Graduate Studies

The College of Law
Kenneth L. Penegar, Dean
Mary Jo Hoover, Associate Dean
Julia P. Hardin, Assistant Dean
N. Douglas Wells, Assistant Dean

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

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

College of Veterinary Medicine
Hyram Kitchen, Dean
W. H. Grau, Jr., Associate Dean
C. F. Reed, Jr., Associate Dean

The College of Veterinary Medicine, established in 1974, offers a professional curriculum leading to the degree of Doctor of Veterinary Medicine (D.V.M.). The College offers graduate studies leading to the degrees of Master of Science (M.S.) and Doctor of Philosophy (Ph.D.). Residency training programs in the various clinical specialties are also offered. The Graduate Catalog contains complete information concerning the programs in the college.

Forms and instructions for making application for admission may be obtained from the Director of Admissions, 202 Student Services Building, The University of Tennessee, Knoxville, Tennessee 37996. Applications must be received by January 15 of the year of expected admission. All prerequisites must be completed by the end of the spring term of the year in which the student plans to enroll in the college.

The Graduate School
Clarence W. Minkel, Vice Provost and Dean of the Graduate School
Mary P. Richards, Associate Dean of the Graduate School
Thomas H. Klintd, Assistant Dean of the Graduate School
Diana Lopez, Director, Graduate Admissions and Records
Rose Ann Trantham, Assistant Director, Graduate Admissions and Records

The University of Tennessee, Knoxville, is the official land-grant institution for the State of Tennessee. It is a comprehensive institution offering a wide range of graduate programs leading to the master's and doctoral degrees. The University offers master's programs in 109 fields of specialization and doctoral work in 51. Approximately 6,000 graduate students are enrolled, both on and off campus. Administration of graduate student policies and regulations, and associated record keeping, is the responsibility of the Dean of the Graduate School. Much of the day-to-day administration of graduate study is conducted by department heads or faculty advisors and committees responsible for particular programs. In addition to departmental units, numerous interdisciplinary programs, institutes and centers have been developed on campus and in locations throughout the state.

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

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

Graduate School of Biomedical Sciences
W. E. Barnett, Director

Full-Time Faculty
Professors:
D. Billen, Ph.D. Tennessee; D. E. Olins, Ph.D. Rockefeller.

Assistant Professor:
C. Soumoff, Ph.D. California (Los Angeles)

Research Professor:
A. L. Olins, Ph.D. New York
Research Associate Professor:
C. T. Hadden, Ph.D. Washington.

The Graduate School of Biomedical Sciences publishes supplementary information in addition to the regular Graduate Catalog. All inquiries concerning admission should be addressed to: Director, The University of Tennessee-Oak Ridge Graduate School of Biomedical Sciences, Biology Division.
### Majors and Degree Programs

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Comparative and Experimental Medicine

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

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

The UTCHS College of Medicine/Knoxville Unit offers the courses listed below.

Graduate School of Library and Information Science (620)
Ann E. Prentice, Director

Professors:
tor), D.L.S. Columbia; G. R. Purcell, Ph.D. Case Western Reserve; P. Wilson, Ph.D. Michigan.

Associate Professors:
J. M. Pemberton, Ph.D. Tennessee; W. C. Robin
son, Ph.D. Illinois; G. M. Sinkankas, Ph.D. Pittsburgh.

Assistant Professors:
M. H. Karrenbrock, Ph.D. University of Georgia; M. S. Stephenson, Ph.D. North Texas State.

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

The Undergraduate Program

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

The minimum requirements for a full-time position as school librarian in the state of Tennessee (both elementary and secondary) can be met through fulfilling the requirements for teacher certification and completion of the following library courses: 3510, 3520, 4320, 4140, 4150, 4270, 4330, and 4750.

The Graduate Program

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

UNDERGRADUATE

3510 Books and Related Materials for Children (3) Readings based on materials for children in leisure time or classroom activities; criteria for selecting books, magazines, recordings, films and related materials; story-telling and other devices for encouraging reading. Undergraduate credit only. Prereq: Admission to teacher education or minor standing in College of Liberal Arts. (Same as Educ. C & I 3510.)

3520 Books and Related Materials for Young People (3) Basically same approach as 3510, but adapted to needs and interests of teenagers. Undergraduate credit only. Prereq: Admission to teacher education or junior standing in College of Liberal Arts. (Same as Educ. C & I 3520.)

4140 Libraries and Librarianship (3) Librarianship as an occupation: its organization, responsibilities, problems, and prospects.

4150 School Library Administration (3) Objectives, functions, and places of school library; relationship to local and state services; cooperative planning for quarters and materials; evaluation. (Same as Educ. C & I 4150.)

4320 Adult Materials and Reading Interests (3) Fiction and subject categories; popular and standard; evaluation of materials to meet adult interests; consideration of selection aids.

4330 Introduction to Reference Materials (3) Basic information sources and services for all libraries.

4750 Utilization of Instructional Media (3) (Same as Educ. C & I 4750 and Vocational-Technical Education 4750.)

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

Life Sciences

Coordinating Council:
W. H. Calhoun (Chair); Animal Physiology: H. G. Welch; Cellular, Molecular and Developmental Biology: J. M. Becker; Environmental Toxicology: W. R. Farkas; Ethology: G. M. Burghardt; Plant Physiology & Genetics: O. J. Schwartz.

The programs leading to the M.S. and Ph.D. degrees in Life Sciences are interdepartmental and intercollegiate programs which augment the programs of individual departments.

The graduate program in Life Sciences supports studies and research in the following concentrations: animal physiology, cellular, molecular and development biology, environmental toxicology, and plant physiology and genetics. Students interested in any of these areas should contact either the chairperson or the director of the area of interest. For complete information, refer to the Graduate Catalog.

Graduate School of Planning (782)
J. A. Spencer, Director

Professors:

Associate Professors:
G. E. Bowen, M.A. George Washington; D. P. Middendorf, Ph.D. Tennessee.

Assistant Professors:
P. Fisher, Ph.D. Florida State; A. Loebi, Ph.D. Missouri.

The Graduate School of Planning offers a program of studies leading to the profes-
Graduate School of Social Work (905)

Ben P. Granger, Dean
Lou M. Beasley, Director, Nashville Branch
Jenny Cates, Director, Doctoral Program
Ronald K. Green, Director, Office of Continuing Social Work Education
M. Kate Mullins, Director, Memphis Branch
Roger M. Nooe, Director, Knoxville Branch

Professors:
B. P. Granger (Dean), Ph.D., Brandeis; M. H. Bloch, M.S. Ohio State; R. C. Bonovich, D.S.W. Washington (St. Louis); G. W. Frey, Ed.D. Columbia; G. McLaran (Emeritus), M.S.S.W. Tennessee; M. K. Mullins, Ph.D. Chicago; R. M. Noee, D.S.W. Tennessee; B. R. Oakhill (Emeritus), M.S. Western Reserve; H. Rubenstein, Ph.D. Chicago; S. W. Spencer (Emeritus), M.S. New York School of Social Work.

Associate Professors:

Assistant Professors:
P. M. Campbell, D. S. W. Alabama; S. S. Chipungu, Ph.D. Michigan; J. Charping, Ph.D. Peabody; J. C. Collier, M.S.W. Tulane; I. C. Faust, Ph.D. Michigan; M. D. Gloy, M.S.S.W. Atlanta; V. A. Gates, M.S.S.W. Tennessee; J. Jennings, Ph.D. Michigan; D. C. Johnston, M.S.W. California (Bishop); C. Lee, M.S.S.W. Tennessee; S. Stoddard, M.S.W. San Francisco State; M. P. Strong, M.S.W. Tulane.

The University of Tennessee School of Social Work is a fully accredited two-year graduate professional school, with a program (thesis or non-thesis option) leading to the degree of Master of Science in Social Work. The master's curriculum is offered in all three branch locations.

The School also offers a Doctor of Philosophy degree with a major in Social Work. Emphasis is upon the study of practice and knowledge building.

A special bulletin describing the facilities, admission, fees, and degree requirements is obtainable from the Master of Science in Social Work, Henson Hall, Knoxville, Tennessee 37996-3333. Consult the Graduate Catalog for listing of graduate level courses.

Space Institute

Kenneth E. Harwell, Dean
Arthur A. Mason, Associate Dean

Professors:
M. All, Ph.D. Aligarh University (India); F. G. Collins, Ph.D. University of California (Berkeley); L. W. Crawford, Ph.D. Cincinnati; J. B. Dicks, Jr.; Ph.D. Vanderbilt; W. M. Farmer, Ph.D. Tennessee; W. Frost, Ph.D. Washington; G. W. Garnon, Ph.D. North Carolina State; B. H. Goethert (Emeritus); Ph.D. Technical University of Berlin; K. E. Harwell (Dean), Ph.D. California Institute of Technology; W. H. Heiser, Ph.D. Massachusetts Institute of Technology; D. R. Keefe, Ph.D. University of Florida; M. Kurosaka, Ph.D. California Institute of Technology; J. W. L. Lewis, Ph.D. University of Mississippi; A. A. Mason, Ph.D. Tennessee; C. E. Peters, Ph.D. Appl. Sci. University of Brussels; K. C. Reddy, Ph.D. Indian Institute of Technology (India); F. Shahroksi, Ph.D. Oklahoma; J. D. Westbrook, Ph.D. Virginia Polytechnic Institute; M. A. Williamson, Ph.D. Yale Graduate School; J. M. Wu, Ph.D. California Institute of Technology; Y. L. Wu, Ph.D. California Institute of Technology; R. L. Young, Ph.D. Northwestern.

Associate Professors:
B. N. Antar, Ph.D. University of Texas; J. E. Caruthers, Ph.D. Georgia Institute of Technology; H. W. Crater, Ph.D. Yale; R. A. Crawford, Ph.D. Tennessee; R. C. Engels, Ph.D. Virginia Polytechnic Institute; J. H. Hansen, Ph.D. Missouri; D. Joseph, Ph.D. Case Institute of Technology; R. D. Kimberlin, M.S. Tennessee; K. R. Kimble, Ph.D. Ohio State; D. L. Koni, Ph.D. State; B. A. Kupershmidt, Ph.D. Massachusetts Institute of Technology; T. H. Moulden, Ph.D. Tennessee; C. T. Paludan, Ph.D. Denver; A. Pujol, Ph.D. Vanderbilt; R. J. Schulz, Ph.D. Tennessee; A. C. Sheth, Ph.D. Northwestern University; J. S. Steinhoff, Ph.D. Chicago.

Assistant Professors:

*Alumni Distinguished Service Professor

The University of Tennessee Space Institute is an interdisciplinary institute of graduate study and research offering academic programs leading to the M.S. and Ph.D. degrees in selected areas of engineering, mathematics, and computer science.


In addition to the fundamental studies characteristic of each discipline, research opportunities for theses and dissertations are available in many aspects of atmospheric and space flight such as aeronodynamics, atmospheric science, propulsion, flight performance, fluid dynamics, gas diagnostics by spectroscopic and electro-optic techniques, laser applications, thermal sciences, energy conversion, remote sensing, computational mechanics, knowledge engineering and computer graphics. The faculty, research activities and facilities of the Institute provide students with an unusual opportunity to participate in significant research in these areas. Students who enroll at UTSI are admitted to The Graduate School, UTK. Graduate research assistantships are available for qualified students. Further information may be obtained by contacting the Admissions Officer, The University of Tennessee Space Institute, Tullahoma, Tennessee 37388-8897 (615-455-0631). Consult the Graduate Catalog for listing of graduate level courses.

Transportation Center

Director:
M. S. Bronzini, Ph.D. Pennsylvania State, P.E.

Associate Director:
D. P. Middendorf, Ph.D. Tennessee.

Assistant Directors:
J. D. Beeson, B.S. Emporia; D. H. Jones, M.S. Tennessee, P.E.

Research Engineer:
S. H. Richards, M.E. Texas A&M, P.E.

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

Water Resources Research Center

William F. Brandes, P.E., Director

The Water Resources Research Center is a federally designated institute for the conduct of water research for the state. The purposes of the Center are: (1) to assist and support all the academic institutions of the state, public and private, in pursuing water resources research programs needed by the state; (2) to provide information, dissemination and technology transfer services to state and local government bodies, academic institutions, professional groups, environmental organizations, and others, including the general public, who have an interest in water resources matters; (3) to promote education in fields relating to water resources and to encourage the entry of promising students into careers in these fields.
The Institute of Agriculture traces its history back 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 enabled for the first time to offer instruction in agriculture. This later was expanded to include research for the development of new knowledge and extension for dissemination of such knowledge to rural people. Today, the Institute has four main divisions: College of Agriculture, College of Veterinary Medicine, Agricultural Experiment Station, and Agricultural Extension Service. In addition to agriculture and veterinary medicine the Institute conducts research and extension programs in home economics.

### Agricultural Experiment Station

**Dorsey M. Gossett, Dean**

**Thomas J. Whately, Associate Dean**

**John I. Sewell, Assistant Dean**

The Agricultural Experiment Station was established in 1887 by an act of Congress known as the Hatch Act. The purpose of the Experiment Station is to promote fundamental and applied research on all problems primarily affecting the people of Tennessee, but also having national and international implications. The research program embraces studies of the productivity of soils, plants, animals, other capital and people and the combination of these resources necessary to maintain a viable agriculture. Specific research projects relate to development of new and improved crop varieties, insect, disease, and weed control methods, cultural and harvesting techniques, and improved genetics, nutrition, physiology and management of livestock. Other studies deal with various aspects of processing and distribution of food and fiber, consumer preferences, food safety and nutritional needs and maintenance of institutions to serve people. The results of investigations are carried to the clientele in the form of bulletins, Circulators, and reports through the Agricultural Extension Service, and the state educational system through the Colleges of Agriculture and Education.

Headquarters as well as the Main Station of the Agricultural Experiment Station are located at Knoxville. Eleven branch stations are located across the state. These stations are essential as research laboratories to test the performance of crop and livestock enterprises grown under different soil, climatic, and environmental conditions. The locations of the Branch Stations are as follows:

**Ames Plantation** near Grand Junction includes 18,500 acres (about 10,000 acres in forest). The resources are held in trust by the Hobart Ames Foundation for use by the Institute of Agriculture. Large scale experiments involve forestry, farm management, crop production, and genetics and management of beef cattle and swine.

**Dairy Experiment Station** near Lewisburg is operated in cooperation with USDA/SEA/AR. Major emphases are genetics, physiology, nutrition, and management of Jersey cattle. Production, handling and preservation of feed for dairy cattle are also being evaluated along with waste management systems.

**Forestry Experiment Stations and Arboretum** at Oak Ridge, Tullahoma, and Wartburg. The 250-acre arboretum at Oak Ridge places emphasis on woody plants. Research in forestry studying genetics, species adaptation, fertilization, and other management practices is under way on the adjoining land. The Cumberland forest consists of two tracts of land in Morgan and Scott counties. Research at this location deals with many of the forest problems in the Cumberland including strip-mine reclamation. The Highland Rim Forestry Station is located near Tullahoma. Research at this location deals primarily with tree improvement through genetics and also management problems associated with the forest of the Highland Rim.

**Highland Rim Experiment Station** near Springfield emphasizes research on field crops and beef cattle. A major thrust is on the development and culture of improved darkfired tobacco varieties. Other research involves problems associated with other agronomic crops, horticultural crops, forages produced on the Highland Rim, and management of beef cattle.

**Middle Tennessee Experiment Station** near Spring Hill is representative of high-phosphate Central Basin soils. Research studies are underway with agronomic crops, vegetables, fruits, ornamental horticulture, beef cattle, and dairy cattle of the Holstein breed.

**Milan Experiment Station** is located in West Tennessee. Research emphases are production problems and mechanization of corn, cotton, and soybeans. Minimum tillage and other approaches to reduce soil erosion are major thrust at this location.

**Plateau Experiment Station** near Crossville consists of three farms. Studies with beef cattle, and agronomic and vegetable crops provide information about results to be expected under the cooler, more humid climate and special soil conditions of the Cumberland Plateau.

**Tobacco Experiment Station** is located near Greeneville. Extensive research on all phases of burley tobacco is in cooperation with USDA/SEA/AR. In addition, research is underway with beef cattle and other field crops.

**UT Martin**—The research farm, adjacent to the UT Martin campus, is used for both research and teaching. The research staff at Martin, jointly employed by the Experiment Station and the School of Agriculture, cooperate with other station personnel in planning and conducting research on field crops, beef cattle, dairy cattle, and swine. Emphasis is on problems of importance to the northwestern part of the state.

**West Tennessee Experiment Station** is located at Jackson. Major emphases are all phases of production on agronomic crops produced in the western part of the state. In addition, research deals with problems asso-
ciated with fruit and vegetable production and dairy production. The USDA/SEA AR cooperates with research on the soybean cyst nematode.

Agricultural Extension Service

M. L. Downen, Dean
Troy W. Hinton, Associate Dean
Mildred F. Clarke, Associate Dean
B. G. Hicks, Assistant Dean

The Agricultural Extension Service serves the entire state of Tennessee. This educational service of the Institute of Agriculture is active in every county extending information on agriculture, home economics, and related subjects to farm families and other citizens.

This educational organization was established July 1, 1914, by an act of Congress commonly known as the Smith-Lever Act. Staff members of the Agricultural Extension Service use a wide range of methods—farm and home visits, educational meetings, field demonstrations, publications, and mass media—in providing educational programs for people who do not have the opportunity to enroll in resident courses of instruction at colleges.

Extension staff members develop and carry out programs to meet the specific needs of the residents of their counties. They work with both adults and youth. Educational activities for boys and girls are organized in schools and in communities.

County, state, and federal governments cooperate in carrying out the Agricultural Extension Service program. The United States Department of Agriculture, the State of Tennessee, and each county government provide the financial support. Any county of Tennessee, and each county government provide the financial support. Any county must have an office located there to serve its residents. Most offices are located in county seat towns. Headquarters for the Agricultural Extension Service is at Knoxville and district administrative offices are located in Cookeville, Knoxville, Chattanooga, Nashville, and Jackson.

As a distinct administrative unit of the Institute of Agriculture, the Agricultural Extension Service works closely with the other units of the Institute—the Agricultural Experiment Station, the College of Agriculture, the College of Veterinary Medicine—in providing a total program of research, instruction, and extension for developing the agriculture of the state.

College of Agriculture

O. Glen Hall, Dean

Curricula 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 Agriculture. The college provides curricula leading to the degrees of Bachelor of Science in Agriculture, Bachelor of Science in Agricultural Engineering, 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 agricultural engineering receives strong support from the College of Engineering and is fully accredited by the Accreditation Board for Engineering and Technology. The forested curriculum is 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 business, agricultural economics and rural sociology, agricultural education, agricultural mechanization, 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. A student must complete the curriculum outlined by the department in which the student is 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. In all subject matter departments there is 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.

All academic and general 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 Agriculture from other than the UTK campus must have a grade point average of 2.0. Each curriculum leading to the degree of Bachelor of Science in Agriculture includes the requirements of the basic curriculum for agriculture. For this degree, the minimum requirement is 186 quarter-hour credits. A minimum of 45 hours in agricultural courses is required. For the degrees of Bachelor of Science in Forestry and the Bachelor of Science in Wildlife and Fisheries Science, the minimum requirement is 186 quarter-hour credits. For the degree of Bachelor of Science in Agricultural Engineering, the minimum requirement is 200 quarter-hour credits.

The use of transfer credit in technical agriculture appropriate to each organized curriculum will be considered and approved by the advisor of that curriculum and the dean of the College of Agriculture. 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 quarter in residence and must be requested under the supervision of the head of the department in which the course is offered.

DOCTORAL PROGRAMS

Graduate study programs lead to the Doctor of Philosophy degree in animal sciences, agricultural economics, agricultural engineering, food technology and science, and plant and soil science.

General requirements and policies of The Graduate School of The University of Tennessee relating to admission to the Graduate School, residence, language, research, examination, and admission to candidacy shall apply to these programs and are described in the Graduate Catalog.

Facilities

The College of Agriculture uses the facilities on the agricultural campus, on University farms located near Knoxville, and on the main University campus. On the agricultural campus are found the main agricultural building, Morgan Hall; the Agricultural Engineering Building; McCord Hall; the Dairy Products Building; McLeod Food Technology Building; C. E. Brehm Animal Sciences Building, which includes a large pavilion; Ellington Plant Sciences Building which houses the plant science departments; and greenhouse and experimental work. The buildings which have been erected recently provide facilities comparable to the best in the country for the departments which they serve.

Four farms adjacent to or within eight miles of the agricultural campus are used both for instructional and experimental purposes. Morgan Farm (60 acres), Cherokee Farm (550 acres), Plant Science Farm (212 acres), and a livestock farm (510 acres) provide excellent field laboratory facilities for instructional programs offered in the Col-
Selection of Curriculum

Agricultural students who have determined their area of special interest may choose the curriculum most adaptable to their needs when they register as freshmen, and an advisor from the department will be assigned for their counseling. It is not necessary, however, that freshman students select their curriculum until the end of the first year. Those who are in doubt will be assigned a special advisor to assist them in exploring agriculture and to guide them in the planning of appropriate courses of study for the freshman year. When they choose a curriculum, an advisor will be assigned from that department.

Students with special interest in science, business, or production technology should consult the advisor about selection of appropriate electives. A foundation for advanced study beyond the baccalaureate degree may be established in any curriculum if appropriate electives are included; also, courses may be elected in any of the curricula leading to the degree of Bachelor of Science in Agriculture, in preparation for employment with the Agricultural Extension Service. For this purpose, both 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 major by satisfying all the requirements in each curriculum. For this purpose, the advisors of each curriculum should be consulted, the dean of the College of Agriculture should be informed, and each advisor should maintain a complete record of the student's progress.

Optional Minors: Agricultural students may have single or multiple minors in agriculture or in other colleges recorded on their transcripts without to course overlap among majors and minors. A minor in a department of the College of Agriculture requires a minimum of 24 credit hours in courses numbered 1000 and above with the majority of credit hours at the 3000 and 4000 level. At least 12 of the credit hours required for the minor must be completed at UTK. Specific requirements are listed by each department offering a minor. Minors offered in the College of Agriculture are open to students of other colleges who have the approval of their advisor and department.

Students who transfer to the College of Agriculture from another institution, or from another college in UTK, should consult the dean if in doubt about the curriculum they wish to follow and for assignment to an appropriate advisor. Requests for substitutions or special examinations should be submitted for consideration during the first quarter of study in the selected curriculum.

**BASIC CURRICULUM FOR AGRICULTURE**

All students except those majoring in Food Technology and Science working for the degree of Bachelor of Science in Agriculture will include in their course of study the following minimum requirements. The sequence and the selection of courses not specified will be guided by the advisor.

**Hours Credit**

| Agriculture 1110. Introduction to Social Science for Agriculture | 4 |
| Agriculture 1129. Introduction to Agricultural Engineering | 4 |
| Agriculture 1130. Animal Science for Agriculture | 4 |
| Agriculture 1140. Food Technology and Science for Agriculture | 4 |
| Agriculture 1150. Food Technology and Science for Agriculture | 4 |

**Agricultural Science.** (courses listed in department curriculum) | 26 |

- **English and Communications.** ("English 1010 or 1011; 1020 or 1021, 1031 or 1032, Speech 2311, and elec. in literature or communications) | 18 |
- **Mathematics 1450-50-60.** (general mathematics) | 12 |
- **Biological Science.** (entomology and plant pathology, biology, botany, microbiology, or zoology) | 12 |
- **Physical Science.** (Chemistry 1110-20-30 or 1510-30 and physics or geology) | 16 |
- **Social Science and Humanities.** ("Economics 210-20-30 and electives, 10 hours not more than 3 areas) | 18 |

**Other Courses or Electives Hours Specified By Departments** | 76
total: 198

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1. *Or equivalent honors courses.
2. The Mathematics 1840-50-60 sequence may be necessary in some courses of study.
4. *Exception—See Agricultural Business and Agricultural Economics.

The five basic courses in agriculture are not departmental, but the course outlines and content were prepared by a group of experienced teachers representing the appropriate programs. They are presented by a team of teachers who work together in developing material in each course. The five courses are required of all agricultural students, except those majoring in Food Technology and Science, who seek the degree of Bachelor of Science in Agriculture, and the five teaching teams coordinate their work carefully to insure a unified program. A major purpose of this basic program is to present freshman agricultural students an appropriate concept of modern agriculture, its role in our economic and social structure, the unity among its several segments, and its relationship to other areas of study. Basic subject-matter concepts are presented to prepare suitable foundations for further study. These courses serve as strong motivation for study in the physical, biological, and social sciences, and are prerequisite to advanced courses in technical agriculture.

An Honors Seminar is offered as a challenge to exceptional students who desire to explore in greater depth some special topics of unusual significance to agriculture. A team of faculty members shares in this seminar as participants and resource people. The 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 in the study of a common problem provides an unusual challenge.

**Referees**

Students desiring to take more than 19 hours per quarter must have the approval of the dean of the college.

**Agricultural Economics and Rural Sociology**

**AgricultURAL BUSINESS CURRICULUM**

Advisors: Professors Martin, Brooker, McLemore, Mundy. Associate Professors: Park and Whipple. Assistant Professor: Markley.

This curriculum is designed to prepare students for employment in the rapidly expanding field of agricultural business. Recognition is given to the desire of many college graduates to continue to work with agriculture through many private and public services where major emphasis is in areas other than farm production. This program emphasizes particularly those capacities needed for the management phases of agricultural business. Course offerings in the College of Business Administration have been used freely in this curriculum.

Preparation is given for such work in crores, livestock marketing, fertilizer and feed business, cooperative business management, agricultural credit agencies, farm real estate and appraisal services, agricultural representatives with banks, public and private market analysis, agricultural journalism, and farm information services utilizing mass communications.

Minor in Agricultural Business consists of 30 credit hours including Economics 2510-20, Agricultural Economics 3120 or 3320, Agricultural Economics 3410 or Accounting 2110, Agricultural Economics 4120 or 4610, 13 hours of Agricultural Economics and Rural Sociology electives.

**Referees**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>Agriculture 1110-20-30-40-50</td>
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<td></td>
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<tr>
<td>Biology 1210-20</td>
<td>8</td>
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<tr>
<td>Economics 1010 or 1011; 1020; 1031 or 1032</td>
<td>10</td>
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<tr>
<td>Mathematics 1540-50-60 or 1840-50-60</td>
<td>12</td>
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<tr>
<td>Sociology 210-20-30</td>
<td>6</td>
<td></td>
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<tr>
<td>Agricultural economics 2410</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Biological science elective</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Chemistry 1110-20 or 1510-20 or Physics 1210-20 or Geology 1410-20 or Chemistry 1110-20-30 or 1510-20-30 or Physics 1210 or Geology 1410</td>
<td>16</td>
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<tr>
<td>Computer Science 1410 or 1510 or Office Administration 2750</td>
<td>3 or 4</td>
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<tr>
<td>Economics 2510-20</td>
<td>8</td>
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<tr>
<td>Non-departmental social science and humanities electives</td>
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<tr>
<td>Speech 2361 or 2311</td>
<td>4</td>
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</tr>
<tr>
<td>Statistics 2100</td>
<td>4</td>
<td></td>
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<tr>
<td>Electives</td>
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<tr>
<td>Junior Accounting 2110-20-30</td>
<td>9</td>
<td></td>
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<tr>
<td>Agricultural Economics 3320</td>
<td>3</td>
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<tr>
<td>Agricultural economics and rural sociology elective</td>
<td>3</td>
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<tr>
<td>Economics 3110</td>
<td>3</td>
<td></td>
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<tr>
<td>Journalism 2210</td>
<td>3</td>
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<tr>
<td>Non-departmental agricultural electives</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Non-departmental social science and humanities electives</td>
<td>8</td>
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</tbody>
</table>
**Agricultural Education**

**Advisors: Professors Wiegens and Craig; Associate Professor Todd**

The curriculum in agricultural education is planned in cooperation with the College of Education. All agricultural education courses are offered in the College of Education. This curriculum is designed to prepare students for entering professional agricultural education. Graduates are qualified to teach vocational agriculture. The curriculum also provides training for those who wish to enter farming, industry, and governmental services associated with agriculture, and other occupations.

The senior courses in agricultural education (except Ag. Ed. 4110) are taught at selected off-campus centers. These courses are scheduled concurrently each quarter during the regular school year.

Students should file applications for student teaching in the College of Education. (See admission to Teacher Education and Student Teaching section.)

Students meeting the requirements for general vocational agriculture certification may secure endorsements in ornamental horticulture and agricultural mechanics by meeting the following requirements:

- **Ornamental Horticulture**—18 quarter hours of courses in ornamental horticulture and landscape design and/or plant and soil science. Subject matter areas must include plant propagation, greenhouse management, growing media, landscape design, and nursery management.
- **Agricultural Mechanics**—18 quarter hours of courses in agricultural mechanization. Subject matter areas must include agricultural power and machinery, soil and water conservation, and agricultural structures.

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**Agricultural Engineering**

**AGRICULTURAL ENGINEERING CURRICULUM**

**Advisors: Professors Luttrel, Bledsoe, Henry, McDow, Tompkins, and Wilhelm. Associate Professors: Mole and VonBhunen.**

The College of Agriculture, with the cooperation of the College of Engineering, offers a four-year curriculum leading to the degree of Bachelor of Science in Agricultural Engineering. The curriculum is fully accredited by the Accreditation Board For Engineering and Technology. Industry, government agencies, research and testing organizations, and foreign service offer employment opportunities to agricultural engineers.

The minimum requirements for admission include two units of algebra, one unit in geometry, and one-half unit in trigonometry. Students may remove deficiencies by registering for special classes during the freshman year.

The curriculum gives training in the fundamentals of engineering applied to problems of agriculture. In the senior year, the comprehensive design of systems and their components is emphasized.

Graduates may pursue careers in design, analysis, or development in these following specialty areas: agricultural power and machinery, agricultural structures and environment, electric power and processing, soil and water conservation engineering, and food engineering.

The curriculum provides for elective courses which can be taken in the student's area of interest. Students should check with their advisors each quarter regarding the selection of courses.

