 350, 360, 370, 380, 390 or 391</td>
<td>10-12</td>
</tr>
<tr>
<td>OHL 422</td>
<td>3</td>
</tr>
<tr>
<td>Select 2 from Engr &amp; Plant Pathology 312, 321, 318, Plant Soil Sciences 313, 324 or 393</td>
<td>6</td>
</tr>
<tr>
<td>Plant &amp; Soil Sciences 310 or 320</td>
<td>3</td>
</tr>
<tr>
<td>English 418-420</td>
<td>3</td>
</tr>
<tr>
<td>Economics 201</td>
<td>4</td>
</tr>
<tr>
<td>Accounting 201-202</td>
<td>6</td>
</tr>
<tr>
<td>Select 2 from Extension Educ. 346, Journalism 310, 319</td>
<td>3-4</td>
</tr>
<tr>
<td>Total: 132 hours</td>
<td></td>
</tr>
</tbody>
</table>

### Senior Hours Credit

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Select 2 from Botany 410, 430, 440, 450, 460, 480, 485 or 499</td>
<td>11</td>
</tr>
<tr>
<td>OHL 460</td>
<td>3</td>
</tr>
<tr>
<td>Plant &amp; Soil Sciences 310 or 320</td>
<td>3</td>
</tr>
<tr>
<td>English 418-420</td>
<td>3</td>
</tr>
<tr>
<td>Select 2 from Biological Science &amp; Plant Pathology 312, 321, 410</td>
<td>3</td>
</tr>
<tr>
<td>Select 1 from Botany 309, 330; Entomology &amp; Plant Pathology 312, 321, 330, 340, or 360</td>
<td>3</td>
</tr>
<tr>
<td>Select 2 from Entomology &amp; Plant Pathology 312, Plant Soil Sciences 313, 324 or 393</td>
<td>6</td>
</tr>
<tr>
<td>Select 2 from Agric &amp; Plant Pathology 312, 321, Plant Soil Sciences 313, 324 or 393</td>
<td>6</td>
</tr>
<tr>
<td>Select 1 from Biological Science &amp; Plant Pathology 312, 321, 330, or 360</td>
<td>3</td>
</tr>
<tr>
<td>Select 1 from Agric. Economics Elective W</td>
<td></td>
</tr>
<tr>
<td>Select 1 from Biological Science &amp; Plant Pathology 312, 321, Plant Soil Sciences 313, 324 or 393</td>
<td>6</td>
</tr>
<tr>
<td>Total: 132 hours</td>
<td></td>
</tr>
</tbody>
</table>

## Landscaping Design Concentration

Landscape designers create aesthetic concepts and practical plans for improved outdoor living. OHL students study fundamental and advanced landscape design, landscape design graphics, computer aided landscape design, surveying, art, socio-economic impact of plants, field botany, professional practices, botanist-woodland plant identification, landscape construction and maintenance methods. The development of comprehensive design projects helps students prepare for careers in landscape design or advanced studies in landscape architecture. Graduates in design have access to a large segment of the OHL commodity areas of employment.

### Freshman Hours Credit

<table>
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<tr>
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<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>English 101-102</td>
<td>6</td>
</tr>
<tr>
<td>Chemistry 100-110 or 120-130</td>
<td>4</td>
</tr>
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</table>
TECHNICAL ELECTIVES:

- Agriculture and Extension Education 342, 411, Ad 481
- Botany 303, 491
- Ecology and Evolutionary Biology 411, 412, 484
- Entomology and Plant Pathology 410, 530
- Forestry 453
- Interior Design 200
- Management 430
- Philosophy 345
- Plant Pathology 413, 414, 435, 471
- Psychodaeological Studies 250
- Psychology 480
- Public Health 410
- Public Relations 279, 470
- Recreation and Leisure Studies 410, 430
- Speech 440
- Wildlife and Fisheries Sciences 211

ADDITIONAL ELECTIVE LIST: LANDSCAPE DESIGN CONCENTRATION

- Art 205
- Biosystems Engineering Technology 212, 315
- Botany 448
- Ecosystems and Plant Pathology 313, 321, 410
- Forestry, and Fisheries 211, 250
- Geography 439
- Plant and Soil Sciences 311, 334, 414

PLANT AND SOIL SCIENCES

- Professors: F.L. Allen (Head), Ph.D., Minnesota; J.T. Amorelli, Ph.D., Washington State; H.K. Coffey, Ph.D., Purdue; M.E. Springer (Emeritus), Ph.D., Georgia; W.A. Krueger, Ph.D., Illinois; H.D. Swingle (Emeritus), Ph.D., Michigan State; W.L. Parks (Emeritus), Ph.D., Purdue
- Associate Professors: W.A. Krueger, Ph.D., Washington State; D.E. Dayton, Ph.D., Oregon State; J.E. Fosia (Emeritus), Ph.D., Minnesota; H.A. Fitton, Ph.D., Iowa State; R.M. Hayes, Ph.D., Iowa State; R.L. Lewis (Emeritus), Ph.D., North Carolina State; W.L. Parks (Emeritus), Ph.D., Purdue; J. Reynolds, Ph.D., Wisconsin; C.E. Smith, Ph.D., Michigan State; M.E. Springer, Ph.D., Georgia
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For advanced General Biology series may be substituted for Botany only if taken before entering Plant and Soil Sciences.

As of 2023

College of Agricultural Sciences and Natural Resources
### ENVIRONMENTAL SCIENCE AND NATURAL RESOURCES CONCENTRATION

The Environmental Science and Natural Resources concentration is a science-oriented curriculum that provides a strong, broad background in the natural sciences. The plan of study emphasizes land use problems and their impacts on long-term use and productivity as well as an understanding of the interrelationship of the soil and water systems. Students are required to complete a set of core courses that emphasize the soil and plant sciences.

#### Required Courses
- Plant and Soil Sciences 230, 412, 413, 414, 415, 431, 432, 433, 436, 453
- Biosystems Engineering Technology 212, 243, 315, 330

#### Electives
- Science 310, 315, 415, 433
- Geography 310, 334, 411, 412, 432, 433
- Sociology 340, 343, 462, 464
- University Studies 310, 311, 320, 321, 322, 410, 420

#### Directed Technical Electives
- Biosystems Engineering Technology 442, 462
- Animal Science 330
- Entomology and Plant Pathology 313, 321
- Landscape Architecture and Landscape Design 310, 340

#### Writing Electives
- English 295, 300, 305, 360, 450

#### Other Electives
- NON-DEPARTMENTAL AGRICULTURE ELECTIVES
- Biological Sciences 240
- Physical Sciences/Math/Data Management 403

#### Professional Electives
- American Studies 310

#### Total: 132 hours

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**A two-semester General Biology series may be substituted for Botany 140 and 240. Math 123 or 133 may be substituted for Math 130, 151 or 152, or 141 or 142 only if taken before enrolling in Plant and Soil Sciences. Students with ACT scores of 28 or higher in the Multi-validation section are encouraged to enroll in Math 191, 192 or 141, 142 series.**
Marleen Kay Davis, Dean
Max A. Robison, Director, School of Architecture
Jon Coddington, Head of Graduate Program in Architecture
Josette Rebuton, Coordinator of Interior Design

The College of Architecture and Design is concerned with the design of the physical environment, from the scale of furniture to the scale of the region. The study of the physical environment includes many inter-disciplinary connections which the college tries to promote. Within the University of Tennessee, all students in the College of Architecture and Design are part of a smaller academic community which prides itself on a faculty dedicated to teaching.

The College of Architecture and Design includes three basic programs of study: at the undergraduate and graduate level:

Bachelor of Architecture: A professionally accredited five year undergraduate first professional degree program of study.

Bachelor of Science in Interior Design: A professionally accredited four year undergraduate program of study.

Master of Architecture: A professionally accredited first professional degree for students from any academic background.

The three year course of study is described in the Graduate Catalog.

FACILITIES

The award winning Art and Architecture Building, completed in 1981, provides one of the finest facilities in the country for architecture students. The building is home to both art, architecture, and interior design students who occupy extensive studio space surrounding an open Commons space, filled with natural light. A café and three auditoriums open onto the Commons space. The building is equipped with state-of-the-art computer networks and design studios. The spaces include extensive wood shop for furniture construction and building model building.

Throughout the design studios, computer ports are provided for students' laptop computers. The building itself is a model of how architectural space can promote a sense of community among the artists, architects, and design students within the larger University community.

Interior Design students work together in design studios, located in the Art and Architecture Building. In these studios, students take advantage of the program's computer facilities, the Resources Library with extensive material samples and product information, and the well equipped wood shop for furniture construction and model building.

FRESHMAN ADMISSION REQUIREMENTS

Due to the limited size of the design studios and College resources, admission to the College of Architecture and Design is selective. Based on test scores, high school record, and other information that may be requested by the College. The College will typically accept applicants with a total of 60 or above using the formula of the high school grade point average times 10, plus the ACT composite score (or the SAT equivalent of the SAT). Below this level, applicants may be asked to submit a portfolio. The College normally requires applications with a high school GPA of 2.7 or with ACT scores below 23 (or SAT equivalent). In making its decisions, the College may also request a portfolio or other information from applicants. Applicants will be informed of their status by April 15 of each year.

DEADLINES FOR APPLICATION

Deadlines for application to the College of Architecture and Design coincide with those set forth by the University of Tennessee. For full consideration, students must apply by January 15 for the fall semester. Late applications will be reviewed on a space-available basis.

ADVICE TO HIGH SCHOOL STUDENTS

High school students are encouraged to take physics and calculus. Students enrolled in Advanced Placement courses should take the national AP exam. Students are also strongly encouraged to take drawing and/or art courses as a way to develop visual ability. Extensive "drafting", "mechanical drawing" or "architecture" courses based on drafting are not recommended.

TRANSFER STUDENTS

It should be noted that due to the strong sequential character of the curriculum, entry in any semester other than fall may be difficult. A course of summer study is usually offered which students can choose to take to allow transfer students to proceed to the second year course of study for the fall. Transfer students are required to submit a portfolio and to have at least a 2.3 grade point average to be considered. Sophomores and juniors who are interested in applying to the architecture program may want to consider finalizing their bachelor's degree courses of study and applying to the first professional Master of Architecture program in the College. Transfer students should apply by February 15, and should discuss their options with the Director of Student Services.

FINANCIAL ASSISTANCE

As the only accredited architecture program in the State of Tennessee, the Architecture Program is fortunate to have many generous scholarships funded by alumni and by different components of the construction industry. As a result, numerous awards, prizes, scholarships, traveling scholarships, fellowships and internships are available to academically motivated students. Alumni actively give support by participating in activities, by extensive donations to scholarships and enrichment funds, and by developing internship programs for student employment. A full listing of available scholarships is included in this catalog.

This Interior Design Program has a number of generous scholarships funded by alumni and by different components of the construction industry.
SCHOOL OF ARCHITECTURE


Assistant Professors: D. Alley, M. Arch, Texas (Austin); S.M. Wane, M.P.A. Tennessee.

THE STUDY OF ARCHITECTURE

Architecture involves the study and transformation of the built environment, from the scale of furniture to the scale of the city. The goal of an architectural education is to develop a synthetic thought process of critical thinking and creative problem solving. Creative thinkers must address all aspects of the built environment, in its cultural, social, and ethical context.

As a professional discipline, architecture spans both the arts and humanities, as well as a technical understanding of structures and communication, both visual and verbal, are essential. While knowledge and skills must be developed, the School strongly emphasizes a process of critical thinking and creative activity.

PROFESSIONAL ACCREDITATION

Most schools require that an individual intending to become an architect hold an accredited degree. There are two types of degrees that are accredited by the National Architectural Board (AIA) and by the Accrediting Council of Architectural Education, which requires a minimum of five years of study, and (2) the Master of Architecture, which requires a minimum of three years of study following an unrelated bachelor's degree or two years following a related professional bachelor's degree (4+2 programs). Only these professional degrees are structured to educate those who aspire to registration and license as architects. The University of Tennessee offers both the five year Bachelor of Architecture and a three year Master of Architecture for students with an unrelated bachelor's degree.

The four year pre-professional degree, while offered, is not accredited by NAAB. The pre-professional degree is useful for those wishing to found a footing in the field of architecture, as preparation for either continued education in a professional degree program or for employment options in architecturally related fields.

CURRICULUM

The curriculum for the Bachelor of Architecture degree includes a combination of required and elective courses which offer the student both a solid professional program of study and a sound general education. While the majority of courses are designated as required, students may use the available electives and general electives to broaden their education and to respond to their knowledge and interests in areas of personal interest.

All students studying for a Bachelor of Architecture degree will include the following requirements in their course of study. For any additional specialization requirements, the student should refer to the Student Handbook of the School of Architecture and the students' faculty advisor.

ACADEMIC POLICIES

ADVISING

Students should plan their academic in consultation with an assigned faculty advisor. In addition, entering architecture students will be assigned a faculty advisor as a peer advisor. The Director of Student Services and the Coordinator of Enrollment Services are available to answer additional questions related to admissions, advising, and career placement.

All academic policies of the College of Architecture and Design are summarized in the Student Handbook, published each year by the College.

COURSE LOAD

The average course load in any semester is 17 credit hours. The maximum which may be taken by full-time students is 12 hours. The maximum effective load by students without approval of the Dean is 19 hours.

SATISFACTORY/NO CREDIT COURSES

Courses that are a part of the specific requirements of the College cannot be taken on a satisfactory/no credit basis.

Credit hours over and above the specific graduation requirements may be taken in up to eight different courses. A student who desires to take a course S/NC should indicate this at the time of registration. Courses considered "Satisfactory" will count as hours toward graduation but will not be calculated in the student's GPA.

PROGRESSION

Students must maintain an overall 2.3 grade point average by the end of their senior year. In order to maintain "full status" in the program, all degree candidates will be put on "temporary status" for one semester. These students will have one semester to raise their overall GPA to 2.3. If the GPA is not brought up to 2.3, the student will be dropped from the architecture program.

Examinations for academic policies may be made through petition, reviewed by the School Academic Policy Committee. Students may achieve to second year design (271) with satisfactory completion of the first year program (including math) with a grade point average of 2.3. Students may advance to third year design (371) with the completion of...
all first and second year courses. For 371 and all subsequent design courses, students must maintain a design grade point average of 2.3. Students must repeat the previous level design course(s) until the average is raised to 3.3. Students may submit a variety of portfolio work and petition for an exception.

Special Programs

The School of Architecture is committed to providing a variety of meaningful learning opportunities beyond the classroom itself. Lectures, panel discussions, films, symposiums, and exhibits are all important components of a lively academic environment. Within the regular course of study, students have an opportunity to explore diverse aspects of architecture related to urbanism, historic preservation, and community service. Since its founding, the School has always sponsored a foreign studies opportunity.

Exhibits

The Ewing Gallery, in the Art and Architecture Building, hosts numerous exhibits related to art and architecture. Adjacent to the Commons Space is an Exhibition Wall for more in-depth exhibits of students, faculty, and visiting artists and architects. In the Commons itself are more spontaneous exhibits of current student work.

Lectures, Films, and Videos

The Robert B. Church Memorial Lecture Series is an annual event consisting of a former dean of the School. Over the years, the series has included such prominent figures as the School to bring prominent architects to Tennessee. These lectures feature architects, artists, theorists, planners, and historians who discuss their work and ideas. Films and videos also introduce students to a wide range of issues related to architecture, art, urbanism, and culture. Every spring, General Shale Corporation hosts a lecture as part of the Annual Architecture Spring Thing (TAAST), a traditional event organized by the School. The purpose of the student trips is to expose students to major cities with important architectural and design-studios opportunity.

opportunities for foreign study

Students in their fourth year of study may elect to spend one semester studying abroad in a program organized either by the University of Tennessee or by other accredited architecture programs. Since 1988, the School has had a very successful exchange agreement with the University of Krakow in Poland. Studies abroad, arranged to include a full semester's credit for advanced students, include design, history and theory of architecture, and directed independent study.

In cooperation with the Danish International Students Committee, a program has been established in Copenhagen which attracts architecture students from around the world. The University of Tennessee is involved in an exchange agreement with the Royal Melbourne Institute of Architecture and Design. Furthermore, students may participate in summer programs sponsored by other accredited architecture schools. Students will receive appropriate college credit, which may lead to advancement within the program.

Throughout the year, various field trips are organized by the School. The purpose of the field trips is to expose students to major cities with important architectural and design-studios opportunity.

The Professional Participation in the School

As the only accredited architecture program in the state, the School of Architecture is involved in a number of professional associations. Students have the opportunity to participate in a variety of professional activities, and to work and field studies experience. Students are encouraged to seek new educational experiences.

The Professional Participation in the School

The Professional Participation in the School

Students interested in interior design are encouraged to learn about the fundamental differences between licensed Interior Designers and interior decorators. Interior Designers are qualified to deal with complex design challenges involving extensive interior construction and technical considerations related to design issues such as lighting. Interior Designers are able to handle means and methods, including fire, electricity, structure, occupancy and materials. Interior Designers work with architects, interior decorators, and manufacturers to produce an interior design for a space using aesthetically pleasing elements of mutual interest. Professional accreditation.

Most schools require that an individual intending to become a licensed Interior Designer hold a professionally accredited degree. The University of Tennessee offers a four-year Bachelor of Science in Interior Design. This is a professionally accredited (FIDER) accredited interior design degree.

Curriculum

The interior design curriculum is a rigorous course of study which combines technical courses with art, humanities, and a wide choice of electives. Through course work and field study experiences, students develop specialized problem solving skills and critical thinking skills, gaining experience in the design of interior architectural environments. Students apply the use of lighting, color, mechanical, and human factors as they design spaces for both residential and commercial settings.
### Hours Credit

<table>
<thead>
<tr>
<th>First Year</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Architecture 101, 121, 122</td>
<td>7</td>
</tr>
<tr>
<td>Interior Design 141, 171</td>
<td>5</td>
</tr>
<tr>
<td>English 101, 102</td>
<td>3</td>
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<tr>
<td>Social Science Elective</td>
<td>3</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Second Year</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>Interior Design 271, 202, 203, 261, 260</td>
<td>18</td>
</tr>
<tr>
<td>Interior Design 272</td>
<td>7</td>
</tr>
<tr>
<td>Physics 101, 102, 135, 137, or 161</td>
<td>6-7</td>
</tr>
<tr>
<td>Social Science Elective</td>
<td>3</td>
</tr>
<tr>
<td>Elective (Arts)</td>
<td>3</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Summer (ID 420)</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interior Design 430, 471, 472, 480</td>
<td>17</td>
</tr>
<tr>
<td>History Elective</td>
<td>3</td>
</tr>
<tr>
<td>Elective</td>
<td>5</td>
</tr>
<tr>
<td>Elective (Arts)</td>
<td>3</td>
</tr>
<tr>
<td>Elective (Professional Elective)</td>
<td>3</td>
</tr>
</tbody>
</table>

| Total: 125-130 hours |

### PROGRESSION

Upon admission to The University of Tennessee, Knoxville, and the College, students may begin the ID major. Progression into third year occurs after completion of ID 272.

For progression into third year, students must meet the following criteria:

1. Cumulative grade point average of 2.3 or greater.
2. Cumulative grade point average in the major of 3.0 or greater in the following ID courses: 141, 171, 202, 261, 262, with no grade below a "C".
3. Portfolio Review accepted by faculty.
4. Successful interview following completion of ID 272.

For retention, students must meet the following criteria:

1. Before enrolling in any ID course, a grade of "C" or better must be made in each prerequisite required ID course.
2. Cumulative grade point average of 2.3 or greater.
3. Grade of "F" must be removed before registration for next ID course.

For graduation from the Interior Design program, students must meet the following criteria:

1. Grade of "C" or better in all ID courses.

### SPECIAL PROGRAMS

**REQUIRED SUMMER INTERNSHIP**

All interior design students are required to have a professionally based summer internship. The faculty will help students find appropriate placement, as well as monitor the student’s progress in the internship.

### PROFESSIONAL COMMUNITY'S INVOLVEMENT

As the oldest accredited interior design program in the state and the only interior design program in the state affiliated with a professionally accredited architecture school, the Interior Design Program tries to maintain a close relationship with the interior design community of the city, state, and region. Professionals regularly come to the school to attend and respond to student presentations, to conduct workshops, to participate in school events, and to interview graduating students.
College of Arts and Sciences

The College of Arts and Sciences is home to a wide array of academic disciplines and inter-disciplinary programs. Such diverse areas of study as Computer Science and Classics, Anthropology, Women's Studies and Latin American Studies are represented among the twenty-six departments and twelve special programs that compose the College.

The faculty of the College are committed to providing both comprehensive general education and concentrated study in a particular field to all students enrolled at The University of Tennessee, Knoxville. General education offers opportunities to master the basic learning skills necessary to understand a specialized area of study and is essential for the continuation of learning throughout life.

The faculty of the College are also committed to educating students in a discipline. Education with a disciplinary focus prepares students for further study at the graduate level and for careers in business, public service, or other endeavors. As our world becomes more specialized and more changeable, the need to find the right balance between general and specialized knowledge becomes essential.

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

The great universities of the world are so labeled because their faculties have earned the reputation of being renowned scholars. The University of Tennessee, Knoxville has earned such a reputation because of the quality of the research and creative activity of its faculty. The student who studies in the College of Arts and Sciences has joined a community of scholars.

To study with such a faculty is to enter into a rich intellectual heritage, in which may be taken by Arts and Sciences students at the junior and senior levels.

Satisfactory/No Credit

Courses numbered at the 100 and 200 level are considered lower division and are normally taken by students in the freshman and sophomore years. Courses numbered 300 and above are upper division and are designed for students at the junior and senior levels.

Lower Division—Upper Division

Courses numbered above are upper division and are designed for students as those who register for a minimum of 12 hours. The maximum number of hours which may be taken by Arts and Sciences students is 18, exclusive of courses offered only S/NC basis, and students may elect to take others on this basis, except in areas where the option is specifically prohibited. Such courses, if successfully completed, will count as hours for graduation although neither S nor NC grades will be calculated in the student's grade point average. Satisfactory is defined as C or better work on the traditional grading scale. No Credit is defined as less than C. The following regulations apply:

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

2. The maximum number of S/NC elective hours which may be counted toward graduation is 20, exclusive of courses offered only S/NC basis, physical education courses, and/or satisfactory hours earned by examination, military service, etc.

3. A student who desires to take a course in the College who is not a major or minor prerequisite or corequisite is prohibited. (2) The maximum number of S/NC elective hours which may be counted toward graduation is 20, exclusive of courses offered only S/NC basis, physical education courses, and/or satisfactory hours earned by examination, military service, etc.

4. A transfer student who has more than 80 credit hours earned by examination, military service, etc.
The nature of this work as well as credit for it must be negotiated by students prior to departure. Credit will be awarded only after completion of all appropriate requirements and may vary from 1-15 hours in any one department.

DEGREES OFFERED

(1) BACHELOR OF ARTS

This Bachelor of Arts degree represents the attainment of a broad knowledge of the arts and sciences as well as a comprehensive understanding of one or more areas of special interest. Four programs leading to this degree are open to students.

Basic Program — The Basic Program is designed for students who wish to participate in the cooperative 3+1 curriculum with departments in the arts and sciences. Students aiming for the B.A. degree must complete a total of 124 credit hours. Credit will be awarded only after completion of all appropriate requirements and may vary from 1-15 hours in any one department.

Pre-College Program — The Pre-College Program is available to students who wish to participate in the cooperative 3+1 curriculum with departments in the arts and sciences. Students aiming for the B.A. degree must complete a total of 124 credit hours. Credit will be awarded only after completion of all appropriate requirements and may vary from 1-15 hours in any one department.

INDEPENDENT STUDY

For students who wish to do such independent study in a specific major. The number of hours which may be applied toward graduation varies from 1-15 hours. Up to 21 credit hours may vary from 1-15 hours. Up to 21 credit hours may be applied toward graduation. Independent study is available to students in the college. One avenue is through group programs arranged with other academic institutions in which the student does well and, motivated by intellectual curiosity, to explore topics in a manner in which performance may be somewhat less certain than in formal classroom situations, the college provides for students the independent study option. Note: Students planning to seek admission to graduate or professional schools (especially in the health sciences) should discuss with their advisors possible limitations on enrollment in the S/NC option before registering for courses on this basis.

OFF-CAMPUS STUDY

Recognizing that learning is not restricted to formal classroom situations, the college provides for students to earn credit toward graduation for approved off-campus study. Each study may be undertaken only with prior approval of the faculty member and the department concerned. It may include certain kinds of work experiences, community involvements, working in political campaigns, etc. Credit per semester will vary from 1-15 hours. Up to 21 credit hours may be applied toward a degree in this college, although individual departments may limit the number of hours which may be applied toward a specific major.

STUDY ABROAD AND FOREIGN STUDY COURSES

Several opportunities for study abroad are available to students in the college. One avenue is through group programs arranged and supervised by departments of the college on a full-semester or summer term basis. A second is through group programs arranged and supervised by other academic institutions in which UT Knoxville students with approval may enroll. In addition, students may apply to the College Scholars Program and the College of Arts and Sciences program take three years of study. The Bachelor of Science degree, offered by the Department of Chemistry, is designed for students who wish to pursue a more scientifically oriented program of study. These programs leading to this degree are offered.

Basic Program — The Basic Program for the B.S. degree contains basic skills and distribution requirements similar to the Basic Program for the B.A. as well as a unique set of requirements for the major including additional study in mathematics, statistics, or laboratory sciences.

Pre-College Program — The Pre-College Program is offered to students who wish to participate in the cooperative 3+1 curriculum with departments in the arts and sciences. Students aiming for the B.A. degree must complete a total of 124 credit hours. Credit will be awarded only after completion of all appropriate requirements and may vary from 1-15 hours in any one department.

BACHELOR OF ARTS

Purpose: To gain and improve the skills necessary to write English. English Composition and Rhetoric and Writing. If the sophomore English composition course graded Satisfactory/No Credit in any one area, the major, basic skills or distribution requirements.

Pre-College: To gain and improve the skills necessary to write English. English Composition and Rhetoric and Writing. If the sophomore English composition course graded Satisfactory/No Credit in any one area, the major, basic skills or distribution requirements.

PROGRAMS LEADING TO BACHELOR OF ARTS AND BACHELOR OF SCIENCE DEGREES

The Bachelor of Arts and the Bachelor of Science degrees share the same program of Basic Skills and Distribution Requirements (also noted otherwise).

 BASIC SKILLS

English Composition Purposes: 1. To gain and improve the skills necessary to write English. 
2. To improve reading skills.
3. To enhance critical and analytical skills.
4. To apply key issues and texts.

programs

Students may meet this requirement in one of the following ways. (5-6 credits)

1. By earning a grade of A or B in English Composition.

2. By receiving a grade of C or better in a course that satisfies the requirement.

3. By completing one of the following courses:

(a) English 102 (English Composition). 
(b) English 118 (Honors: English Composition) and English 119 (Honors: English Composition). 
(c) English 201 or 202 (Composition for Non-Native Speakers of English).