Students majoring in agricultural engineering are eligible to participate in the Engineering Cooperative Scholarship program, Engineers' Day program, and other student activities in the College of Engineering. They are also eligible for selection into Tau Beta Pi and Alpha Zeta. Agricultural engineering majors interested in the Cooperative Engineering Scholarship program should consult with the head of the Department of Agricultural Engineering.

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**Rural Sociology 3420**

**Statistics 3220**

**Economics electives**

**Animal Science 4820**

**Horticulture electives**

**Geology or physics electives**

**English, Journalism, speech electives**

**Agricultural Mechanization 3110**

**Agricultural Education 3110**

**Basic Engineering 1310-20-30**

**Basic Engineering 1410**
Agricultural products, materials, and services related to agricultural communication, public relations, extension workers and other interested students. Graduates are employed in industry, government, and educational institutions generally in the areas of management, promotion, sales, and training related to agricultural products, materials, and services. Minor in Agricultural Mechanization consists of 28 hours as follows: 2110, 2130, 3110, 3120, 3220, 4210, and any three (3) courses from the following: 3510, 3560, 4160, 4170, 4810. Prerequisites will not be waived.

Freshman

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<td>Business 1230</td>
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<tr>
<td>English 1010 or 1011, 1020, 1031 or 1032 or 1033</td>
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</tr>
<tr>
<td>Mathematics 1540-50-60</td>
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Sophomore

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<tr>
<td>Animal Science 2810</td>
<td>3</td>
</tr>
<tr>
<td>Chemistry 1110-20-30 or 1510-20-30</td>
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<tr>
<td>Economics 2510-20</td>
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<td>Journalism 2210</td>
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<tr>
<td>Physics 1210-20</td>
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<tr>
<td>Plant and Soil Science 2130</td>
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<tr>
<td>Speech 2311</td>
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Junior

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<td>Agricultural Mechanization 3510 or 3570</td>
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<td>Computer Science 3150</td>
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</tr>
<tr>
<td>Agricultural Engineering 3640</td>
<td>3</td>
</tr>
<tr>
<td>Agricultural engineering electives</td>
<td>6</td>
</tr>
<tr>
<td>Agricultural Engineering 4120</td>
<td>1</td>
</tr>
<tr>
<td>Agricultural Engineering 4130</td>
<td>3</td>
</tr>
<tr>
<td>Electrical Engineering 3130 or 2030</td>
<td>3</td>
</tr>
<tr>
<td>Humanistic-soc. studies electives</td>
<td>21</td>
</tr>
<tr>
<td>Technical electives</td>
<td>6</td>
</tr>
</tbody>
</table>

Total: 200 hours

1 Or equivalent honors course.
2 If Mathematics ACT is less than 28, take Mathematics 1700 prior to 1840 (see advisor for alternate course schedule).
3 Credit toward graduation will not be granted for Mathematics 1700.
4 A program of humanities-social studies electives must be planned by the student and approved by the student's advisor. This program should be prepared and approved before the end of the sophomore year and before electives are taken. Humanities-social studies electives may be taken from such areas as history, economics, government, literature, sociology, psychology, or fine arts (not more than three areas).
5 The selection of technical electives must have approval of student's advisor prior to registration in the course.

AGRICULTURAL MECHANIZATION CURRICULUM

Advisors: Professors Lufttrell, Blesdoe, Henry, McDow, Tompkins and Wilhelm.

Associate Professors: Mote and Von Bernuth.

The agricultural mechanization curriculum is administered by the Department of Agricultural Engineering and leads to the degree of Bachelor of Science in Agriculture. The curriculum prepares students to apply principles, techniques, and systems of engineering, agricultural science, and business to the broad industry of agriculture.

Agricultural mechanization courses encompass power and machinery, electrification and processing, structures and environment, and soil and water conservation. Students, with assistance from their advisor, may structure their program to obtain either a broad or a highly specialized education.

Graduates are employed in industry, government, and educational institutions generally in the areas of management, promotion, sales, and training related to agricultural products, materials, and services. Minor in Agricultural Mechanization consists of 28 hours as follows: 2110, 2130, 3110, 3120, 3220, 4210, and any three (3) courses from the following: 3510, 3560, 4160, 4170, 4810. Prerequisites will not be waived.

Freshman

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture 1110-20-30-40-50</td>
<td>20</td>
</tr>
<tr>
<td>Business 1230</td>
<td>3</td>
</tr>
<tr>
<td>English 1010 or 1011, 1020, 1031 or 1032 or 1033</td>
<td>3</td>
</tr>
<tr>
<td>Mathematics 1540-50-60</td>
<td>12</td>
</tr>
</tbody>
</table>

Sophomore

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural Mechanization 2110</td>
<td>3</td>
</tr>
<tr>
<td>Agricultural Mechanization 2130</td>
<td>3</td>
</tr>
<tr>
<td>Animal Science 2810</td>
<td>3</td>
</tr>
<tr>
<td>Chemistry 1110-20-30 or 1510-20-30</td>
<td>12</td>
</tr>
<tr>
<td>Economics 2510-20</td>
<td>6</td>
</tr>
<tr>
<td>Journalism 2210</td>
<td>3</td>
</tr>
<tr>
<td>Physics 1210-20</td>
<td>6</td>
</tr>
<tr>
<td>Plant and Soil Science 2130</td>
<td>4</td>
</tr>
<tr>
<td>Speech 2311</td>
<td>4</td>
</tr>
</tbody>
</table>

Junior

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accounting 2110</td>
<td>3</td>
</tr>
<tr>
<td>Entomology and Plant Pathology 3210</td>
<td>3</td>
</tr>
<tr>
<td>Agricultural Mechanization 3100</td>
<td>3</td>
</tr>
<tr>
<td>Agricultural Mechanization 3110</td>
<td>3</td>
</tr>
<tr>
<td>Agricultural Mechanization 3210-30</td>
<td>6</td>
</tr>
<tr>
<td>Agricultural Mechanization 3510 or 3550</td>
<td>4 or 3</td>
</tr>
<tr>
<td>Computer Science 1410 or Office Administration 2750</td>
<td>3</td>
</tr>
<tr>
<td>Microbiology 2810</td>
<td>3</td>
</tr>
<tr>
<td>Plant and Soil Science 3220</td>
<td>4</td>
</tr>
<tr>
<td>Social science or humanities electives</td>
<td>4</td>
</tr>
<tr>
<td>Option electives</td>
<td>6</td>
</tr>
<tr>
<td>Electives</td>
<td>9 or 10</td>
</tr>
</tbody>
</table>

Senior

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural Economics 3410 or 3440 or 3910</td>
<td>3</td>
</tr>
<tr>
<td>Agricultural Economics 4710</td>
<td>4</td>
</tr>
<tr>
<td>Agricultural Mechanization 4120</td>
<td>1</td>
</tr>
<tr>
<td>Agricultural Mechanization 4130</td>
<td>1</td>
</tr>
<tr>
<td>Agricultural Mechanization 4160</td>
<td>3</td>
</tr>
<tr>
<td>Agricultural Mechanization 4210-20</td>
<td>7</td>
</tr>
<tr>
<td>Agricultural Extension 3110</td>
<td>3</td>
</tr>
<tr>
<td>Food Technology and Science 3020 or 3840</td>
<td>3</td>
</tr>
<tr>
<td>or 4410</td>
<td>4</td>
</tr>
<tr>
<td>Special science or humanities electives</td>
<td>6</td>
</tr>
<tr>
<td>Option electives</td>
<td>6</td>
</tr>
<tr>
<td>Electives</td>
<td>9</td>
</tr>
</tbody>
</table>

Total: 198 hours

1 Or equivalent honors course.
2 To be approved by departmental advisor.
3 15 hours must be taken in either the Business and Industry Option or in the Production and Processing Option.

Agricultural Extension Education

Advisors: Professors Dotson, Dickson and Carter.

This curriculum is designed to prepare students for leadership careers in livestock and related industries. Swine, poultry, sheep, dairy, and beef cattle production and management may be involved, providing the opportunity for special or additional training in the dynamic livestock and husbandry technology (production). Through course selection, the student, therefore, may prepare for general or livestock farming, management, business, or science, or elect the pre-veterinary courses preparatory for specialization. Elective selection permits special training for work with feed companies, meat animal, milk, egg, or poultry production, managerial or marketing groups, other educational agencies, supply and equipment business, agricultural extension services, agricultural communication, public relations, and various organizations associated with agriculture.

Students have the opportunity, through appropriate course selection, to obtain double majors by combining the animal science curriculum with another curriculum. Students majoring in the animal science curriculum may if they desire arrange to minor in various other curricula. The requirements for these minors shall be stipulated by the departmental advisor for that particular curriculum. Students majoring in other curricula may opt to minor in animal science.

Students majoring in animal science consists of 28 credit hours including 2610, 2810, 3210, 3310, 3410, 3510 and one 4300 course and one 4800 course.
### Institute of Agriculture

Students outside of the College of Agriculture should add Agriculture 1130-39. Requests for substitution of similar courses in biology or zoology will be considered on an individual basis. It is suggested that the 3600 and 4800 series deal with the same class of livestock.

#### Freshman

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture 1110, 1130, 1140</td>
<td>8</td>
</tr>
<tr>
<td>Biology 1210, 1230</td>
<td>8</td>
</tr>
<tr>
<td>Chemistry 1110, 1120, or 1510-20</td>
<td>8</td>
</tr>
<tr>
<td>English 1010 or 1011; 1020; 1031 or 1032 or 1033</td>
<td>8</td>
</tr>
<tr>
<td>Mathematics 154-50-60 or 1840-50-60</td>
<td>12</td>
</tr>
</tbody>
</table>

#### Sophomore

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture 1210, 1150</td>
<td>8</td>
</tr>
<tr>
<td>Animal Science 2610, 2810 (core requirement)</td>
<td>7</td>
</tr>
<tr>
<td>Chemistry 1130 or 1530, and 3211-19 or 2230, or Biochemistry 3110, or Nutrition 3130</td>
<td>8</td>
</tr>
<tr>
<td>Economics 2510-50</td>
<td>8</td>
</tr>
<tr>
<td>Microbiology 2910-11</td>
<td>4</td>
</tr>
<tr>
<td>Plant and Soil Science 2130</td>
<td>4</td>
</tr>
<tr>
<td>Physics</td>
<td>4</td>
</tr>
<tr>
<td>Speech 2311 and communications elective</td>
<td>3</td>
</tr>
<tr>
<td>Electives</td>
<td>12</td>
</tr>
</tbody>
</table>

#### Junior

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-animal science agricultural electives</td>
<td>6</td>
</tr>
<tr>
<td>Animal science (core requirement: Animal Science 3210, 3220, 3230, 3320, 3410, 3420, 3510)</td>
<td>24</td>
</tr>
<tr>
<td>Directed electives—evaluation</td>
<td>3</td>
</tr>
<tr>
<td>Communications elective</td>
<td>2</td>
</tr>
<tr>
<td>Electives</td>
<td>12</td>
</tr>
<tr>
<td>Humanities-social science electives</td>
<td>6</td>
</tr>
</tbody>
</table>

#### Senior

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-animal science agricultural electives</td>
<td>6</td>
</tr>
<tr>
<td>Animal Science 4810 (core requirement)</td>
<td>4</td>
</tr>
<tr>
<td>Directed electives</td>
<td>12</td>
</tr>
<tr>
<td>Humanities-social science electives</td>
<td>27</td>
</tr>
</tbody>
</table>

Total: 198 hours

*Or equivalent honors courses.

Electives allow students to select an area for specialization. Those interested in production would select additional courses in agriculture; in business administration, economics, agricultural economics, finance, and accounting; in research in chemistry, zoology, physics, and statistics, etc. Electives should be chosen with career objectives in mind and in consultation with the advisor.

### PRE-VETERINARY MEDICINE OPTION CURRICULUM

Advisors: Professors Barth, Erickson, Lidwall, McLaren, Montgomery, Richardson, Shirley, Shrode; Associate Professors Backus, Hitchcock, Kattesh, Masincupp, Robbins, Waller; Assistant Professors Bell, Godkin, Heitmann, Oliver, Smalling

This program is designed to guide the student in meeting the admissions requirements of The University of Tennessee College of Veterinary Medicine. The completion of specific subject matter requirements and the attainment of a satisfactory grade point average comprise the minimum requirements for entrance into the professional curriculum of the College of Veterinary Medicine. However, each year the number of applicants is much greater than the number of available spaces. Therefore, meeting or surpassing the minimum requirements does not assure acceptance by the College of Veterinary Medicine, and each pre-veterinary medical student should, early in the college career, elect a possible alternative career choice. The admission requirements listed below are those required by The University of Tennessee College of Veterinary Medicine. Their completion will generally fulfill the requirements for other veterinary colleges. However, students intending to apply to schools other than The University of Tennessee College of Veterinary Medicine should check the requirements of those specific schools. Students interested in applying to The University of Tennessee College of Veterinary Medicine must complete a minimum of 120 hours. They must complete their pre-veterinary requirements by the end of the spring quarter of the year in which they are applying. It is strongly recommended that each interested student plan to pursue at least a three-year pre-veterinary program. Inquiries concerning possible course substitutions and the combining of the pre-veterinary program with a degree program should be directed to the department's pre-veterinary advisors. It is possible for students who are accepted into the College of Veterinary Medicine at the end of their third year to receive a B.S. in Agriculture with a major in animal science upon successful completion of the first year in the College of Veterinary Medicine (3 and 1 program). See the College of Veterinary Medicine section in the Graduate Catalog for additional information.

A suggested schedule for the Pre-Veterinary Medicine—Animal Science student is given below which will (1) allow for the completion of the above pre-veterinary requirements by the end of the third year, and (2) allow the student to make normal progress toward completing the requirements for a degree in agriculture with a major in animal science and (3) to complete the requirements for the 3 and 1 program. It is strongly recommended that the student carry a normal load of at least 15 to 18 hours per quarter. See College of Veterinary Medicine admissions requirements for minor course requirements for admission to the professional program in the College of Veterinary Medicine.

#### First year

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>English 1010 or 1011; 1020; 1031 or 1032 or 1033</td>
<td>12</td>
</tr>
<tr>
<td>Mathematics 1540, 1550, 1560</td>
<td>9</td>
</tr>
<tr>
<td>Biology 1210-20-30</td>
<td>12</td>
</tr>
<tr>
<td>Chemistry 1110-20-30</td>
<td>12</td>
</tr>
<tr>
<td>Agriculture 1130</td>
<td>4</td>
</tr>
<tr>
<td>Humanities electives</td>
<td>4</td>
</tr>
</tbody>
</table>

#### Second year

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemistry 3211-21-31</td>
<td>9</td>
</tr>
<tr>
<td>Chemistry 3219-29-39</td>
<td>3</td>
</tr>
<tr>
<td>Physics 2210-20-30</td>
<td>12</td>
</tr>
<tr>
<td>Agriculture 1110</td>
<td>4</td>
</tr>
<tr>
<td>Economics 2510</td>
<td>4</td>
</tr>
<tr>
<td>Speech 2311</td>
<td>4</td>
</tr>
<tr>
<td>Animal Science 2610, 2810, 3220, 3320, and 3330, and 3410</td>
<td>17</td>
</tr>
</tbody>
</table>

#### Third year

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biochemistry 4110-20</td>
<td>8</td>
</tr>
<tr>
<td>Microbiology 2910-19</td>
<td>5</td>
</tr>
<tr>
<td>Economics 2520</td>
<td>4</td>
</tr>
<tr>
<td>Social science electives</td>
<td>6</td>
</tr>
<tr>
<td>Humanities electives</td>
<td>6</td>
</tr>
<tr>
<td>Animal science 3420, 3600 level evaluation (3 hrs), 4800 level production management (4 hrs)</td>
<td>10</td>
</tr>
<tr>
<td>Electives</td>
<td>14</td>
</tr>
</tbody>
</table>

Total: 155 hours

*Students with a strong math background may omit Math 1540 and start with 1550 or elect to take the 1840-50-60 series or 1841-51.

*Courses required to meet the minimum of 13 hours of animal science for admission to the veterinary college.

*A recommended elective for students with limited or no practical animal experience and required for those accepted to UT College of Veterinary Medicine after three years and who wish to obtain the B.S. in Agriculture with a major in animal science in the regular program and is required for those accepted to UT College of Veterinary Medicine after three years and who wish to obtain the B.S. in Agriculture with a major in animal science in the first year in the College of Veterinary Medicine (See below).

*Animal science courses required for the 3 and 1 program to permit the student to receive a B.S. in Agriculture with a major in animal science at the end of the first year in the College of Veterinary Medicine.

For the student accepted at the end of the third year of pre-veterinary medicine and desiring to receive a B.S. in Agriculture with a major in animal science upon successful completion of the first year in The University of Tennessee College of Veterinary Medicine, the following are required, in addition to all of the courses above: Agriculture 1150 or equivalent food technology and science course, Plant and Soil Science 2130, other agriculture outside of animal science 8 hrs, (suggested Agricultural Mechanization 4160, Food Technology and Science 3840, Entomology and Plant Pathology 2210, Plant and Soil Science 3140).

Students wanting to complete pre-vet requirements, but wishing to major in a department other than animal science, should consult their departmental advisor for a proper selection of electives.

### ANIMAL SCIENCE CURRICULUM WITH A PRE-VETERINARY MEDICINE OPTION

This program is designed for students accepted by the UT College of Veterinary Medicine after their third undergraduate year who wish to obtain a B.S. in Agriculture with a major in animal science upon completion of the first year in the College of Veterinary Medicine.

The student will need to complete the requirements as established by the College of Veterinary Medicine. In addition, the student needs to complete the courses listed above, including Economics 2510-20 and, under electives, complete Agriculture 1150 or equivalent food technology and science course, Plant and Soil Science 2130, agriculture other than animal science, six hours. (suggested: Agriculture Mechanization 4160, Food Technology and Science 3840, Entomology and Plant Pathology 3210, Plant and Soil Science 3210, Animal Science 3210, and Animal Science 3220). The student will need to complete the requirements as established by the College of Veterinary Medicine. In addition, the student needs to complete the courses listed above, including Economics 2510-20 and, under electives, complete Agriculture 1150 or equivalent food technology and science course, Plant and Soil Science 2130, agriculture other than animal science, six hours.

(Graduate Catalog) Courses in economic entomology, plant pathology, molecular biology, and plant systemic nematodes
are available to agricultural students. The department is currently composed of two major disciplines: economic entomology and plant pathology. The primary objective of offering a major at the graduate level is to provide training in those disciplines which deal with the natural hazards that are the major causes of losses in agricultural production. The training gives such a graduate the foundation necessary for coping with the myriad insect and plant disease problems that constantly threaten Tennessees's dynamic agriculture.

**Food Technology and Science**

Advisors: Professors Miles, Collins, Jaynes and S. Melton; Associate Professors: Davidson and Mount.

Food technology and science is the application of the sciences and engineering to the manufacture, preservation, storage, transportation, and consumer use of food products. Processing of raw food materials into consumer products by canning, freezing, dehydrating, fermenting, preserving, etc., is taught with emphasis on basic principles rather than on specific commodity procedures. Therefore, man and women who plan to enter food technology must have an interest in the sciences, particularly chemistry, biology, microbiology, and physics.

This curriculum is designed to prepare students for a professional career in positions in the food industry such as food microbiologist, food chemist, quality evaluation and control supervisor, plant foreman and manager, ingredients specialist, etc. The Model Curriculum of the Institute of Food Technologists was used as a guide in developing this curriculum. A special problem course provides opportunity for practical training in food processing plants and laboratories or federal and state laboratories.

*Minor* in Food Technology and Science consists of 25-27 hours as follows: 3810 or 4810, 4130 or 4140, 4200, 4400 and three (3) elective Food Technology and Science courses numbered 2300 or above.

**Freshman**

<table>
<thead>
<tr>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>Agriculture 1110-30-40 (choose two)</td>
</tr>
<tr>
<td>4</td>
<td>Agriculture 2110-20</td>
</tr>
<tr>
<td>4</td>
<td>Biology 1220</td>
</tr>
<tr>
<td>9</td>
<td>English 1010-20-33</td>
</tr>
<tr>
<td>12</td>
<td>Mathematics 1540-50-60</td>
</tr>
<tr>
<td>12</td>
<td>Physics 1210-20</td>
</tr>
<tr>
<td>4</td>
<td>Humanities-soc studies elective</td>
</tr>
</tbody>
</table>

**Sophomore**

<table>
<thead>
<tr>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>Chemistry 1510-20-30</td>
</tr>
<tr>
<td>8</td>
<td>Economics 2510-20</td>
</tr>
<tr>
<td>3</td>
<td>Food Technology and Science 2300</td>
</tr>
<tr>
<td>5</td>
<td>Microbiology 2910-19</td>
</tr>
<tr>
<td>4</td>
<td>Speech 2311</td>
</tr>
<tr>
<td>6</td>
<td>Humanities-soc studies elective</td>
</tr>
<tr>
<td>3</td>
<td>*Commodity elective</td>
</tr>
<tr>
<td>3</td>
<td>Computer Science elective</td>
</tr>
</tbody>
</table>

**Junior**

<table>
<thead>
<tr>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>Agricultural Mechanization 3510</td>
</tr>
<tr>
<td>4</td>
<td>Chemistry 2230 or Nut. and Food Science 3130</td>
</tr>
<tr>
<td>3</td>
<td>Biochemistry 3110 or Nut. and Food Science 3140</td>
</tr>
<tr>
<td>4</td>
<td>Food Technology and Science 4130</td>
</tr>
<tr>
<td>4</td>
<td>Food Technology and Science 3810</td>
</tr>
<tr>
<td>4</td>
<td>Nut. and Food Science 3120</td>
</tr>
<tr>
<td>4</td>
<td>Nut. and Food Science 3150</td>
</tr>
<tr>
<td>4</td>
<td>Plant and Soil Science 3610</td>
</tr>
<tr>
<td>3</td>
<td>Statistics 3310</td>
</tr>
<tr>
<td>6</td>
<td>*Commodity elective</td>
</tr>
</tbody>
</table>

**Senior**

<table>
<thead>
<tr>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Food Technology and Science 4010</td>
</tr>
<tr>
<td>4</td>
<td>Food Technology and Science 4140</td>
</tr>
<tr>
<td>23</td>
<td>Nut. and Food Science 4016</td>
</tr>
<tr>
<td>3</td>
<td>*Electives</td>
</tr>
</tbody>
</table>

Total: 198 hours

*Commodity electives (3 are required): one each in meats (3816, 3840, 4840, 4940), Dairy Products (3620, 3320, 3030), and one from 4140 or 4420.

*Approved computer science electives are 1410, 1510, 3010, 4310 or equivalent.

*Those students preparing for employment in commercial food industry should select electives from such areas as agricultural economics, economics, accounting, business law, management, marketing, finance and transportation. Students should consult with advisor before selecting electives.

*One hour course taken each of last three quarters in school.

**Food Technology and Science**

**Advisor:** G. Schneider

The department offers two majors. The major in forestry leads to the degree Bachelor of Science in Forestry and the major in wildlife and fisheries science leads to the degree Bachelor of Science in Wildlife and Fisheries Science. The forestry major has three options, Forest Resource Management Option, Forest Recreation Option, and Wood Utilization Option.

**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. Benefits are derived from the multiple resources of the forest: wood, water, wildlife, recreation, forage, and environmental amenities. Foresters are managers of these resources. Thus, our principal instructional objective is to provide the broad education needed to deal effectively with the complex of forest resources.

**FOREST RESOURCE MANAGEMENT OPTION**

The Forest Resource Management Option provides an opportunity to obtain an education related to the management of the broad spectrum of woodland resources. In addition to the core of required courses there are about 30 elective credit hours for broad studies of specialized training in one or more areas of forestry. These areas and examples of related fields of study include:

- **Forest Biology**—plant physiology and morphology, ecology, genetics, tree nutrition, forest soils.
- **Forest Business Management**—economics, accounting, finance, marketing, management science.
- **Forest Economics**—economics, business administration, social science.
- **Forest Engineering**—mathematics, computer science, photogrammetry.
- **Forest Inventory**—mathematics, statistics, computer science, photogrammetry.
- **Forest Recreation**—natural and social sciences.
- **Wildlife Management**—ecology, zoology, botany.

The University has over 21,000 acres of forest land available for teaching, research, and demonstration. The Tennessee Valley Authority, Great Smoky Mountains National Park, and Cherokee National Forest provide additional land and facilities valuable to the teaching program. Contained within these areas is a wide variety of tree species and forest types ranging from elements of the boreal forest to southern pines and hardwoods.

Lumber, pulp and paper, and other wood-using industries cooperate in conducting tours and demonstrating industrial processes.

**Upon completion of the four-year forestry curriculum the degree of Bachelor of Science in Forestry (B.S.F.) is awarded.**

A minor in Forestry consists of 24 credit hours from any courses having a Forestry designation. Prerequisites will not be waived.

**Freshman**

<table>
<thead>
<tr>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>Botany 1110-20 or Biology 1210-20</td>
</tr>
<tr>
<td>3</td>
<td>English 1010 or 1011, 1020, 1031 or 1032 or 1033</td>
</tr>
<tr>
<td>3</td>
<td>Forestry 1620</td>
</tr>
<tr>
<td>3</td>
<td>Forestry 3000</td>
</tr>
<tr>
<td>12</td>
<td>Mathematics 1700, 1841-51</td>
</tr>
<tr>
<td>8</td>
<td>Physics 1210 and 1220 or 2210 and 2220</td>
</tr>
<tr>
<td>8</td>
<td>Speech 2311</td>
</tr>
<tr>
<td>4</td>
<td>*Electives</td>
</tr>
</tbody>
</table>

Total: 105 hours

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**Sophomore**

<table>
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<tr>
<th>Hours</th>
<th>Credit</th>
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</thead>
<tbody>
<tr>
<td>12</td>
<td>Chemistry 1510-20-30</td>
</tr>
<tr>
<td>12</td>
<td>Computer Science 1510</td>
</tr>
<tr>
<td>8</td>
<td>Economics 2510-20</td>
</tr>
<tr>
<td>8</td>
<td>Forestry 3000</td>
</tr>
<tr>
<td>12</td>
<td>Mathematics 2510-20-30</td>
</tr>
<tr>
<td>8</td>
<td>Physics 2230</td>
</tr>
<tr>
<td>3</td>
<td>Speech 2311</td>
</tr>
<tr>
<td>6</td>
<td>Humanities-soc studies elective</td>
</tr>
<tr>
<td>3</td>
<td>*Commodity elective</td>
</tr>
<tr>
<td>3</td>
<td>Computer Science elective</td>
</tr>
</tbody>
</table>

Total: 103 hours

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**Junior**

<table>
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<tr>
<th>Hours</th>
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<tr>
<td>3</td>
<td>Agricultural Mechanization 3140</td>
</tr>
<tr>
<td>12</td>
<td>Forestry 3060, 3110-20, 3230, 3260, 3320</td>
</tr>
<tr>
<td>17</td>
<td>Forestry 4002-03-04-05-07</td>
</tr>
<tr>
<td>6-9</td>
<td>*Electives</td>
</tr>
</tbody>
</table>

Total: 9-12 hours

Students entering the junior year should check with advisor to assure completion of courses prerequisite to spring quarter junior field session.

**Senior**

<table>
<thead>
<tr>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Forestry 3240</td>
</tr>
<tr>
<td>21</td>
<td>Entomology and Plant Pathology 4530 or 4140, or Geography 3510</td>
</tr>
<tr>
<td>4</td>
<td>*Electives</td>
</tr>
</tbody>
</table>

Total: 20-27 hours

*1 Biology 1210-20 is recommended in lieu of botany for students interested in wildlife management.

*2 Equivalent honors courses.

*4 Enough electives must be taken to total 198 hours including a minimum of 6 hours of communications electives selected from a Department of Forestry, Wildlife and Fisheries approved list and a minimum of 11 hours of social science electives.

**FOREST RECREATION OPTION**

The Forest Recreation Option provides students with opportunities to obtain an education in preparation for professional positions in the planning, development, interpretation, and management of private and public forested lands for recreational purposes. Students are also exposed to the basic philosophy and principles associated with leisure time and its use and the relationship of forest-related knowledge to the constructive utilization of leisure time.

**Freshman**

<table>
<thead>
<tr>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>Botany 1110-20 or Biology 1210-20</td>
</tr>
<tr>
<td>3</td>
<td>Chemistry 1010 or 1011, 1020, 1031 or 1032 or 1033</td>
</tr>
</tbody>
</table>

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Institute of Agriculture 61
Forestry 1620	 3
Forestry 3000	 12
Mathematics 1700, 1841-51	 12
Physics 1210 and 1220 or 2210 and 2220	 8
Speech 2311	 4
Electives	 3

Sophomore
Chemistry 1510-20	 8
Computer Science 1410	 3
Economics 1210-20	 4
Forestry 3040	 4
Forestry 3050
Ornamental Horticulture and Landscape Design 3810 or Botany 3030	 3-4
Accounting 2110 or Political Science 3555 or 3566	 3-4
Sociology 1510	 4
Sociology 3130 or 3010 or Rural Sociology 3420 or Psychology 3120	 3-4
Psychology 2500	 4
Plant and Soil Science 2130	 4
Journalism 2210	 3
Electives	 1-2

Junior
Forestry 3020, 3110, 3240, 3320, 4440	 13
Wildlife and Fisheries Science 3230	 3
Plant and Soil Science 3610	 4
Forestry 3060 or Entomology and Pathology 3010
Pathology 4140 or 3210	 3-4
Agricultural Economics 2210	 3
Speech 3011 or 3021 or Journalism 3710	 3-4
Recreation 3140	 3
Electives	 18

Senior
Forestry 4150, 4210, 4230, 4240, 4330	 16
Planning 4100	 3
Ornamental Horticulture and Landscape Design 3610	 3
Forestry 4450	 3
Electives	 16-21

Total: 198 hours

Or equivalent honors courses.

Junior
Zoology 3060, 4060, 4600, 4610, 4620	 8
Wildlife and Fisheries Science 3230, 3240, 3320	 3
Forestry 3110, 3120, 3210, 3320, 3430-40	 15
Engineering Graphics 1410-20	 6
*Humanities-social science electives	 6
*Elective pathetic electives

Senior
Industrial Engineering 4960, 4960, 4500	 10
*Humanities-social science electives	 6
*Technical electives	 12

Total: 202 hours

Or equivalent honors courses.

20 hours of electives to be taken from the following departments: Animal Science, Botany, Entomology and Plant Pathology, Forestry, Wildlife and Fisheries Science, Plant and Soil Science, or Zoology.

Wildlife and fisheries science is awarded.

Minor in Wildlife and Fisheries Science consists of 24 hours as follows: 3230, any three (3) courses chosen from: 4450, 4460, 4510, 4520, and 9 additional hours taken from a list of approved courses maintained in the Department of Forestry, Wildlife and Fisheries. Prerequisites will not be waived.

Freshman
English 1010 or 1011; 1020; 1031 or 1032 or 1033	 9
Botany 1110-20	 3
Forestry 1620, 3000	 4
Mathematics 1840 or 1841; 1850; 1860	 12
Physics 1210-20	 8
Speech 2311	 4
Communications elective

Sophomore
Chemistry 1510-20-30	 12
Economics 2510-20	 8
Psychology 2500	 4
Mathematics 2840-50	 7
Basic Engineering 1310, 1410	 6

Statistics 3450-60
Industrial Engineering 2320	 3
Computer Science 1510	 4

Junior
Entomology and Plant Pathology 4140	 3
Forestry 3320, 3030, 3110-20, 3320, 3430-40
Industrial Engineering 3810-20-30; 3430-40: 15
Engineering Graphics 1410-20	 6
*Humanities-social science electives	 6
*Elective pathetic electives

Senior
Industrial Engineering 4960, 4960, 4500	 10
*Humanities-social science electives	 6
*Technical electives	 12

Total: 202 hours

Or equivalent honors courses.

Enough hours must be completed to total 198, including 6 hours of communications electives with Journalism 2210, Classics 2710 and 2720, and English 4140 highly recommended. Twelve hours of social science or humanities and 13 hours of science electives are the minimum required from the following departments: Animal Science, Botany, Entomology and Plant Pathology, Forestry, Wildlife and Fisheries Science, Plant and Soil Science, or Zoology.

Wildlife and Fisheries Science 3000 must be taken at least twice and can be taken for a maximum of 4 credits.

Ornamental Horticulture and Landscape Design

Advisor: Professor Crater

Human needs go beyond food, clothing, and shelter. We require a degree of control over environment, especially immediate surroundings. Ornamental plants and their uses are recognized as part of the environment, hence a curriculum in ornamental horticulture and landscape design. The four areas of study within this curriculum are floriculture, nursery management, turfgrass management, and landscape design.

The area of floriculture includes the science and art of maintaining populations of wild animals at levels consistent with the best interests of wild species themselves and of the American public. Management goals may be aesthetic, economic, or ecological. Success depends upon wildlife and fisheries biologists giving assistance in attaining the goals for which they strive; scholarly application of scientific information and methods to these goals; ecological perspective; and execution of programs to maintain past successes, to prevent repetition of past failures, and to prepare for future needs.

Upon completion of the four-year wildlife and fisheries science degree, the degree of Bachelor candidate in Wildlife and Fisheries Science is awarded.

Minor in Wildfie and Fisheries Science consists of 24 hours as follows: 3230, any three (3) courses chosen from: 4450, 4460, 4510, 4520, and 9 additional hours taken from a list of approved courses maintained in the Department of Forestry, Wildlife and Fisheries. Prerequisites will not be waived.

Freshman
English 1010 or 1011; 1020; 1031 or 1032 or 1033	 9
Botany 1110-20	 3
Forestry 1620, 3000	 4
Mathematics 1840 or 1841; 1850; 1860	 12
Physics 1210-20	 8
Speech 2311	 4
Communications elective

Sophomore
Chemistry 1510-20-30	 12
Economics 2510-20	 8
Bihsiology 3120, 3130	 8
Forestry 3040	 4
Plant and Soil Science 2130, 3610
Animal Science 3210	 4
*Computer Science 1510	 3
*Wildlife and Fisheries Science 3000
*Wildlife and Fisheries Science 2100	 2
*Electives	 9

Total: 198 hours

Or equivalent honors courses.

*Enough hours must be completed to total 198, including 6 hours of communications electives with Journalism 2210, Classics 2710 and 2720, and English 4140 highly recommended. Twelve hours of social science or humanities and 13 hours of science electives are the minimum required from the following departments: Animal Science, Botany, Entomology and Plant Pathology, Forestry, Wildlife and Fisheries Science, Plant and Soil Science, or Zoology.

Wildlife and Fisheries Science 3000 must be taken at least twice and can be taken for a maximum of 4 credits.
null
between periods of employment. Prerequisites: Junior classification, with grade point average of 2.2 or above, and permission of the department head and the dean of the College of Agriculture to register. Three credit hours each quarter.

**Short Courses and Special Events**

Practical short courses in agriculture are offered for those who desire special training in certain fields. Some of these short courses are held on the Knoxville campus, others at the Buford Ellington 4-H Club Training Center, Milan, Tennessee, or appropriate research stations. The Resident Instruction, Research, and Extension staffs join in teaching these special courses annually, and others are offered to meet immediate needs for special instruction. These are service courses and do not carry college credit.

In-service training is provided special groups, such as the teachers of vocational agriculture, through short-term courses which are offered at convenient locations in the state.

A special occasion known as Varsity Visit is held during the year. Delegates from all Future Farmers of America chapters are invited to spend a day on the agricultural campus with their advisors. Approximately 500 attend and inspect each department of the College.

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### Departments of Instruction

#### Interdepartmental Offerings

**Agriculture (088)**

1110 Introduction to Social Sciences for Agriculture (4) Social sciences as they relate to agriculture—agriculture in the economy; tools of social science analysis applied to agricultural problems; agriculture, its development, relation to man, industry, and government. 4 hrs. and 1 lab. F, W.

1130 Animal Science for Agriculture (4) Animals in agriculture: Body systems and development, principles of feeding, and evaluation of farm animals. Animal sanitation, animal products, and the relationship to public health. 3 hrs. and 2 labs. F, W.

1140 Plant Science for Agriculture (4) Plant structure, physiology, heredity, and environment in relation to growth, adaptation, and management of crops. 2 hrs. and 2 labs. S.

1150 Food Technology and Science in Agriculture (4) Utilization, processing, and distribution of food products. 3 hrs. and 1 lab. W, S.

2120 Introduction to Agricultural Engineering (4) Agri-cultural power and machinery fundamentals, agricultural structures, soil and water conservation controls, and agricultural uses of electricity. Prereq: Math 1550 or equivalent. 3 hrs. and 1 lab. F.

3000 Microcomputer Applications in Agriculture (3) Introduction of microcomputer technology as related to agricultural applications; microcomputer terminology; architecture; number system; input/output devices; operating systems and languages; applications software; communication with peripherals and other systems. Prereq: a basic course in computer programming. 2 hrs. and 1 lab.

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### Agricultural Economics and Rural Sociology

#### Agricultural Economics (047)

2410 Economics of Food and Rural Resources (3) Analysis of contemporary problems and issues of public concern relating to food, agriculture, and rural areas using fundamental economic concepts. Farm income, food prices, world food problems, natural resources, environment, rural development. F, S.

3120 Agricultural Prices (3) Factors affecting prices in agricultural production, processing, distribution, prices in an enterprise economy; competitive, monoply, and oligopoly pricing; space, form and time price differences; tools to measure price; farm price programs. Prereq: Agriculture 1110 and Economics 2520 or consent of instructor. W.

3320 Marketing Farm Products (3) Survey of the U.S. food and fiber marketing systems; marketing options of farmers and agribusinesses; industry structure in market channels; consumer behavior as a basis to analyze marketing problems. Prereq: Agric. 1110 and Econ. 2520 or consent of instructor. F.


3430 Agricultural Law (4) Problems and policies of agricultural policy and appraisal of results; current policy problems. Prereq: Agriculture 1110 and Economics 2510, or consent of instructor.

3431 Land Economics (3) Principles and theories of rent, property, value, and income. Prereq: Agriculture 1110 and Economics 2510, or consent of instructor.

4118 Honors: Seminar (3) Selected topics. Offered alternate years. Open to juniors and seniors by invitation. F.

**GRADUATE Consult the Graduate Catalog for listing of graduate level courses.**

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### Rural Sociology (880)

3420 Rural Sociology (3) Nature of rural society; social systems concept; rural-urban differences; nature of social relations; population characteristics and movement; problems of rural people; tenancy, farm labor, health, services, educational facilities, churches, local government; impact of industrialization. F, W.

4450 Diffusion of Agricultural Technology (3) Analysis of diffusion process whereby new technology spreads from scientists to final adopters. Topics discussed include adoption process, communication behavior, mass media, role of public and private exchange agents, opinion leadership, and two-step flow hypothesis. Prereq: Rural Sociology 3420, or consent of instructor.

**GRADUATE Consult the Graduate Catalog for listing of graduate level courses.**
Agricultural Engineering


Associate Professors: C. Roland Mote, Ohio State, P. E.; Robert Von Burch, Ph. D. Nebraska.

Assistant Professor: D. O. Baxter, M. S. Missouri.

Instructors: W. E. Hart, M.S. Tennessee; J. B. Wilkerson, M.S. Tennessee.

Agricultural Engineering (066)

1130 Introductory Agricultural Engineering (Basic) Engineering principles, field of agricultural engineering, and programs. Prereq: Open only to freshman and sophomore students in agricultural engineering. F.

3100 Seminar (1) Presentations, discussions, reports on research techniques. Prereq: Consent of department head. F.

3610 Soil and Water Conservation Engineering (4) Integration of hydrologic, agronomic, and engineering principles in solving agricultural water management problems. Topics in soil erosion, water control, drainage, irrigation, and water quality. Coreq: Plant and Soil Science, 2130; Engr. Sci. and Mech. 3110. 3 hrs. and 1 lab. Graduate credit for non-majors only. F.

3620 Structures for Production, Environmental Control, and Waste Management (4) Analysis of loads and stresses; design of wood, steel, and concrete members; structural and environmental requirements of facilities for livestock and crop production and storage; physiological requirements; heat loads; insulation; moisture relationships; ventilation and waste management. 3 hrs. and 1 lab. Graduate credit for non-majors only. W.


3640 Power Units and Machinery (4) Components and operating characteristics of internal combustion engines and tractor systems; functional analyses and capabilities of agricultural machines; machine systems performance and cost analyses. Prereq: Engr. Sci. and Mech. 3700. Mech. Engr. 3311. 3 hrs. and 1 lab. Graduate credit for non-majors only. F.

4120-30 Seminar (1,1) Presentations, discussions, reports. 4120—Professional development topics. 4130—Industry trip. Prereq: Consent of department head. W, S.

4220 Special Problems in Agricultural Engineering (3) Selection, analysis, solution, and report of research problem. May be repeated for maximum of nine credit hrs. when engaged in cooperative engineering or other approved industry work. Prereq: 3100 and consent of department head. 3 hrs. and 1 lab. E.

4230 Selected Topics in Agricultural Engineering (3) Develop new topics as required by current trends and problems in agricultural engineering. A.

4610 Design of Water Control and Waste Utilization Systems (3) Design and control of drainage and water utilization systems including earth dams, irrigation, drainage, land grading, hydraulic transport of wastes, and application of wastes on agricultural land. Prereq: 3610 or consent of instructor. 1 hr. and 2 labs. W.

4820 Design of Structures for Production, Processing, and Environmental Control (3) Design and structural design of agricultural buildings, emphasis placed on complete design of structure or system; design to include functional and environmental aspects. Prereq: 3620. 1 hr. and 2 labs. S.

4630 Design of Processing and Materials Handling Systems (3) Development of systems and components for integrated agricultural processing considering mass and energy balances, product characteristics, equipment specifications, storage, handling, and economic merit. Prereq: 3630. 1 hr. and 2 labs. F.

4640 Design of Agricultural Machinery (3) Functional requirements of agricultural machinery. Elements of machine component design; synthesis of mechanisms, mechanical and hydraulic drives. Team effort in completing machine design project. Prereq: 3640 or consent of instructor. F.

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

Agricultural Mechanization (080)

2110 Agricultural Drawing and Mapping (3) Fundamentals of graphics and mapping, with emphasis on application to agriculture and forestry. 1 hr. and 2 labs. F, W, S.

2130 Agricultural Surveying (3) Measurement of horizontal distances and angles; differential and profile leveling; topographic surveying and mapping; area computation. Coreq: Math 1560 or consent of instructor. 1 hr. and 2 labs. F.

3100 Seminar (1) Presentations, discussions, reports on research techniques. Prereq: Consent of department head. F.

3110 Agricultural Mechanics (3) Organizing, equipping, and managing school and farm shops; techniques, materials, and procedures in design and construction of shop projects; metal work and welding. 1 hr. and 2 labs. W.

3120 Forest Surveying (3) Principles, methods and instrumentation in forest management. 2 hrs. and 2 labs. W.

3140 Forest Surveying and Mapping (3) Use of low precision methods of instruments including pacing, Abney level, topographic trailer tape, hand compass, and staff compass. Field measurements, computations and layouts involving random and true lines, traverses, topographic mapping, and forest roads. Prereq: 2140. Ten periods of 6 hrs. per period.

3210 Soil and Water Conservation Facilities (3) Leveling, topographic surveying; planning, construction, and maintenance of drainage, irrigation, and erosion control systems. Prereq: Math 1550. 2 hrs. and 1 lab. S.

3220 Agricultural Structures (3) Functional planning of structures; environmental control, construction methods, properties of building materials, and cost estimation. Prereq: Math 1550. 2 hrs. and 1 lab. S.

3510 Food Engineering Technology (4) Application of basic engineering principles of food processing. Fluid flow, heat transfer, refrigeration, drying evaporation, and materials handling. Prereq: Agriculture 1120 or Physics 1220. 3 hrs. and 1 lab. S.

3560 Electrical Systems in Agriculture (3) Electrical terms and fundamentals, distribution, wiring practices, governing codes, controls, and motors used in agricultural and residential facilities. Prereq: Physics 1220 or Agriculture 1120. 1 hr. and 1 lab. W.

4120-30 Seminar (1,1) Presentations, discussions, reports. 4120—Professional development topics. 4130—Industry trip. Prereq: Consent of department head. W, S.

4170 Small Engines (3) Concepts and mechanics of small gasoline engines; selection, operation, adjustment, and repair of single cylinder engines. 2 hrs. and 1 lab. W.

4180 Equipment and Techniques for Application of Agricultural Chemicals (3) Equipment for application of oil, solid, and gaseous chemicals; application components; operational characteristics; safety considerations; calibration; selection and management of materials handling and disposal methods. 2 hrs. and 1 lab. S.

4210 Agricultural Machinery and Tractors (4) Agricultural machinery and power units: adaptation to agricultural practices; field efficiencies, capacities, adjustment, and servicing. Prereq: Math 1550. 3 hrs. and 1 lab. W.

4220 Special Problems in Agricultural Mechanization (3) Selection, analysis, solution, report of research problem. May be repeated for maximum of 9 credit hrs. when engaged in approved industry work. Prereq: 2130 or 2140. 3 hrs. and 1 lab. E.

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

Agricultural Extension Education (075)

Professors: R. S. Dotson (Head), Ph.D. Pennsylvania State; L. H. Dickson, Ed.D. Cornell; C. E. Carter, Jr., Ph.D. Ohio State.

3110 Introduction to Agricultural Extension (3) History, philosophy, organization, teaching methods and relationships with other educational agencies. F.

4110-20 Field Studies (3,3) Supervised work experience with county extension agents in a designated county. For senior and graduate students. Prereq: 3110 and consent of instructor. Requires living off-campus for a specified time. SU.

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

Animal Science (113)

Professors: D. O. Richardson (Head), Ph.D. Ohio State; K. M. Barth, Ph.D. Rutgers; M. C. Bell, Ph.D. Oklahoma State; J. K. Bleiter (Emeritus), Ph.D. Ohio State; C. C. Chamberlain (Emeritus), Ph.D. Iowa State; H. E. Erickson, Ph.D. Kansas State; O. G. Hall, (Dean, College of Agriculture) Ph.D. Iowa State; S. L. Hansard (Emeritus), Ph.D. Florida; E. R. Lidvall, M.S. Tennessee; T. P. McDonald, Ph.D. Tennessee; J. D. McLaran, Ph.D. Auburn; J. D. Miller, Ph.D. Georgia; M. J. Montgomery, Ph.D. Wisconsin; G. M. Merriman (Emeritus), D. V. M. Michigan; J. B. R. Bell, Ph.D. N.C. State; J. A. Corrick, Jr. (Emeritus), Ph.D. Missouri; N. Heitmann, V. P.I. & S.U.; F. B. Masincupp, Ph.D. Transportation Institute of Agriculture, 65


2610 Fundamentals of Animal Nutrition (4)
emphasis on beekeeping equipment and apiary management. Involves observation of crops and production of honey and beeswax. W.

3250 Veterinary Entomology (4) Identification, biology and control of arthropods that attack major livestock species. Introduction to entomology, methods of insect control; major pest groups and problems associated with specific host production operations. Not available for graduate credit. Prereq: Biology 1220 or equivalent. 3 hrs. and 1 lab.

4010 Biology of Soil Microorganisms (4) Morphology and physiology of soil organisms, decomposition of organic material, chemical transformations, and interactions between soil organisms and higher plants. Prereq: 3130 or introductory microbiology. 3 hrs. and 1 lab. (Same as Microbiology 4010.) S, A.

3030 Forest and Shade Tree Entomology (3) Identification, biology, ecology, and control of forest and shade pests. Prereq: 3210 or equivalent. 3 hrs. and 1 lab. S, A.

4140 Forest Pathology (3) Symptomatology, etiology, epidemiology, and control of forest tree diseases, including wood decay and other diseases important to urban and production forestry. Prereq: 3130 or Forestry 3030. 2 hrs. and 1 lab. May be taken for graduate credit. F.

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Graduate Catalog

for listing of graduate level courses.

Food Technology and Science (390)

Professors:
J. T. Miles (Head), Ph.D. Wisconsin; J. L. Collins, Ph.D. Maryland; H. O. Jaynes, Ph.D. Illinois; S. L. Melton, Ph.D. Tennessee; W. W. Overcast (Emeritus), Ph.D. Iowa State.

Associate Professors:
P. M. Davidson, Ph.D. Washington State; B. J. Demott, Ph.D. Michigan State; F. A. Draughon, Ph.D. Georgia; H. D. Lovadaw, Ph.D. Kansas State; J. R. Mouni, Ph.D. Ohio State; R. J. Riemann, Ph.D. Kansas State.

Instructor:
O. G. Sanders, M.S. Tennessee.

2300 Food Laws and Regulations (3) State and federal laws concerning food industry. Organization and operation of regulatory agencies. Food grades and standards. W.

3020 Dairy Products I (4) Procurement, processing, and preparation of fluid milk. Manufacture of frozen and condensed dairy products. 3 hrs. and 1 lab. W.

3570 Evaluation and Grading Dairy Products (3) Market standards and grades of dairy products with practice in grading milk, ice cream, butter, cheese, and other specialized dairy products. 1 hr. and 2 labs. S.

3610 Meat Evaluation and Grading (3) Grading standards for quality and quantity and principles of evaluating beef, pork, and lamb. Practice in grading and judging carcasses and cuts. 1 hr. and 2 labs. F.

3810 Food Microbiology I (4) General methods for the enumeration of microorganisms in food products. Factors which affect the growth of microorganisms in foods and methods for controlling their growth. Prereq: Microbiology 2910-19 or equivalent. 2 hrs. and 1 lab. F.

3840 Meat Science (3) Processing methods, carcass characteristics of meat animals; slaughter, cutting selection, curing, freezing, and cooking. 2 hrs. and 1 lab. W.

4000 Problems in Food Technology (1-4) Research problems in student's area of interest. Required written report. Supervised experience in state or federal laboratories or approved industries encouraged. May be repeated. Maximum credit 9 credit hrs. Prereq: Consent of department head. E.

4010 Food Technology and Science Seminar (1-3) Review of literature and principles related to production of some dairy products and food processing. May be repeated for a maximum of 3 credit hrs. Prereq: Junior standing and consent of instructor. F, W, S.

4030 Dairy Products II (4) Principles in the manufacture of butter, cheese, and specialty dairy products. Prereq: 3020. 3 hrs. and 1 lab. A, S.

130 Food Chemistry I (3) Minerals, fats, oils, and vitamins in food as affected by processing and storage. Prereq: Nutrition and Food Sciences 3150 or equivalent. 2 hrs. and 1 lab. S.

140 Food Chemistry II (3) Reactions of proteins, carbohydrates, and natural food colorants in food materials. Protein structure, food enzymology, and Browning reactions. Effects of storage and processing on proteins and carbohydrates with emphasis on nutritional value and functionality. Prereq: Nutrition and Food Sciences 3150 or equivalent. 2 hrs. and 1 lab. F.

4200 Food Processing I (4) Prevention of spoilage and deterioration of foods. Methods of preservation. Prereq: Agricultural Mechanization 3510. 3 hrs. and 1 lab. F.

4210 Food Additives (3) Substances used in food manufacturing with emphasis on properties and functions. Prereq: Nutrition and Food Sciences 3150 or equivalent. F.

4310 Food Packaging (3) Characteristics and application of materials and containers to packaging requirements for different methods of packaging foods. Prereq: 2300. 2 hrs. and 1 lab. S.

4400 Food Processing II (5) Design of food quality assurance programs with emphasis on sanitation. Application of general analytical techniques, regulations and unit operations to quality control in the food industry. Prereq: 3810. 3 hrs. and 2 labs. W.

4410 Food Crop Products (3) Food products from crops with emphasis on types, manufacturing systems, quality attributes, and utility. A, S.

4420 Bakery Products (3) Baking ingredients and their interactions during production and storage of bakery products. Prereq: 4130 and Chemistry 2230 or equivalent. 2 hrs. and 1 lab. A, S.

4810 Food Microbiology II (4) Standard methods for the examination, cultivation, and identification of bacteria associated with food processing, food spoilage, and food poisoning. Prereq: 3810. 2 hrs. and 2 labs. W.

4840 Meat Products Manufacturing (3) Prepared meat products with emphasis on sausage making and information related to muscle food production and meat science. Prereq: 3840 or consent of instructor. 1 hr. and 2 labs. W.

4920 Analysis of Physical Properties of Foods (4) Study of colloids, gels, foams, crystals, color. Quantitation and changes induced by processing. Prereq: 4200 and Agricultural Science 3510 or consent of instructor. 3 hrs. and 1 lab. W.

4940 Advanced Meat Science (3) Qualitative and quantitative characteristics of meat and poultry as related to palatability, cookery, preservation, packaging, and merchandising. Prereq: Food Technology and Science 3840. A, F.

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Graduate Catalog

for listing of graduate level courses.

Forestry, Wildlife and Fisheries

Professors:

Associate Professors:

Assistant Professor:
S. E. Schlarbaum, Ph.D. Colorado State.

Forestry (396)

1620 Introduction to Forestry (3) History of forestry; establishment, care, protection, and use of forest stands; forest products industries; organization and agencies for establishment of forest policies; forest resources. F.

2500 Conservation of Renewable Natural Resources (3) Land, water, plants, and animals and their interrelationships that form the biological and ecological basis for decisions about utilization of renewable natural resources; uses and abuses of forest, recreation, wildlife, and wilderness resources, including management alternatives and aspects of pollution. S.

3000 Current Events in Renewable Natural Resources (1) Current events influencing forestry, wildlife, and fisheries management from both domestic and international disciplines and professions which are affected by and which influence natural resource management. Extend- ed lecture/discussion. Professional development and education for the disciplines of forestry, wildlife and fisheries. 1 hr. May be repeated. Maximum credit 4 hrs. S/N/C. (Same as Wildlife and Fisheries Science 3000.) W.

3200 Forest Environments and Ecology (3) Environ- ments and ecology of forests and associated lands; emphasis on the application of ecological principles to contemporary forest problems. Prereq: for graduate credit for non-forestry majors only. Prereq: 8 hrs. of biology, botany, or zoology. 3 hrs. F.

3040 Forests and Trees of Eastern North America (4) Forest formations and associations of North Amer- ica east of the Great Plains; dendrology and silvics of the trees and shrubs that comprise them. Emphasis will be on identification, nomenclature and species relationships. Weekly field trips during scheduled labs plus one weekend field trip. Available for graduate credit for non-forestry majors only. Prereq: 8 hrs. basic biology, zoology or botany. 3 hrs. F.

3050 Forest and Trees of Western North America (3) Forest formations and associations of North Amer- ica west of the Great Plains; dendrology and silvics of the trees of this region. Laboratory and field studies on ecosystem relationships that form the biological and ecological basis for decisions about utilization of renewable natural resources; uses and abuses of forest, recreation, wildlife, and wilderness resources, including management alternatives and aspects of pollution. S.

3060 Introduction to Forest Protection (4) Biology of forest insects and diseases, including impact on forest ecosystems, control principles and techniques silvicultural implications: principles of forest fire including behavior, weather influence, prevention, control organiza- tions, biological economic, and sociological impacts of forest fires. 3 hrs. and 1 lab. (Same as Entomology and Plant Path. 3060.) W.

3110 Forest Measurements and Biometry (4) Mea- surements of individuals in animal and plant populations; line transect, sampling of forest populations; growth and potential production. Prereq: Plant and Soil Sci- ences 3610. 3 hrs. and 1 lab. Available for graduate credit for non-forestry majors only. W.

3120 Wood Technology (4) Wood properties; identification of commercial woods by macro and micro characteristics. Prereq: 3040, 3050 (3050 may be taken concurrently). 2 hrs. and 2 labs. W.

3220 Forest Products and Utilization (3) Harvesting, processing, marketing factors in stand conversion, intermediate and harvest cuts. Prereq: 3120. F.

3240 Introduction to Forest Recreation (3) Concepts of leisure time in recreation. Historical development
of forest recreation. Forest recreation resources. Development, management, and administration of forest recreation areas; socio-economic aspects of their management. Available for graduate credit for non-forestry and non-wildlife and fisheries science majors only. F.

4330 Law Enforcement in the Natural Resources (3) Law Enforcement as an integral part of natural resource management; fundamentals and general principles of state and federal laws and regulations governing natural resource management. Prereq: 3230.

4450 Game Mammals (4) Classification, identification, distribution, natural history, and management principles of game mammals. Prereq: 3230 or one year of zoology. 2 hrs. and 2 labs. F.

4460 Game Birds (4) Biology, classification, identification, distribution, and management of game birds in North America. Prereq: 3230 or one year of zoology, 3 hrs. and 1 lab plus one weekend field trip. W.

4500 Problems in Wildlife and Fisheries Sciences (1-6) Special research or individual problems in wildlife and fisheries science. May be repeated. Maximum 9 credit hrs. E.

4510 Fish Populations (4) Principles and methods of fish population estimation; sampling techniques and equipment; population dynamics, age and growth. Prereq: Biology 3130, 8 hrs. mathematics, or consent of instructor. 3 hrs. and 1 lab or field period. W.

4520 Fisheries Management (4) Methods of warm and cold water fisheries management including techniques of biological assessment, public relations, fish manipulation, and stocking. Prereq: Biology 3130 or consent of instructor. 3 hrs. and 1 lab or field period. S.

4770 Field Techniques in Wildlife Management (3) Capturing and handling wildlife, wildlife restoration, controlling wildlife damage, and habitat management for wildlife. Prereq: 4450, 4460 or consent of instructor. 1 hr. and 2 labs. W.

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

Wildlife and Fisheries Science (933)

2100 Introduction to Wildlife and Fisheries Science (3) History and philosophies of wildlife and fisheries management including the value of wild animals in the modern world; roles of research, management, public relation, and law enforcement in the conservation of wildlife and fisheries resources. Prereq: Forestry 1620, 6 hrs. of Botany/Biology.

3000 Current Events in Renewable Natural Resources (1) Current events influencing forestry, wildlife, and fisheries management. Perspectives from other disciplines and professions which are affected by and involved in natural resource management. Prereq: 3240 or equivalent. 2 hrs. and 1 lab. S.

3200 Wildlife Resources and Their Conservation (3) Wild animal resources of the United States; their inter-relationships with soil, water, forests, and other plant life; contribution to economic and social development; importance and methods of conserving wildlife. General course for nonwildlife and fisheries science majors. W.

3230 Wildlife Management (3) Lives and ecological relationships of wild animals; biological, social and economic aspects of their management. Grad student credit only. F.

3830 Law Enforcement in the Natural Resources (3) Law Enforcement as an integral part of natural resource management; fundamentals and general principles of state and federal laws and regulations governing natural resource management. Prereq: 3230.

4210 Forestry Organization and Administration (3) Planning, organizing, and leadership concepts and case studies; role of public relations and communication in forest resources management. Prereq: Senior standing in forestry, wildlife and fisheries science or consent of instructor. 2 hrs. and 1 lab. W.

4220 Forest Resource Management (3) Decision-making principles, emphasizing forestry as an integration of resource uses. Models of forestry as a system, concept of forest finance and valuation; taxation of the forest firm. Prereq: 4150. W.

4230 Forest Resource Management Plans (4) Field problems and case studies in forest-resource man-

agement; the forest as a system; management of forest enterprises as a producer of timber, recreational services, watershed services, and wild service products; production and sale of multiple services; preparation of a complete plan based on optimizing forest uses. Prereq: 4210. S.

4240 Interpreting Forest Resources (3) Principles and techniques of interpreting forest resources; impor-
tance of environmental interpretation to management of forest resources; development and administration of interpretive services. Possible overnight field trips required. Prereq: 3240 or equivalent. 2 hrs. and 1 lab. S.
Ornamental Horticulture and Landscape Design (740)

Professors: G. D. Crater (Head), Ph.D. Ohio State; L. M. Callahan, Ph.D. Rutgers; N. D. Peacock (Emeritus), Ph.D. Michigan State; H. van de Werken, GAVST, Horticulture College (Frederikend, Holland); D. B. Williams, Ph.D. Pennsylvania State.


Assistant Professor: S. M. Rogers, M.L.A. University of Georgia.

2230 Environmental Horticulture (3) An introduction to awareness of and appreciation for ornamental plants around and in the home. Design and management of home landscapes including selection, buying, effectively using, planting, maintenance, turfgrasses, herbaceous landscape plants and house plants. 3 hrs.