STUDENT ADMISSIONS

Note: See footnote on next page.

See footnote on next page.
2. By earning a score of 4 or 5 on the College Board Advanced Placement Test in English:

- For Japanese: 212-213 Intermediate Modern Japanese I, II
- For Korean: 212-213 Intermediate Modern Korean I, II
- For Russian: 212-213 Intermediate Modern Russian I, II
- For German: 212-213 Intermediate Modern German I, II
- For Italian: 212-213 Intermediate Modern Italian I, II
- For French: 212-213 Intermediate Modern French I, II
- For Mandarin Chinese: 251-252 Intermediate Modern Chinese I, II
- For Vietnamese: 241-242 Intermediate Modern Vietnamese I, II
- For Greek (Classics): 261 Intermediate Modern Greek
- For Latin (Classics): 251 Intermediate Latin
- For Hebrew: 261 Intermediate Modern Hebrew I, II
- For Classical Greek: 261 Intermediate Modern Greek
- For Classical Latin: 261 Intermediate Modern Latin
- For Classical Greek

3. To acquire an appreciation for the richness of the past as a statement of human capability, aspiration, and achievement.

4. To develop a historical perspective on a civilization that differs from theirs as well as the foundation for studying a one's own.

5. To develop the ability to explain continuity and change among historical events and movements, and to be able to assess them critically.

6. To develop an appreciation of history and the place of history in a civilization.

7. To further develop writing skills.

Requirement: Completion of a six-credit, two-course, writing emphasis, lower-division sequence in a United States History (6 credits). All students must fulfill this requirement with a United States History sequence. The following sequences satisfy this requirement:

- African and African American Studies: 202-203 History of Africa


b. Natural Science

1. To know and understand the basic vocabulary of at least one scientific discipline.

2. To understand the phenomenon in the language.

3. To develop skills in reading the basic vocabulary of at least one scientific discipline.

4. To develop proficiency in reading the basic vocabulary of at least one scientific discipline.

5. To be able to the tools (i.e., mathematics, laboratory equipment, computers, etc.) of the scientific discipline.

6. To be able to the tools (i.e., mathematics, laboratory equipment, computers, etc.) of the scientific discipline.

7. To be able to the tools (i.e., mathematics, laboratory equipment, computers, etc.) of the scientific discipline.

8. To be able to the tools (i.e., mathematics, laboratory equipment, computers, etc.) of the scientific discipline.
Writing Emphasis Courses require at least 12 credits from at least two departments or programmatic areas indicated below and 3 credits from one of the following: 342 Business Ethics, 344 Professional Responsibility, 345 Medical Ethics, 347 War and Morality, 390 The Concept of Woman (Same as Women's Studies 382), 385 Philosophy of Feminism (Same as Women's Studies 382).

The following courses are designated philosophical perspectives packages, Classics 201 Introduction to Classical Civilizations, 202 Early Greek Mythology, 202 Classical Greek and Roman Mythology, Philosophy 110 Human Condition: Value and Reality, 111 The Human Condition: Knowledge and Reality, 242 Ethics, one of the following: 342 Business Ethics, 344 Professional Responsibility, 345 Medical Ethics, 347 War and Morality, 390 The Concept of Woman (Same as Women's Studies 382), 385 Philosophy of Feminism (Same as Women's Studies 382).


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ple a minimum of 6 credits in two of the three areas indicated below (total 6 credits for the requirement). Writing Emphasis Courses:
- a. United States Studies Courses:
- b. Foreign Studies Courses:
- c. Coplex Experience Course.

a. United States Studies Courses:
- a. To develop an appreciation and knowl-
edge of United States culture and civilization.
- b. To provide a basis from which to com-
pare foreign cultures and civilizations.
- c. To develop a critical understanding of the
sources of values and traditions that constitute
contemporary United States civilization.
- d. To develop an understanding of the
relationship between individual and societal
behavior.
- e. To further develop writing skills.
The following courses are designated
United States Studies courses:
- African-American Studies 364
- Comparative Issues in African-American
Education; 435 History and Philosophy of
American Education; 436 Black Communities
in the United States; 463 African-American
Women in American Society (Same as Women's Studies 463);
American Studies 316 Introduction to
American Studies.
- Anthropology 310 North American Indians;
312 Appalachian Culture; 315 African-Ameri-
can Anthropology (Same as African and Afri-
can-American Studies 315); 320 American
Cultures; 321 Indians of the Northwest North America;
360 North American Prehistory.
- Art History 483 History of American Sculpt;
471 History of North American Art, 1472
History of 20th century American Art; 473 19th
Century American Painting.
- Economics 321 Macroeconomic Fluctua-
tions; 435 Industrial Organization Analysis;
472 Economics of Resources and Environ-
mental Policy; 474 Public Finance: Optimal
Government Functions and Expenditure
Analysis; 475 Public Policy, Fiscal Policy and
International Relations;
- English 311 English in the Fictions of Utopia;
339 American Literature (Same as Women's Studies 339); 333 Black
American Literature and Aesthetics; 294 Film and
American Culture (Same as American Studies 344).
- Geography 322 Geography of African Peoples;
Geography 326 Regional Geography of the United
States and Canada; 363 Geography of the American South;
365 Geography of Appalachian;
369 Geography of American Popular Culture (Same as American Studies 369);
371 Geography of European Popular Culture;
375 Geography of the United States;
379 Geography of Latin America (Same as Latin American Studies 379);
383 Geography of Mexico (Same as Latin American Studies 383);
384 Geography of the Caribbean (Same as American Studies 384);
389 Geography of Africa (Same as African-American Studies 389);
391 History of Africa (Same as African-American Studies 391);
394 History of African-American Societies.
- Anthropology 314 Peoples and Cultures of Africa;
318 Anthropology of African Popular Culture (Same as African Studies 318);
423 African Art History; 445 African Art and Music
History; 448 Cultural Anthropology;
455 Society and Law (Same as Women's Studies 455);
472 Modern and Contemporary South Asian.

Psychology 434 Psychology and Gender
(Same as Women's Studies 434).
- Religious Studies 351 Introduction to United
States Religious History in United States;
355 Religion and Culture in the United States.
- Sociology 310 American Sociology; 340 Class
Structures; 340 Race and Ethnicity (Same as Afri-
can-American Studies 340); 455 Society and Law;
Speech Communication 455 Propaganda;
466 Rhetoric of the Women's Rights Movement
1300 (Same as Women's Studies 466);
469 Freedom of Speech; 476 Rhetoric of the
Contemporary Feminist Movement.
- Theatre 313 History of the American Theatre;
315 Theatre and American Women; 316 Biography
and American Culture (Same as American Studies 343);
425 Political Science 311 Urban Politics;
455 Society and Law (Same as Women's Studies 455).

b. Foreign Studies Courses:
- a. To develop an appreciation and knowl-
dge of a foreign culture and civilization.
- b. To provide a basis from which a student can analyze her or his own culture.
- c. To develop a critical understanding of the
sources of values and traditions that constitute
a foreign culture and civilization.
- d. To develop an understanding of the
relationship between individual and societal
behavior in a highly interdependent world system.
- e. To further develop writing skills.
The following courses are designated
Foreign Studies courses:
- NOTE: If Western Civilization (history 241-242) or Medieval Civilization (Medieval Studies 201-202) is taken to satisfy the non-United States History requirement under Divisional Distribution, the European concentration may not be elected here. This requirement may also be satisfied by Literature courses in Arabic, Chinese, Hebrew, Japanese, Latin, Persian, Russian, Sanskrit, or Spanish. (Literature courses in English translation will not meet this requirement.)

- Anthropology 314 Peoples and Cultures of Africa;
318 Anthropology of African Popular Culture (Same as African Studies 318);
423 African Art History; 445 African Art and Music
History; 448 Cultural Anthropology;
455 Society and Law (Same as Women's Studies 455);
472 Modern and Contemporary South Asian.

Asia
- Art History 411 Art of Indian Asia; Art
History 415 Chinese Art; Art History 416
Japanese Art;
- Economics 424 Political Economy of World
Development (when topic is Asian).
- History 362-363 History of East Asia; 364,
History of China; 365 History of Japan;
- Political Science 454 Government and
Politics of China and Japan;

Latin American Studies
- Anthropology 310 Peoples and Cultures of Western
Europe (Same as Latin American Studies 310);
- 311 Caribbean Societies and Cultures (Same as Latin American Studies 311 and Latin American Studies 319);
- 320 American Societies.
- Economics 424 Political Economy of World
Development (when topic is Latin American);
- History 362-363 History of South America;
364 History of Latin America (Same as Latin American Studies 364);
365 History of South America (Same as Latin American Studies 365);
366 History of Latin America (Same as Latin American Studies 366-367);
371-372 History of South America (Same as Latin American Studies 371-372); 420 Hispanic Art; 421 Cuban Revolution in Historical
Perspective; 462 History of Mexico;
475 History of the Hispanic World, 476
Studies in Latin American History.
Problems.

Advanced Topics in Biochemistry

Senior Seminar in Communication Sciences

Research Seminar in African-American Studies

proved by the department. It is recommended

Capstone Courses:

of their major.

- To enhance students' mastery of prose

- To increase significantly an understand-

- Women's Studies 360 Women in Cross-

- Sociology 442 Comparative Patterns of

- Economics 323 Economic Development (Third

- Religious Studies 311 Eastern Religions and Western

- Sociology 442 Comparative Patterns of Poverty and Development, 446 The Modern World

- Women's Studies 360 Women in Cross-Cultural Perspective

c. Capstone Experiences

Purpose:

- To offer an intensive integrative experience which will substantially broaden the student's comprehension of the major.

- To examine a major field of study from a value-oriented perspective.

- To enhance students' mastery of prose communication within the professional context of a major.

The following courses are designated Capstone Experiences:

NOTE: Consult with major department for additional approved courses. Course credits must be taken in the major area unless otherwise approved by the department. It is recommended that this option be satisfied by the senior year.


Bacteriology and Cell Biology 409 Perspectives in BCBM; 420 Advanced Biochemistry

Biology 471 Senior Seminar

College of Science 411 Senior Thesis 1; 413 Senior Thesis II

Economics 460 Evolutionary Biology 489 Perspectives in Ecology and Evolutionary Biology, Economics 499 Analysis of Economic Problems,

English 499, Senior Seminar

French 440 Capstone Experience in French Geography 499 Prospective in Geography, must be 440 Field Geology; 475 Physical and Chemical Systems of the Earth

History 420 Colloquium in History Human Services 420 Working Within the System

Mathematics 411 Mathematical Modeling

History of Mathematics

Microbiology 495 Senior Seminar

Music History 460 Musica Aesthetica, include 441 Background of Physic 492 Forefront of Physics

Psychology 490 Health Psychology

Senior Seminar: Great Ideas in Psychology

Spanish 490 Capstone Colloquium in Spanish

Speech Communication 499 Prospective in Speech Communication, Sociology, Spanish

Urban Studies 460 Senior Seminar

AREAS OF CONCENTRATION

(1) Required Major

Requirements for specific majors vary by program and are discussed under each department or program. A major consists of at least 24-45 credit hours in courses numbered 200 or above as specified by the department or program. Up to 6 credit hours taken in the major may also be used to satisfy basic skills and distribution requirements wherever listed. In addition, students majoring in or in English may use a 100-level literature course in the English Department to satisfy both the second half of their Basic Skills English Composition requirement and the final quarter of their major. Students transferring from other institutions, must complete at least 6 credits hours at UT Knoxville in major area on this campus. Students may elect any major courses as detailed in any department or program. As of a major, students may develop an Individualized Program (described below). Majors available in the Basic Program include a B.A. or B.S. in: Anthropology, Art History, Art History, Biological Sciences, Chemistry, Classical, Computer Science, English, Foreign, Geography, German, History, Interdisciplinary Studies, Italian, Music, Music, Philosophy, Physics, Political Science, Psychology, Religious Studies, Russian, Sociology, Speech, Speech Pathology, Statistics, and Theatre.

(2) Optional Multiple Majors

After the general requirements of basic skills, distribution and a major have been satisfied, additional majors may be recorded on the transcript without regard to course overlap among majors or in addition to the additional majors and Basic Skills and Distribution requirements. Students developing multiple majors must declare this intent at the time of application for graduation. Once a student has graduated, the establishment of additional majors becomes subject to University second degree requirements.

Students who satisfy the requirements of a degree in a college other than Arts and Sciences may also major in the College of Arts and Sciences with the approval of the degree granting unit. These students must be enrolled only in courses at the 100 level or above in College of Arts and Sciences majors. This requirement is in addition to the course requirements of a major.

(3) Optional Minors

At the time of application for graduation, single or multiple minors may be recorded on the student's record with regard to course overlap among minors and major or among majors and Basic Skills and Distribution requirements. Students who satisfy the requirements of a minor in a college other than Arts and Sciences may also major inside the College of Arts and Sciences with the approval of the department head in the College of Arts and Sciences. The minor requirement for a minor is 15 credit hours in courses numbered 200 or above. Minors are available in most departments or programs in which majors are offered, and also in Portuguese and Cinema Studies. Minors may be designated in other colleges or schools of the University, but must be approved by the department head in which the minor is proposed and by the Associate Dean for Student Affairs for Arts and Sciences. At least 6 of the 15 credit hours required for a minor must be completed at The University of Tennessee, Knoxville.

Business Minor for Non-Business Students: Requirements include the following courses: Accounting 201-02, Economics 301, Statistics 201, Finance 301, Management 301, Marketing 301, and one additional 300 level or above business elective. All upper division (300 level or above) courses must be taken at UT, Knoxville. Students are responsible for reviewing all prerequisites for upper division courses to be completed in a particular concentration.

(4) Supplementary Elective Courses

At least one-fourth of each student's curriculum in the Basic Program will be made up of courses selected according to the individual's interests and needs and the work being done in the major and Basic Skills and Distribution requirements. This development of the student's educational experience in the University curricula may be rounded out and enriched by Elective Courses (described below) so that it will truly enhance the student's total educational experience and achievement of well thought-out educational objectives.

The Basic Program described above will prepare the student for a professional career within their field of study or for graduate study. However, to share the educational experience may be rounded out and enriched by Elective Courses (described below) so that it will truly enhance the student's total educational experience and achievement of well thought-out educational objectives.

The Basic Program described above will prepare the student for a professional career within their field of study or for graduate study. However, to share the educational experience may be rounded out and enriched by Elective Courses (described below) so that it will truly enhance the student's total educational experience and achievement of well thought-out educational objectives.

INDIVIDUALIZED PROGRAM

The Basic Program described above will prepare the student for a professional career within their field of study or for graduate study. However, to share the educational experience may be rounded out and enriched by Elective Courses (described below) so that it will truly enhance the student's total educational experience and achievement of well thought-out educational objectives.
Although the quantitative aspect of the area of concentration is the same as for the major in the Basic Program (i.e., a minimum of 24 hours in courses numbered above 100), there is no restriction in principle on the choice of courses of which it is composed. The student may design a program in consultation with an advisor and submit it for consideration to the Committee on Individualized Program. The proposed courses of study must have some clear career purpose, usually implemented through intensive work in two or three departments; an unscattered scattering of courses will not be approved. For further information contact Arts and Sciences Advising Services.

**COLLEGE SCHOLARS PROGRAM**

A limited number of freshmen, entering transfer students with fewer than 42 credit hours, and resident students with fewer than 62 credit hours are invited each year to enter this distinguished honors curriculum. Selection is based on previous academic record, test scores, recommendations, a written essay, and a personal interview. Admission is provisional for two semesters; continuation depends upon maintenance of a satisfactory record (normally 3.25 or above) and evidence of ongoing motivation and interest.

The College Scholars Program affords the highest degree of freedom to the student in developing a meaningful curriculum. Each program is worked out individually with a special advisor (often) who under ordinary circumstances continues to advise the student throughout the program. Before the student enrolls in Arts and Sciences, she or he determines what kinds of course work and/or other learning experiences are required for the student's objectives, while at the same time achieving the kind of liberal education the college believes is essential for every student. In the final two years of the program, the students will be heavily involved in independent study or research required of all College Scholars. When College Scholars complete their requirements for additional majors or minors, these will be recorded on the Scholars' transcripts. Scholarships for additional majors or minors, these will be heavily involved in independent study or research required of all College Scholars. When College Scholars complete their requirements for additional majors or minors, these will be recorded on the Scholars' transcripts.

Further information and applications may be obtained from Arts and Sciences Advising Services.

**PRE-PROFESSIONAL PROGRAMS**

**PRE-DENTAL PROGRAM**

The college offers both a three-year program leading to a Bachelor of Science degree and a four-year program leading to a Bachelor of Arts degree in the College of Arts and Sciences for students preparing for the study of dentistry. Both programs are based upon the curriculum outlined below. In the three-year program the student must complete at least 93 credit hours while enrolled in the college, and the B.S. degree is granted upon satisfactory completion of 124 or more credit hours while enrolled in the college, including a major of 34 or more hours in addition to the courses listed below. The requirement for a major is waived for those completing their fourth year at UT-Memphis.

Students in the three-year program must complete the last 60 hours of credit in residence at The University of Tennessee, Knoxville, before entering UT-Memphis.

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

**PRE-MEDICAL PROGRAM**

The college offers a joint B.A./M.B.A. program with the College of Business Administration. Within their first three years, students will fulfill all general education requirements for the B.A. degree, both upper- and lower-division, along with a minor offered by one of the Arts and Sciences departments. They may use one Economics course only if fulfilled distribution requirements, and they are required to take a year of calculus as the only prerequisite to the M.B.A. Students interested in the Dual B.A./M.B.A. program are counseled initially in the Arts and Sciences Advising Services regarding admission standards and Arts and Sciences requirements. At the end of their second year, they will have a conference with the Associate Dean for Graduate Business Programs and be advised of their prospects for formal admission. If the student is a likely candidate, he/she will be advised to take the G.M.A.T. in October of the third year and to submit an application to the M.B.A. program. The admission decision will be made by January of the third year. Upon admission, students will begin M.B.A. coursework in the fourth year and be awarded a B.A. degree at the end of that year. Upon successful completion of the fifth year, the student will receive the M.B.A. degree.

**PRE-FACULTY PROGRAM**

The college offers a four-year program leading to a B.A. degree and a four-year program leading to a Bachelor of Arts degree in the College of Arts and Sciences for students preparing for the study of medical sciences. Both programs are based upon the curriculum outlined below. In the three-year program the student must complete at least 93 credit hours while enrolled in the college, and the B.S. degree is granted upon satisfactory completion of 124 or more credit hours while enrolled in the college, including a major of 34 or more hours in addition to the courses listed below. The requirement for a major is waived for those completing their fourth year at UT-Memphis. Students in the three-year program must complete the last 60 hours of credit in residence at The University of Tennessee, Knoxville, before entering UT-Memphis.

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

The Nuclear Medicine Technology Curriculum requires a minimum of 94 hours credit, including the College's basic skills and distribution requirements, prior to application for admission to a final year of study at The University of Tennessee Medical Center, Knoxville. Students who complete the Nuclear Medicine Technology program at UTMCK receive the B.S. degree in Professional Programs with a concentration in Nuclear Medicine Technology from the College of Arts and Sciences. VOTE: Admission to the Nuclear Medicine Technology Program at UTMCK is at the discretion of the admissions committee of that department; successful completion of the three-year curriculum noted below does not assure admission to the program.

Fall Semester

English 101-102 or equivalent
Biology 130-140
Chemistry 120-130
Mathematics
Electives

Spring Semester

Biology 360, 361, 362
Physics 211-222
Divisional Distribution (D) Humanities Part I
Divisional Distribution (A) Non-U.S. History
Basic Skills (B) Foreign Language (Intermediate Level Sequence)

Total: 124 hours

Pre-pharmacy programs

With a four-year program leading to a B.S. degree, the four-year program leading to either a B.A. or B.S. degree from The University of Tennessee, Knoxville, as well as to the professional degree in pharmacy from UTM, are based upon the curriculum outlined below. In the three-year program, the student must complete at least 93 credit hours while enrolled in the College of Arts and Sciences, and the B.S. degree is granted upon completion of at least 142 hour of college credit while enrolled in the College of Arts and Sciences, and the B.S. degree is granted upon completion of at least 142 hours of college credit while enrolled in the College of Arts and Sciences. The three-year program leading to a B.S. degree and the four-year program leading to either a B.A. or B.S. degree from The University of Tennessee, Knoxville, as well as to the professional degree in pharmacy from UTM, are based upon the curriculum outlined below. 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College of Arts and Sciences

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College of Arts and Sciences
Pre-Teaching Science and Mathematics Options: Bachelor of Science

(1) Environmental Science

This concentration should develop the knowledge and understanding of the environmental sciences appropriate to the needs of the teacher in grades K-8. The prerequisites courses assure that the student has an appropriate background in the biological, chemical, and physical sciences to proceed to upper division courses in either of the chosen areas of concentration. The two tracks beyond the core courses the two major emphases of the ecological sciences—the biological and the physical-chemical. The student choosing to emphasize the biological track should be prepared to teach courses in biological science through the middle school years. The student choosing to emphasize the physical-chemical track should be prepared to teach general and earth science through the middle school years.

Prerequisite courses: NB: One mathematics and one science sequence or two science sequences (14-16 hours) may be used to satisfy general education requirements.

1. Mathematics 115, 123, 3(3,3) or Mathematics 125, 125, 3(3,3) or Mathematics 141-142, 4(4,4) or Mathematics 151-152, 3(3,3)
2. Chemistry 120, 130, 4(4)
3. Biology 130, 140, 4(4) or Botany 110-120, 4(4)
4. Geology 101-102, 4(4) or Geography 131-132, 4(4) or Physics 141-142, 3(3)

Core courses (11 hours):
1. Biology 240: General Genetics (4)
2. Biology 250: General Ecology (4)
3. Geology 300: Geology of Natural Parks (3)

Beyond the core curriculum, the student must complete 18 hours from the following:
- 12 credits from the A area
- 6 credits from the B area

A. Biological Sciences Track

Biology 306: Socio-Economic Impact of Plants (3); Botany 310: Plant Morphology (4); Botany 320: Field Botany (3); Botany 403: Plant Evolution (3); Botany 431: Plant Ecology (3); Ecology and Evolutionary Biology 306: Comparative Animal Behavior and Lab (3); Ecology and Evolutionary Biology 402: Pradcticum in Ecology and Evolutionary Biology (3); Ecology and Evolutionary Biology 403: Comparative Animal Behavior (3); Ecology and Evolutionary Biology 380: General Entomology (3); Ecology and Evolutionary Biology 402: Pradcticum in Ecology and Evolutionary Biology (3); Ecology and Evolutionary Biology 450: Comparative Animal Behavior and Lab (3); Ecology and Evolutionary Biology 470: Aquatic Ecology (3); Ecology and Evolutionary Biology 474: Limnology (3); Ecology and Evolutionary Biology 475: Field Ornithology (3); Ecology and Evolutionary Biology 484: Conservation Biology (3); Forestry, Wildlands and Fisheries (311): dendrology and Silvics of North American Trees (3); Geography 432: Biogeochemistry (4); Geography 439: Plant Geography of North America (3); Geology 320: Paleobotany (3); Geology 420: Paleontology (3); Geology 424: Paleoclimatology (4); Geography 319: Introducion to Microbiolgy Lab (3); Geography 470: Microbial Ecology (3).

Courses have prerequisite other than courses prerequisite to the major. See catalog for details.

B. Physical-Chemical Sciences Track

Biochemistry and Cellular Molecular Biology 310: Physiological Chemistry (4); Chemistry 300-390; 390-390: Organic Chemistry and Lab 3(3,3); Ecology and Evolutionary Biology 446: Introduction to Oceanography (4); Geography 334: Meteorology (3); Geography 433: Water Surface System (3); Geography 434: Climatology (3); Geography 436: Water Resources (4); Geology 450: Process Geomorphology (3); Geology 455: Basic Environmental Geology; Geology 465: Principles of Geology (3).

Courses have prerequisite other than courses prerequisite to the major. See catalog for details.

Total (core + track concentration) = 29 hours

(2) Science

This concentration should develop the knowledge and understanding of the sciences appropriate to the needs of the teacher in grades K-8. The core curriculum requires that the student take courses in both biologiscience (anthropology, biochemistry and cellular and molecular biology, biochemistry, ecology and evolutionary biology, microbiology, paleontology) and in physical science (chemistry, geography, geology, physics) is designed to fulfill the state competencies for (general) Science and Physical Science and I B. Biology.

Prerequisite courses: NB: One mathematics and one science sequence or two science sequences (14-16 hours) may be used to satisfy general education requirements.

1. Mathematics 115, 123, 3(3,3) or Mathematics 125, 125, 3(3,3) or Mathematics 141-142, 4(4,4) or Mathematics 151-152, 3(3,3)
2. Chemistry 120, 130, 4(4)
3. Biology 130, 140, 4(4) or Botany 110-120, 4(4)
4. One sequence from among the following: A: Anthropology 490: Physical Anthropology (4); Anthropology 491: Biological Anthropology (3) or Biology 131-132, 4(4) or Geology 101-102, 4(4) or Geography 131-132, 4(4) or Physics 221; B: Biology 130, 140, 4(4) or Botany 110-120, 4(4).

A. Biological Sciences

1. Biology 240: General Genetics (4)
2. Biology 250: General Ecology (4)
3. Plant Geography of North America (3); Genetics 320: Paleobotany (3); Genetics 420: Paleontology (3); Genetics 424: Paleoclimatology (4); Geography 319: Introducion to Microbiolgy Lab (3); Geography 470: Microbial Ecology (3).

Courses have prerequisite other than courses prerequisite to the major. See catalog for details.
Mathematics 115: Statistical Reasoning (3)
Mathematics 130: Precalculus I (4)
Mathematics 141-142: Calculus I and II (4-4)
Mathematics 241: Calculus III (3)
Mathematics 251: Linear Algebra (3)
Mathematics 300: Introduction to Abstract Mathematics (3)
Mathematics 320: Probability (3)
Mathematics 400: History of Mathematics (3)
Mathematics 410: Math and Microcomputing (3)
Geometry (3)
Total: 36 hours
(4) Mathematics and Science
This concentration should develop the knowledge and understanding of the natural sciences and mathematics appropriate to the needs of the teacher in grades K-8 and is intended to provide the student with the minimal competencies to teach in either or both discipline areas. Of necessity, depth in any particular discipline is secondary to covering breadth from an array of natural science and mathematics areas. Courses included in the major have selected to maximize the number of upper division courses that can be taken without prerequisites.