3030 Plant Propagation (3) Physiology, methodology, and environmental requirements for propagation. Prereq: 1 hr. of biological science. 2 hrs. and 1 lab.

3040 Floral Design (3) Principles and techniques in flower arranging with emphasis on arrangements for home, church, and special occasions. 1 hr. and 2 labs.

3110 Greenhouse Management (3) Factors involved in management of greenhouse for production and research. Structures, soils, pest control measures, heating, ventilating, lighting, water supply, crop success. Prereq: Junior standing and consent of instructor. 2 hrs. and 1 lab.

3120 Turfgrass Management (4) Practical turfgrass management; cultivar selection, identification, and establishment; basic applied fertility programs, mowing and irrigation practices, and thatch control; pest identification and control. Prereq: Plant and Soil Science 2130 and 8 hrs. biological sciences. 3 hrs. and 1 lab.

3130 Professional Practices in Ornamental Horticulture (3) Application of management and marketing practices for greenhouses, nurseries, flower shops, garden centers, plant stores, and landscaping firms. Investigating of practices and the solution of problems as they relate to the students' areas of interest in the establishment and operation of floricultural, nursery, landscape planning and maintenance enterprises, including compliance with governmental regulations and other operational practices specific to the ornamental horticulture industry. 3 hrs.

3410 Basic Floriculture (3) Principles and practices employed in producing major cut flowers and potted plant crops. Application of principles of plant physiology as they relate to the control of flowering, harvesting schedule, and post-harvest quality. Prereq: 3110, and Plant and Soil Science 3040 or equivalent. 2 hrs. and 1 lab.

3510 Grounds Maintenance and Management (4) Identification of landscape maintenance tasks; growth control, irrigation, soil amendments, transplanting, plant identification, pest control; calibration, maintenance of equipment; schedules and management practices. Prereq: 2230. 2 hrs. and 2 labs.

3610 Fundamentals of Landscape Design (4) Development of basic graphic skills and techniques of plan delineation. Fundamentals of the process theory of design, site analysis, program development, design synthesis. Introduction to site layout, topographic interpretation, and physical site characteristics. Analysis of materials and landscape structures. Development of awareness and sensitivity to landscape elements. 1 hr. and 2 3-hr. labs.

3620 Intermediate Landscape Design (4) Application of skills and knowledge acquired in 3610 to a variety of landscape projects. Refinement of graphic skills. History of landscape design as it relates to contemporary approaches and future role of the landscape architect. Planning aspects of plant design and implementation. Use of plant materials in design of small and moderate scale landscape situations. Prereq: 3160, 3810 or equivalent. 1 hr. and 2 3-hr. labs.

3630 Landscape Construction and Contracting (4) Application of construction methods, materials and practice concerned with landscape installation and contracting. Site layout procedures, earthwork and drainage, landscape construction materials; application through detail design drawings and small scale projects. Landscaping, nursery contracting, specifications and bidding procedures. Prereq: 3310, 3610; Ag. Mech. 2130 recommended. 1 hr. and 2 3-hr. labs.

3810 Basic Landscape Plants (4) Identification, classification, adaptation, culture, and landscape design uses for ornamental trees, shrubs, and vines. Prereq: 8 hrs. of botany or biological science and Agriculture 1140. 2 hrs. and 2 labs.

3820 Supplementary Landscape Plants (3) Identification, classification, adaptation, culture, and landscape design uses for ornamental trees, shrubs, and vines. Prereq: 3810. 1 hr. and 2 labs.

3830 Interior Plants (3) Identification, classification, adaptation, culture and interior uses for foliage and flowering plants. Prereq: 3810. 1 hr. and 2 3-hr. labs.


4160 Nursery Management (3) Modern management methods for wholesale and retail nurseries, garden centers, and landscape contractors. Prereq: 3310. 2 hrs. and 1 lab.

4180 Park Design (4) Design criteria for parks and outdoor recreation systems. Park site selection, analysis, planning, and management as related to needs and natural and economic resources. Evaluation of aesthetic and functional quality of parks and their impact on environmental quality of rural and suburban communities. Prereq: 3310. 2 hrs. and 2 labs.

4190 Advanced Landscape Design (4) Comprehensive application of landscape design skills and knowledge through the development of a major project. Analysis, programming, planning, design, construction detailing, estimating, specifications, contracts and bidding included in total package project. Prereq: 3510, 3820, 3830, 1 hr. and 2 3-hr. labs.

4260 Advanced Turfgrass Management (4) Principles and practices for basic turfgrass culture and utilization. Turfgrass ecology, physiology, soil fertility, and grass nutrition; climatic influences on grass culture; physiology of clipping and turf traffic effects and compaction; and the physiologic influences of pest infestations and control measures. Prereq: 3210. 3 hrs. and 2 3-hr. labs.

4320 Specialty Floriculture (3) Specific practices in the production of minor cut flowers and potted plant crops. Production methods for scheduling flowering or vegetative growth of specialty crop plant material in controlled environments. Prereq: 3410. 2 hrs. and 1 lab.

4400 Individual Project Study (1-6) May be repeated to a maximum of 6 credit hrs.

4610 Seminar (1) Current problems in ornamental horticulture and landscape design. Prereq: Junior standing and consent of instructor.

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

Plant and Soil Science (792)

Professors: W. L. Parks (Acting Head), Ph.D. Purdue; F. F. Bell (Emeritus), Ph.D. Iowa State; L. D. Coffey, Ph.D. Purdue; D. V. Conger, Ph.D. Washington State; H. A. Fribourg, Ph.D. Iowa State; L. S. Jeffery, Ph.D. North Dakota State; L. M. Josephson (Emeritus), Ph.D. Washington State; E. M. Kohn, Ph.D. Michigan State; J. H. Reynolds, Ph.D. Wisconsin; L. F. Seatz (Emeritus), Ph.D. North Carolina State; N. D. Michener, M.S. Kansas State; M. E. Springer (Emeritus), Ph.D. California (Berkeley); H. D. Swingler (Emeritus), Ph.D. Louisiana State.

Associate Professors: H. A. Allard, Ph.D. Minnesota; D. E. Deyton, Ph.D. North Carolina State; W. A. Krueger, Ph.D. Illinois; D. A. Lietzke, Ph.D. Michigan State; G. M. Lessmann, Ph.D. North Carolina State; V. H. Reich, Ph.D. Iowa State; D. R. West, Ph.D. Nebraska; J. D. Woll, Ph.D. Auburn.

Assistant Professors: J. G. Graveel, Ph.D. Purdue; C. E. Sams, Ph.D. Michigan State.

2130 World Food Production and Crop Systems (3) Introduction to world crop plants and cropping systems with emphasis on origin and development, current technology and practices, and future (role, challenges, demands, functions, problems) of agriculture. 3 hrs.

2130 Soils (4) Nature and properties of soils. Physical, chemical, biological properties and in their role in plant growth. Prereq: Chemistry 1120 or 1520 or 1620. 3 hrs. and 1 lab. F, S.

3110 Soil Fertility and Fertilizers (4) Properties of soils in relation to plant nutrient availability and uptake. Methods of soil testing and appropriate use of fertilizer use; manufacture and properties of fertilizers. Prereq: 2130. 3 hrs. and 1 lab. W.

3120 Grain and Oil Crops (3) Distribution, improvement, morphology, culture, harvesting, and utilization of corn, small grains, grain sorghum, soybeans, and related crops. Prereq: 2130; 8 hrs. biological science. 2 hrs. and 1 lab. W.

3140 Forage Crops (4) Characteristics, adaptation, improvement, management, and utilization of grasses and legumes for pastures, hay, and silage. Prereq: 2130; 8 hrs. biological science. 3 hrs. and 1 lab. F.

3160 Cotton and Tobacco (4) Characteristics, adaptation, improvement, culture, harvesting, and marketing of cotton and tobacco. Prereq: 2130; 8 hrs. biological science. 3 hrs. and 1 lab. F.

3170 Vegetable Crops (4) Characteristics, economic importance, adaptability and production of vegetables for fresh and processing use. May be taken for graduate credit by non-majors only. Prereq: 2130; 8 hrs. biological science. 1 hr. and 1 lab. S.

3180 Fruit Crops Management (4) Soils, planting, cultivation, development of fruit crops plantations; pest control, harvesting, packing, storage and grading. Prereq: 2130; 8 hrs. biological science. May be taken for graduate credit by non-majors only. W.

3220 Soil Management (4) Soil management for crop production including cropping systems, fertilizer use, and tillage operations for specified soil and farming conditions. Prereq: 2130. 3 hrs. and 1 lab. S.

3250 Soils in Forestry (3) Soil as a medium for tree growth; relation of physical, chemical and biological properties of soils to tree growth and management of forest stands. Soil properties of importance in road location, recreational development, and watershed management. Prereq: 2130; Forestry 3320. 2 hrs. and 1 lab. W.

3410 Soil and Plant Analysis (3) Applied methods of soil and plant analysis as they relate to crop nutrition and soil evaluation including sampling procedures, sample preparation, soil physical and chemical analysis, and plant mineral content. Prereq: 3110. 1 hr. and 2 3-hr. labs. W. Not for graduate credit.

3510 Statistics for Agricultural Research (3) Application of statistics to interpretation of agricultural research. Notation, descriptive statistics, probability, distributions, confidence intervals, students' t and
chisquare tests, analysis of variance, mean separation procedures, linear regression and correlation. May be taken for graduate credit by non-majors only. Prereq: Math 1550 or 1850 or equivalent. 3 hrs. and 1 rec. F, W.

3810 Practicum in Plant and Soil Science (3-6) Spend one quarter working with agricultural related enterprises with area of work being related to a student’s career interest. Requires consent of 3-person faculty administering committee and of academic advisor. May not be used as a 3000-level prerequisite for any course in Plant and Soil Science. May not be taken for graduate credit. PSS majors only. E.

4110 Soil Chemistry (4) Colloidal systems; properties and behavior of colloidal soil materials; relations of chemical properties to plant nutrient availability. Prereq: 2130; Physics 1210. 3 hrs. and 1 lab. F.

4120 Principles of Crop Breeding (4) Genetic principles and techniques used in crop improvement. Prereq: Biology 3110 or equivalent. W.

4250 Agricultural Pesticides (4) Regulation of pesticide development, manufacture, transportation, marketing and use. Structure, use, mode of action, degradation and environmental impact of pesticides used in agriculture, forestry and related areas. Prereq: 1 year biological sciences and 1 year chemistry. 3 hrs. and 1 lab. F.

4320 Soil Formation, Morphology, and Classification (4) Soil parent materials, basic pedogenic processes, soil forming processes, soil morphology and interpretation of morphology, taxonomic classification of soils. Use of soil surveys. Prereq: 2130. 3 hrs. and 1 lab. S.

4350 Soil Survey (2) Techniques of mapping soils, development of mapping legends and documentation and testing of mapping unit descriptions and interpretations. 1 hr. and 1 lab. Prereq: 4320 or concurrent. S.

4400 Problems in Plant and Soil Science (1-6) Special research or library problems in some phase of plant and soil science. May be repeated. Maximum credit 9 hrs. E.

4410 Crop Physiology and Ecology (4) Application of the principles of plant physiology and ecology to crop production. Effects of environmental factors (light, heat, water, soil, etc.) on physiological processes (respiration, photosynthesis, germination, flowering, etc.) Prereq: Botany 3216; 2130 and any PSS course at 3000-level except 3610. 3 hrs. and 1 lab. W.

4710 Principles of Weed Science (4) Principles of cultural, biological, and chemical control of weeds, effects on environment, principles of herbicide selectivity and activity, types of herbicides and specific recommendations for various crop and non-crop uses. Prereq: Agric. 1140 or 1120; Organic Chem. 2130 and any PSS course at 3000-level except 3610. 3 hrs. and 1 lab. S.

4910 Seminar (1) Review of literature. Oral and written reports. W.

GRADUATE Consult the Graduate Catalog for listing of graduate level courses.
Roy F. Knight, Dean
William J. Lauer, Associate Dean

The School of Architecture offers a program of professional studies which prepares its graduates for the practice of architecture. While emphasizing knowledge and skills required by architects in guiding the processes of building, the school is especially concerned that its students learn that kind of good judgment which particularly distinguishes the architect from all other professionals who serve the building industry. Therefore, the student is regularly called upon to pay attention to cultural, philosophical and ethical issues that appropriately concern the architect in performance of the art of building. The student is also required to discover and understand the principles by which our physical universe appears to operate in order to know the science of building as fully as possible. It is important for the student to learn the characteristics of the natural environment while learning the physical behavior of materials in structures. Furthermore, the program of the school is concerned with preparing the student to be adaptable to change. An understanding of society is important as we see it developing in sometimes surprising ways. This places special demands upon the architect. Consequently the program of the School emphasizes the process of learning with the intent of enabling its graduates to adapt to the changing circumstances of our world. How to learn about architecture is as important a matter for the student as learning itself.

Facilities

In the spring of 1981, a new building housing the School of Architecture and shared by the Art Department was completed. The Art and Architecture Building contains all the primary activities of the school. Expressly designed for the school in an open architectural competition, the building has received widespread recognition and has become one of the models sought out by other schools. The building was designed by the Knoxville architectural firm of McCarty, Bullock, Holsaple, Inc. It contains as its major feature a large interior mall or street. Opening off this large gathering space, which serves as a campus focal point, are amply designed classrooms, a reference library which contains extensive slide collections and other reference materials, computer rooms, faculty offices, lecture rooms, administrative offices, an elaborate darkroom, workshop, and a gallery in which architecture as well as art exhibits are mounted.

The principal library holdings of the school are located in the James D. Hoskins Library, with additional volumes in the Undergraduate Library. A reading and reference room is maintained in the Art and Architecture Building.

Financial Assistance for Students

A number of $500 sponsorships are made available each year by architectural firms, manufacturers of building materials, and other construction related industries. These grants are used to cover tuition, books and equipment. Scholarships are also available through the national headquarters of the American Institute of Architects. Honor students in all the upper four years are eligible for this aid, but it is primarily awarded to students of third- and fourth-year standing.

Lecture Program

Throughout the academic year, the school organizes an extensive series of special lectures by experts in architecture and related subjects. Students are expected to attend regularly and benefit from this opportunity to hear the leading people of the field. The lectures are open to the University community and the public as well.

Included in the series is the ROBERT B. CHURCH MEMORIAL LECTURESHIP. Named for the school’s second dean, it has become widely respected in the field as an honor to be appointed to this lectureship. The most prominent architects from around the world are brought to the school with income from the endowment.

Other important lectures are sponsored by the General Shale Corporation and the architectural branch of the Tennessee Valley Authority. Annually in the spring quarter a special program called TAAST is arranged. Within a period of one week the entire school participates in special lectures, seminars, exhibits, and informal gatherings. Featured are discussions by a series of visiting experts. TAAST is a student organized event.

Publications

Students in the school each year publish The University of Tennessee Journal of Architecture. Continuing several years of excellent publications covering work of the school and current thinking in the field, this journal has become a widely recognized part of the school’s participation in the profession.

Foreign Studies Program

Each year the school offers at least two opportunities for foreign study to its students. In cooperation with the Danish International Student Committee a program is regularly offered in Copenhagen taught by outstanding Danish architects and educators. Exchange programs are established with the Royal Melbourne Institute of Architecture, Melbourne, Australia and Chongqing Institute of Architecture and Engineering, Chongqing, Sichuan Province, China. Within the school faculty, a person is assigned responsibility to lead a program in Europe each year at varied locations. These are designed to include visits to prominent new architectural sites and major historic locations.

Studies abroad, which are arranged to include a full quarter’s credit for advanced students, include design, history, and theory of architecture.

Memphis and Knoxville Community Design Centers

Each year, throughout the year, advanced students may work at these locations off-
Third-Year Prerequisites

Students are required to have all first- and second-year courses satisfactorily completed before entering the third-year design courses, Architecture 3001-02-03. Students progress and design work in second year will be reviewed by a committee of the faculty determined in order to maintain advancement to third year. Students who register for a third-year design course holding first- or second-year deficiencies may be required to drop the course at any point during the quarter.

Progression to 4000-level Courses

Architecture students must have attained third-year standing in the school before being admitted to any 4000-level course, with the exception of Architecture 4000 Service Practicum.

Minor

An undergraduate minor in architecture is offered in order to enable students in other colleges to pursue studies in architecture which are relevant to their major areas of concentration. The minor will consist of no less than 18 hours. Persons interested must obtain the consent of the School of Architecture's Academic Standards Committee and Dean of the School of Architecture, who will approve specific programs of study proposed by students.

Course Load

The average course load in any quarter is 16 credit hours. The minimum which may be taken by full-time students is 12 hours; the maximum which may be taken without approval of the dean is 19 hours.

Satisfactory/No Credit Courses

These 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 work is defined as C or better work on the traditional grading scale, and no credit is awarded for S/NC grades. The following regulations apply:

1. S/NC courses may not count for required courses or architecture electives;
2. A student who desires to take a course S/NC should indicate this intention at the start of registration. A change from S/NC grading to regular grading or from regular grading to S/NC will not be permitted beyond the add deadline for each quarter.

Exception: students who register for a course S/NC in a restricted area will be required to change to regular grading when the error is discovered.

Program Description

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 the courses are designated as required, students may use the available architecture electives to expand their knowledge in areas of special interest. Academic non-architecture electives allow students to broaden their education in areas of general interest: the humanities, natural sciences, social sciences or arts. All electives are to be taken only with the approval of the student's advisor.

Curricula for Architecture

All students studying for a Bachelor of Architecture degree will include the following requirements in their course of study. Students are not allowed to enroll simultaneously in two design courses. For any additional specialized requirements, the student should refer to the Student Handbook of the School of Architecture and the student's advisor.

SERVICE PRACTICUM REQUIREMENT

A three-month, non-credit internship in an architect's office is required. Upon petition, work in an engineer's, or contractor's office or related work may be approved by the school. This work must be evidenced by a letter from the employer indicating type and quality of student's work and time of employment prior to the fifth year. (See course description for Architecture 4000.)

Foreign students may need to obtain Immigration and Naturalization Service Employment Authorization before service practicum begins. To obtain authorization, foreign students should take their I-94 form to the Office of International Student Affairs not more than 60 days nor less than 30 days before the anticipated starting dates. Beginning service practicum employment without INS authorization constitutes unauthorized employment and may jeopardize foreign student's continued stay in the United States.

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<th>Course Load</th>
<th>Credit Hours</th>
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<td>First Year</td>
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<tr>
<td>Architecture 1100, 1200, 1300</td>
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<td>Architecture 1191, 1201, 1301</td>
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<td>English 1010 or 1011, 1020; 1031, 1032, or 1033</td>
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<td>Math 1600-50-60 or Math 1550-60; Phil. 2510</td>
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<td>History 1510-20</td>
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<td>Approved Elective</td>
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<td>Second Year</td>
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Total: 245 hours

1 Students are not allowed to enroll simultaneously in two of these design courses.
Bachelor of Architecture as a Second Degree

A curriculum leading to a Bachelor of Architecture degree is available to students who already hold a bachelor's degree or an advanced degree in a different field. This program begins with intensive initial studies in architecture and is possible to complete within three years. A minimum of 9 quarters residency is required. The degree is the first professional degree recognized for purposes of eventual qualification for the license to practice architecture.

Applicants must provide a transcript of previous academic work and must have attained at least a 2.5 overall grade point average. Appropriate goals and abilities must be shown by the applicant as well.

SECOND DEGREE PROGRAM MINIMUM REQUIREMENTS

<table>
<thead>
<tr>
<th>Hours</th>
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Approved Electives List


Approved Electives: Fourth & Fifth Year Students 3000-4000 level courses in the following areas: Humanities, Social Sciences, Natural Sciences, U.S. Studies, Foreign Studies.

Faculty

Professors:

Associate Professors:

Assistant Professors:

1100 Introduction to Architecture (3) Examination of scope and definition of architecture. Imaginative, intellectual, and professional background. The field in relation to contemporary society, the building industry, and allied design professions. Architectural design as a creative process; orientation to courses and programs of the school.

1101 Design Drawing (3) Principles of design through graphic presentation of field observations. Techniques of freehand sketching and abstract graphic communication applied to local examples of buildings and sites. Exercises related to discussions in 1100. Training introduced which relates development of thinking and graphic drawing skill and the student's imaginative capabilities.


1191 Second Degree Program: Architecture Seminar II (2) Theory and practice of architecture. Orientation to the profession and program of the school. Coreq: 1190. F.

1200 Architectural Graphics I (3) Description of architectural drafting tools; use of paper, pencil, drafting board, and instruments. Introduction to basic drafting procedures.

1201 Visual Design Principles I (3) Basis of visual order; proportion, scale, balance, figure-ground relationships, and rhythm. Studies of two and three dimensional forms. Light, shadow, and color. Creative abstract exercises and sketches to focus on basic architectural principles.

1290 Second Degree Program: Basic Architecture II (6) Principles of site development and basic approaches to planning and design of buildings in relation to function and context. Prereq: 1190 and 1191. W.

1291 Second Degree Program: Architecture Seminar II (3) Design and the environment. Analysis of architectural ideas. Introduction to computer graphics. Prereq: 1100 and 1101. W.


1301 Structural Types I (4) Basic building structural types and approaches to construction and assembly of buildings. Stress, strain, and distribution of building materials, frames, shells, and other materials. Mechanics of foundations, properties of different materials, and other materials with consideration for cultural conditions and form of environments on human behavior patterns; cause-effect relationship of developments of human behavior patterns.

2100 Fundamentals of Site Design (4) Projects involving site orientation, climate, energy conservation, accessibility, transportation, and drainage. Prereq: 1300 and 1301; coreq: 2101. F.

2101 Design in the Environment (3) Introduction to design issues in the natural environment and in urban contexts. Review of exemplary approaches in current practice. Prereq: 1300 and 1301; coreq: 2100. F.

2114 Computer Applications in Architecture (4) Demonstration of computer use in architecture, including exercises in programming.

2200 Elements of Architecture (4) Design of small buildings with special consideration for site, internal circulation patterns, space allocation, and requirements. Order: Presentation sketches, constructed drawings, and sketch models. Prereq: 2100 and 2101; coreq: 2102. W.

2201 Building Use (2) Introduction to techniques of building programming. Space allocation and balance. Inter-relationship of spaces in terms of use. Examination of user requirements. Typical approaches to entry, use, and purpose of use. Space zoning. Diagrammatic presentations and sketches from field observations. Prereq: 2100 and 2101; coreq: 2102. W.

2202 Architectural History I (3) Development of architecture from antiquity through the Byzantine period, with consideration for cultural conditions and form of settlements.

2203 Architectural History II (3) Development of western architecture from the medieval period through the Baroque. Prereq: 2202. E.


2204 Architectural History (3) Study of the modern movement from its roots in Romanticism, Neo-Classicism, and the Industrial Revolution through the work of modern masters, with applications to current design issues. Prereq: 2300 and 2301.

2302 Order and Form in Building (4) Design of small buildings locating each building within its context. Emphasis on exploration of formal possibilities and structural implications in relation to program use. Presentation sketches, constructed drawings, and finished model. Prereq: 2200 and 2201; coreq: 2301. S.

2301 Models of Building Form (2) Example buildings illustrating imaginative manipulation of form in response to spatial and structural requirements. Prereq: 2200 and 2201; coreq: 2300. S.

2307 Architectural History II (3) Development of western architecture from the medieval period through the Baroque. Prereq: 2202. E.

2314 Architectural Structures II (4) Analysis of statically determinate systems; beams and simple assemblies. Individual structural elements under load, including columns and foundations. Design of simple elements, introduction to statically indeterminate members and systems. Computer analysis of structural systems.


3107 Architectural History III (3) Study of the modern movement from its roots in Romanticism, Neo-Classicism, and the Industrial Revolution through the work of modern masters, with applications to current design issues. Prereq: 2307.

3114 Structures in Wood and Steel (4) Introduction to analysis and design of simple wood and steel structures based upon specific loading requirements. Use of design tables - selection of structural members.

3116 Environmental Control (4) Human physiological...
response to heat, light, and sound in buildings. Study of climatological factors which affect buildings; introduction to heating, ventilating, and air conditioning.

3200 Architectural Design II: Concepts (6) Building concepts, forms, and design development and presentation of designs for buildings of moderate complexity. Preliminary structure, material choices, and organizational structure and environmental setting; Solution to issues of site and context. Complete sketches, drawings, and models at site and building scale required. Prereq: 3100. W.

3214 Structures in Masonry and Concrete (4) Introduction to design and analysis of simple reinforced concrete and masonry structures based upon specific loading conditions. Use of construction and building codes, handbooks, and design tables. Prereq: 3114. W.

3216 Mechanical Systems in Architecture (4) Continuation of the study of heating, ventilating, and air conditioning systems, including both passive and active solar energy systems. Plumbing and fire protection systems. Prereq: 3116. W.

3217 Materials and Processes of Construction (4) Architectural materials and their use in building construction. W.

3300 Architectural Design III: Details (6) Design concepts developed in detail, with consideration of aesthetics, scale, and material properties. Systems and methods will be placed upon the role of environmental factors in human development, learning, adaptation, stress and satisfaction, recreation, and social functions. Studying students will explore the design of environments for children and environmental supports for various types of physical disabilities for people of all ages. Prereq: Consent of instructor.

3300 Behavioral Approaches to Environmental Design (3) Of major concern in the lecture content of this course is the effect of the built environment on human behavior. Particular emphasis will be placed upon the role of environmental factors in human development, learning, adaptation, stress and satisfaction, recreation, and social functions. Studying students will explore the design of environments for children and environmental supports for various types of physical disabilities for people of all ages. Prereq: Consent of instructor.

3400 Service Practicum (6) A non-credit internship for minimum of 3 months duration to be completed prior to fifth year. E.


4200 Advanced Architectural Design II (6) Design at community scale, emphasizing attention to patterns of community design in response to use requirements and the physical environment. Consideration of scale, materials, energy use, access and circulation, spatial form and character, studied through diagrams, sketches, drawings, and models. Course studying students may be housed in off-campus locations. Prereq: 4100 and 4101. W.

4215 Professional Practice I (3) Principles and methods of economics and management for architectural office, project production, cost analysis, budgeting, office and construction management. F, W, S.

4300 Advanced Architectural Design III (6) Design of experimental projects in larger community settings, with attention to site character, building designs, and site relationships in a given pattern of comprehensive development. Course sections may be housed in off-campus locations. Prereq: 4200. S.

4313 Professional Practice II (3) Legal responsibilities of the architect, AIA contract documents, administration, codes and zoning regulations, liability, and insurance. Prereq: 4213. F, W, S.

4400 Independent Design Studies (6) Individual design projects under faculty direction. May be repeated. Maximum credit 12 hours. Prereq: 4501. S.

4410 Foreign Studies (6) Research and design projects conducted in various locations abroad. F, SU.

4415 Urban Design (6) Appropriate community form and urban design frameworks responding to specific community conditions and aspirations. Off-campus locations.

4420 Architectural Design Innovation (6) Design projects emphasizing investigation of experimental approaches to architectural design. Consideration of new building types, innovative design concepts or alternative design methods.

4430 Architecture and Preservation (6) Rehabilitation, restoration, and adaptive uses of existing buildings.

4440 Development and Design (6) Design consequences of feasibility studies, economics, finance, marketability, environmental impact, and social considerations in development of real property.

4445 Design Service in Communities (6) Studies conducted under direction of architect or expert in an allied profession, in service to public service organizations, government agencies, and public groups. Off-campus locations.

4450 Working Drawings (6) Preparation of detailed working drawings, specifications, and other documents for typical architectural projects.

4460 Energy Efficient Design (6) Architectural design studies emphasizing detailed consideration of specialized energy conservation techniques.

4480 Structural Innovations (6) Building design with innovative structural configuration and technology. May be repeated. Maximum credit 12 hours.

4481 Architecture-Engineering Laboratory (6) Large scale structural and environmental modules with emphasis on engineering systems. Directed research application of new structural concepts. Consideration of design for engineering services, environmental controls and construction.

4490 Computer Applications in Architectural Design (6) Architectural design projects employing electronic data processing.

4501 Architectural Programming (3) Emphasis is placed on learning to ask essential questions and to identify critical basic issues in design. Examination of information sources and their proper use. Formulation of project objectives and requirements. Verbal, written, and diagrammatic presentation illustrating a basic design concept, approach, and method. Preparation for 4600. W.

4600 Comprehensive Architectural Design Project (6) Development of design for complex buildings with attention to clarity of concept, structure, and style. Analysis and presentation of design, site development, structure, and technical requirements and design of details. Full complement of visual and written presentations which support students' arguments for design concept and its development. Required review by faculty representing all areas of the architectural program. Prereq: 4501 and satisfactory review by faculty. Consent of instructor. (Same as Civil Eng. 4731-32.) 4731-SU; 4732-W.

4801 American Architecture I (3) Development of North American architecture from arrival of immigrants in 1607 until 1860. W.

4802 American Architecture II (3) Stylistic periods from the Gothic Revival through the twentieth century. S.

4803 Oriental Architecture (3) The eastward expansion of the Fertile Crescent to the Indus Valley, Hindu, Buddhist, and Mughal architecture in India. Architecture in China and Japan from the earliest beginnings. A.

4804 The International Style (3) Architecture of the International Style 1922-1932 with antecedents and influences. A.

4805 Indigenous Architecture (3) Study of world-wide "anonymous" architecture reliant upon climatic conditions, availability of materials, and economic level of people. Examples from prehistoric structures through twentieth century vernacular. A.

4806 History of Architectural Technology (3) Building and construction techniques from antiquity to the present. A.

4807 Tennessee Architecture (3) History of settlement patterns and building in Tennessee. F.

4808 History of the City (3) Examination of historical change in urban form and design. Survey, Case studies.

4809 Literature of Architecture (3) Survey of architectural writing. Relationship between literature and design.

4810 Aesthetics in Architecture (3) Philosophies of art underlying the practice of architecture. F, W, S.

4811 Special Topics in History, Theory and Criticism (1-4) Special topics in history-related subjects. May be repeated. Maximum credit 6 hours.

4812 East European Architecture (3) Twentieth century architecture in Russia, Czechoslovakia, Poland, Hungary, East Germany, Rumania, Bulgaria, Yugoslavia. S.