Prerequisite courses: (32 hours)
1. Mathematics 141-142 (4-4)
2. Chemistry 130, 150 (4,4)
3. Biology 130, 140 (4,4) or Botany 110-120 (4,4)
4. One sequence from among the following: Astronomy 161-162 (4,4) or Geophysics 131-132 (4,4) or Geography 101-102 (4,4) or Physics 211-212 (4,4)
5. NB: One mathematics and one science sequence or two science sequences (14-16 hours) may be used to satisfy general education requirements.

Core courses: (17 hours)
1. Biology 240: General Genetics (4)
2. Biology 250: General Ecology (4) or Biochemistry and Cellular and Molecular Biology 240: Human Physiology (3) and Ecology and Evolutionary Biology 240: Human Anatomy (3)
3. Choose two of the following three courses: Geology 201: Biogeochemistry, Present, Past and Future (3); Geology 202: Earth as an Ecosystem: Modern Problems and Solutions (3); Geology 300: Geology of Earth and Minerals (3).
4. Mathematics 300: Introduction to Abstract Mathematics (3)
5. Beyond the core curriculum, the student must take two grades from each of these three areas:
A. "Biological Sciences" (5-6 hours) +Environmental Biology 490: Biological Diversity (3)
B. "Psychology" (3 hours) +Psychology 410: Sensory Processes and Perception (3)
C. "Physical Sciences" (6-8 hours) +Chemistry 350-360-369: Organic Chemistry and Laboratory (8)
Science-Medical Technology Curriculum: Students who complete the Science-Medical Technology Curriculum receive the B.S. degree with a major in medical technology from the College of Arts and Sciences. The curriculum requires a minimum of 94 hours of credit which includes the Basic Skills and Distribution Requirements of the College prior to application for admission to a first year of study at the University of Tennessee Medical Center, Knoxville (UTMCK). After the course of study is completed, UTMCK awards the student a Certificate of Laboratory Training. Students are then eligible to substitute appropriate 500 level upper division Anthropology courses.

PROGRESSION STANDARDS: Progression into the Anthropology major is based on performance in the three prerequisite courses: 110, 120 and 130. Students must maintain a grade point average of at least 3.0 for the three introductory courses, with none of the three grades below a C. Upon satisfactory completion of the prerequisites, the student may apply for progression into the Anthropology major by: (1) completing a formal application for progression in the Anthropology Department and (2) indicating with that application an academic historian demonstrating satisfactory completion of the prerequisite requirements. The Academic History Committee of the Anthropology Department will meet regularly to determine the status of these applications. Upon progression to the major, a department advisor will be assigned in consultation with the student. The Anthropology major consists of 450 or 597 and 26 additional hours of upper division course work in Anthropology. This course work shall be distributed as follows:

(1) one course from categories (a), (b), (c), and (d) plus one course from categories (e) and (f): 10 hours
(2) archaeological area: 365, 451, 452, 463: 14 hours
(3) cultural area: 310, 311, 312, 313, 314, 315, 319: 8 hours
(4) cultural and biological anthropology: 488, 496, 499, 685, 696
(5) Remaining hours may be selected from any upper division Anthropology courses.

Students with senior standing are encouraged to substitute appropriate 500 level courses (with permission of the instructor of the course and the Department Head) for any upper division Anthropology courses.
To enroll and receive honors credit for Anthropology 437, the student must complete 307 with a grade of B or better, maintain a 3.5 GPA in all anthropology courses, and maintain a 3.2 GPA overall.

Continuation in the anthropology major requires maintenance of a 2.5 GPA or better in all anthropology courses. Students failing to meet this standard will be notified in writing that they are on probation and their records will be reviewed. Those who continue in probationary status for the next academic semester will be dropped from the major.

Anthropology 110, 120, 130 are prerequisites to a minor in anthropology, consisting of 15 hours of upper division anthropology courses, chosen in consultation with an Anthropology advisor.

ART


Assistant Professors: S. Alcorn, Ph.D. New York State College of Ceramics at Alfred; Kevin Eversen, M.F.A. Ohio; P. Smith, M.F.A. Rhode Island School of Design.

B. F. A. in Studio Art

The B.F.A. in Studio Art is a professionally oriented degree especially intended for those students planning careers or graduate study in the visual arts. All students seeking studio degrees (B.A., B.F.A., Studio and Art Education) must present and pass the appropriate Portfolio Review for their area of study in order to be admitted to advanced courses. Contact specific program area faculty for review schedule and details. It should not be assumed that a high grade point average in the major, in itself, assures passing the appropriate studio portfolio course.

Basic Requirements

<table>
<thead>
<tr>
<th>Core</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Art 101, 103</td>
<td>4</td>
</tr>
<tr>
<td>Art History 172, 173, 182</td>
<td>9</td>
</tr>
<tr>
<td>Art History Elective</td>
<td></td>
</tr>
<tr>
<td>One course from each of the following six areas: Art Drawing, Art Painting/Watercolor, Art Ceramics, Art Sculpture, Art Printmaking, Art Media Arts</td>
<td></td>
</tr>
</tbody>
</table>

Sub-Total: 43

Concentration—Ceramics, Drawing, Painting, Printmaking, Sculpture, Watercolor, and other approved interdisciplinary combinations, after passing the appropriate portfolio course.

Sub-Total: 33

Studio Electives

Additional hours in studio courses to be completed in consultation with the advisor or our affiliated facility, Arrowmont School of Arts and Crafts. Students may elect a combination of studio electives from: Ceramics, Art Education, Broadcasting, Journalism, Computer Science, Human Resource Development, Interior Design or Theatre. Students electing an additional major in Art Education and licensure to teach must take 15 hours in undergraduate Art Education courses.

Sub-Total: 18

General Curriculum

English Composition | 6
Non-U.S. History/Social Science | 6
Natural Science/Mathematics | 6
Arts and Sciences Non-Art Electives | 14-15

Sub-Total: 34

Total: 120 hours

Approved concentration Electives (maximum credit hours in parenthesis):


B. F. A. in Studio Art/Media Arts Concentration

Basic Requirements

<table>
<thead>
<tr>
<th>Core</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Art History 172, 173, 183</td>
<td>9</td>
</tr>
<tr>
<td>Art History Elective</td>
<td></td>
</tr>
<tr>
<td>One course from each of the following six areas: Art Drawing, Art Painting/Watercolor, Art Ceramics, Art Sculpture, Art Printmaking, Media Arts</td>
<td></td>
</tr>
</tbody>
</table>

Sub-Total: 46

Concentration—Media Arts 330 (Portfolio Review) (prerequisite to 300 and 400 level courses) SMW.

Art History 439 (History of Photography) | 3
Art Media 432 (History of Film and Modern Art) | 6
Art Media 434 (Cinematography as Art) | 6
Art Media 436 (Video Art) | 6
Art Media 331 (Photography 1) or Art Media 341 (Digital Photography) | 6
Art Media 433 (Photography 2) or Art Media 441 (Digital Photography II) | 6
300 and 400 Level Electives in Media Arts | 6

Sub-Total: 32

Studio Electives

Additional hours in studio courses to be completed in consultation with the advisor or our affiliated facility, Arrowmont School of Arts and Crafts. Students may elect a combination of studio electives from: Ceramics, Art Education, Broadcasting, Journalism, Computer Science, Human Resource Development, Interior Design or Theatre. Students electing an additional major in Art Education and licensure to teach must take 15 hours in undergraduate Art Education courses.

Sub-Total: 15

General Curriculum

English Composition | 6
Non-U.S. History/Social Science | 6
Natural Science/Mathematics | 10-14
Arts and Sciences Non-Art Electives | 5-6

Sub-Total: 30-33

Total: 123-128 hours


Art History Elective | |
| One course from each of the following six areas: Art Drawing, Art Painting/Watercolor, Art Ceramics, Art Sculpture, Art Printmaking, Media Arts | |

Sub-Total: 46

Concentration—Art Media 330 (Portfolio Review) (prerequisite to 300 and 400 level courses) SMW.

Art History 439 (History of Photography) | 3
Art Media 432 (History of Film and Modern Art) | 6
Art Media 434 (Cinematography as Art) | 6
Art Media 436 (Video Art) | 6
Art Media 331 (Photography 1) or Art Media 341 (Digital Photography) | 6
Art Media 433 (Photography 2) or Art Media 441 (Digital Photography II) | 6
300 and 400 Level Electives in Media Arts | 6

Sub-Total: 32

Studio Electives

Additional hours in studio courses to be completed in consultation with the advisor or our affiliated facility, Arrowmont School of Arts and Crafts. Students may elect a combination of studio electives from: Ceramics, Art Education, Broadcasting, Journalism, Computer Science, Human Resource Development, Interior Design or Theatre. Students electing an additional major in Art Education and licensure to teach must take 15 hours in undergraduate Art Education courses.

Sub-Total: 15

General Curriculum

English Composition | 6
Non-U.S. History/Social Science | 6
Natural Science/Mathematics | 10-14
Arts and Sciences Non-Art Electives | 5-6

Sub-Total: 30-33

Total: 123-128 hours


Art History Elective | |
| One course from each of the following six areas: Art Drawing, Art Painting/Watercolor, Art Ceramics, Art Sculpture, Art Printmaking, Media Arts | |
### B.A. Majors in Art History

**Prerequisites:** Art 121, 122, 123 (or their Honors equivalents)

<table>
<thead>
<tr>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Art History courses numbered 200 and above...</td>
<td>21</td>
</tr>
<tr>
<td>Students are required to take at least one course in one of the following areas: Medieval/Early Renaissance—Art History 420, 421, 422, etc.; Italian/Baroque—Art History 441, 450, 451, etc.</td>
<td></td>
</tr>
<tr>
<td>Art History 452, 455 (in sequence)</td>
<td></td>
</tr>
<tr>
<td>Art 490 (Museology: Institutions, Purpose, and Function)</td>
<td></td>
</tr>
<tr>
<td>Studio courses numbered 200 and above</td>
<td></td>
</tr>
<tr>
<td>Total: 39 hours</td>
<td></td>
</tr>
</tbody>
</table>

#### Undergraduate work in Art History is enhanced by knowledge of at least one foreign language and by additional studio art experience. Graduates work normally require reading knowledge of German, French, and any other language appropriate to an area specialization.

Students interposing possible careers in the museum or gallery field are advised that elective hours in Art 482, Museology II, should be considered.

### B.A. Major in Studio

**Prerequisites:** Art 121, 209, 210

<table>
<thead>
<tr>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Studio courses numbered 200 and above, including a minimum of 15 hours in 300-400 level courses</td>
<td></td>
</tr>
<tr>
<td>Total: 40 hours</td>
<td></td>
</tr>
</tbody>
</table>

In addition to the general B.A. requirements, the following are required for minors in the Art Department:

#### Minor in Art History
**Prerequisites:** Art History 172, 173, 183

<table>
<thead>
<tr>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Art History courses numbered 200 and above...</td>
<td>15</td>
</tr>
<tr>
<td>Art History courses numbered 200 and above...</td>
<td>15</td>
</tr>
<tr>
<td>Total: 30 hours</td>
<td></td>
</tr>
</tbody>
</table>

#### Minor in Studio

**Prerequisites:** Art 121, 203, 205

<table>
<thead>
<tr>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Studio courses which include a minimum of 15 additional elective hours in Studio Art</td>
<td></td>
</tr>
<tr>
<td>Total: 28 hours</td>
<td></td>
</tr>
</tbody>
</table>

### P.B.A. ARROWMOUNT SCHOOL OF ARTS AND CRAFTS


### Associates Professors


### Assistant Professors

P. Earl (Adjunct), Ph.D. Iowa; C.W. App, Ph.D. Ohio State; D.M. Lippert (Adjunct), Ph.D. Wisconsin; D.M. Lippert (Adjunct), Ph.D. Czech Technical (Prague), H.A. Petersen, M.A. Illinois Institute of Technology; J. Silverstein (Emeritus), Ph.D. Purdue.

### Instructors

P. Earl (Adjunct), Ph.D. Tennessee; E. Hembry (Adjunct), Ph.D. Iowa; L. Stephenson, Ph.D. Purdue; J. Talmi, Ph.D. Iowa.

### Research Professors

K. Habelak (Emertus), Ph.D. Polish Academy of Sciences, Warsaw, Poland.
The Department of Audiology and Speech Pathology offers courses work in the scientific study of human communication sciences and disorders. The two undergraduate majors (audiology and speech pathology) are preparatory to graduate work in professional certification in some aspect of speech, language, and hearing disorders. The major’s degree is required for professional certificates and employment positions. Information about the audiology and speech pathology programs may be obtained from the departmental offices. 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 300, 302, 303, 306, 310, 431, 461, 471, and 474. Courses in oral health in practice must be approved by the departmental director of the undergraduate program. Requirements for enrollment in Practice include 434 or 452 in Audiology and Speech Pathology. Include a minimum cumulative GPA of 2.0 or 3.0 in the last 30 hours of enrollment. A minimum of 30 credit hours is required in all courses taken within the department’s successful completion of 433, and a minimum GPA of 2.5 within the major. The following requirements for professional certification include courses in biology/chemistry, mathematics, and at least six credit hours in behavioral and social sciences which pertain to the understanding of normal/abnormal behavior. Students majoring in Audiology and Speech Pathology are strongly encouraged to consult with their advisors before selecting elective courses.

**Biochemistry and Cellular and Molecular Biology**

*Professors:*
- R.M. Bagby, Ph.D., Illinois
- J.M. Becker, Ph.D., Colorado
- D.G. Carleton, Ph.D.
- D.D. Etnier, Ph.D.
- B.B. Bruce, Ph.D., California (Berkeley)
- R.H. Feinberg (Emeritus), Ph.D., California
- W.F. Harris, Ph.D., Ohio State
- J.A. MacCabe, Ph.D., California
- K.D. McFarland, Ph.D.
- W.D. Wicks, Ph.D.
- G. Wilhelm, Ph.D., Microbiology
- B.E. Wofford, Ph.D., Botany
- H. Zaghouani, Ph.D., Microbiology
- S. Wils, Ph.D., Biochemistry and Cellular and Molecular Biology

**Associate Professors:***
- T.C. Morris, Ph.D., Microbiology
- R. Ganguly, Ph.D., Biochemistry and Cellular and Molecular Biology
- M.A. Hamilton, Ph.D.
- D.L. Hacker, Ph.D.
- P.L. Walne, Ph.D., Botany
- W.D. Wicks, Ph.D.
- G. Wilhelm, Ph.D., Microbiology
- B.E. Wofford, Ph.D., Botany
- H. Zaghouani, Ph.D., Microbiology
- S. Wils, Ph.D., Biochemistry and Cellular and Molecular Biology

**Assistant Professors:***
- T. Montie, Ph.D., Microbiology
- B.C. Mullin, Ph.D., Botany
- M.L. Pan, Ph.D., Biochemistry and Cellular and Molecular Biology
- R.H. Peterson, Ph.D., Biochemistry and Cellular and Molecular Biology
- N.B. Quiqley, Ph.D., Microbiology
- C.B. Peterson, Ph.D., Biochemistry and Cellular and Molecular Biology
- B. Barse, Ph.D., Biochemistry and Cellular and Molecular Biology
- J.D. Smith, Ph.D., Biochemistry and Cellular and Molecular Biology
- G. Stazav, Ph.D., Microbiology
- R.M. Bagby, Ph.D., Biochemistry and Cellular and Molecular Biology
- A.C. Echternacht, Ph.D., Biochemistry and Cellular and Molecular Biology
- J. Gillman, Ph.D., Biochemistry and Cellular and Molecular Biology
- G. Stazav, Ph.D., Microbiology
- E.H. Serpersu, Ph.D., Biochemistry and Cellular and Molecular Biology
- B.R. Rose, Ph.D., Microbiology
- D.S. Savage, Ph.D., Microbiology
- G.S. Sayler, Ph.D., Microbiology
- O.J. Schwarz, Ph.D., Botany
- B.J. Sokolov, Ph.D., Biochemistry and Cellular and Molecular Biology
- B. Brown, Ph.D., Biochemistry and Cellular and Molecular Biology
- E. Serpersu, Ph.D., Biochemistry and Cellular and Molecular Biology
- P.L. White, Ph.D., Microbiology
- W.D. Wicks, Ph.D.
- M.L. Pan, Ph.D., Biochemistry and Cellular and Molecular Biology
- R.H. Peterson, Ph.D., Biochemistry and Cellular and Molecular Biology
- C.B. Peterson, Ph.D., Biochemistry and Cellular and Molecular Biology
- N.B. Quiqley, Ph.D., Microbiology
- C.B. Peterson, Ph.D., Biochemistry and Cellular and Molecular Biology
- B. Barse, Ph.D., Biochemistry and Cellular and Molecular Biology

**Requirements for Honors Options in Biochemistry and Cellular and Molecular Biology:**

- Biology 130 or Botany 110-120
- Biology 140-150-150
- Biology 140-150-150
- Biology 140-150-150
- Biology 140-150-150

**B. Progression Requirement:**

A cumulative GPA of at least 2.5 in prerequisite science and math courses is required both to declare and to continue as a Biological Sciences major. Students wishing to declare a major in Biological Sciences will be assigned a faculty advisor in one of the eight insurance excellence, in consultation with the student. Declaration of a Biological Sciences degree must occur as soon as the student decides on this course of study, but no later than 3 semesters before the expected graduation date. This is necessary in order to ensure that requirements can be met in a timely manner as not all courses are taught every year.

**C. Honors Major:**

A honors option in presented in Biochemistry and Cellular and Molecular Biology and Microbiology concentrations. Requirements for honors options are listed with the appropriate concentration areas.
Courses that satisfy the EEB Quantitative requirements:

For students with a strong interest in quantitative biology:
- Math 231 Differential Equations (3)
- Math 405 Models in Biology (3) (Prereq. 141-142)

Graduate Research, during the junior and senior years, is pass/fail EEB 461, Senior thesis, and pass EEB 490, Undergraduate Seminar.

The concentration consists of:
1) Chemistry 350-360-369 or 351-310-319 or Chemistry 310-319 and EEB 310-319 and EEB 301-309.
2) Quantitative Requirement: One course from (note math prerequisites):
   - Math 211 Differential Equations (3) (Prereq. 141-142)
   - Math 215 Matrix Algebra (3) (Prereq. 141-142)
   - Math 405 Modes in Biology (3) (Prereq. 310-319.
   - Stat 201 Introduction to Statistics (3).

Note that Math 141-142 is recommended for students with a strong interest in quantitative biology and is a prerequisite for many of the following courses that satisfy the EEB Quantitative Requirement.

3) Upper Division courses: A total of 24 additional hours is required at the 300 level or above, plus 9 additional hours of other Upper Division courses offered by Botany or other Life Science departments (except Botany 300-310). A list of approved courses from other Life Science departments is available in the Division of Biology office.

4) The remaining hours for the EEB concentration can include any of the remaining EEB courses on these lists, other Upper Division EEB courses, or appropriate Upper Division courses offered by the following departments: Anthropology; Geology; Forestry, Wildlife and Fisheries; Geology; Microbiology; Plant and Soil Sciences. No more than two courses, regardless of credit hours, may be elected from any one department other than EEB. A list of approved appropriate courses may be obtained from the office of either the Division of Biology or EEB. Please note that some of the courses listed may have prerequisites or corequisites that are not approved for Upper Division credit in the EEB concentration. Courses applied to the major must include at least 4 hours of 400-level and one laboratory course.

Requirements for the honors option are as follows:

a) fulfill all requirements for the Biological Sciences: EEB major, to maintain a GPA of 3.5 in all the 300-level and above courses from the concentration and on overall GPA of 3.2; it specifies a minimum of 4 hours of EEB 450. Undergraduate Research, during the junior and senior years, is pass/fail. EEB 461, Senior Thesis, and pass EEB 490, Undergraduate Seminar.

Microbiology: The microbiology concentration consists of Chemistry 350-360-369, EEB 410, Microbiology 310-319, 300-369, and 10 additional hours of 400-level Microbiology courses. An honors option is offered to selected students who have completed the required 300-level Microbiology courses with a minimum grade point average of 3.5. In Microbiology courses and 3.2 for all courses. In addition to these 300-level courses, an honors major requires successful completion of 15 additional hours of 400-level Microbiology courses, including 401 and 402.

Plant Biology: The Plant Biology concentration is offered by completing the following courses from the Plant Biology concentration: Botany 301: (4) Botany 310 (4) Botany 320 (2) Botany 400, 440, or 442 (2) plus 9 additional hours of other Upper Division courses offered by Botany or other Life Science departments (except Botany 300-310). A list of approved courses from other Life Science departments is available in the Division of Biology office.

A minor includes the following prerequisites and requirements: Prerequisites are Botany 220-120 or Biology 120-140, and Chemistry 120-120. Requirements are Botany 240 and 250C and at least 6 hours chosen from 300- and 400-level courses in Biochemistry, Cellular and Molecular Biology, Botany, Ecology and Evolutionary Biology, and Microbiology. In meeting the upper-division coursework requirement, no more than 6 hours may be credited from any one biological science department, and no more than 4 hours of undergraduate research may be credited.

The concentration consists of:
1) Chemistry 350-360-369 or 351-310-319 or Chemistry 310-319 and EEB 310-319 and EEB 321, 401-405.

An honors option is offered to students with a cumulative GPA of 3.5 or above who have completed Biology 130-140-240-250. The honors option also requires a substantive research project carried out under the supervision of a BCCMB faculty member and a thesis describing the results of that project. The thesis must be approved by the faculty supervisor.

Ecology and Evolutionary Biology: The concentration consists of:
1) Chemistry 350-360-369 or 351-310-319 or Chemistry 310-319 and EEB 310-319.

The concentration may be obtained by completing the following courses from the following department:
- Botany: Botany 330 Field Botany (3) Botany 310 (4) Botany 321 (4) Botany 400, 441, or 442 (2) plus 9 additional hours of other Upper Division courses offered by Botany or other Life Science departments (except Botany 300-310). A list of approved courses from other Life Science departments is available in the Division of Biology office.

A minor includes the following prerequisites and requirements: Prerequisites are Botany 220-120 or Biology 120-140, and Chemistry 120-120. Requirements are Botany 240 and 250C and at least 6 hours chosen from 300- and 400-level courses in Biochemistry, Cellular and Molecular Biology, Botany, Ecology and Evolutionary Biology, and Microbiology. In meeting the upper-division coursework requirement, no more than 6 hours may be credited from any one biological science department, and no more than 4 hours of undergraduate research may be credited.

The concentration consists of:
1) Chemistry 350-360-369 or 351-310-319 or Chemistry 310-319 and EEB 310-319 and EEB 321, 401-405.
To be chosen from Chemistry 400, 401, 408, 450, 484, and 490, or BCMB 410.

Engineering.

It is recommended that a portion of these elective hours be applied to advanced courses in biochemistry merely intended as guidelines.

The major consists of Chemistry 101-109, 310-319, 350-360, 369, 471-483, and 473, 10 hours of additional work in chemistry that includes at least one laboratory course or lecture/laboratory course, up to 6 hours of Biochemistry and Cellular and Molecular Biology 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 135-136, or 137-138, and Chemistry 230 and 231-241, and at least one course in a foreign language that is not required through enrollment in a foreign language that is not required through enrollment in a foreign language.

For students planning careers in Chemistry, the major consists of Chemistry 310, 319, 320-329, 333-340, 369, 471-481 or 473-483, 479, and 47, 10 hours of additional work in chemistry that includes at least one laboratory course or lecture/laboratory course, up to 6 hours of Biochemistry and Cellular and Molecular Biology 410-420 or Geology 460 may be applied to the 10-hour requirement.

Placement in General Chemistry Sequences The sequences which meet all of the requirements of a General Chemistry Sequence and which serve as prerequisite for upper-division courses are 120-130 and 129-136. Chemistry majors are strongly urged to take the latter sequence. Courses 120 and 129 emphasize organic and biochemistry, and may not be used as prerequisite for other chemistry courses. Chemistry 150 and 160 are designed to intensify the chemistry literacy and consumer knowledge of students and may not be used as prerequisites for any other chemistry courses. 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 120 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, or 130.

In any chemistry course above the freshman level which has Chemistry 130 as a prerequisite, 110 may not be used as a prerequisite with approval of the Department of Chemistry. Chemistry 128-138 is an honors course and requires a high level of achievement. Students who have high achievement in chemistry and science will receive an advanced placement test. Placement in Chemistry 128-138 is based on performance on the placement test.

It is possible for students 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 120 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, or 130.

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Michael G. Thomason, Ph.D. Duke; G. R. Sherman (Emeritus), Ph.D. Purdue; Dongarra, Ph.D. New Mexico; M. A. Langston, COMPTER SCIENCE

See Interdisciplinary Programs.

Professors: Robert C. Ward (Head), Ph.D. Virginia Tech, 1977; J. D. Martin (Head), Ph.D. Michigan, 1987; M. D. Paul, Ph.D. Purdue; B. J. Fink, Ph.D. Purdue; F. A. Borton, Ph.D. Purdue; R. J. Miller, Ph.D. Purdue; S. E. Riechert, Ph.D. New Mexico State; M. L. Pande, Ph.D. Pennsylvania; G. F. McCracken, Ph.D. Cornell; J. F. McCormick, Ph.D. Georgia Institute of Technology.

among Geography 361, 363, 365, 371, 372, 373, 375, and 379 and at least 9 hours must be at the 400 level. No more than 3 hours of Geography 400 may be counted toward the major.

Students who enter the major with more than 50 hours of credit, and who have com-

completed a laboratory science sequence other than Geography, may petition the

department to substitute certain upper division geography courses for 131 and 132.

Minor: The Minor in Geography consists of 15 semester hours of Geography courses at the 200 level or above. Geography 490, 492, 495 may not be counted toward the minor without departmental permission.

Honors: Students who have an overall GPA of 3.2 may elect to participate in an

enrichment program that involves the successful completion of 3 semester hours of

geography courses. See Religious Studies.

HEBREW

History

GEORGIA

GEOLOGICAL SCIENCES

Professors: W.M. Durnett (Emeritus), Ph.D. Duxbury, Ph.D. Broaddus, Ph.D. Iowa; S.G. Driscoll, Ph.D. Wisconsin; R. Hatchet (U.T. Knoxville), Ph.D. Distinctive scientist. Ph.D. Tennessee; O.C. Kopp (Emeritus), Ph.D. Columbia; T.C. Laboluta, Ph.D. Canada; H.Y. McKeen (Distinguished Professor of Sciences), Ph.D. Hansen; K.C. McGinley, Ph.D. University of Wisconsin; R.E. McKinnon (Emeritus), Ph.D. Pennsylvania; L.A. May (Emeritus), Ph.D. South Carolina; J.R. Miller, Ph.D. U.S. Field, Ph.D. Dale.