4813 Medieval Architecture (3) History of architecture from the decline of Rome to the beginning of the Renaissance. A.

4814 Forms of Utopia (3) Ideas and architectural expressions of Utopian movements.

4815 Criticism Seminar (3) Theories, function, and techniques of architectural criticism. S.

4816 Architects in Social Criticism (3) Writings which illustrate technological, political, and anthropological assumptions of some nineteenth and twentieth century architects.

4817 Architecture since 1945 (3) Recent architectural developments and views of the future. F.

4820 Special Topics in Architecture (1-4) Individual projects under faculty direction. Credit adjusted to project complexity and level of effort. May be repeated. Maximum credit 6 hours. E.

4821 Design Methods (3) Application of general systems theory and other methods to architectural design.
Research discipline and scientific method considered.

4825 Current Issues in Architecture (3) A review of emerging approaches to design, their underlying principles and background in recent practice. E.

4830 Introduction to Preservation (3) History and theory of architectural preservation and restoration. F.

4831 Preservation Technology (3) Techniques of preservation: dating, methods of analysis, history of materials and technology used in old buildings. W.

4832 Descriptive Analysis of Historic Buildings (3) Identification and analysis of characteristic elements of buildings from various architectural periods, with emphasis on American architecture. Survey techniques. S.

4833 Preservation Law (3) Legal aspects of contemporary preservation activity.

4840 Project Management (3) Principles, methods, and application of project management to the total building process. Project manager function, responsibilities, and activities investigated through case studies, job history reviews, and project simulation.

4841 Construction Management (3) Principles, methods, and application of construction management to the total building process. Construction manager function, responsibilities, and activities investigated through case studies, job history reviews, and project simulation.

4842 Marketing Architectural Services (3) Marketing of architectural practice by study of cases, theories, public relations procedures, and understanding sales of architectural services, both basic and comprehensive. F.

4843 Contract Documents (3) Analysis and theory of contract documents by application of production techniques and procedures.

4844 Advanced Contracts (3) Study of contractual problems relating to architect, owner, contractor, and subcontractor.

4845 Codes and Zoning (3) Theory, review, and research of city, county, state, region, and national codes and zoning. History and development of fire safety and building codes; history and development of zoning emphasizing architect's responsibility as related to specific project application.

4846 Cost Analysis (3) Methods and theories of estimating project cost and building cost with reference to present techniques. Research in new techniques of cost analysis.

4847 Specifications (3) Theory, analysis, and methods of specifications. Emphasis placed on development and research of specifications.

4848 Supervision (3) Theories, methods, and site study of job inspection during construction phase and construction administration.

4850 Elementary Structural Matrix Methods (4) Introduction to the generalized matrix methods of analysis of structures. Review of matrix algebra and vectors; development of member stiffness and flexibility matrices; assembly of structure stiffness and flexibility matrices. Prereq: Consent of instructor. (Same as Civil Engineering 4850 and Engineering Science and Mechanics 4850.) SU.


4862 Fire Protection in Structures (3) Characteristics of fires in buildings. Fire codes, building evacuation, sprinklers and other fire protection systems, emergency power and lighting, and fire resistant materials and construction.

4863-64-65 Advanced Mechanical and Electrical Systems (3,3,3) In-depth analysis and innovative concepts in design of heating, ventilating, air conditioning, lighting and electrical distribution systems in buildings. Prereq: 3316. 4863-F; 4864-W; 4865-S.

4870 Architectural Photography (3) Photography as a craft, research and presentation medium. Emphasis on architectural photography using black and white media. F, W, S.

4871 Advanced Architectural Photography (3) Application of special photographic techniques with emphasis on color printing and processing. Prereq: Consent of instructor. F, W, S.


4881-82 Advanced Structural Design I, II (4,4) Analysis and design of basic building structures. Structural and constructional aspects of building, including structures in steel, concrete, masonry, and timber to satisfy loading and building code requirements. Prereq: 3214 or equivalent.

4883-84 Advanced Architectural Structures I, II (3, 3) Philosophy of structural design in relation to materials and form. Advanced mathematical and experimental analysis of structures, including use of computer programs. Prereq: 4891 or equivalent.

4887 Structural Design for Protection Against Extreme Hazards (3) Probability, risk, human values, insurance. Survey of possible hazards: floods, fire, hurricanes and tornadoes, earthquakes, nuclear effects, internal and external explosions. Building code and engineered design of steel, masonry and wood structures to resist extreme effects. Protective construction for human needs. Fire protection engineering, fire phenomena, life safety analysis, high-rise building fires.


4891 Computer-aided Design (3) Survey of computer applications in architecture, with special emphasis on structural calculations. Prereq: 2114. S.

4892 Architectural Computer Graphics (3) Survey of architectural applications of computer graphics; program planning and implementation. Prereq: 2114. W.


4894 Advanced Design of Concrete Buildings (3) Precast and on-site concrete construction and maintenance, foundations, floor and wall systems. Domes and shell roofs. Prereq: 4891 or equivalent.

4900 Aspects of Urban Environment (4) Interdisciplinary course in urban problems. Prereq: Consent of one of the instructors. (Same as Urban Studies 4900).

4940 Proxemics (4) Seminar for graduate students and upper-division students. Introduction to proxemic research. Definition of proxemic variables. Proxemic notation exercises. Analysis of etic data and the identification of emic categories. Observer bias and methods and bias reduction. Members of seminar required to design, conduct, and present original proxemic research. Prereq: 2114 or consent of instructor.

4950 Environment as Code (4) For graduate students and upper-division students. Advanced lecture course of theoretical issues involved in considering environment as a medium of human communication. Codes and nature of coding behavior in animals and man. Relationships between coding behavior and the organization of the nervous system. Coding and social behavior. Communication process as a generic model of man-environmental relations. Hierarchical aspects of environmental communications. Prereq: 2100 or consent of instructor.
The College of Business Administration seeks to prepare men and women for positions as executives and specialists in business. Seeing the business firm as operating in a dynamic social, political, and economic environment, the college has four functions with respect to its purpose: (a) to offer its students the firm base of liberal education consistent with that possessed by all educated people; (b) to present to its students business-oriented instruction in professional fields so that they may understand the business process as a whole and the function of specific areas of business in particular; (c) to associate closely with other colleges of the University in order to enrich the understanding of its students by offering an opportunity to learn from psychology, sociology, and other areas related to the behavior of people; (d) to develop in its students the ability to see their four years in the college as the initial step to a lifetime commitment to personal growth and intellectual maturity through continuing education. The college centers its teaching, subject matter, and research activity around two themes: the manager as a planner, decision maker, implementer, and controller of operations in a business firm; and the manager as an analyst of and an adapter to the larger social, economic, and political environment in which the firm exists.

The college has one goal: to have each student leave school with a reasonably articulated and coherent, though flexible and ever-developing, personal philosophy of business; an understanding of the scientific, ever-changing technological world; and a firm awareness of their social responsibility as a future executive and enlightened wielder of power.

The nationally recognized body which accredits programs in business administration is the American Assembly of Collegiate Schools of Business (AACSB). The college has been a member of AACSB since 1941, and both its undergraduate and graduate programs are fully accredited. In addition, the AACSB has accredited the following accounting programs: B.S., M. Acc., M.B.A.

Association and Progression

Students wishing to receive a degree in business administration must seek association with the College. Details of the requirements for association are found on page 15 of this catalog.

Student Advising Center

The College of Business Administration maintains a Student Advising Center. The center is staffed with full-time academic advisors to assist freshman and sophomore students on an individual basis with their programs. Junior and senior students are assigned to advisors from the faculty of the student's selected major. The objective of working with students individually is to assist them with their personal needs for academic information and to prepare them for self-sufficiency in responding to their questions and concerns.

Center for Business and Economic Research

The staff of the Center for Business and Economic Research engages in studies of the business and economic environment in Tennessee, the Southeast, and the nation. The center serves the business community, state government, individuals, and the University through dissemination of information, and aids the faculty in preparing research proposals. Staff members conduct research in regional economics, public finance, demography, and related socio-economic problems. The center publishes results of its research and that of others, in monograph form, so that significant developments in the various business disciplines can achieve widespread exposure. In addition, the center staff does contract research on business and economic problems for governmental organizations and private industry. As periodicals, the center publishes the Tennessee Statistical Abstract and the Survey of Business.

The center is a member of the Southeastern Economic Analysis Conference and the Association for University Business and Economic Research.

Management Development Programs Department

The Management Development Programs Department offers a wide variety of programs ranging from two-to-three-day public seminars and customized "in plant" programs to the four-week University of Tennessee Executive Development Program. The University of Tennessee Executive Development Program (TEDP) is designed to provide extensive continuing educational opportunities for executives from firms and organizations in Tennessee, the South, and the nation. The major objectives of the program are to prepare and develop executives for increasingly higher levels of management responsibility and to sharpen existing executive skills needed for comprehensive decision making and leadership. Other major aims of the TEDP are to teach the fundamentals of analytical thinking and the use of decision tools and to examine the economic, political, technological, and other environmental factors affecting the firm's operations.

The TEDP limits enrollment and participants live on campus for a total of four weeks spread over a three-month period. The fall Executive Seminar brings participants and spouses of all TEDP classes back to campus for sessions on relevant topics and current key issues. The Executive Seminar offers a continuing opportunity for personal growth and professional development. This arrangement provides executives with extensive opportunities to exchange
Cooperative Program in Business

The College of Business Administration offers qualified students who have completed at least one year of work at the University and whose grades conform to the standards set by the college the opportunity to participate in the Cooperative Program in Business. This program, under the direction of a coordinator, combines classroom study with practical experience. Effort is made to place students in jobs which offer maximum educational and financial advantages. Students alternate quarterly between work in business or industry and study at the University.

The Cooperative Program gives the student an opportunity for practical experience, develops a sense of responsibility and cooperation, helps in selecting a vocation, creates greater interests and incentive in studies, enables earning part of expenses, and may lead to permanent employment after graduation.

The student may earn a maximum of nine hours of elective credit for field work but must do a satisfactory job as determined by the employer and coordinator, including record of actual experiences. Arrangements for credit should be made prior to the quarter of coop work.

All students interested in the program are referred to the Cooperative Education Office, Alumni Hall.

Preparation for Teaching

Students desiring to teach business, economics, or distributive subjects in the secondary schools of Tennessee may follow majors in accounting or marketing and also meet the requirements for certification by the State Department of Education. Students should consult an advisor in business or distributive education regarding the proper courses.

Master's and doctoral degree programs leading to teaching in junior and senior colleges or universities are available as well.

Business Minor for Non-Business Majors

Students who are non-business majors, but who wish to attain a minor in business, must successfully complete 20 hours of the following required courses: Accounting 2110-20-30, Economics 2510-20, and Statistics 2100. Also, 15 hours of upper-division business electives must be taken at UTK. Not more than six upper-division hours of accounting, economics, or statistics may be used for this minor. Students are responsible for meeting prerequisites listed for any upper-division courses taken in a particular concentration. Acceptance of the minor must have approval of the student's college of enrollment. Minors are unavailable to College of Business Administration students.

Course Load

The normal course load for a quarter is 15-17 hours. The maximum number of hours which may be taken by a freshman is 18. Other students have 20 hours available. In unusual circumstances permission to take a course load in excess of these maximums may be granted by the Associate Dean for Undergraduate Programs in Business Administration.

Requirements for All Curricula

In order to qualify for the Bachelor of Science in Business Administration degree, a student must have been accepted for association with the College at the upper division level and must complete the curriculum outlined by the major department. Where no course number is indicated or where a choice is allowed, the student will fulfill the requirements by selecting from specified courses. Where electives are provided, the courses taken must meet the approval of the advisor. Non-departmental electives are considered as courses outside the student's major department. No more than 42 hours are permitted in any one subject area.

A maximum of 30 credit hours of unconditionally graded (S/N/C, P, etc.) courses may be applied to the total credit hours required for a degree of Bachelor of Science in Business Administration. Such credit hours may be used to meet only the requirements identified in the curriculum as "non-business electives," "non-departmental electives," "business and/or non-business electives," and "business electives." A Management Science Option is available for students with facility and interests in mathematical applications to business. See page 80.

NOTE: Students are advised to consult the University's degree requirements as stated in the front section of this catalog as well as the requirements for the college or department.

BUSINESS CORE REQUIREMENTS

The following core courses are required in all business curricula: Accounting 2110-20-30 (2110-20, 3210 for accounting and management majors); Business Administration 4430; Business Law 4110 and 4120; Economics 2510-20; Finance 3510 (Political Science 4370 for public administration majors), 3120-30; Management 3010, 3110 (3111 for management majors); Marketing 3110-20; Business Administration 2750 or Computer Science 1410 (3150 for Management Science Option); and Statistics 2100 and three hours of upper-division statistics elective or as designated by the curriculum (3450-60 for Management Science Option).

ENGLISH REQUIREMENT

The English requirement can be fulfilled by English 1010, 1011, or 1019; 1020, and either 1031, 1032, or 1033, as well as hours selected from 2310, 2540, 2560-70-80, 2660-70-80. Speech 2311 or 2361, unless specifically required by a curriculum, may be used to satisfy four of the elective English hours required. English courses beyond the 1000-level may be taken in any order. Students in freshman English are permitted to substitute for the 2000-level courses listed above any upper-division courses which the Department of English will allow them to take.

NATURAL SCIENCE REQUIREMENT

The natural science requirement can be fulfilled by an eight-hour sequence in any of the following fields: astronomy, biology, botany, chemistry, geography 1810-20, geology, or physics.

SOCIAL SCIENCE REQUIREMENT

The social science requirement can be fulfilled by selecting from the following courses: Anthropology 2510-20-30; Geography 2110-20, 2110-20-30; History 1510-20 (1518-28), 1610-20, 1950-60, 2510-20 (2518-28); Honors 1138; Human Services 2690; Philosophy 2510-20, 2510-20; Political Science 2200, 2510-20 (2518-28); Psychology 2580-90 (2518), 2530-40; Religious Studies 2610 (2511), 2620; and Sociology 1510-20. Students who have not completed a year of American history in high school must select American History: History 2510-20 or 2518-28) 2511 or 2521 as part of the 16 hours of social sciences.

COMPUTER SCIENCE REQUIREMENT

A computer programming course is mandatory. Computer Science 1410 or Business Administration 2750 satisfy this requirement.

Accounting

The curriculum provides students with a general education, a general business education, and a general exposure to the primary areas of accounting. Students completing the curriculum are eligible to begin careers in public accounting, industry, and government.

Students desiring greater depth or wishing to specialize in certain areas of accounting are encouraged to seek admission to the Master of Accountancy program during their junior or senior years. Together, the undergraduate accounting program and the Master of Accountancy constitute a five-year opportunity that fulfills the current educational recommendations of the American Institute of Certified Public Accountants.

Transfer Students: A minimum of 30 quarter hours of required upper-division College of Business Administration courses must be completed in residence at The University of Tennessee. Knoxville. These must include a minimum of 15 hours of accounting courses numbered 3000 or above and must include Accounting 4110, 4140, 4430, and 4630. Transfer students with nine quarter hours of introductory accounting will receive six hours of credit in Accounting 2110-20 and the three hours of lower-division accounting credit.

Junior standing is prerequisite to all management courses.

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<tr>
<td>1Social science electives</td>
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<td>Non-business electives</td>
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College of Business Administration 77
### Sophomore

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<td>Statistics 2110</td>
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<tr>
<td>1. Computer science elective</td>
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<td>Management Science 2110-20</td>
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<td>1. Social science elective</td>
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<tr>
<td>Computer Science 3410, 3910</td>
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### Junior

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<tr>
<th>Course</th>
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<tbody>
<tr>
<td>Accounting 3110-20-30</td>
<td>3</td>
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<td>Accounting 3212-20</td>
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<tr>
<td>Finance 3510</td>
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<td>Finance 3130</td>
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Total: 187 hours

### Senior

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<tbody>
<tr>
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<td>Accounting 4650</td>
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<td>Business Law 4110-20</td>
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<td>1. Social science electives</td>
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<tr>
<td>2. Business and/or non-business electives</td>
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</tr>
</tbody>
</table>

Total: 187 hours

### Finance

This major is for students interested in careers in finance. The major allows flexibility for students (aided by their department faculty advisor) to tailor their programs to fit their particular career goals and prepare for one (or more) of the following specialty areas:

#### INVESTMENT MANAGEMENT - This specialty area leads to career opportunities as a stock broker or investment counselor. In addition, students are prepared for investment analysis and portfolio management positions with commercial banks, investment banks, mutual funds, and insurance companies.

#### REAL ESTATE - Courses in this area are designed for students who are interested in the many fields of business and government where real estate is of significance. Such fields include real estate brokerage, appraising, taxation, law, property management, real estate development, mortgage lending and mortgage banking, construction, government loan guarantees, and insurance.

#### CORPORATE FINANCIAL MANAGEMENT - Career opportunities in this area include: corporate financial forecasting, planning, and control; managing the cash, short-term borrowing, and short-term investment positions of the firm; capital project analysis; and long-term financing decisions.

#### BANKING AND FINANCIAL INSTITUTIONS - Courses in this area prepare students who are planning careers in management of commercial banks and branches, or as trust officers, investment or loan officers, or in savings or industrial banks, the Federal Reserve System, international monetary institutions, or state and federal bank regulatory agencies.

#### INSURANCE AND RISK MANAGEMENT - This concentration is designed to prepare students for entry into careers in insurance and business or public risk management. Opportunities include marketing, agency or home office administration, and management of those pure risks which threaten the solvency and operational efficiency of a business or the provision of cost efficient services by a governmental body.

### General Business

This major is for those who desire a broad business background without extensive concentration in any single business field. To that end, it includes advanced work beyond the introductory courses in accounting, economics, finance, marketing, statistics, and transportation as specified below.

Transfer Students: A minimum of 12 semester hours of finance courses.

Transfer Students: A minimum of 12 semester hours of finance courses.

Junior standing is prerequisite to all management courses.

### Economics

The Department of Economics offers specialized courses for those who desire to serve as economic analysts and specialists in business, education, government, and various international agencies. The curriculum requirements for an economics major in the College of Business Administration are listed below with an additional explanation given on page 82.

Freshman students may also elect to major in economics in the College of Liberal Arts or to become certified to teach economics in the secondary schools through the College of Education. See the College of Education for further details. Transfer Students: A minimum of 30 quarter hours of required upper-division College of Business Administration courses must be completed in residence at The University of Tennessee, Knoxville. These must include a minimum of 15 hours of economics courses.

### Advantages

Courses covering subjects which are essential in preparing persons for entry into the fields of financial planning and financial services — including Personal Financial Planning, Estate Planning, Investment, Retirement Planning, and Employee Benefits.

Transfer Students: A minimum of 30 quarter hours of required upper-division College of Business Administration courses must be completed in residence at The University of Tennessee, Knoxville. These must include a minimum of 12 hours of finance courses.

### Total: 187 hours

*(See Requirements for All Curricula.)*

### Hours Credit

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<td>English 1010 or 1111; 1020; 1031 or 1032 or 1033</td>
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<tr>
<td>Mathematics 1540-50-60 or 1540-40-50</td>
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<tr>
<td>1. Natural science electives</td>
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<td>1. Social science electives</td>
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<tr>
<td>Economics 2510</td>
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### Sophomore

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<td>1. English elective</td>
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<tr>
<td>Accounting 2110-20-30</td>
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<td>Non-business elective</td>
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### Junior

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<th>Course</th>
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<tbody>
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<td>Marketing 3110-20</td>
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<td>Management 3010, 3110</td>
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<td>Economics 3110-20 and economics elective</td>
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<td>Economics electives</td>
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<tr>
<td>Non-business elective</td>
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</tr>
<tr>
<td>Business and/or non-business electives</td>
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### Senior

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
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<tbody>
<tr>
<td>Business Law 4110-20</td>
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<tr>
<td>Business Administration 4430</td>
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<td>Economics electives</td>
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<tr>
<td>Business and/or non-business electives</td>
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<td>4</td>
</tr>
</tbody>
</table>

Total: 187 hours

*(See Requirements for All Curricula.)*

### Finance electives to be selected from any 4000-level finance courses.

### General Business

This major is for those who desire a broad business background without extensive concentration in any single business field. To that end, it includes advanced work beyond the introductory courses in accounting, economics, finance, marketing, statistics, and transportation as specified below.

Transfer Students: A minimum of 30 quarter hours of required upper-division College of Business Administration courses must be completed in residence at The University of Tennessee, Knoxville. These must include a minimum of 12 hours of accounting, economics, and finance courses.

Junior standing is prerequisite to all management courses.

### Hours Credit

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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</tr>
</thead>
<tbody>
<tr>
<td>English 1010 or 1111; 1020; 1031 or 1032 or 1033</td>
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<tr>
<td>Mathematics 1540-50-60 or 1540-40-50</td>
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<tr>
<td>1. Natural science electives</td>
<td>4</td>
<td>4</td>
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</tbody>
</table>

*(See Requirements for All Curricula.)*

### Total: 187 hours
Management

This major is designed for students interested in management. All students complete a set of courses designed to provide a basic understanding of management of business organizations and also complete one of the following concentrations:

Operations Management—designed for students who wish to prepare for careers in operations in manufacturing and service industries, including the specific fields on materials management, scheduling and control, work measurement, quality assurance, and supervision.

Personnel Management—designed for students who wish to work as managers in personnel management, including the specialized fields of employment, wage and salary administration, job evaluation, training, and human resources management.

Office Systems Management—designed for students who wish to work as managers in office systems management, including the specific fields of word processing, information systems, and various administrative support functions.

General Management—designed for students who wish to work as managers in general management, but who do not wish to specialize in operations, personnel, or office systems. This concentration allows flexibility so that students tailor their programs of study to fit their career goals by selecting from a set of both departmental and non-departmental courses.

Transfer Students: A minimum of 30 quarter hours of required upper-division College of Business Administration courses must be completed in residence at The University of Tennessee, Knoxville. These must include at least 15 hours of management courses including 4210, 4320, 4460.

Marketing

This major is designed to prepare students for careers with companies engaged in the marketing of consumer and industrial goods and their distribution by manufacturers, wholesalers, and retailers. The curriculum trains students for positions in sales, advertising, promotion, research, and marketing management. The integrated sequence of courses enables students to obtain broad training in the analysis of marketing decision problems. Transfer Students: A minimum of 30 quarter hours of required upper-division College of Business Administration courses must be completed in residence at The University of Tennessee, Knoxville. These must include the following required marketing courses: 3310, 3410, 3510, 4610, 4710.

Economics 2510-20 or the equivalent are prerequisite to all marketing courses. Marketing 3110-20 or the equivalent are prerequisite to all 3000- and 4000-level marketing courses.

Public Administration

This major is for students who wish to
prepare for management positions in public service or government relations. It presents a combination of general education together with studies in governmental affairs and business management. It is designed to give initial preparation for such governmental employment as program management, budgeting and personnel management, and to private sector employment with trade associations and large corporations with substantial interaction with government.

**Freshman**

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<th>Courses</th>
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<td>Sophomore</td>
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<td>English electives</td>
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<tr>
<td>Economics 1010 or 1011; 1020; 1031 or 1032</td>
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<td>Mathematics 1540-50-60 or 1840-50-60</td>
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**Sophomore**

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<th>Courses</th>
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<td>Math 2100, 3220, 3310</td>
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<td>Political Science 4410</td>
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<td>Political Science 4510-20</td>
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<td>Social science elective</td>
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**Total:** 187 hours

**Statistics**

This major is designed for students interested in the use of statistics in business, government, and industry. All students complete a set of courses designed to provide a general understanding of statistical methodology and also complete one of the following concentrations:

**Statistics**—designed for students interested in positions involving quantitative research, as well as for those interested in pursuing a graduate degree in statistics.

**Industrial Statistics**—designed for students interested in process control and quality management in business, government, and industry. Students planning to pursue graduate work in statistics should also take Math 2840-50-60.

**Management Science Option**

The increasing use of electronic computers and modern management methods by industry and the business community has created a rapidly growing demand for persons capable of using mathematics, statistics, and computer methods for the use of quantitative techniques in solving management problems. In response to this growing demand, the College of Business Administration has established a Management Science Option which is available to qualified students who wish to prepare themselves for careers involving this type of work.

The Management Science Option is designed for students who have demonstrated a high facility in mathematics and who are interested in applying this ability toward solving management problems. The Management Science Option is available to students majoring in accounting, finance, general business, management, marketing, statistics, and transportation.

**Accounting M.S.O.**

The curriculum provides students with a general education, a general business education, and a general exposure to the primary areas of accounting. Students completing the curriculum are eligible to begin careers in public accounting, industry, and government.

Students desiring greater depth or wishing to specialize in certain areas of accounting are encouraged to seek admission to the Master of Accountancy program during their junior or senior years. Together, the undergraduate accounting program and the Master of Accountancy constitute a five-year opportunity that fulfills the current educational recommendations of the American Institute of Certified Public Accountants. Transfer Students: A minimum of 30 quarter hours of required upper-division College
of Business Administration courses must be completed in residence at The University of Tennessee, Knoxville. These must include a minimum of 15 hours of accounting courses numbered 3000 or above and must include Accounting 4110, 4140, 4430, and 4630. Transfer students with nine quarter hours of introductory accounting will receive six hours of credit in Accounting 2110-20 and three hours of lower-division accounting credit.

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<td>English 1010 or 1011; 1020; 1031 or 1032 or 1033</td>
<td>Accounting 3110-20; 3120-20; 3130-20; 4110-20; 4120-20; 4130-20</td>
<td>Computer Science 3150</td>
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<td>Mathematics 1840-50-60</td>
<td>Mathematics 2840-50-60</td>
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<td>Natural science electives</td>
<td>Social science electives</td>
<td>Management Technology 3110-20</td>
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<td>Non-business electives</td>
<td>Social science electives</td>
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<td></td>
<td>Computer Science 3150</td>
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</table>

| Total: 187 hours |

See Requirements for All Curricula.

Management M.S.O.

<table>
<thead>
<tr>
<th>Hours Credit</th>
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<th>Sophomore</th>
<th>Senior</th>
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<tbody>
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<td>Business and/or non-business electives 3 3 3</td>
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<td></td>
<td>Mathematics 1840-50-60</td>
<td>Marketing 3110-20 and marketing elective</td>
<td>Statistics M.S.O.</td>
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<td>Natural science electives</td>
<td>Statistics 3540, 3546, 3550</td>
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<td>Management 4610-20</td>
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<td>Business and/or non-business elective, upon approval of the department head. Other upper-division business or Computer Science courses may be used as a technical elective.</td>
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<tr>
<td></td>
<td>Senior</td>
<td>Management 3001, 3110</td>
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</tbody>
</table>

Total: 187 hours

See Requirements for All Curricula.

Graduate Studies

The College of Business Administration offers advanced programs in economics leading to the Master of Arts and the Doctor of Philosophy degrees. The Master of Business Administration degree program offers concentrations in the fields of accounting, economics, finance, forest industries management, management science, marketing, statistics, and transportation and logistics. The Master of Accountancy is offered in accounting. The M.S. degree in statistics is also available. The Doctor of Business Administration degree program is offered in the fields of accounting, finance, management, marketing, and transportation and logistics. Advanced programs in management science lead to the M.S. and the Ph.D. degrees. The M.S. and the Ph.D. degrees are granted in industrial and organizational psychology jointly with the Department of Psychology. This college and the College of Law offer a coordinated dual program leading to the conferral of both the Doctor of Jurisprudence and the Master of Business Administration degrees. See the Graduate Catalog for detailed information.
Students applying for the MBA, M.Acc., and DBA programs are required to take the Graduate Management Admission Test (GMAT). Applicants for the M.A., M.S., and Ph.D. programs may take either the GMAT or the Graduate Record Examination (GRE). Applicants whose native language is other than English must submit results of the Test of English as a Foreign Language (TOEFL) unless a degree has been earned at an accredited U.S. institution attended by the applicant for four academic years within five years prior to date of application. Scheduled dates and locations for taking these examinations may be obtained from Educational Testing Service: P. O. Box 686, Princeton, New Jersey 08540, and from most colleges and universities.

Application requirements vary with different graduate programs. Inquiries should be addressed to the Associate Dean for Graduate Programs, College of Business Administration, The University of Tennessee, Knoxville, Tennessee 37996-0570.

Departments of Instruction

Accounting and Business Law


Distinguished Lecturer:
S. B. Wolfe, B.S. Virginia Polytechnic.

Accounting (009)

2110-20 Fundamentals of Accounting (3, 3) Introduc- tory courses in financial accounting theory and practice with emphasis on preparation, reporting, and analysis of financial information. Prereq. To all other courses in accounting except for engineering majors. Courses must be passed in sequence. Prereq: For 2110, Math 1550 or equivalent.

2130 Survey of Managerial Cost Accounting (3) User-oriented survey of managerial cost accounting topics designed as a terminal course. Topics include product costing, cost behavior analysis for decision making, standard costing, and income statements.

3110-3115 Intermediate Financial Accounting (3, 3) In-depth study of theory, principles, and proce- dures related to the valuation of assets, liabilities, and equities, measurement of periodic income, and prepar-
levels; technological, locational, and financial aspects of economic growth. Prereq: 2520.
3230 Regional Economics (3) Overview of regional differences; theory of industrial, agricultural, and residential development; the economic basis for land use patterns and central places; regional structure, growth and methods of analysis; national assistance for regional economic development. Prereq: 2520.
3240 Economic History of the United States (3) Historical development; growth of agriculture, industry, communications, transportation, banking, and trade, and changes in governmental economic policy. Prereq: 2520.
3250 Economic History of Europe (3) Beginnings of capitalism in medieval Europe, expansion of Europe and dominance of mercantilism in early modern times, mechanization of industry, changes in agricultural organization, and growing importance of commerce in the 19th century; two world wars and their economic consequences. Prereq: 2520.
3310 Comparative Economic Systems (3) Description and analysis of economic goals, institutions and policies in different countries with emphasis on alternative organizational principles and structure. Systems examined will include soviet-type economies. Prereq: 2520.
3340 Government and Business I (3) Microeconomic objectives and alternative public policies for their achievement; prevention of monopoly and concentration through the antitrust laws; regulation of business performance. Prereq: 2510.
3341 Government and Business II (3) Topics in antitrust policy, direct regulation, and other forms of social control; regulating information, product and management quality; public-business relations; selected cases. Prereq: 3340.
3410 Principles of Labor Economics I (3) Supply of and demand for labor; market wage determination; application of analysis to issues such as minimum wage laws, discrimination, unemployment, inflation, collective bargaining, income distribution and human resources policy. Prereq: 2520.
3420 Principles of Labor Economics II (3) American labor history, structure and philosophy of contemporary unions, nature of collective bargaining, and dispute settlement.
4000 Special Topics (3) Student-generated course offered at convenience of department upon student initiative. Subject matter and contents determined by students and instructor with approval of department. Prereqs determined by department each time course is offered. Numerical grade is given to law students. May be repeated for credit.
4130 Business Cycles (3) Fluctuations in income, employment, prices, and output in the economic system; problems discussed may include unemployment, education and training, poverty and income redistribution, discrimination based on sex or ethnicity, or others. Prereq: 2520.
4420 Economics of Human Resources (3) Analysis of current problems in human resource development and examination of policies aimed at their solution. Problems discussed may include unemployment, education and training, poverty and income redistribution, discrimination based on sex or ethnicity, or others. Prereq: 2520.
4430 Labor Legislation (3) Economic background and effects of governmental regulation of labor relations, with emphasis on an examination of National Labor Relations Act as amended. Prereq: 3420.
4440 Labor Legislation (3) Social insurance, welfare and governmental regulation as remedies for the problem of economic insecurity. Economics of the Social Security Act, unemployment insurance, worker's compensation and related legislation. Prereq: 2520.
4510 Monetary Theory and Policy (3) Role of money in the economy. Emphasis on factors that affect demand for and supply of money. Evaluation of current policy. May not be taken for credit by students who have completed Finance 4510.
4750 Public Finance (3) Taxation and other revenue systems, problems of collective consumption, external effects and public choice.
4760 Public Expenditure Evaluation (3) Benefits–cost analysis, public sector investment criteria, and the social cost of capital.
4770 State and Local Finance (3) Emphasis on revenue systems and division of tax sources. May not be taken for credit by students who have completed Finance 4370.
4990 Independent Study (1-4) Offers qualified student opportunity to pursue topics or projects of special interest. Prereq: Senior standing, 3.0 GPA in economics courses, and consent of instructor. May be repeated. Maximum total credit 4 hrs.
GRADUATE
See page 81 for information on graduate programs. Consult the Graduate Catalog for listing of graduate level courses.

Finance
Professors: W. W. Dotterweich (Chairman), Ph.D. Pennsylvania; L. P. Anderson, Ph.D. Wisconsin; W. C. Goolsby, Ph.D. Pennsylvania; D. S. Holschlag, Ph.D. Oregon; G. C. Philipps, Ph.D. New York; R. E. Shrieves, Ph.D. California (Los Angeles); C. P. White (Emeritus), Ph.D. Pennsylvania.

Assistant Professors: R. J. Clayton, Ph.D. Georgia; M. C. Erhardt, Ph.D. Georgia Tech; P. J. Elmer, M.A. University of Colorado; J. P. Ogden, Ph.D. Purdue; R. A. Weir, Ph.D. North Carolina.

Prerequisites: Accounting 2110-20 or 3250 for 2130, Economics 2510-20, and Statistics 2100 for all courses offered in the finance department.

Finance (349)
3510 The U.S. Financial System (3) Examines U.S. financial system as environment which affects business and economic outcomes. Coverage includes: overall functions of money and credit, banking system, other financial intermediaries, interest rate theory, money and capital markets, theories of international monetary policy, and international banking and financial markets.
4110 Investment Analysis (3) Regulations and functions of security markets; mechanics of security trading; roles of investment bankers, dealers, and brokers; and evaluation of marketable securities such as common stock and corporate bonds. Prereq: 3130 and Statistics 3220 or 4310 or 3110.
4120 Portfolio Analysis and Management (3) Principles underlying construction and management of investment portfolios. Topics include methods of investment risk, evaluation of portfolio performance, portfolio revision, and international diversification. Prereq: 4110.
4310 International Financial Management (3) Rigorous analysis of international finance aspects of financial management of a multi-national firm. Integrates the relevant topics from corporate finance, international financial markets, international monetary theory, and management of foreign exchange risk. Prereq: consent of instructor.
4515 Financial Markets and Institutions (3) Intensive study of financial institutions and markets where they transact. Analysis of money and bond markets; determinants of the level of interest rates; analysis of differences in rates on different securities; mathematical bond pricing; international financial markets. Prereq: 3510 and 3120.
4620 Commercial Banking (3) Analyzes key role of banks in economy and management issues involved in running profitable bank in rapidly changing economic, competitive, and regulatory environment. Analysis is made of asset, liability, and capital management decisions, bank revenues, cost and profitability, impact of EFTS on costs and profits, current regulatory changes and international banking issues. Prereq: 3120 and 3510.
4650 Theory of Financial Management (3) Analyzes important decision-making topics in financial management. These include valuation, capital budgeting under uncertainty, cost of capital, capital structure theory, and dividend policy. Prereq: 3169-30 and Stat 3220.
4660 Problems in Financial Management (3) Application of decision-making procedures to realistic problems in financial management, emphasizing case analysis. Topics covered include financial analysis, short-term sources of funds, long-term capital structure, and capital budgeting. Prereq: 4650.
4700 Business and Public Risk Management (3) Identification and measurement of pure risks facing a business or governmental unit associated with property, liability, and personnel exposures. Emphasis is on implementation of most economic methods of dealing with risks at lowest cost consistent with good financial management. Credit not given for both 4700 and Insurance 3220.
College of Business Administration

4710 Insurance and Estate Planning (3) Analysis of methods of accumulation, conservation, and distribution of estate assets. Includes study of how investments, insurance, and tax planning relate to achieving estate planning goals. Credit not given for both 4710 and 4711.

4720 Employee Benefit Financing (3) Analyzes obligations, objectives, and financial impact of employee benefits to business enterprise. Includes methods of providing security from economic and financial problems associated with death, disability, and old age. Credit not given for both 4720 and Insurance 4710.

4810 Real Estate Finance (3) Study of four fundamental areas of real estate finance: 1) legal environment of real estate lending; 2) sources of real estate credit—primary and secondary mortgage market; 3) financing owner occupied housing; and 4) financing income producing properties. Credit not given for both 4810 and Real Estate 3630. Prereq: Consent of instructor.

4820 Real Estate Appraisal (3) Theory and practices of determining real estate value. Estimating value by use of comparable sales, cost estimation techniques, and discounting income flows. Basic methods utilized by professional appraisers and analysts. Credit not given for both 4820 and Real Estate 3515. Prereq: 3130.

4830 Problems of Urban Development (3) Study of the basic functions of the modern urban area, and their effects on value. Emphasis placed on discussing difficulties involved in obtaining efficient and equitable solutions to these problems. Credit not given for both 4830 and Real Estate 4120. Prereq: Consent of instructor.

4840 Real Estate Investment (3) Principles of investment in real property. Utilizes discounted cash flow models and ratio analysis. Current federal tax law applicable to real property. Limited partnerships and other joint ventures. Credit not given for both 4840 and Real Estate 4640. Pre req: 3130.

4980 Special Topics in Finance (1-3) Subject matter applicable to real property. Utilizes discounted cash flow models and ratio analysis. Current federal tax law applicable to real property. Limited partnerships and other joint ventures. Credit not given for both 4840 and Real Estate 4640. Prereq: 3130.

Graduate Catalog for

Management Courses

Professors:

H. D. Dewhirst (Chairman) Ph.D., Texas; R. W. Boiling, Ph.D., Indiana University; E. Gordon, Ph.D., California (Berkeley); A. H. Keally (Emeritus), MBA Pennsylvania; J. M. Larsen, Jr., Ph.D., Purdue; S. K. Reed, Ph.D., University of Iowa; E. F. Smith, Ph.D., Ohio; J. J. Stallard, Ph.D., Ohio State; S. C. Vance (Emeritus), Ph.D., Pennsylvania; G. A. Wharton (Emeritus), M.S., Indiana; G. H. White, Ph.D., Tennessee; M. S. Wortman, Ph.D., Minnesota.

Associate Professors:

B. J. Brown, Ed.D., Tennessee; O. S. Fowler, Ph.D., Georgia; R. C. Maddox, Ph.D., Texas; C. W. Neel (Dean), Ph.D., Alabama; M. C. Rush, Ph.D, Akron.

Assistant Professors:

P. G. Campbell, M.S., Austin Peay State; K. C. Gilbert, Ph.D., Tennessee; R. T. Ladd, Ph.D., Georgia; A. Miller, Ph.D., Washington; H. C. Petree, M.S., Tennessee; G. B. Roberts, Ph.D., Georgia State; J. E. A. Russell, Ph.D., Akron.

1 Alumni Distinguished Service Professor.

Management (625)

Junior standing is prerequisite to all management courses.

3010 Principles of Management (3) Analysis of basic management functions of planning, organization, and controlling. E.

3110 Production Management (3) Analysis of production functions. Prereq: Statistics 2100 or 3450. Not available for management majors with concentrations in operations or personnel. E.

3111 Operations Management (3) Analysis and synthesis of concepts and techniques for decision making in production function. Integration of the operations function with other business functions. Prereq: Management Science 2110-20. Cannot be taken for credit by students who have credit for Management 3110. F, W.

3330 Experiences in Organizational Behavior (3) General concepts and personal experience, interpersonal, and organizational communication, practice and evaluation. Prereq: Mgmt. 3110 or Mgmt. 3200. E.

4400 Personnel and Human Resources Management (3) Processes of effective planning for recruitment, selection, development, and maintenance of human resources. Emphasizes universality of personnel function. Not available for management majors. Cannot be taken for credit by students who have credit for Management 4460.

3500 Survey of Administrative Services (3) Introduction to the basic functions of the modern automated office: information creation, production, duplication, storage/retrieval, and distribution. Career opportunities in the information revolution in business. Students who complete the Office Systems Concentration may not receive credit for Mgmt. 3500. F, S.

3510 Management of the Automated Office (3) Principles of management applied to the basic office information system: implications of automation on the equipment, procedures, and personnel in the performance of basic office functions of origination, transmission, administration, and distribution. Prereq: Mgmt. 3010, Bus. Admin. 2750 or Comp. Science 1410 or consent of instructor. F, W.

4500 Management Information Systems (3) Introduction to the basic functions of the modern automated office: information creation, production, duplication, storage/retrieval, and distribution. Credit not given for both 4500 and Management 3460. F, S.

3600 Management Information Systems (3) Introduction to management information systems. Analysis of organizational information needs, management decisions relating to technology and systems design, organizational impact, and use of information systems. Prereq: Comp. Science 1410 and Mgmt. 3010. F, W.

4110 Office Systems Analysis (3) Analysis of information flow in a business office with implications for improving productivity within the office environment. Simplification of procedures of forms, impact of automated hardware on office functions, and cost-benefit analysis. Prereq: Mgmt. 3510, 3520, Ind. Engr. 3600 or consent of instructor. F, W.

4120 Cases in Office System Management (3) Synthesis of office systems concepts through case study method, written reports and oral defense of alternative strategies. Human problems as they relate to management of automated office heavily emphasized. Prereq: Mgmt. 3510, 3520, 4200, 4110 or consent of instructor. W.

4130 Managerial Strategy and Tactics Applications (3) A general business simulation is used for information processing to provide experience in organization and analysis of managerial data. Emphasis on skills related to oral and written justification of results. Prereq: Senior standing or consent of instructor. F, W.

4230 International Business Management (3) Analysis of factors significant to the manager in international business activities. W.

4320 Organization Structure and Behavior (3) Structure and behavior of organization: models, concepts, and problems. Prereq: 3110. W.

4410 Operations Control (3) Analysis of the operations control function. Techniques of short-term forecasting; material and capacity requirements planning; integration of scheduling and operations flows into the total operations function. Prereq: 3111, W.

4420 Advanced Industrial Problems (3) Cases in production management. Prereq: 15 hrs. in major including 4410. F.

4460 Organizational-Industrial Psychology (3) An analytical and empirical approach to application of psychological tools and knowledge to organizations. Prereq: Statistics 3110 (or Statistics 3510 with consent of instructor). Cannot be taken for credit by students who have credit for Management 3460. (Same as Psychology 4460.) F, W.

4470 Job Analysis and Evaluation (3) Job evaluation as basis for control of wages and salaries. Prereq: 4460. F, W.

4520 Evaluation of Personnel Programs (3) Methodologies for criteria development analyzed in areas of selection, training, job evaluation, safety, and labor relations; performance evaluation emphasized. Prereq: 4460-70; Statistics 3110.

4530 Personnel Problems Seminar (3) Case problems in personnel analyzed, applying experimental methods and conclusions from personal research as reported in professional journals. Prereq: 4460-70; Statistics 3110.

4610-20 Management Science (3, 3) Applications of mathematical and statistical techniques to problems of production management. Prereq: 30 hours of mathematics and statistics, and consent of instructor.

4710 Enterprise Planning and Control (3) Concepts and cases on managerial functions of planning and control in business firm or not-for-profit organization. Emphasis on formal long-range strategic planning in changing environment. Team project to develop long-range plan for hypothetical enterprise. 4801-02-03 Readings and Research in Personnel Management (1, 2, 3) Prereq: 4460, Statistics 4310, and consent of instructor. 4803-E.

Graduate Catalog for

Management Science Programs

Professors:

R. S. Garfinkel (Chairperson), Ph.D., Johns Hopkins

Associate Professor:

J. K. Ho, Ph.D., Stanford; R. E. Rosenthal, Ph.D., Georgia Tech.

Management Science (627)

2110-20 Decision Models (3, 3) Introduction to the use of quantitative techniques in the decision-making process. Prereq: Mathematics 1560, Statistics 2160, and Computer Science 1410 or Office Administration 2750.

Graduate Catalog for

Marketing and Transportation

Professors:

D. J. Barnaby (Chairman), Ph.D., Purdue; F. W. Davis, Jr., Ph.D., Michigan State; G. N. Dicer, Ph.D., Ohio State; J. L. Frye, Ph.D., Florida; F. L. Hendrix, Ph.D., North Carolina (Chapel Hill); C. J. Langley, Jr., Ph.D., Pennsylvania State; W. B. Locander,
Marketing (362)
Economics 2510-20 or the equivalent are prerequisite to all courses in Marketing. Marketing 3110-20 or the equivalent are prerequisite to all other 3000 or 4000-level marketing courses.


3120 Marketing Management (3) Analysis of marketing management. Identifying market opportunities, planning marketing programs, implementing competitive strategies. Prereq: 3110. E.

3310 Marketing Channels (3) Macromarketing systems approach from viewpoint of decision maker. Examination of inputs, outputs, organizations, and goals of marketing systems. Consideration of comparative marketing systems. Prereq: 3110. Prereq, or coreq: 3110-20. E.

3410 Buyer Behavior (3) Industrial and ultimate consumer purchasing behavior. Theories underlying buying decisions. Integration of management and pivotal concepts in behavioral sciences. E.

3510 Marketing Research (3) Planning and obtaining information for marketing decision making. Information needs, data collection process, methods of analysis, and interpretation procedures are integrated to serve the decision maker. Prereq: 3110-20. E.

4140 Sales Force Management (3) Examination of firm's personal communications function. Managing sales force, including personal selling concepts. Particular emphasis on role of sales organization in marketing program. Prereq: F, W, S.

4150 Advertising Management (3) Mass communications theories and concepts. Advertising and its relationship to marketing program of firm. Prereq: 3110. E.

4230 International Marketing (3) Management of international marketing activities of the firm. Marketing strategies in international business. Prereq or coreq: Business Administration 3110 or consent of instructor. F, W, S.

4610 Market Opportunity Analysis (4) Developing understanding of various approaches available for evaluating opportunity that may exist within a market. Emphasis on relationship between analysis of markets and marketing decision making. Topics covered will include basic consumer behavior concepts, alternative sources of market information, information analysis techniques, interpretation of marketing information, and forecasting. Prereq: 3110, F, W, S.

4710 Marketing Decisions and Strategies (4) Pragmatic orientation to application of advanced, analytical concepts and skills within marketing environment. Emphasis on integration of knowledge from the component areas of marketing into cohesive, well-organized marketing program. Prereq: 24 hrs. of marketing including 3410, 3510 and 4610 or consent of instructor. Course should be taken as close to graduation as possible. E.

4906 Honors: Executive-in-Residence Seminar (3) Students interacting with top-level marketing executives is used as a primary vehicle to show how conceptual marketing knowledge is applied in the business world in a major marketing subject area (e.g., promotion, consumer behavior, marketing strategy, etc.) Prereq: Marketing 3210, 4210, 4510, and consent of instructor. 4906 is a recommended but not required prerequisite. S.

4918-28 Honors: Marketing (3, 3) Marketing trends and developments. Advanced marketing theory and application. Can be substituted by eligible students for other organizational requisition of department. Prereq: Consent of department. E.

GRADUATE See page 81 for information on graduate programs. Consult the Graduate Catalog for listing of graduate level courses.

Transportation (981)
Nine quarter hours in general economics are prerequisite to all courses in transportation. Transportation 3110-15 or consent of instructor are prerequisite to all courses numbered above 4000.

3110 Introduction to Transportation (3) The transportation and distribution industry as a vital part of the nation's social and economic structure. Prereq: Econ. 2510-20. E.

3115 Introduction to Logistics (3) Business logistics as a functional area within the firm and as a strategic element of the marketing mix. Discussion of logistics system components and their interrelationships. Prereq: Econ. 2510-20, Statistics 2100. E.

3120 Logistics and Traffic Management (3) The purchase and use of transportation services as related to the firm's logistical mission. Emphasis on determination of transportation strategy and relationships to purchasing and materials management. Prereq: 3115. E.

4150 Transportation Law and Policy (3) The evolution of government involvement in transportation, evaluation of past and current regulatory and promotional policies, and the impact of government agencies and procedures under governing statutes. Prereq: 3110-20. E.

4415 Freight Carrier Operations (3) Analysis of freight operations, including packaging, handling, and internal and terminal facilities and functions, performed individually and in coordination with each other. F, W, S.

4510 Passenger Transportation (3) Analysis of the urban and inter-city air and surface passenger markets, the issue of public versus private ownership of passenger carriers and examination of government policy in passenger transport, significance of future technological developments. E.

4510 Carrier Cost Analysis and Pricing Strategy (3) Development and management of marketing strategies, costs, by individual mode and multi-modal, and analysis of pricing strategies from both historical and contemporary perspectives, including computerized systems. W.

4620 Carrier Management Seminar (3) Determination and evaluation of current carrier strategy including the establishment of individual carrier mission and goals and development of marketing and cost control strategies. Prereq: Minimum of 18 hours in transportation/logistics including 4415 and 4610. E.

4720 Logistics Systems Management Seminar (3) Seminar in development of business logistics strategies and the management of logistical systems. Course approach includes case studies, lectures, and logistics management simulation. Prereq: 3115. E.

4730 Transportation and Logistics Research (3) Identification and analysis of methods of research in transportation and business logistics. Application of quantitative techniques, model building, and simulation to solution of problems. Prereq: 4720. S.

4810-15 International Transportation and Logistics (3, 3) Multi-national distribution strategy, import-export traffic management, ocean shipping, international air and surface operations, comparative transport policy. Prereq or coreq: Bus. Admin. 3110, F, W, S.

4820 Current Topics in Transportation and Logistics (3) Seminar designed to study specific current problems in economics, marketing, finance, and transportation. Topic announced prior to offering. Prereq: Consent of instructor. S.

4988 Honors: Executive-in-Residence Seminar (3) Student interaction with top-level transportation and distribution executives. Focus on the strategic decisions making process. Prereq: Senior standing and consent of instructor.

4998 Honors: Independent Study (3) Directed research and study on subject of mutual interest to student and staff member.

GRADUATE See page 81 for information on graduate programs. Consult the Graduate Catalog for listing of graduate level courses.

Statistics (962)
Professors:
D. L. Sylvester (Chairperson) Ph.D. Stanford; R. A. McLean, Ph.D. Purdue; J. W. Philip, Ph.D. Virginia Polytechnic; C. C. Thigpen, Ph.D. Virginia Polytechnic.

Associate Professors:
H. A. Lasater, Ph.D. Rutgers; R. G. O'Brien, Ph.D. University of North Carolina (Chapel Hill); G. B. Ranney, Ph.D. North Carolina State (Raleigh); R. D. Sanders, Ph.D. Texas; M. S. Younger, Ph.D. Virginia Polytechnic.

Assistant Professors:
M. G. Leitnaker, Ph.D. Kentuck; J. L. Schmidhammer, Ph.D. University of Pittsburg.

Undergraduate courses numbered 4000 and above presuppose familiarity with the basic probability distributions in statistics and with the general concepts of statistical estimation and hypothesis testing. Students intending to take 2100 and one additional undergraduate course are advised to select the latter from among 3000-level courses.

2100 Probability and Statistics (3) Elementary theory of probability; frequency and density functions; expected values and variances; fundamental concepts of statistical inference. Cannot be taken for credit by students who have credit for 3450. Prereq: Mathematics 1560 or 1850. E.

3110 Regression and Correlation Methods (3) Methods of linear and multiple-linear regression and correlation; nonparametric measures of association. Cannot be taken for credit by students who have credit for 4310. Prereq: 2100 or 4345. E.

3220 Analysis of Time Series (3) Some statistical methods applicable to analysis of trends and time series, graphic presentation and analysis, index numbers, curve fitting, correlation, trends, analysis seasonal and cyclical variation. Prereq: 2100 or 3450. E.

3310 Industrial Statistics (3) Shewhart Control Charts for means and variation measures, proportion non-conforming, and number non-conformities per unit; process capability analysis. Special applications. Prereq: 2100 or 3450. F, W, S.

3320 Industrial Statistics II (3) Acceptance sampling for attributes and variables inspection. Introduction to quality, Elements of life testing and reliability. Prereq: 3310. S.


3550 Random Processes and Probability Models (3) Functions of random variables, multivariate distributions, conditional expectations, waiting time distributions; Poisson processes, life-testing, queuing, Markov processes. Introductory theory with applications. Prereq: 3450; Math 2850. F, S.

4310 Regression Analysis (3) Linear regression and correlation, multiple regression, stepwise methods, polynomial regression, use of dummy variables. Use of standard regression computer programs. Elementary theory and applications. F, W, S.

4415 Sampling Techniques and Theory (3) Procedures used in probability sampling for a variety of arrangements of statistical universes and development of estimators and standard errors associated with sampling schemes. Some properties of estimators. Determination of sample size. Not available for credit to students with credit for 3410. E.

4500 Statistical Inference (3) Properties and inferential applications of the common probability distributions in statistics. Goodness-of-fit tests; non-parametric statistics including ranking methods for two independent samples. Elementary theory with applications. Prereq: 3460 or equivalent. W.

4600 Analysis of Variance and Experimental Design (3) Analysis of variance techniques for one way and multifactor models. Post hoc procedures. Design considerations for completely randomized, randomized block, factorial, hierarchical and split plot experiments. Prereq: 3460 or equivalent.

GRADUATE

See p. 81 for information concerning the graduate programs. Consult the Graduate Catalog for listing of graduate level courses.

Interdepartmental Unit

Business Administration (205)

2750 Electronic Data Processing (3) Development of skill in Fortran programming with special emphasis on business applications. Prereq: Math 1560 or 1860 or equivalent. May not be taken for credit if Comp. Science 1410 or Office Admin. 2750 has been completed. E.

3110 Introduction to International Business (3) A survey of the strategic implications of conducting business operations in an international context. Emphasis on the analysis of relevant cross-national environments including cultural, political, economic and legal characteristics. Prereq: Economics 2520 or consent of instructor.


3700 Essentials of Financial Planning (3) Introduction to individual financial planning through study of basic tools, money management, decision making, services of financial institutions, asset protection, insurance applications, and financial planning goals.

3800 Introduction to Real Estate (3) Survey of five fundamental areas of concern to real estate industry and real estate analysts: 1) economics of real estate market; 2) legal environment of real estate; 3) real estate finance and financial institutions; 4) appraisal; and 5) real estate investment. Credit not given for both 3800 and Real Estate 3610.

4319 Business Letter Writing (3) Principles, practices, and mechanics of effective business letters and memoranda; principles applied by solving communication cases; emphasis placed on letters and memos as initial sources of ideas in communications systems of the business firm. May not be taken for credit by students who have completed Office Admin. 4310. F, W, S.

4320 Business Communications: Reports (3) Concept of communications applied to business reports. Process of collecting/analyzing pertinent business information and the appropriate presentation of business reports as a basis for executive decision making. Computer technology utilized. Prereq: Junior standing. May not be taken for credit by students who have completed Office Admin. 4320. F, W, S.

4430 Business Policy (3) Analysis of business problems and managerial decision making through case studies and written reports. Prereq: Core requirements except Business Law (see page 76) and senior standing. Open only to students who have been admitted to the Upper-Division programs of the College of Business Administration. E.

4608 Honors: Corporate Executive-In-Residence Seminar (3) Interaction with top corporate executives from a wide spectrum of business disciplines, (Accounting, Finance, Management, Marketing, Transportation, etc.). Discussion of domestic and international strategic planning as it is applied in major U.S. corporations. The focus of executive presentations and small group discussion will be on goods and services in consumer and industrial settings. Prereq: Senior Standing, Finance 3120-30, Mgmt. 3010, 3110, Marketing 3110-20, and consent of instructor.

4610 Seminar in Small Business Assistance (3) Application of classroom learning to problems of small business in the community. Student is given opportunity to apply business concepts and develop analytical skills. Upon completion of selected readings relevant to small or minority enterprise, students are assigned a project on basis of interest, ability, and experience. Students work in teams under supervision of a participating professor within the College of Business Administration. Approval for enrollment must be secured from instructor. May be repeated. Maximum credit 9 hours.

4810-20-30 Problems in Office Administration (1-3, 1-3, 1-9) Subject and title vary each quarter. May be repeated. Maximum 3 hrs. each course. May not be taken for credit by students who have completed Office Admin. 4810-20-30.

GRADUATE

See page 81 for information on graduate programs. Consult the Graduate Catalog for listing of graduate level courses.

Center for Business and Economic Research

STAFF

D. A. Hake (Director), Research Associate Professor, Ph.D. Tennessee
J. J. Kirchenstein, Assistant Director, M.S. Tennessee
D. R. Ploch, Research Professor, Ph.D. North Carolina
K. E. Gulindy (Emeritus), Research Professor, Ph.D. Kentucky
W. F. Fox, Associate Director, Research Associate Professor, Ph.D. Ohio State
S. E. Bott, Research Assistant, B.S. Nebraska (Lincoln)
S. F. Ducbinis, Research Assistant Professor, Ph.D. Ohio State
R. A. Hoffer, Research Assistant Professor, Ph.D. North Carolina
J. W. Mayo, Research Assistant Professor, Ph.D. Washington University (St. Louis)
B. B. Vickers, Research Associate, B.A. Mary Washington
P. A. Price, Research Associate, B.S. Tennessee
C. A. Campbell, Research Assistant, M.S. So. Illinois
College of Communications

Kelly Leiter, Acting Dean
Paul G. Ashdown, Assistant Dean for Undergraduate Studies
Herbert H. Howard, Assistant Dean for Graduate Studies and Research
Gail Palmer, Advisor

The College of Communications offers programs designed to acquaint students with the nature of communication and to prepare them for professional work in a variety of communication fields. The college is composed of the School of Journalism and the Departments of Advertising and Broadcasting. The curricula of these three academic divisions have a common base of courses. Once they have completed the core, students may pursue special interests.

The Accrediting Council on Education in Journalism and Mass Communications has accredited the advertising, news-editorial, public relations and master's programs. The college is a member of the Association of Schools of Journalism and Mass Communications and the Broadcast Education Association.

Association and Progression Requirements

Association with the College of Communications may take place when students first enter UTK, or after students have completed freshman and sophomore courses, and the core courses for a specific major. At least 45 quarter hours in residence in the college is required for a degree. Those interested in Communications should obtain a copy of the Program Planning Guidebook available from the College of Communications Advising Center.

Freshmen associated with the College of Communications are classified as pre-majors. They apply to a major degree program after they pass the College Association Test (typing, spelling and grammar) and complete, with at least a 2.0 cumulative average, the following courses or appropriate honors courses:

- English 1010; 1020; 1032 (with a minimum grade of C in each course)
- 12 hours of natural science
- History 1510-20
- Communications 1110
- 8 or 9 hours of foreign language
- Sociology 1510

A final decision may be deferred until students complete the core courses in their intended major with a minimum grade of B in one core course and no grade below C in other core courses. Students granted early admission must also meet these standards. Students must pass the College Association Test (typing, spelling and grammar) before enrolling in or preregistering for Journalism 2215 Basic News Writing. Students may not enroll in courses numbered above 3000 in the college until they have successfully completed the core courses. The core courses by major are:

- Advertising — Communications 1110, Journalism 2215, Advertising 3000
- Broadcasting — Journalism 2215, Advertising 3000, Broadcasting 2750
- Journalism — Journalism 2215, Journalism 2220, Journalism 2230

Communications students must earn at least a C grade in all College of Communications courses that fulfill graduation and progression requirements. Students from other UTK colleges may apply for association with the College of Communications after they have completed all the pre-major requirements including the association tests and core courses and have attained at least a 2.0 average in all work attempted.

Curriculum

The college curriculum offers academic majors in advertising, broadcasting, journalism, and public relations. Through core introductory courses, students receive a basic view of the nature of communications. The freedom of electives provided within the programs permits students to develop specialized interests in a variety of fields. In consultation with an advisor, they may plan individual programs leading to newspaper, magazine, radio, television, public relations, or advertising careers. They may prepare for careers in agricultural or industrial journalism. They may select related courses to develop a specialty in writing news of science, government, and business. Others may elect courses to prepare themselves as writers on foods, fashions, and home interests.

Students in other divisions of the University may take, with the permission of the instructor and the college advisor, certain courses for training in effective communication or for an understanding of the social role of the mass media. Such students should bring a transcript to the college advising center and should obtain approval in advance for a program of instruction.

Students who have completed the basic courses in the college may earn practicum credit for professional work in the field. Approval of the advisor and the department head must be obtained before such work is begun.