Associate Professors: D.W. Brown, Ph.D. Pennsylvania; G. M. Clark, Ph.D. Pennsylvania State; P.A. Deloach, Ph.D. Minnesota; D. McKay, Ph.D. Waterloo; M. L. McKinney, Ph.D. Yale; C.I. Mora (Carnet Professor), Ph.D. Wisconsin, R.T. Williams, Ph.D. V.P.I.

Graduate School of Planning

D. Zanetta, Ph.D. Ohio State.

Associate Professors: G.E. Bowman, M.A. Georgia Washington.

Assistant Professor: C. Zantella, Ph.D. Ohio State.

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

The School of Planning directs the Urban Studies program in the College of Arts and Sciences.

GREEK

See Modern Languages and Literatures.

HEBREW

See Religious Studies.

Faculty and Staff

Professors: J.P. Finney (Emeritus), Ph.D. Washington; P.H. Bergeron, Ph.D. Vanderbilt; E.V. Chmielowski (Emeritus), Ph.D. Wisconsin; H. Lennon, Ph.D. Tennessee; W.W. Farm, Ph.D. Harvard; A.G. Huestes, Ph.D. Wisconsin; W. Haskins, Ph.D. Young (Emeritus), Ph.D. Pennsylvania; R.W. Herbst, Ph.D. Pennsylvania; M.L. Kleem (Emeritus Distinguished Professor), Ph.D. University Young (Emeritus), Ph.D. Pennsylvania; B.D. McCall, Ph.D. Wisconsin; R.G. Polk, Ph.D. Wisconsin; B. Skaggs, Ph.D. Pennsylvania State; C.H. Sack, Ph.D. Wisconsin; D. Solomon, Ph.D. Pennsylvania; R. Soder (Emeritus), Ph.D. Tennessee; L.A. Taylor, Ph.D. Tennessee; K.C. Topp (Emeritus), Ph.D. Columbia; T.C. Laboluta, Ph.D. Florida; W.H. Wheeler, Ph.D. Virginia.

Assistant Professors: E.V. Ash, Ph.D. Tennessee; S.D. Backar, Ph.D. Case Western Reserve; J.D. Bang, Ph.D. Indiana; J. Baladati, Ph.D. Harvard; P. Brunetto, Ph.D. Chicago; T.E. Burman, Ph.D. Tennessee; T.A. Caaron, Ph.D. Wisconsin; C. Higg, Ph.D. Yale; W.C. Johnson, Ph.D. Michigan; J. McKee, Ph.D. Ohio; Y.P. Pickney, Ph.D. Vanderbilt.


Ph.D. V.P.I.

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course. Some entering freshmen are invited to participate; other interested students may apply. Three survey courses are open to non-majors. A grade of C- or less in any part of the freshman year honors sequence will render the student ineligible for further honors work in history. An honors major includes 307 and a senior thesis (407-408). Altogether the honors major consists of 33 hours, including 24 hours as outlined in the B.A. Major above, plus 307. Honors credit will be offered for 408 only if the student completes a senior honors thesis that is awarded a grade of B or above. All prospective majors who are declared History majors with a 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.

INTERDISCIPLINARY PROGRAMS

Director: Anna Mayhew (College of Arts and Sciences)

In keeping with the philosophy that integration of knowledge is as important as proficiency in a given field, the College of Arts and Sciences has combined the resources of several departments to offer a series of interdisciplinary majors and minors. These programs are as follows: African and African-American Studies, American Studies, Ancient Mediterranean Civilizations, Asian Studies, Cinema Studies, Comparative Literature, Environmental Studies, Judaic Studies, Latin American Studies, Linguistics, Medieval and Renaissance Studies, Women's Studies. See individual program descriptions below for the major and/or minor requirements.

AFRICAN AND AFRICAN-AMERICAN STUDIES

Chair: John O. Hodges (Religious Studies)
Assistant Professor: Anne Mayhew (Sociology), Ph.D. State University of New York (Binghamton).

Major: African-American Studies 201-202 are required in the concentration and consist of 24 hours from the African-American Studies curriculum. At least 15 hours must represent upper division credit. Majors are required to take AAS 401, preferably in their senior year. A maximum of 6 hours in AAS 492 and 493 combined can be applied toward the AAAS major. In planning their program, majors must include courses from at least 2 other departments, which cross courses with African and African-American Studies in addition to the core courses specified above.

Minor: African-American Studies 201-202 are required in the minor which consists of 15 hours at least 9 of which must be upper division credit. A maximum of 3 hours in AAS 492 and 493 combined can be applied to the minor. Majors planning their programs minor must include courses from at least 2 other departments, which cross courses with African and African-American Studies in addition to the AAAS core course offerings.

AMERICAN STUDIES

Chair: George B. Hutchinson (English)

Major concentration: English 231 and either 232 or 233 are prerequisite to a major concentration in American Studies which consists of at least 12 upper-division semester hours including American Studies 310; at least two approved American History courses, and six approved courses chosen from the following: discipline anthropology, economics, political science, or sociology. Courses in the major will be chosen in consultation with an American Studies scholar, from a list approved by the program, in such a way that at least 3 courses help the student achieve a focus within the field. One course in the student's curriculum must specifically focus upon one or more American ethnic minority cultures. An additional 3-6 hours of American Studies 493 (Independent Study) are recommended for majors in their senior year. A list of approved elective courses is published annually.

All majors and prospective majors should contact the Chair of the program.

The American Studies minor consists of at least 15 hours of coursework chosen from the program's list of electives, including American Studies 310, American Studies 410 or 440, and nine additional hours from at least two different disciplines.

ANCIENT MEDITERRANEAN CIVILIZATIONS

Chair: David W. Tandy (Classics)

Co-chair: W. L. Humphries (Religious Studies)

A minor in Ancient Mediterranean Civilizations consists of 18 hours, including at least two of the core courses (Classics 381, History 385). No more than nine of the remaining discipline courses can be from the same discipline.

Courses of variable content, topics courses, reading and research, off-campus, or foreign study in the Department of Art, Classics, History, Philosophy, or Psychology may be applied as the third division as approved. Students are encouraged to select only one foreign language requirement with Greek, Latin, or Classical Hebrew.

ASIAN STUDIES

Chair: Wayne Ferris (History)

The Asian Studies major concentration consists of 26 credit hours, including the upper-division courses of Asian Studies and approved departmental offerings. Twelve of the hours must be taken from courses listed within one of the four geographical-cultural areas (Asia/World: South Asia, China, Japan), and 6 of these 12 hours must come from Subdivision A and 6 from Subdivision B. Subdivision A includes Art, Literature, Music, Philosophy, and Religious Studies; Subdivision B includes Anthropology, Economics, Geography, History, Political Science, and Sociology.

Six of the 36 hours must be taken from courses listed for other geographical-cultural areas.

Prerequisites to the concentration in Asian Studies 101-102. Corequisites 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. Twelve of these hours must be taken from courses within one of the four geographical-cultural areas. Six credit hours must come from Subdivision A and 6 from Subdivision B. Three hours must be taken from courses in another geographical-cultural area.

CINEMA STUDIES

Chair: Charles Moland (English)

The Cinema Studies minor consists of 15 hours, including 281 and either 225, 236 or 300. It is strongly recommended that introduction to film studies be taken before selection of electives provided for in the minor.

For further information contact the chairperson of the Cinema Studies Program, Charles Moland, English Department. Other related courses in such departments as history, philosophy, and sociology may be approved by the departmental chairperson.

Approved Area Courses are: Art Media/Photography 230 Introduction to Cinematography as Art (3); Art Media/Photography 236 Introduction to Film Studies (3); Art/Photography 304 3D Animation and Art (3); Art Media/Photography 348 Video as Art (3); Broadcast 275 Introduction to Broadcasting (3); Broadcasting 330 Audio/Video Production (3); Broadcasting 340 Electronic Field Production (3); English 281 Introduction to Film Studies (3); English 304 Film and American Culture (3); English 486 Spacial Topics in Film (3); French 304 Film (3); German 302 German Cinema (3); Italian 421 Topics in Italian Cinema (3); Political Science 314 Popular Culture and American Politics (3); Russian 305 Russian Film (3); Women's Studies 469 Sexuality and Cinema (3).

COMPARATIVE LITERATURE

Chair: David W. Tandy (Classics)

Co-chair: W. L. Humphries (Religious Studies)

A minor concentration in Comparative Literature consists of 27 hours including Comparative Literature 200 and 401-402, and 9 hours of literature in a foreign language in courses numbered 300 or above. The remaining 12 hours should include courses in other disciplines, either in English or in a foreign language, numbered 300 or above, at least two of which will be selected from History, Classics, English, Modern or Foreign Languages and Literature, and Religious Studies. Certain courses in Philosophy, Theatre and Interdisciplinary Programs may be substituted with the approval of the chairperson of the Comparative Literature Program.

A major concentration in Comparative Literature consists of 27 hours including Comparative Literature 200 and 401-402, and 9 hours of literature in a foreign language in courses numbered 300 or above. The remaining 12 hours should include courses in other disciplines, either in English or in a foreign language, numbered 300 or above, at least two of which will be selected from History, Classics, English, Modern or Foreign Languages and Literature, and Religious Studies. Certain courses in Philosophy, Theatre and Interdisciplinary Programs 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 in the graduate school.

A minor in comparative literature consists of 18 hours including Comparative Literature 202 and either Comparative Literature 421 or 423. A foreign language is a foreign language in courses numbered 300 or above, and 6 hours of literature in courses numbered 300 or 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: English, Modern Foreign Languages and Literatures, and Religious Studies. Certain courses in Philosophy, Theology, and Interdisciplinary Programs may be substituted with the approval of the chairperson of the Comparative Literature Program. A minor in comparative literature is strongly encouraged to continue study of a foreign language beyond the minimum requirement.

ENVIRONMENTAL STUDIES

Chair: Don Byerly (Geology)

The major concentration in Environmental Studies provides sound scientific, socioeconomic, and philosophical background for understanding the earth’s environment with an opportunity to minor in one of the many environmentally related curricula offered by the various colleges within the University.

Prerequisites to a B.A. major in Environmental Studies are: Biology 110-120 or 130-140; or Botany 110-120; or Zoology 117-118; Chemistry 120-130; or Geology 101; Geography 131; Mathematics 123-125 or 141-142 or 151-152; or any 110-120; or Zoology 117-118; Chemistry 120-130; or Geology 101; Geography 131; Mathematics 123-125 or 141-142 or 151-152; or any 110-120.

Major Concentration consists of two parts: a core and a minor. The core includes: Biology 250; Sociology 346; Philosophy 346; Economics 462; Agriculture 340; or any other Geology 340 or 341; and either Geology 340, Geography 340, or Plant and Soil Science 432. The second part of the major consists of meeting the requirements for a minor in one of the many environmentally related curricula offered by the various colleges of the University. Most minors are at least 15-18 hours. Curricula that would be suited for an environmental studies major include, but are not limited to: Plant and Soil Sciences, Wildlife and Fisheries Sciences, Forestry, Chemistry, Geology, Geophysics, Botany, Zoology, Biology, Sociology, Economics, Political Science, or Business Administration.

JUDAIC STUDIES

Chair: Gilya Gerda Schmidt (Religious Studies)

The major concentration in Judaic Studies offers a course of study that treats Judaism as a historically and culturally specific enterprise. The concentration explores Jewish culture, religion, history, literature, and Jewish thought and tradition, from a biblical to modern perspective. A multidisciplinary concentration of courses permits critical reflection about topics and issues in a world civilization and cross-cultural context.

LEGAL STUDIES

Chair: James A. Black (Sociology)

The major in Legal Studies places the study of law within the context of a liberal arts education. This major offers a double of study that treat law as a historically and culturally specific enterprise. The concentration seeks to attract students interested in exploring the ways in which law and legal institutions shape and are shaped by values, behavior, communication patterns, and organization of social, economic, and political life. A multidisciplinary combination of courses prepares students for careers in the law. A useful study for students interested in law-related employment at the B.A. level.
An 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 develop one’s own area of specialization 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 beliefs, 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 (3) 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 Coordination Committee, chairperson Dr. Paul Barrette.

Category #1—History, Philosophy, and Political Science:
(1) History 312 Medieval History: 300-1100 (3); History 313 Medieval History: 1100-1450 (3); History 320 History of England to 1688 (3); History 334 History of Germany to 1815 (3); History 369 History of the Middle East (3); History 471 Studies in Medieval and Early European History (3); Philosophy 322 Medieval Philosophy; and Political Science 475 Ancient and Medieval Political Thought (3).

Category #2—Language and Literature:
Classics 435 Medieval Latin (3); English 371 Foundations of the English Language (2); English 401 Medieval Literature (3); English 422 Medieval Literature (3); Italian 411 Dante and Medieval Culture (3); and Italian 423 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 Beyond Italy (3); Music History 210 History of Music to 1750 (3).

URBAN STUDIES

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

Urban studies involves the interdisciplinary study of cities and their inhabitants. Faculty from Planning, Architecture, Geography, History, Political Science, Sociology, History, English, and Music History participated in the program which has variable emphasis from the relationship of the city to its environs. Urban studies encourage an understanding of the environment, the process of change, and decisions that are being made in urban planning, the nature of current urban issues. Prerequisites to the program are Economics 101 or 201 and 287, Political Science 103 or 109/110, and Sociology 110 or 120. Courses required for the major are Urban Studies 250, 305, and 460, plus 3 hours from each of the three major areas: Women's Studies (302, 390, 383, 432, 453, 466, 483, 493), Contemporary Issues (375, 382, 410, 425), and Urban and Regional Planning (324, 380, 383, 432, 453, 466, 483, 493), Controversies (326, 335, 425), and Literature and the Arts (330, 332, 335, 425). Other hours may be substituted in (b) by approval of the Urban Planning director.