Satisfactory/No Credit Option

The purpose of this option is to encourage students to venture beyond those courses in which they usually do well and, motivated by their own intellectual curiosity, to explore subject matter in which performance may be somewhat less outstanding than work in preferred subject fields.

This option applies only to general elective courses. No course that is a part of the specific requirements of the College of Communications or the student's major department can be taken under this option. For example, social science, humanities and speech electives required by the various departments cannot be taken under this option.
Courses earning a "satisfactory" grade will count as hours for graduation but not for calculating the grade point average. A student who wishes to take a S/NC course must indicate this at the time of registration. Under no circumstances may a student choose from regular credits or from regular credit to S/NC after the deadline for adding courses.

Course Load
The maximum number of hours an undergraduate can take without special permission from the employer for one quarter while the other person is in school. The typical program is arranged for a five-year period, with the student spending the final three quarters of the senior year on campus. The Cooperative Program gives a student an opportunity to gain practical experience. It also helps to develop a sense of responsibility and cooperation, creates greater interest and incentive in academic studies and provides part of the student’s expenses. It may lead to permanent employment after graduation. Interested students should contact the Dean’s office during their first quarter on campus.

The Edward J. Meeman Distinguished Professorship
As a result of a $200,000 grant to the School of Journalism in 1970 by the Edward J. Meeman Foundation, outstanding journalists and journalism educators are brought to the campus as distinguished professors. The professorship is named for the late John Hohenberg, longtime administrator of the Pulitzer Prizes and outstanding teacher at the Columbia College of Communications.

Equipment and Facilities
The Communications and Extension Building provides extensive facilities for communications instruction. The college has laboratories with special equipment for instruction in writing, editing, photography, advertising and broadcasting. In addition, advanced students gain experience through summer internships or through the University’s general program of publishing and broadcasting. The Office of Public Relations, campus publications such as the Daily Beacon, and the college radio station WUTK provide practice for communications majors. The Tennessee Press Association and Tennessee High School Press Association, with headquarters at the University, present opportunities for special work and study.

Requirements for Graduation
The Bachelor of Science in Communications is awarded to majors who complete a program of 194 hours prescribed under departmental requirements listed below. At least 140 of these hours must be taken in courses other than the major and related communications fields. At least 27 of the hours in the major must be taken at The University of Tennessee, Knoxville. Normally, no more than 22 transfer credits from the major will be applied to the 194 hours.

HIGH SCHOOL DEFICIENCIES

AMERICAN HISTORY
Students lacking a high school credit of American history must take nine quarter hours of American history in addition to History 1510-20. Those hours may be applied to the general electives requirement.

FOREIGN LANGUAGES
One year of foreign language on the college level is required. Students with two years of high school language credit in one language will not receive credit for college-level work in the same language at the first year level.

NATURAL SCIENCE
Students must take 12 hours of the following in the major area: Astronomy 1510-20-30; Biology 1210-20-30; Botany 1110-20-30; Chemistry 1510-20-30; Geology 1410-20-30; or Physics 1410-20-30 or 1210-20-30.

ENGLISH
This requirement is fulfilled by English 1010; 1020 and 1032 or appropriate honors courses. The eight hours of literature may be selected from English 2510-20-30; 3120-30-33 and 2650-70-80 (and Comparative Literature 2010 for journalism majors). Upper-division literature courses may be substituted by students with a B or higher in freshman English at UTK.

PROFESSIONAL COURSES
The advertising major requires certain professional courses that may be selected from the following: Accounting 2110-20; Auditing 3740, 4510-20-30, 5310, 5350, 7010, 7015; Business Administration 2710-20, 3120, 3410, 4710, 3810, 3910, 3990, 4410-20, 4950; Marketing 3510, 4140, 4230, 4610, 4710; Business Administration 2750, 4310-20; Psychology 3120, 4640; Speech 3011; Statistics 4415.

SOCIAL SCIENCE AND HUMANITIES
Social science electives may be selected from geography, economics, political science, psychology, history, sociology, anthropology, classics (except grammar and composition courses), and upper-division philosophy and religious studies courses. Journalism majors may also take some black studies and women’s studies courses as social science electives with consent of their advisor. Humanities electives may be selected from English, speech and theatre (not performance courses), music (except applied music), art (except applied art), classics (except grammar and composition), language culture courses (not grammar and composition), and upper division philosophy and religious studies.

GENERAL ELECTIVES
All electives are subject to the advisor’s consent. Students are advised to consult the University’s degree requirements as stated in the front section of this catalog as well as the requirements for the college or department.

Undergraduate Curriculum

Advertising
Freshman
  English 1010-20, 1032................................................. 9
  Natural science electives........................................... 12
  History 1510-20.................................................. 8
  Foreign language.................................................. 8
  Sociology 1510..................................................... 4
  Communications 1110............................................. 4
  Economics 2510................................................... 4
Sophomore
  Sociology 1520................................................... 4
  Speech 2311.......................................................... 4
  Economics 2520.................................................... 4
  English literature electives...................................... 8
  Mathematics 1540-50............................................... 8
  Marketing 3110-20.................................................. 6
  Psychology 2500, 2530........................................... 8
  Journalism 2215.................................................... 4
  Art 2516............................................................. 4
Junior
  Political Science 2510-20......................................... 8
  Anthropology electives............................................ 4
  Advertising 3000.................................................. 3
  Advertising 3630.................................................. 4
  Advertising 3650.................................................. 3
  Advertising 4000.................................................. 3
  Journalism 3310.................................................... 3
  Mathematics 3000.................................................. 4
  Marketing 4210..................................................... 3
  Professional courses............................................... 6
  General electives................................................ 7
Senior
  Advertising 4360.................................................. 3
  Advertising 4460-70................................................ 7
  Computer Science 3010........................................... 3
  Professional courses............................................... 4
  Social science or humanities electives........................ 10
  General electives................................................ 9
Total: 194 hours

1See Requirements for Graduation.

Broadcasting

LOWER-DIVISION CURRICULUM
(Required of all broadcasting majors)
Freshman
  English 1010-20, 1032................................................. 9
  Natural science electives........................................... 12
Department of Instruction

Communications (259)

Professors:
- P. G. Ashdown, Ph.D., Bowling Green; J. A. Crock, Ph.D., Iowa State; A. A. Everett, Ph.D., Iowa; A. D. Fletcher, Ph.D., Illinois; J. B. Haskins, Ph.D., Minnesota; D. W. Holl, Ph.D., Northwestern; H. H. Howard, Ph.D., Ohio; K. L., Letten, Ph.D., Southern Illinois; D. D. Nimmo, Ph.D., Vanderbilt.

Associate Professors:
- M. Miller, Ph.D., Michigan State; M. W. Singletary, Ph.D., Southern Illinois; R. E. Taylor, Ph.D., Illinois.

110 Introduction to Communications (3) Nature, functions, responsibilities of mass communications media and agencies. Survey of newspapers, magazines, radio, television, film, advertising, public relations, press associations and specialized publications. Open only to those majors who have had no communications courses and to non-majors below junior level. E.

1118 Honors: Introduction to Communications (3) Nature, functions and responsibilities of mass communications media and agencies, with in-depth study of special problems. Open only to those majors selected on the basis of placement scores and high school record. W.

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

Advertising (012)

Professors:
- A. D. Fletcher, Ph.D., Illinois; J. B. Haskins, Ph.D., Minnesota.

Associate Professors:
- J. B. Dunlap, Ed.D., Akron; D. Jackson, M.S., Tennessee; R. E. Taylor (Head), Ph.D., Illinois.

Instructor:
- A. L. Landini, M.S., Murray State University.

3000 Advertising Principles (3) Advertising in business and society. Types and functions of advertising. Fundamentals of broadcast and publications advertising. Stress on communications aspects of advertising. Prereq: Sophomore standing or higher. Prereq: Communications 1110 for communications majors only. E.

3530 Advertising Copy and Layout (4) Ideas and their translation into persuasive words and pictures. Principles and techniques of copy and layout. Lecture and labs. Prereq: 3000 with grade of C or better or consent of instructor. F, W, S.

3650 Basic Advertising Research (3) Use of research in solving media, creative, and managerial problems in advertising. Introduction to secondary information sources and primary research methodology. Prereq: 3000 with grade of C or better or consent of instructor. F, W, S.
3740 Retail Advertising and Promotion (3) Planning of retail advertising and promotion; practice in retail copy and layout; selecting media; research. Prereq: 3000 or Marketing 4156. W.

4000 Advanced Advertising Copy and Layout (4) Creative strategy and execution of advertisements for mass media. Problems in idea creation for advertisers. Lecture and labs. Prereq: 3530 with grade of C or better or consent of instructor. F, W, S.

4360 Advertising Media (3) Media markets and audiences. Evaluation of media in relationship to communication needs of advertisers. Prereq: 3000 with grade of C or better or consent of instructor. F, W, S.

4460 Cases and Problems (3) Case approach to study of advertising problems. Analysis of campaigns and trends. Prereq: 3530, 3630, and 4360 with grades of C or better, or consent of instructor. F, W, S.

4470 Advertising Campaigns (4) Application of theory in planning and execution of campaigns. Market and consumer research; development and allocation of budgets. Choice of appeals and approaches; media selection; preparation of advertisements. Prereq: 3650, 4000, and 4360 with grades of C or better, or consent of instructor. F, W, S.

4610 Broadcast News Operation (3) Theory and practice in covering local news and public affairs events for radio and television. Gathering and production of news broadcasts, using tools of broadcast newspapers. 2 hrs. and 1 lab. Prereq: 3610 and 3670 or consent of instructor. S.

4620 Broadcast Sales Management (3) Principles of successful radio-television advertising; emphasis on media research, rate structure, programming, creative; television commercials. W, S.

4650 Radio-Television Management (3) Business policies and practices of networks and stations. Departmental functions, cost and income figures, sales techniques, promotion, advertising agencies, and governmental regulations. Lectures by commercial broadcasters. Prereq: 2750 or consent of instructor. F, W, S.

4660 Broadcast Sales Management (3) Problems and practices of television and radio sales, case studies in sales development, pricing, promotion, and other areas of sales management. Prereq 2750 or consent of instructor. S.

4970 Independent Study (3) May be repeated. Maximum credit 6 hrs. E.

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

Broadcasting (202) 

Professors: D. W. Hott (Head), Ph.D. Northwestern; P. G. Ashdown, Ph.D., Bowling Green; H. H. Howard, Ph.D. Ohio.

Associate Professors: B. A. Moore, Ph.D. Ohio; I. G. Simpson, M.S. Syracuse; M. W. Singsletry, Ph.D. Southern Illinois.

Assistant Professor: R. A. Shirley, M.A. Tennessee.


2750 Introduction to Broadcasting (3) Theory, history, regulation, and economic aspects of broadcasting industry and its functions in society. Prereq: Communications 1110 or 1118 for communications majors only. F, W, S.

3360 Television and Radio Advertising (3) Principles of successful radio-television advertising; emphasis on media research, rate structure, programming, creativity; television commercials. W, S.

3610 Radio-Television News (3) Theory and technique of preparing news features for broadcast media. Editing and rewriting press association dispatches, gathering local news, recording interviews, and preparing newscasts and feature programs. 2 hrs. and 1 lab. Prereq: Journalism 2220 or consent of instructor. F, W, S.

3650 Radio-Television Writing (3) Theory and technique of writing broadcasting scripts except news and dramas. Special events, interviews, musical scripts, radio talks, documentaries, and promotion material. F, W, S.

3670 Television News (3) Theory and techniques of producing video tape and film production for television. Ethical considerations and editing techniques. Emphasis on news and information programs. 2 hrs. and 1 lab. F, W, S.

4010 Speech for Broadcasting (3) Fundamental broadcasting techniques affecting the announcer; pronunciation and oral interpretation of general American speech. Prereq: Speech 2311. F, W, S.

4020 Radio Production (3) Study of radio production, past and present. Familiarization with production tools and techniques. Group and individual production activities. Prereq: 2750 or consent of instructor. F, W, S.

4021 Advanced Radio Production (3) Application of the theories, techniques, and tools of radio production to create programming of a professional level of sophistication and quality. Prereq: 4020 or consent of instructor. F, W, S.

4030 Television Production (3) Overview of elements of television production: cameras, sound, lighting, film videotape recording, optics, and studio control centers. Presented with the inexperienced and professional broadcast student in mind. Prereq: 4020 or consent of instructor. F, W, S.

4040 Advanced Television Production (3) A semi-independent course in program origination, producing, directing, and performing with orientation to the professional broadcast student. Prereq: 4030 or consent of instructor. S.

4510-20-30 Practicum (1, 1, 1) Prereq: 3000. May be repeated. Maximum credit 6 hrs. E.

4805-20-30 Practicum (1, 1, 1) Prereq: 3000. May be repeated. Maximum credit 6 hrs. E.

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

School of Journalism (594) 

Professors: J. A. Crook (Director), Ph.D. Iowa State; P. G. Ashdown, Ph.D. Bowling Green; G. A. Everett, Ph.D. Iowa; B. Haskins, Ph.D. Minnesota; B. K. Leiter, Ph.D. Southern Illinois; D. D. Nimmo, Ph.D. Vanderbuilt.

Associate Professors: J. N. Amick, M.S. Tennessee; M. Miller, Ph.D. Michigan State; J. L. Morrow, Ph.D. Toledo; S. L. Puett1, M.S. Tennessee; M. W. Singsley, Ph.D. Southern Illinois; F. B. Thomburg, Jr., M.A. Florida.

Assistant Professor: M. L. Kern-Foxworth, Ph.D. Wisconsin.

Instructor: A. L. Landini, M.S. Murray State.

1Neeman Distinguished Professor

2On leave.

2210 Writing for Mass Media (3) Principles and practice of writing for major types of mass communications media. Not available to majors in the College of Communications. Prereq: English 1010, 1020, 1031 or 1032 or 1033. F, W, S.

2215 Basic News Writing (4) Information gathering and writing under deadline. Observation, interviewing, speech reporting for print and broadcast media. Grammar workshop. Prereq: English 1032, Communication 1110 or 1118 and college association tests (typing, spelling and grammar). E.

2220 Reporting (4) Methods of gathering and writing news for mass media. Emphasis on news and news features. Prereq: 2210 or 2215. F, W, S.

2230 Editing for Mass Media (3) Methods and practice in judging news, editing copy, and writing headlines. Introduction to video display terminals. Emphasis on precise word use. Prereq: 2220. F, W, S.

2710 Public Relations (3) Theories and principles of public relations. Overview of PR as a management tool of business, government, institutions, and organizations. Prereq: 2210 or 2215. E.

310 Communications History (3) Development of newspapers, magazines, broadcasting, photography, film, and book publishing in America and their relationship to society. F, W, S.

3120 Writing Feature Articles (3) Selection of topics and practices in writing feature articles for newspapers, magazines, and company publications. Prereq: 2220 or consent of instructor. E.

3121 Advanced Reporting (3) Gathering and writing news in depth on current issues and concerns under deadlines. Special emphasis on use of video display terminals. Prereq: 2230. F, S.

3220 News Editing and Display (3) Principles and practice in making up newspapers and magazines. Advanced work in copywriting, revising, and headline Picture editing. 1 hr. and 2 labs. Prereq: 2230. F, S.

3310 Graphic Arts in Journalism (3) Survey of printing processes and associated technologies. Emphasis on publication design, offset techniques, and computer technology. E.

3410 Communications Law (3) Statutory law and judicial precedents affecting mass communications media. Libel, contempt of court, invasion of privacy, copyright, broadcasting, advertising, and postal regulations. E.

3510 Practicum in Journalism, (1-3) Supervised experience in news writing and editing. May be repeated for credit. Prereq: 2230. Maximum 3 hours. E.

3720 Advanced Public Relations (3) Preparation of communications materials to gain support from various publics. Planning public relations programs. Prereq: 2710. F, W, S.

3810 Specialized Publications (3) Editorial and design considerations for company publications and small magazines. Prereq: 2230 and 3310 or consent of instructor. W, S.

3910 Basic News Photography (3) Principles of photojournalism including historical perspectives and special techniques. Medium and small format reflex cameras used. Darkroom techniques for black-and-white photography. Prereq: Consent of instructor. E.

3990 Journalism Research Methods (3) Use of social science research methods in journalism with emphasis on survey techniques, interpretation and communication of research findings to public. W, S.

4130 Editorial Writing (3) Analysis of editorial policies, practices, pages. Writing of editorials and columns, with emphasis on study and use of rhetorical devices and logic. S.

4150 Issues in Journalism (3) Topics vary. May be repeated. Maximum credit 6 hrs.

4310 Reporting Public Affairs (3) Reporting news of courts, politics, and government. State, county, and local coverage. Prereq: 2230 and senior standing. W, S.

4410 Mass Media and Society (3) Roles and responsibilities of mass media in society. Critique of mass media performance. Media codes and controls on the media. E.
4420 Newspaper Management (3) Daily and weekly business operations. Developments in newspaper management. S.

4510 Practicum in Journalism, (1-3) Supervised experience in news writing and editing. May be repeated for credit. Prereq: Senior standing or consent of instructor. Maximum 3 hours. E.

4560 Investigative Reporting (3) Investigative and interpretive reporting of complex or specialized subjects to place news in perspective or to clarify situations. Emphasis on writing for publication. Prereq: 2220.

4710 Public Relations Cases (3) Case studies and application of public relations principles to problems in business and industry, government, institutions, trades, and professions; solving problems in public relations situations. Prereq: 3720, F, W, S.

4810 Journalism in the High School (3) Functions and methods of publications. Staff organization, writing, and editing techniques, editorial problems, and business management. SU.

4910 News and Feature Photography (3) Advanced principles and methods in black-and-white photography. Emphasis on news and feature photographs and picture stories. Prereq: 3910 or consent of instructor.

4950 International Communications (3) Communication of news and opinion among nations and under varying types of political and economic systems; world news organizations; the press as a factor in international affairs; barriers to the flow of information; comparison of world press systems. W.

4970 Independent Study (3) May be repeated. Maximum credit 6 hrs.

GRADUATE
Consult the Graduate Catalog for listing of graduate level courses.
Division of Continuing Education, Knoxville

Joseph P. Goddard, Dean
William D. Barton, Associate Dean
Judy B. Constantine, Administrative Assistant

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

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

Conferences and Non-Credit Programs

Director:
W. L. Whelan, Ed.D., Pacific States.
Director, English Language Institute.
D. A. Myers, Ph.D., Florida.

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

Staff Assistant:
M.A. Barry

Administrative Assistants:
A. F. Accawi, I. P. Keith, M. Rahbar.

Coordinators:

It has become evident that learning can take place for an extended period of time in a variety of modes, settings, and circumstances other than in the traditional classroom. To bring this fact to reality, The University of Tennessee, Knoxville, continuing education program has been designed and staffed to bring together under University auspices groups of participants and qualified resource persons to share new learning and ideas; to develop new insights; to address current problems; or to impart new skills and techniques. The program embraces virtually all disciplines, professions, vocations, and avocations.

The Department of Conferences and Non-Credit Programs is staffed and equipped to advise, assist, and provide administrative support in the delivery of successful conferences, seminars, and non-credit courses. In these roles, the Department can consult on program content; develop a working budget; secure appropriate classroom and/or meeting sites; devise an attractive format; arrange for auxiliary services, such as lodging, meal and banquet events, extra excursions and tours, and handle complete registration procedures. In addition, the Department designs, prints, and mails conference brochures and non-credit catalogs. The Department is equipped to handle computerized registrations and to process all monies as required.

Non-credit courses administered by the Department are tailored to meet the personal and professional needs of individuals and groups in the area. These courses are offered in cooperation with other academic units of the University and/or non-University agencies and cover a wide range of interests. One program, the Smoky Mountain Field School, generates considerable interest by emphasizing outdoor learning experiences in the Great Smoky Mountains National Park.

One phase of the Department which has experienced increased interest and growth is the English Language Institute. This program is of special interest to non-English speaking people and is structured to help foreign students obtain a sufficient mastery of the English language so as to pursue their education in the United States.

Continuing Education Units (CEU's) are awarded to students satisfactorily completing courses which are approved. A CEU is defined by the Southern Association of Colleges and Schools as "ten contact hours of participation in an organized continuing education experience under responsible sponsorship, capable direction, and qualified instruction." A permanent record of CEU's is maintained by the Department. A letter of completion of all CEU's earned at The University of Tennessee, Knoxville, may be obtained upon written request.

Recent statewide legislation gives Tennessee citizens who are 60 years of age or older or those who are totally disabled the opportunity to audit courses at UTK free of charge, according to available space. Legal verification of either of these conditions is required for enrollment. Additional information may be obtained by calling (615) 974-6688.

University Evening School

Director:

Directors, Off-Campus Graduate Program:
Oak Ridge-S. C. Bills, Ed.D. Tennessee; Nashville-J. D. Westbrook, Ph.D., V.P.I.

Assistant Director, Oak Ridge-V. Maya, M.S. Tennessee.

Associate Directors:

Assistant Directors:

Coordinator:
M. K. Warden, M.S. Tennessee
The University Evening School, in conjunction with academic colleges and departments, administers credit programs for those students attending classes on- and off-campus in a variety of non-traditional formats. Support services are provided to assist students in their educational pursuits.

On-Campus Evening Program. Classes are offered during late afternoon and evening hours for those students who work or have other commitments during the day. The following undergraduate degrees are available:

- **College of Business Administration** — Bachelor of Science in Business with majors in Accounting, General Business, Economics, or Management (General concentration);
- **College of Liberal Arts** — Bachelor of Arts with majors in Anthropology, Art, Biology, Computer Science, Economics, Mathematics, Psychology, or Sociology.

Some departments within the Colleges of Business Administration, Education, and Engineering offer all courses required for an advanced degree during the evening. The College of Business Administration also offers all courses required for the MBA degree with a concentration in Management. For other majors, consult the appropriate academic department.

**Mini-Term.** The University Evening School offers two Mini-Terms a year — one during September and one in December. Students may enroll in one concentrated credit course during the ten-day Mini-Term period.

Courses and instructors listed for the Mini-Term are carefully selected to reflect a broad academic base of individualized offerings suited to an intensive program of study. Courses cover traditional material and information included in regular quarterly offerings; however, these courses may be supplemented with films, team teaching, field trips, independent research projects and specialized areas of study, affording students an opportunity to immerse themselves in the discipline selected.

**Off-Campus Programs.** The Evening School conducts undergraduate and graduate courses in many locations away from the Knoxville campus. The courses are scheduled in response to requests and identifiable needs of adult part-time students who live some distance from the UTK campus and who take part or all of their courses at off-campus locations.

All course offerings and instructors are approved by the appropriate academic department heads, and the credit awarded is resident credit. The majority of colleges cooperate in off-campus programming.

Some off-campus locations offer course work leading to specialized graduate degrees. Graduate students in the College of Education may acquire sufficient course work at Cleveland and Morristown to complete the Master’s degree in Curriculum and Instruction with a major in Curriculum.

The Evening School administers off-campus centers at Nashville and Oak Ridge where courses leading to advanced degrees in science and engineering are offered. At Oak Ridge, graduate study programs lead to an MBA with concentrations in Management or Statistics, as well as Master’s and Doctoral degrees in Engineering, Mathematics, and Physical Sciences. Graduate programs leading to the Master’s in Industrial Engineering are available at the Nashville location.

**Workshops.** Credit workshops are coordinated through various academic departments of the University and provide students the opportunity to participate in short periods of intensive study. As a result, students may earn college credit within a shorter time frame than the traditional quarter system.

Workshops offer flexibility of timing, location, and content; and summer workshops are particularly popular with teachers and school administrators. Although most workshops are held on the UTK campus, geography is not a limiting factor.

**Nursing Education Program.** The Nursing Education Program is conducted under a contractual agreement with two Knoxville area hospitals. The University Evening School provides academic foundation courses for the independent Schools of Nursing at each hospital. Evening School also provides academic courses for Radiologic Technology students enrolled through two area hospitals.

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

**REGISTRATION**
Quarterly registration by mail is offered as a convenience to former Evening School students. Secondary registration at both on- and off-campus locations are also available.

**ADVISING**
An advising counseling program is available for the benefit of all evening students who need assistance with academic and/or personal matters. The program can accommodate students during regular daytime hours (8:30-5:30) and in the evenings by appointment, as well as at various centralized off-campus locations. The College of Liberal Arts also cooperates with the Evening School by providing extended hours several times a week to advise students.

A veterans' advisor assists in academic planning for Evening School students who receive educational benefits under the G.I. Bill.

**FINANCIAL AID**
Evening School students who encounter difficulty in pursuing academic goals because of financial restrictions may be eligible for assistance through the Evening School Scholarship Fund. Interested students may also obtain applications for the Pell Grant (formerly Basic Educational Opportunity Grant) in the Evening School Office.

**Elderly and Disabled Persons**
Legislation gives Tennessee citizens who are 60 years of age or older, or those who are totally disabled, the opportunity to attend courses at the University at no charge on an audit, space available basis. Legal verification of either of these conditions is required for enrollment. Students who are 65 or over, or who are totally disabled, and who desire to receive UT credit for their courses, may pay a reduced charge of $5 per credit hour up to a maximum of $50 for a full-time load. Registration for day and evening classes is handled by the Evening School.

The University Evening School office is located at 451 Communications & University Extension Building on the UTK campus and may be reached by calling (615) 974-5361. All inquiries concerning these programs are welcome.
Teacher education is historically a major function of The University of Tennessee. Beginning in 1903, when the first courses for teachers were offered, the University has increasingly fulfilled its responsibility to provide schools with competent teachers and service personnel and to improve the teaching profession by continually upgrading its membership. The College of Education was established in 1926, and all teacher preparation programs at The University of Tennessee are now coordinated within its six departments and its School of Health, Physical Education, and Recreation.

In addition to teacher education programs, the College of Education has several non-teacher education programs. These programs include Dance, Industrial Education: Industrial Training, Physical Fitness, Public Health, Recreation, Sports Communication and Sports Management.

The College of Education holds membership in the American Association of Colleges for Teacher Education. All certification and degree programs through the doctoral level are fully accredited by the National Council for Accreditation of Teacher Education, the Southern Association of Colleges and Schools, and the Tennessee State Department of Education.

The faculty of the College of Education is committed to performing three major functions: (1) to provide professional preparation for teachers, administrators, and school service personnel at undergraduate and graduate levels; (2) to collaborate with school personnel, educational agencies, professional groups, and others interested in the evaluation and improvement of educational opportunities, programs, and services; and (3) to promote and conduct experimental and research studies in education.

The teacher preparation programs represent utilization of University-wide resources and cooperation of all appropriate units. Certain requirements are of basic importance: A broad cultural background in the arts and sciences (general education), mastery of professional knowledge and skills, and thorough preparation of specific teaching fields. Through a carefully planned program of combined academic and direct experiences, the prospective teacher acquires a depth and breadth of knowledge and understanding superior to that of the typical college graduate—superior in cultural and citizenship appreciation as well as in professional and scholarly accomplishment.

The Claxton Education Building and Claxton Addition contain many modern and functional facilities for the professional education of teachers including classrooms, laboratories, seminar rooms, faculty and administrative offices, the Educational Media Center, the Reading Center, the Curriculum Laboratory, the Teaching Laboratory, and the Bureau of Educational Research and Service.

### Teacher Placement Service

The College of Education, cooperating with the University Placement Service, assists qualified students and alumni in securing positions. School and college administrators are cordially invited to make full use of these services in their efforts to employ competent personnel.

### General Information

#### Association with the College

**Course Load**—Permission for more than 19 hours in a quarter must be obtained from the Coordinator of Undergraduate Student Services. A normal course load in the college is 16-19 hours.

Application for association with the College of Education may be made at any time. Association is granted to undergraduate students who have earned a grade point average of at least 2.5 high school grade point average (4 point scale) and an ACT composite score of 17 or SAT/CEEB combined score of 750. Students ineligible for association will be classified as University Students: Education Interest. Deficiencies in the area of grade point average may be satisfied by evidence of a 2.5 grade point average in at least 45 quarter hours of post-secondary coursework. Whereas, deficiencies with respect to ACT, SAT, or CEEB scores may be eliminated by evidence of passing scores on the California Achievement Test. (Students classified as University Students: Education Interest desiring to enter Industrial Education, Option 3: Concentration in Training and Supervision are required only to earn a 2.5 grade point average in at least 45 quarter hours of post-secondary coursework and are not required to take the California Achievement Test.) Students designated as University Students: Educational Interest are required to meet each quarter with their advisors until such time that they gain association with the College of Education. Transfer students, from within and external to The University of Tennessee, Knoxville, must meet the same Association requirements described above. Post-secondary work completed and grade point averages earned at other institutions will be considered in determining students’ eligibility for association.

#### Admission to Non-Teacher Education Programs

Students wanting information about the College of Education's non-Teacher Education programs (Dance, Sports Management, Sports Communication, Physical Fitness Specialist, Movement Sciences, Public Health, Recreation, Distributive Training Option, and Training/Supervision in Industrial Education) should contact the specific program area coordinator or chairperson for admission requirements.

#### Admission to Teacher Education

Students desiring certification to teach must gain admittance into Teacher Education before enrolling in various required...
upper-division education courses. Applicants are encouraged to (1) begin the multiphase admission process during their first quarter of full-time attendance and (2) complete the process by approximately the sixtieth quarter hour. Applicants must complete the following requirements (recommended sequence for completion):

1. Basic Skills Tests. The State Board of Education requires all applicants to pass tests of reading comprehension, mathematics, and language. Applicants with a minimum ACT composite score of 17 are exempted from this requirement. Transfer students having a minimum ACT composite score of 17 or a total score of 765 (Verbal/Quantitative) on the SAT or CEEB must supply the applicant's office with an official record of their score(s).

   Students, except for junior-senior transfer students, are encouraged to take the basic skills tests during their second quarter of full-time attendance, using time during their first quarter of attendance for test preparation. (Details on preparation are available through the assistant dean’s office.)

2. Socio-Emotional Evaluation. Applicants are required to undergo a socio-emotional (personality) evaluation. Students whose scores on selected scales represent extreme variations from established norms will be required to undergo further evaluation.

   Students, except for junior-senior transfer students, should take the personality test during their third quarter of full-time attendance.

3. Field Experience. Applicants to Teacher Education must provide evidence of having successfully completed a field experience in a public school setting. (Refer to program area curriculum for specific required experiences.)