The major concentration in Urban 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), or three courses from Independent Study (493), and at least one course from each of the three major areas: Women's Studies (302, 390, 383, 432, 453, 466, 483, 493), Contemporary Issues (375, 382, 410, 425), and Urban and Regional Planning (324, 335, 425). Other courses 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), or at least three hours of Independent Study (493), and at least one course from each of the three major areas: Women's Studies (302, 390, 383, 432, 453, 466, 483, 493), Contemporary Issues (375, 382, 410, 425), and Literature and the Arts (330, 332, 335, 425). Other courses may be included in any of these areas. Students are encouraged to take at least nine hours in one of these areas.

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 develop one’s own area of specialization 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 beliefs, 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 (3) 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 Coordination Committee, chairperson Dr. Paul Barrette.

Category #1—History, Philosophy, and Political Science:
(1) History 312 Medieval History: 300-1100 (3); History 313 Medieval History: 1100-1450 (3); History 320 History of England to 1688 (3); History 334 History of Germany to 1815 (3); History 369 History of the Middle East (3); History 471 Studies in Medieval and Early European History (3); Philosophy 322 Medieval Philosophy; and Political Science 475 Ancient and Medieval Political Thought (3).

Category #2—Language and Literature:
Classics 435 Medieval Latin (3); English 371 Foundations of the English Language (2); English 401 Medieval Literature (3); English 422 Medieval Literature (3); Italian 411 Dante and Medieval Culture (3); and Italian 423 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 Beyond Italy (3); Music History 210 History of Music to 1750 (3).

URBAN STUDIES

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

Urban studies involves the interdisciplinary study of cities and their inhabitants. Faculty from Planning, Architecture, Geography, History, Political Science, Sociology, History, English, and Music History participated in the program which has variable emphasis from the relationship of the city to its environs. Urban studies encourage an understanding of the environment, the process of change, and decisions that are being made in urban planning, the nature of current urban issues. Prerequisites to the program are Economics 101 or 201 and 287, Political Science 103 or 109/110, and Sociology 110 or 120. Courses required for the major are Urban Studies 250, 305, and 460, plus 3 hours from each of the three major areas: Women's Studies (302, 390, 383, 432, 453, 466, 483, 493), Contemporary Issues (375, 382, 410, 425), and Literature and the Arts (330, 332, 335, 425). Other courses 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), or at least three hours of Independent Study (493), and at least one course from each of the three major areas: Women's Studies (302, 390, 383, 432, 453, 466, 483, 493), Contemporary Issues (375, 382, 410, 425), and Urban and Regional Planning (324, 335, 425). Other courses may be included in any of these areas. Students are encouraged to take at least nine hours in one of these areas.

ITALIAN

See Interdisciplinary Programs (Modern Foreign Languages and Literatures).

JPANIESE

See Interdisciplinary Programs (Modern Foreign Languages and Literatures).
Preparation for Preparatory School

Honor 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 nine courses (other than electives) at the 400 level, receiving a grade of B or better in each of these courses. Additional information is available on the Mathematics web page.

Honor B.S. Candidates: "The Mathematics Department has the right to advise on the selection of courses for students who are declared as candidates for an honors degree."
The Department of Medical Biology of The University of Tennessee College of Medicine-Knoxville Unit was formed from the faculty of the University Research Center Hospital and in 1971. The Research Center was established in 1966. The faculty has a mission of teaching, research, and service in areas such as cell, molecular, and developmental biology, as well as genetics, genomics, and bioinformatics.

**Microbiology**

**Professors:**
- D.L. Hacker, Ph.D. Michigan State.
- J.W. Williams, Ph.D. Duke University.
- J. Filho, Ph.D. North Carolina.
- N. Pervukhina, Ph.D. Bryn Mawr.
- D.J. Young, Ph.D. Texas.
- N. Beauvois, Ph.D. Texas; T.C. Montle, Ph.D. Maryland; W.S. Rouse, Ph.D. Guelph State; D.A. Brian, Ph.D. Michigan State.
- S. Moore (Head), Ph.D. Texas (Austin); S.W. Wilhelm, Ph.D. University of Western Ontario; D.L. Hacker, Ph.D. Michigan State.
- D.C. White, B.V.Sc., Bristol (England); G. Riggsby, Ph.D. Yale; B.T. Rouse; Ph.D. Guelph State; T.C. Montle, Ph.D. Maryland; W.S. Rouse, Ph.D. Guelph State; D.A. Brian, Ph.D. Michigan State.
- S.W. Wilhelm, Ph.D. University of Western Ontario; D.L. Hacker, Ph.D. Michigan State.
- J.W. Williams, Ph.D. Duke University.
- J. Filho, Ph.D. North Carolina.
- N. Pervukhina, Ph.D. Bryn Mawr.
- D.J. Young, Ph.D. Texas.
- N. Beauvois, Ph.D. Texas; T.C. Montle, Ph.D. Maryland; W.S. Rouse, Ph.D. Guelph State; D.A. Brian, Ph.D. Michigan State.
- S. Moore (Head), Ph.D. Texas (Austin); S.W. Wilhelm, Ph.D. University of Western Ontario; D.L. Hacker, Ph.D. Michigan State.

**Associate Professor:**
- D. Filho, Ph.D. Mexico (Emeritus).

**Assistant Professor:**
- S. Blackwell, Ph.D. Indiana; C. Cors (Emerita), Ph.D. Pennsylvania.
- J. Filho, Ph.D. North Carolina.
- J. Filho, Ph.D. North Carolina.
- B.V. S. Blackwell, Ph.D. Indiana; C. Cors (Emerita), Ph.D. Pennsylvania.
- J. Filho, Ph.D. North Carolina.
- J. Filho, Ph.D. North Carolina.
- B.V. S.
students must consult an advisor in the Department in selecting relevant courses under the Basic Skills and Distribution requirements for the College.

Students interested in the Language and World Business Program should consult the Director for advising as early as possible in their college careers. The solid-state record proficiency will be assessed by the Director of Language and World Business. Minimum requirements for progression to the concentration are a 2.75 cumulative average in the courses specifically required by the College of Arts and Sciences in Basic Skills and Distribution and in the Language and World Business plan of studies, and a B in Hindi, Spanish, or German language courses.

Proficiency Examinations: Students who have acquired knowledge of French, German, Italian, Russian, or Spanish by self-study or similar methods to proficiency level. A student earning a grade of C or higher in an upper division level course will receive credit in progression to the concentration. Completion of a major or minor shall consist of at least 18 hours of courses numbered 300 or above.

Student Advisor: The academic record presented at the time of enrollment will be reviewed by the Department. Each student majoring or minoring in Languages and World Business must have an advisor. The academic records of students will be reviewed at least once each semester, when students are registered for courses, unless the advisor has been notified otherwise.

Study Abroad: Five summer study abroad opportunities are available for students through the Department. The department sponsors programs in Brazil, France, Italy, Mexico, and Spain. Students can earn up to six credit hours in courses numbered 200 but is recommended for students needing additional language study. The minor in Russian shall consist of at least 17 hours of courses numbered 300 or above, including 322 and 324, 21 hours of Russian courses, including Asian Languages 313-314 or other Japanese language course.

Minor in Portuguese: Consists of 18 hours in courses numbered 300 or above. Students must consult an advisor in the Department in selecting relevant courses under the Basic Skills and Distribution requirements for the College.

Students interested in Foreign Study, German 491 Foreign Study, and Russian 491 Foreign Study should consult the Department before registering for the foreign study course. The Chinese Minor: Asian Languages 251-252 or its equivalent is a prerequisite to the minor. The minor shall consist of at least 18 hours of Chinese courses numbered 251-252 or 351-352, and 6 hours from Asian Languages 351-352 or other Asian courses above 300.

The French Minor: Consists of 18 hours in courses numbered 300 or above, distributed as follows: 333 or 334, 341-342; 421; plus 6 hours of elective at the 300 or 400 level. French 300 does not count toward the minor, but is recommended for students needing grammar review.

The German Minor: 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 includes German 301-302 and 6 additional hours of courses numbered above 300 (excluding 301-302 and courses in English translation).

The Italian Minor: Consists of 18 hours in courses numbered 311 or above. Students pursuing a minor are strongly advised to consult with a department advisor.

The Japanese Minor: Asian Languages 251-252 or its equivalent is a prerequisite to the minor. The minor shall consist of at least 18 hours of Japanese courses numbered 251-252 or 351-352, and 6 hours from Asian Languages 351-352 or other Japanese courses above 300.

The Portuguese Minor: Consists of 18 hours in courses numbered 300 or above. Students pursuing a minor are strongly advised to consult with a department advisor.

The Spanish Minor: Consists of 18 hours in courses numbered 300 or above. Students pursuing a minor are strongly advised to consult with a department advisor.

The Russian Minor: Russian 201-202 or its equivalent is a prerequisite to the minor. The minor shall consist of at least 18 hours of Russian courses numbered 201-202, 311-312; and 6 hours from Russian 231-232 or other Russian courses numbered above 300.

The Spanish Minor: Consists of 18 hours in courses numbered 300 or above. Students pursuing a minor are strongly advised to consult with a department advisor.

The Japanese Minor: Asian Languages 251-252 or its equivalent is a prerequisite to the minor. The minor shall consist of at least 18 hours of Japanese courses numbered 251-252 or 351-352, and 6 hours from Asian Languages 351-352 or other Japanese courses above 300.

The French Minor: Consists of 18 hours in courses numbered 300 or above, distributed as follows: 333 or 334, 341-342; 421; plus 6 hours of elective at the 300 or 400 level. French 300 does not count toward the minor, but is recommended for students needing grammar review.

The German Minor: 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 includes German 301-302 and 6 additional hours of courses numbered above 300 (excluding 301-302 and courses in English translation).

The Italian Minor: Consists of 18 hours in courses numbered 311 or above. Students pursuing a minor are strongly advised to consult with a department advisor.

The Japanese Minor: Asian Languages 251-252 or its equivalent is a prerequisite to the minor. The minor shall consist of at least 18 hours of Japanese courses numbered 251-252 or 351-352, and 6 hours from Asian Languages 351-352 or other Japanese courses above 300.

The French Minor: Consists of 18 hours in courses numbered 300 or above, distributed as follows: 333 or 334, 341-342; 421; plus 6 hours of elective at the 300 or 400 level. French 300 does not count toward the minor, but is recommended for students needing grammar review.

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The German Minor: 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 includes German 301-302 and 6 additional hours of courses numbered above 300 (excluding 301-302 and courses in English translation).
Students entering any of the three emphases in music education must complete the same audition procedures as those of performance majors. At the end of the second year or after having completed the required courses, students will participate in an interview with an appointed Admissions Board. Upon receiving the positive recommendation from this board, students are admitted to the teacher education program and permitted to take upper division education courses.

Students who wish to pursue the music education curriculum are subject to all rules and requirements of the Teacher Education Program, notwithstanding the fact that their degree will be awarded from the College of Arts and Sciences.

ENSEMBLES
Ensemble participation during each semester of residence is required of all students studying applied music. Students are required to participate in ensembles appropriate to their specific degree program as approved by the faculty of the department. Singing students must participate in the university symphony orchestra. The School of Music requires all music students to participate, with credit or as a non-credit auditors, in a major instrumental or vocal organization each term in residence (on campus) as a music major; as approved by the student's advisor and the organization concerned. Students preparing to be directed auditors are expected to enroll in marching band, wind ensembles, or singing ensembles. Students must consult the School of Music Undergraduate Handbook for additional information on ensemble requirements.

APPLIED MUSIC
Students majoring in vocal, instrumental or involved in an instrumental or vocal ensemble such as the Glee Club or the Men's Chorus. The School of Music requires all music students to participate, with credit or as a non-credit auditors, in an ensemble of applied music every semester. Students must consult the School of Music Undergraduate Handbook for additional information on ensemble requirements.

APPLIED MUSIC
Students majoring in vocal, instrumental or involved in an instrumental or vocal ensemble such as the Glee Club or the Men's Chorus. The School of Music requires all music students to participate, with credit or as a non-credit auditors, in an ensemble of applied music every semester. Students must consult the School of Music Undergraduate Handbook for additional information on ensemble requirements.
### B.M. Curriculum in Music Education—
#### Vocal/General Concentration/Keyboard Emphasis (5-year option)

<table>
<thead>
<tr>
<th>Hours Credit</th>
<th>Requirement</th>
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<tbody>
<tr>
<td>127</td>
<td>Total: 134 hours plus 24 graduate hours</td>
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<tr>
<td>6</td>
<td>Enrichment</td>
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<td>9</td>
<td>Major Area</td>
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<td>3</td>
<td>Electives in Music Education or Music History</td>
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### B.M. Curriculum in Music Education—
#### Music Performance (Keyboard) Emphasis (4-year option)

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### B.M. Curriculum in Music Education—
#### Major Area

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<td>3</td>
<td>Electives in Music Education or Music History</td>
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### B.M. Curriculum in Music Education—
#### Vocal General Concentration/Keyboard Emphasis (4-year option)

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### B.M. Curriculum in Music Education—
#### Vocal General Concentration/Keyboard Emphasis (5-year option)

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**B.M. Curriculum in Music Education/Vocal—General/Vocal Emphasis (4-year alternative)**

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<tbody>
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