   Students, except for junior-senior transfer students, should complete the field experience requirement during their fourth quarter of full-time attendance.

4. Speech and Hearing Evaluations. Applicants are required to undergo speech and hearing evaluations.

   Students, except for junior-senior transfer students, should undergo the speech and hearing evaluations during their fourth quarter of full-time attendance.

Applicants to Teacher Education are required to have a minimum of 2.5 UTK grade point average. Furthermore, transfer students must also, have a minimum of 2.5 cumulative grade point average. (No applicant's grade point average will be considered until the completion of at least 60 quarter hours.)

   A program area recommendation may be required of some applicants.

   Applicants to Teacher Education will be reviewed by the Office of Student Conduct. Any applicant who has established a record of misconduct will be reviewed by the college's Admission and Retention Committee.

   Graduate students, except for those previously admitted to the College's Teacher Education Program, must gain admittance to Teacher Education before receiving the College's recommendation for certification.

   Students interested in complete details on admission to Teacher Education should contact the Assistant Dean for Support Services, 212 Claxton Education Building.

Admission to Student Teaching

Application for all student teaching programs must be filed no later than January 1 of the academic year preceding the actual experience. For example, if a student plans to student teach during the 1986-87 academic year, application must be made by January 1, 1986. Applications for student teaching must be made approximately four occasions each quarter. A schedule of the application meetings is available in the Office of the Director of Student Teaching, 117 Claxton Education Building.

   Making application for student teaching is not contingent upon admission to the Teacher Education Program. Students should apply for student teaching at the appropriate time regardless of their status in the process of admission to the Teacher Education Program.

   Following are the general prerequisites for student teaching. Student teaching prerequisites for specific program areas (art, elementary, P.E., etc.) are available in the student teaching office or from the academic advisor.

   (1) Full admission to the Teacher Education Program no later than the quarter preceding student teaching.

   (2) Completion of the professional core courses (Education 3010, 3020, 3030 and Educational Psychology 2430 or 3810).

   (3) Completion of field experiences required in the program core.

   (4) Completion of the special methods courses at The University of Tennessee.

   (5) Completion of at least nine quarter hours of prescribed course work in Professional Education at The University of Tennessee at Knoxville.

   (6) Senior standing and a minimum grade point average of 2.5 on work completed at The University of Tennessee, and a cumulative grade point average of 2.5. In addition, any record established by the student in the Office of Student Conduct will be reviewed by the Admissions and Retention Committee.

   The 15-quarter hour student teaching experience is evaluated on a satisfactory-no credit basis and the hours are included in the University policy requiring a 2.0 in the last 45 hours of work.

   The most important criterion in placing student teachers in the public schools is the value of the experience for preparing for teaching. The University cannot guarantee the geographic locale desired by the student though effort will be made to follow the student's wishes. Student teaching centers are maintained in East Tennessee communities, some of which are at a considerable distance from Knoxville. Student teachers will be placed as near their homes as possible in order to preserve family life.

   Substitutions

   It is sometimes necessary and advisable for students to substitute other courses for those required in a particular curriculum. This is particularly true of students who transfer to The University of Tennessee College of Education from another college or university. The most important criterion in placing student teachers is the value of the experience for preparing for teaching. The University cannot guarantee the geographic locale desired by the student though effort will be made to follow the student's wishes. Student teaching centers are maintained in East Tennessee communities, some of which are at a considerable distance from Knoxville. Student teachers will be placed as near their homes as possible in order to preserve family life.

   That is, is the content similar or perhaps more appropriate to that individual's needs?

   To initiate a substitution request the student should visit with the advisor first. If they agree that the substitution is an appropriate one, the substitution request form should be forwarded to the Office of the Assistant Dean for Support Services, 212 Claxton Education Building. Approved petitions are forwarded to the Dean of Admissions for further approval and for filing in the Records Office.

   Professional Education courses taken at junior or community colleges may be substituted for lower division (1000/2000 level) courses or may be used as electives. These courses may not be substituted for upper division (3000/4000 level) Professional Education courses.

Recommendation for Certification

The application for a professional teacher's certificate should be completed early in the final quarter before graduation. Application forms may be obtained in the Registrar's Office, 215 Student Services Building, and in the Office of the Dean, 212 Claxton Education Building.

   Tennessee state regulations stipulate that the applicant for a professional certificate must be recommended by the teacher-training institution. The dean of the College of Education is the official designated to recommend University of Tennessee graduates for teacher certification. To receive this recommendation, the applicant must have fulfilled the following requirements:

   (1) A minimum cumulative grade point average of 2.5.

   (2) A minimum grade point average of 2.5 in teaching field(s).

   (3) Satisfactory performance of the student teaching experience.

   (4) Completion of a methods course in each area of endorsement.

   (5) Fulfillment of all special recommendations of the Admissions and Retention Committee.

   (6) Successful completion of at least one three-quarter-hour course dealing with the learning and behavioral characteristics of handicapped students.

   (7) Successful completion of at least six quarter hours in methods of teaching reading for all applicants desiring to teach (a) grades kindergarten through eight and (b) grades nine through twelve language arts.

   (8) Successful completion for at least three quarter hours in teaching reading in content areas for all applicants not included in the above requirement (7). (Effective September 1, 1985.)

   (9) Applicants seeking Tennessee teaching certification are required to take the National Teacher Examination (NTE). (Students may obtain further information regarding the NTE in the Advising Center, 212 Claxton Education Building.)

   *For students entering Teacher Education fall 1984.

Graduate Programs

The College of Education, through the Graduate School, offers programs leading to
Undergraduate Curricula

The college offers courses of study leading to the Bachelor of Science in Education and to eligibility for teacher certification in Tennessee and in those states which grant reciprocal privileges. The Radiate of institutions accredited by the National Council for Accreditation of Teacher Education (NCATE).

A core of studies provides the foundation for all teacher education curricula. In addition, approved concentrations must be completed in subject fields specifically related to the public school curriculum. A choice is to be made among programs leading to recommendation for certification at one of three levels: elementary, (kindergarten-9), secondary (grades 7-12), or special subjects in grades 1-12.

Courses in library science are available to students who are interested in beginning positions in any library or in preparation for further graduate study in professional librarianship. The minimum requirements for full-time librarianship in any size school in Tennessee can be met through completion of the basic library service courses (3510, 3520, 3530, 4140, 4150, 4270, 4330, 4750). Endorsement as a librarian requires 27 quarter hours in library science. At the undergraduate level, only a minor in library science is available. Students in the college will select an appropriate curriculum from those outlined under the (undergraduate curricular) section. Students interested in this program should consult with a member of the faculty of the Graduate School of Library and Information Science.

Students should work closely with faculty advisors in planning programs of study. The chosen curriculum must be followed as outlined to assure graduation and certification, and any proposed substitution for a required course should be filed for approval before the end of the junior year.

Satisfactory/No Credit Courses

For the curricula listed under roman numerals I, II, and III only, a student may include a maximum of 30 hours in non-directed electives taken on a Satisfactory/No Credit basis in the total hours required for graduation. S/NC may not be used in required courses or controlled electives except where the course is offered on an S/NC basis (such as student teaching and field experiences). An area of concentration will be considered as non-directed electives except where specific courses or controlled electives are required.

NOTE: Students are advised to consult the University's degree requirements as stated in the front section of this catalog as well as the requirements for the college or department.

I. Curricula for Elementary Teachers

A. Grade 1 through Grade 8 (certification for grades 1-8)

GENERAL EDUCATION........................81 hours

Communications (13 hours)

English 1010 or 1011; 1020; 1031 or 1032 or 1033 (English 1019 may be required for some students); Speech 2021 or 2311.

Health and Physical Education (15 hours)
P.E. 3450 (3), School Health 3610 (3), P.E. activities (4), P.E. electives (2-3 hours) and Health elective (3) from Public Health 1110, 3000, 3210, School Health 3410, 3510.

Humanities (12 hours)

Literature, 8 hours; Art Education 3500 or Music Education 3500 (4 hours).

Mathematics (9 hours)

Contributions: 2110, 2120, 2130.

Natural Science (16 hours)

8 hours in biological science. Recommended series are Biology 1210, 1220 (1230) or Botany 1110, 1120, 8 hours in physical science. Recommended series are Physics 1410, 1420 (1430); or Geology 1410, 1420; or Astronomy 2110, 2120 (2130); or Chemistry 1110, 1120 (1130).

Social Studies (16 hours)

U.S. History (8 hours—it is recommended that the history course be taken at the sophomore level). Social Institutions (4 hours). Geography (4 hours).

CORE PROFESSIONAL COURSES...9 hours Educ. C & I 3101*, 3200*, 3205*.

ELEMENTARY EDUCATION COURSES...49 hours


SPECIALIZED COURSES .............33 hours Educational Psychology 3430; Educ. Psych. 3100; Art Ed. 3100, 3150; Music Ed. 2100, 3110; Ed. C&I 3510; Special Ed. 3333; C&I 4303; C&I 4240; C&I 4750.

EARLY CHILDHOOD EDUCATION..12 hours Educ. C & I 4450, C&I 4451, CFS 3530 or Educ. Psych. 3535. Select one of the following: C&I 4432, CPS 3590, CFS 4426, CFS 4610, Sp. Ed. 4520.

ELECTIVES..........................6 hours

TOTAL MINIMUM REQUIRED .....191 hours

C. Nursery School through Grade 3

( certification for kindergarten - Grade 3)

GENERAL EDUCATION.............83 hours

Communications (12 hours)

English 1010 or 1011; 1020; 1031 or 1032 or 1033; Speech 2021 or 2311.

Humanities (12 hours)

Literature (4); Music 1210 or 1220 or Art 1815 or 1825; philosophy or religious studies (4).

Natural Science (16 hours)

Biological science (in series or combina-
Mathematics (9 hours)
Mathematics 2110-20-30.

Social Sciences (18 hours)
History (4); Child and Family Studies 4610; Economics 2510; Anthropology 2530 or 3410 or Human Services or Sociology 4320 or 4510; Electives (from anthropology, economics, geography, human services, political science, sociology).

Interdisciplinary Studies in Home Economics (16 hours) H.E.
1510, 1520, 2510, 3510.

SPECIALIZED COURSES ............ 34 hours
P. E. 3450, 3660; Pub. Health 3210; health electives; Art Ed. 2100, 2110; Music Ed. 2100, 3110; Educ. C & I 4303; CFS 3120; C & I 3510.

FOUNDATIONS COURSES ......... 15 hours
CFS 1500, 3210; Select one: CFS 3220, 4290 or 4350; Select two: Educ. C & I 3010*, 3020*, 3030*.

TEACHING AND THEORY COURSES .............. 54 hours

ELECTIVES ..................................6 hours

TOTAL MINIMUM REQUIRED ....192 hours

II. Joint Elementary-Mathematics Education Certification

Mathematics (9 hours)
Mathematics 2110, 2120, 2130. Students with at least 3 years high school mathematics (e.g. Algebra I, Geometry, and Algebra II) and ACT Mathematics score of at least 22 may replace the 9 hours of Mathematics 2110-20-30 with the following six hours of mathematics courses: 3 hours credit in courses selected from Mathematics 3310, 3320, 3330; 3 hours credit in courses selected from Mathematics 3100, 3110, 3720.

GENERAL EDUCATION ............ 90 hours
Communications (12 hours)
English 1010-20 and 1031 or 1032 or 1033 (English 1019 may be required of some students); Speech 2021 or 2311.

Humanities (12 hours)
Eight hours of literature and four elective hours.

Health and Physical Education (19 hours)
Psychology 2500. Educ. Psychology 2430; Physical Education 3450; physical education electives (3 hours); School Health 3610. Select one of the following as a prerequisite to School Health 3610: Public Health 1110, School Health 3000, 3210, 3410, 3510.

Natural Sciences (20 hours)
Recommended series or combinations:
A. Biological science (8-12 hours) Biology 1210-20-30 or Botany 1110-20
B. Physical Science (8-12 hours) Physics 1410-20-30 or Geology 1510-20 or Astronomy 2110-20-30 or Chemistry 1110-20-30

Mathematics (9 hours)
Math 2110-20-30 taken in sequence.

Social Sciences (18 hours)
Four hours in history; 14 hours electives from a minimum of three areas of social science other than history.

CORE PROFESSIONAL EDUCATION ......................................53 hours
A. Education Curriculum & Instruction (9 hours)* Educ. C&I 3010*, 3020*, 3030*
C. Educ. C&I Student Teaching (15 hours)* Educ. C&I 4810, 4720*

SPECIALIZED COURSES ............ 15 hours

AREA OF CONCENTRATION ........36 hours
1. Maximum of 24 hours of lower-division mathematics courses including at least one year of calculus or analytic geometry and calculus.
2. Minimum of 12 hours of mathematics courses numbered 3050 or above including at least one course in algebra and one in geometry.

ELECTIVE ..................................6 hours

TOTAL MINIMUM REQUIRED ....201 hours

III. Curricula for Secondary Education (7-12)

GENERAL EDUCATION ............ 70 hours
Communications (13 hours)
English 1010 or 1011; 1020; 1031 or 1032 or 1033 (English 1019 may be required of some students); and Speech 2311.

Health and Physical Education (9 hours) Including at least 3 hours of school health or public health or nutrition (P.E. must be represented.)

Humanities (16 hours)
Any 4 hours from English 2510-20-30-40-50-60-70-80-90, plus 12 hours of electives from anthropology, art, English literature, Library and Information Science 3510-20-30, foreign language (beyond introductory level), history (upper-division), music, philosophy, or religious studies. (NOTE: At least three fields must be represented.)

Mathematics (4 hours)*

Core Professional Education (9 hours)
Educ. C&I 3010*, 3020*, 3030*

SPECIALIZED PROFESSIONAL EDUCATION ..................................43 hours
Special Ed 3333, Educational Psychology 3810; 6 hours of appropriate methods courses; Educ. C&I (Field Experience): two from 2020, 3521, 3522 (4 hours); plus 3523 (2 hours); (Student Teaching): 4100*, 4710*, 4720* (16 hours); Ed. C&I 4304, and 6 hours of electives selected from the College of Education.

NOTE: An appropriate special methods course must be taken in each subject and/or area in which endorsement is sought, and admission to Teacher Education Program is required for each.

English ................................ Edu. C & I 3657 and 3658
Foreign Language ............ Edu. C & I 3662 and 3853
Mathematics ................ Edu. C & I 3751 and 3752
Science ...................... Edu. C & I 3654 and 4654
Social Studies ................ Edu. C & I 3653 and 3953

TEACHING SUBJECT AREAS AND ELECTIVES ..............72 Hours
See outline of the programs below.

TOTAL MINIMUM REQUIRED ....190 hours

PROGRAMS AVAILABLE
Program majors leading to graduation and certification for high school teaching range from the broad fields, comprehensive major, to the subject major and minor combination programs.

A. English Education
1. English with a Minor
a. 45 quarter hours in English, including three in English language (3330, 3340, 4430, 4440, 4450). Nine of the 45 hours may be in speech provided the student is not minoring in speech.
b. 27 hours in Speech, Theatre and Broadcasting. At least three courses must be taken in each of two of these areas.
c. Students enrolled in this program must take two English minor methods courses: Education C&I 3657* and 3658*.

B. Foreign Language Education
1. Foreign Language Area
a. 36 quarter hours in one language with no less than 18 quarter hours of upper-division courses.
b. 27 quarter hours in another language with no less than 18 quarter hours of upper-division courses.

*: Requires admission to Teacher Education Program.
1: Mathematics 2012 recommended for students who will take only 4 hours.
2: Includes history, economics, geography, sociology, political science, psychology.
3: Requires admission to Teacher Education Program.
c. 9 hours of general and applied linguistics.
2. Foreign Language Major and Minor
   a. 45 quarter hours (9 less quarter hours if based upon 2 entrance credits from high school) and one language with no less than 27 quarter hours of upper-division courses.
   b. 27 quarter hours in another subject.

C. Mathematics Education
   1. Area Majors in Mathematics
      a. Mathematics and Physical Sciences (75 hours)
         (1) Mathematics1 (27 hours) must include at least one-year sequence in calculus or analytic geometry and calculus and at least 12 hours in courses numbered 3050 or above with at least one course in algebra and one in geometry.
      b. Mathematics and Related Sciences (72 hours)
         (1) Mathematics1 (36 hours)—must include at least a one-year sequence in calculus or analytic geometry and calculus and at least 12 hours in courses numbered 3050 or above with at least one course in algebra and one in geometry.
      (2) Related Sciences—12 hours in physics2 and 12 hours in each of two of the following subjects: astronomy, biology, botany, chemistry, geology, microbiology, zoology. Endorsements: Mathematics, General Science2.
      c. Mathematics and Computer Sciences (72 hours)
         (1) Mathematics1 (36 hours)—must include at least a one-year sequence in calculus or analytic geometry and calculus and at least 12 hours in courses numbered 3050 or above with at least one course in algebra and one in geometry.
         (2) Computer Science and Physics—24 hours in computer science and 12 hours in physics2. Endorsement: Mathematics.

D. Psychology Education
   1. A concentration and endorsement in psychology shall require a minimum of 30 quarter hours—12 hours upper division distributed as follows:
      Core 16 hours
      Psychology 2500 ................. 4
      Psychology 3120 ................. 4
      Psychology 3150 ................. 4
      Psychology 3210 .................. 4
      Electives 14 hours selected from:
      Psychology 2520, 2530, 2540, 3129, 3219, 3220,
      3130, 3430, 3550, 3650, 4230, 4510, 4520, 4610, 4900; Psychology or Ed. Psych. 4640; Ed. Psych. 3110, 4110, 4310, 4800, 4880, 4890.
   2. Two minors (18-27 hours for a total of 45 quarter hours) each with minimum of 6 hours upper division. Note: At least one of the two minor areas must meet Tennessee minimum endorsement requirements for the subject area.

E. Science Education
   1. Area Majors in Science
      a. Biological science (72 hours minimum): Biology 1210-20-30 or Botany 1110-20-40 (12 hours) Biology 3110-20-30 (12 hours) Microbiology 3100 (4 hours) Chemistry (excluding 1410 series) (12 hours) Science electives—32 hours minimum, approved electives must be selected from one or more of the following: biological sciences—biochemistry, botany, microbiology, zoology; physical science—chemistry. Minimum requirement in biological science consists of 56 hours (12 hours chemistry required, excluding 1410 series). Endorsements: Biology (Life Science) and General Science.
      b. Earth and Environmental Sciences (72 hours minimum) includes 12 hours biological science required, and 14 hours science electives selected from astronomy, chemistry, excluding 1410 series; geography, oceanography, and physics. Geology (16 hours). Chemistry (8 hours). Physics (excluding 1410 series) (4 hours). Astronomy (4 hours). Geography (4 hours). Geology (physical) (4 hours). Cartography, conservation, oceanography, or soil science (6 hours). Endorsements: Earth Science, General Science2, and Physical Science.
      c. Natural Science (72 hours minimum) Basic requirement of 12 hours in each of four of the following subjects: 1 Biology 1210-20-30 or Botany 1110-20-40. Chemistry series (excluding 1410 series). Geology series (excluding 1020, 2020 and 2110-20-30). Credit for only 12 math hours accepted in the program. Approved science electives—24 hours minimum, including a total of six quarters of course work in one subject area other than math. Biology is considered as one subject for high school endorsement. Endorsements: General Science2. (Possible endorsements: Biology, Chemistry, and Physics)
      2. Subject Majors in Science The only single subject majors in science leading to teacher certification are chemistry and physics. Majors 45 quarter hours; minors 27 quarter hours. Endorsements: Major Subject.

F. Social Science Education

Program I
   Broad fields Social Studies (Major 72 hours) Certification includes economics, geography, history, political science and sociology.

Program II
   Specific subject major (45 hours plus 27 hours for a minor).

Minors: A minor is defined as 27 quarter hours in a single subject area, i.e., biology, history, French, psychology, speech, etc. A minor does not meet certification requirements in all cases.
Communications (12-13 hours)
   English 1010-20 and 1031 or 1032 or 1033, and 3-4 hours in special.

Health and Physical Education (9 hours)
   Activities courses in physical education plus School Health 3510.

Humanities (14 hours)
   a. 35 quarter hours in Music Education:
       Concentration in Instrumental Music
   b. 66 hours in music: 1111-21-31; 1113-23-33; 2340; 3112-31; 3122 or 4124; principal instrument 22 hours; secondary instrument 6 hours; piano proficiency; required ensemble 11 hours.
   c. Music Education 4460 is required for all students whose principal instrument is wind or percussion.

TOTAL MINIMUM REQUIRED ........................................ 182-209 hours

GENERAL REGULATIONS FOR ALL MUSIC EDUCATION STUDENTS
A. Required participation, with credit or as a registered auditor, in a major instrumental or vocal organization each quarter in residence (on-campus) as a music education major, as approved by the student's advisor and the directors of the organizations concerned. Students preparing to be band directors are expected to enroll in marching band unless officially excused. Instrumental Major. Concert Band; University Marching Band; or University Orchestra. Vocal Major: Concert Choir; University Chorus; Chamber Singers. Elementary Music Education Major. Same as Vocal Major.
B. Transfer students must take proficiency examinations in applied music, music theory, sight-singing and dictation prior to registration in music education curricula.

V. Health, Physical Education, Recreation, and Safety

A. Major in Physical Education
1. Teaching Track
   a. Elementary Physical Education (K-8)

GENERAL EDUCATION ........85 to 93 hours
   English 1010, 1020 and 1031 or 1032 or 1033; Speech 2311 or 2313; Humanities electives (minimum of four courses in three areas, 12 to 16 hours) selected from the following: anthropology, art, music, philosophy, religious studies, English literature, foreign languages (2000-level and above), and history (3000 and 4000-level only); Social Science electives (minimum of four courses and three areas, 12 to 16 hours) selected from the following: anthropology, economics, geography, history, political science, and sociology; Chemistry 1110-20 or 1510-20; Zoology 2920, 2930 and 4940; Physics 1450; Math 1540 or 1841 or any math course other than 1020 and 1202; Psychology 2500; School Health 3210; Physical Education 1042, 1062, 2012, 2737 or 2752 or 2755, 3010 and choose any one of the following aquatic courses: 2701, 2702, 2703, 2771, 2772, 2773, 2774, 2775, 2776.

PHYSICAL EDUCATION CORE ........22 hours
   Physical Education 1000, 2600, 3210, 3320, 3550, 3720, 4170, and 4220.

PROFESSIONAL EDUCATION ........7 hours
   Educ. C&I 3020* and 3030*; Physical Education 4100.

* Requires admission to Teacher Education Program.

PROFESSIONAL PHYSICAL EDUCATION ..................13 hours
   Physical Edu. 1500, 3660, 4110, 4140, and 4200.

SPECIALIZED PROFESSIONAL EDUCATION ..................21 hours

SPECIALIZED PROFESSIONAL PHYSICAL EDUCATION ............26 hours
   Physical Edu. 3350, 3460, 3470, 3480, 3560, 3570, 4240, 4500, and 4670.

GENERAL ELECTIVES ............18 to 26 hours
   Maximum of 6 hours of 1000 and 2000-level Physical Edu. Major activity courses and/or Physical Edu. 2700-level courses (which must be different from Physical Edu. Major activity courses); also excluded are Physical Edu. 2730, 2734, 2735, 2756, 2757, 2759, 2762, 2792, and 2794.

TOTAL MINIMUM REQUIRED ..........200 hours

Secondary Physical Education Endorsement for Physical Education Majors in the Elementary Physical Education Education Teaching Track (22 hours).

(Open only to Physical Education major students in the Elementary Physical Education Education Teaching Track.)
   Physical Edu. 1032, 2032, 1022 or 2022, 2042, 2052, 2500, 4230, 4420, and any two of the following: 4360, 4365, 4370, 4375, 4380, 4385, 4390, and 4395.

b. Secondary Physical Education (7-12)

GENERAL EDUCATION ...........81 to 99 hours
   English 1010, 1020 and 1031 or 1032 or 1033; Speech 2311 or 2313; Humanities electives (minimum of four courses and three areas, 12 to 16 hours) selected from the following: anthropology, art, music, philosophy, religious studies, English literature, foreign languages (2000-level and above), and history (3000 and 4000-level only); Social Science electives (minimum of four courses and three areas, 12 to 16 hours) selected from the following: anthropology, economics, geography, history, political science, and sociology; Chemistry 1110-20 or 1510-20; Zoology 2920, 2930 and 4940; Physics 1450; Math 1540 or 1841 or any math course other than 1020 and 1202; Psychology 2500; School Health 3210; Physical Education 1042, 1062, 1082, and 1085.

PHYSICAL EDUCATION CORE ........22 hours
   Physical Edu. 1000, 2600, 3210, 3320, 3550, 3720, 4170, and 4220.

PROFESSIONAL EDUCATION ........7 hours
   Educ. C&I 3020* and 3030*; Physical Edu. 4100.

* Requires admission to Teacher Education Program.
PROFESSIONAL PHYSICAL EDUCATION 13 hours
Physical Educ. 1500, 3600, 4110, 4140 and 4200.

SPECIALIZED PROFESSIONAL EDUCATION 18 hours
Educ. & Counseling Psych. 3810, Educ. 4710 and 4720.

SPECIALIZED PROFESSIONAL PHYSICAL EDUCATION 34 hours
Physical Educ. 2012, 2032, 2042, 2052; and any two of the following: Physical Educ. 1022, 2022, and 2062 or 2072; Physical Educ. 2500, 3500, 3460, 3465, 4370 or 4375, 4380 or 4385, 4390 or 4395; and any of the following not already taken: 4370, 4375, 4380, 4390, 4395; Physical Educ. 4230 and 4420.

GENERAL ELECTIVES 17 to 25 hours
Maximum of 6 hours in 1000 and 2000-level Physical Educ. Major activity courses and/or Physical Educ. 2700-level courses (which must be different from the Physical Educ. Major activity courses); also excluded are Physical Educ. 2730, 2734, 2735, 2756, 2757, 2759, 2762, 2792, and 2794.

TOTAL MINIMUM REQUIRED 200 hours

Elementary Physical Education Endorsement for Physical Education Majors in the Secondary Physical Education Track. (22 hours) (Open only to Physical Education Major students in Secondary Physical Education Teaching Track.)
Any aquatics course, Physical Educ. 3350, 3460, 3470, 3480, 3570, 4500 and 4670.

2. Physical Fitness Specialist Track
GENERAL EDUCATION 85 to 93 hours
English 1010, 1020 and 1031 or 1032 or 1033; Speech 2311 or 2331; Humanities electives (minimum of four courses and three areas, 12 to 16 hours) selected from the following: Anthropology, art, music, philosophy, religious studies, English literature, foreign languages (any level), and history (3000 and 4000-level only); Social Science electives (minimum of four courses and three areas, 12 to 16 hours) selected from the following: Anthropology, economics, geography, history, political science, and sociology; Chemistry 1110-20-30 or 1510-20-30; Zool- ogy 2920, 2930 and 4940; Math 1540 or 1841 or any math course other than 1020 and 2012; Physics 1450; Psychology 2500; School Health 2320; Physical Educ. 1022 or 2022, 1042, 1052; Physical Educ. 1500, 3600, 4110, 4140 and 4200; Physical Educ. 2700-level courses (which must be different from the Physical Educ. Major activity courses); also excluded are Physical Educ. 2730, 2734, 2756, 2757, 2792, and 2794.

PHYSICAL EDUCATION CORE 22 hours
Physical Educ. 1000, 2600, 3210, 3320, 3550, 3720, 4170, and 4220.

SPECIALIZED PROFESSIONAL EDUCATION 44 hours
Chemistry 2230 or Nutrition and Food Sciences 3130; Biology 3120; Nutrition and Food Sciences 3120, 3140, and 4160; Zoology 3920; Math 1850 and 1860; Physics 1320 and 1390.

GENERAL ELECTIVES 3 hours
Physical Educ. 3250.

SPECIALIZED PROFESSIONAL EDUCATION 14 to 22 hours
Maximum of 6 hours in 1000 and 2000-level Physical Educ. Major activity courses and/or Physical Educ. 2700-level courses (which must be different from the Physical Educ. Major activity courses); also excluded are Physical Educ. 2730, 2734, 2756, 2757, 2792, and 2794.

TOTAL MINIMUM REQUIRED 200 hours

b. Motor Behavior/Sport Psychology Area of Concentration
GENERAL EDUCATION 79 to 87 hours
English 1010 and 1020 and 1033; Speech 2311 or 2331; Humanities electives (minimum of four courses and three areas, 12 to 16 hours) selected from the following: Anthropology, art, music, philosophy, religious studies, English literature, foreign languages (any level), and history (3000 and 4000-level only); Social Science electives (minimum of four courses and three areas, 12 to 16 hours) selected from the following: Anthropology, economics, geography, history, political science, and sociology; Chemistry 1110-20 or 1510-20; Zoology 2920, 2930 and 4940; Math 1540 or 1840; Psychology 2500; Physics 1450; and any five 1000 and 2000-level Physical Educ. Major activities.

PHYSICAL EDUCATION CORE 22 hours
Physical Educ. 1000, 2600, 3210, 3320, 3550, 3720, 4170, and 4220.

PROFESSIONAL EDUCATION 0 hours
Psychology 3150, Computer Science 4310; English 4140.

PROFESSIONAL PHYSICAL EDUCATION 16 hours
Any five 1000 and 2000-level Physical Educ. Major activities courses; Physical Educ. 3560 and 4330.

SPECIALIZED PROFESSIONAL EDUCATION 33 hours
Psychology 2520, 2530 and 3319; at least one of the following area courses and lab: Psychology 3120-29, 3210-19, 4230-39, and 4710-19; and a minimum of 16 hours selected from the above and/or the following: Psychology 2540, 3559, 4650, 4670, 4850, 4870, and 4880.

SPECIALIZED PROFESSIONAL PHYSICAL EDUCATION 12 hours
Physical Educ. 3600, 4140, 4340, and 4350.

GENERAL ELECTIVES 20 to 28 hours
Maximum of 8 hours in 1000 and 2000-level Physical Educ. Major activity courses and/or Physical Educ. 2700-level courses (which must be different from the Physical Educ. Major activity courses); also excluded are Physical Educ. 2730, 2734, 2756, 2757, 2792, and 2794.