But traditions at the University may be light-hearted as well as serious. Among the less serious traditions are three annual all-student productions which have become part of the University way of life. These are the noise and bustle of Homecoming, the lil and melody of All-Sing, and the spangle and wit of Carnicus. Homecoming is a time when former students return to the campus to visit and to renew old friendships. This is also the time when alumni have an excellent opportunity to interact and see what students are saying and doing.

All-Sing, begun in the early 1930s to encourage interest in harmony groups, features outstanding singing groups representing campus organizations.

Carnicus, which began as a parade and presentation of a Carnival Queen, has evolved through the year to the present form of competitive skits put on by campus organizations. This entertainment event features skits chosen for their humor, continuity, and perfection of presentation.

The Memorial Research Center and Hospital

The University of Tennessee Memorial Research Center and Hospital is a modern medical facility located just off the Alcoa Highway in Knoxville. The 520-bed general hospital provides patient care and training programs for interns, residents, medical students, nurses, dietitians, medical technologists, X-ray technicians, and ancillary health personnel. Out-patient services are furnished to both area residents and UTCHS and UTK students. A modern medical library is available for student and physician use. The Research Center conducts an active and vigorous research program that centers on hematological and oncologic problems. Excellent facilities for animal and laboratory experiments are available. Postgraduate studies are pursued in cooperation with other life-science departments of the University. Special clinical investigations and the testing of experimental drugs involve both research and hospital staff and facilities. A continuing seminar and conference program presented by hospital and research staff and visiting lecturers serves to acquaint local medical and life-science workers with the most recent scientific developments.

University Publications

The various colleges, departments, and continuing education units composing the University issue many publications dealing with their educational, research, and public service programs. In addition, several publications are issued on a University-wide basis.

The University of Tennessee Record includes General Catalog, Graduate Catalog, Report on Research, Publications, and Creative Achievements, the President's Report, the Library Development Report, and other publications of a record nature. The Torchbearer, issued four times a year, contains news, pictures, and information about UT's teaching, research, and continuing education activities and is distributed to alumni, faculty and staff, and friends of the University. Other publications on programs of the institution may also be issued on a University-wide basis in response to requests of the various colleges, departments, and continuing education units. All of the publications are for free distribution.

University publications are under the general supervision of The University of Tennessee, Knoxville, Publications Committee appointed by the Chancellor of the University. The operating office for this committee is the Publications Service Bureau, located in the Communications and University Extension Building. Technical services of the Publications Service Bureau are offered to all colleges, departments, and other units of the University system needing assistance with publication design, artwork, copyreading, editing, proofreading, and preparing specifications for printers. These services assist University departments in issuing the highest quality of publications possible within their printing budgets.

Learning Research Center

Recognizing that the learning process is exceptionally complex, the University established the Learning Research Center in 1964.

Its primary purpose is to encourage faculty members to utilize the results of research in creating arrangements and conditions for learning.

The Learning Research Center publishes the Teaching-Learning Issues quarterly which circulates throughout the University system and on other campuses across the nation.

The University of Tennessee Press

The University of Tennessee Press is the institution's agency for the publication of scholarly books and monographs, non-fiction works of general and regional interest, and specialized textbooks for Tennessee and the Southeast. Manuscripts are solicited from University personnel and other authors. The Press imprint is controlled by an Editorial Board, to which recommendations are made by the director acting with the counsel of scholarly appraisers, and the books are distributed on a sales basis. The Press office is located in the Communications and University Extension Building.

Student Government Association

Composed of the Student Senate, the Academic Council, and the Graduate Student Council, the Student Government Association is the governing body of the students at UT.

Some objectives of the S.G.A. are to provide a vehicle for responsible and effective student participation in the organization and operation of student life and to promote the recognition of student rights and responsibilities.

The president of the student body serves as chairperson of the Student Senate while the vice president administers the student services staffs (including the Legislative Interest Group, Communications staff program, and voter registration). Student Senate members are elected in the spring quarter to represent geographical areas of the campus as well as various student organizations. The Academic Council and Graduate Student Council representatives are elected from the academic colleges and graduate student programs, respectively. Offices of the S.G.A. are located in room 341 of the University Center.
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 provides Master's programs in 119 fields of knowledge and doctoral work in 49 and enrolls approximately 6,500 graduate students, both on and off campus. Administration of graduate student policies and regulations and associated record keeping is the responsibility of the Dean for Graduate Studies. In practice, much of the day-to-day administration of graduate study is conducted by department heads or faculty advisers 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 around 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. UTK offers graduate study for a variety of students, including those 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; but at the same time, the University believes it has the obligation to provide graduate programs and courses to part-time students and to students who may not desire a degree. The University utilizes 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 Graduate Office, 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
R. J. Preston, Associate Director

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

Associate Professor:
F. H. Geibner, Ph.D. Purdue.

Assistant Professor:
M. D. Marrack, Ph.D. Baylor.

Research Associate Professors:

Research Assistant Professor:
C. T. Hadden, Ph.D. Washington; E. A. Hiss, Ph.D. Notre Dame.

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, ORNL, P.O. Box Y, Oak Ridge, Tennessee 37830.

Courses
5000 Thesis (1-15)
5070-80 Physical Chemistry (3,3)
5110-20 Biochemistry (3,3)
5140 Biophysics (3)
5150 General Genetics (3)
5160 Advanced Genetics (3)
5170 Molecular Genetics (3)
5180 Cell Biology I (3)
5190 Cell Biology II (3)
5200 Mammalian Physiology (4)
5230 Biochemical Concepts In Medical Sciences (3)
5310-30-60 Biomedical Sciences Laboratory (3,3,3)
5350 Biomedical Sciences Seminar (1)
5360 Biomedical Sciences Seminar (1)
5370 Biomedical Sciences Seminar (1)
5430-60-90 Graduate Research Participation (3,6,9)
5510-20-30-40 Special Topics In Biomedical Sciences (3,3,3,3)
5700 Developmental Biology (3)
5740 Statistics for Biologists (3)
5840 Bioorganic Reaction Mechanisms (3)
5860 Cryobiology (3)
5940 Classic Experiments In Genetics (3)
6000 Doctoral Research and Dissertation (3-15)
6200 Nucleic Acid Chemistry (3)
6210 Protein Chemistry and Enzyme Mechanisms (3)
6220 Enzyme Regulation and Kinetics (3)
6240 Chemistry and Metabolism of Lipids (3)
6251 Molecular Biology in RNA (3)
6252 Molecular Biology of DNA (3)
6270 Viral Carcinogenesis (3)
6280 Chemical and Physical Carcinogenesis (3)
6290 Cancer Biology and Biochemistry (3)
6300 Mutagenesis (3)
6400 Membrane Biology (3)
6410 Techniques in Cell Biology (3)
6450 Immunology (3)
# Majors and Degrees Available

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<td>Social Work</td>
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Comparative and Experimental Medicine

DEGREES

Comparative and Experimental Medicine

M.S., Ph.D.

Joint Coordinating Committee:

H. Kitchen (Chairperson); C. C. Congdon; J. E. Fuhr; J. M. Holland; R. L. Michiel; J. M. Woodward.

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

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

Medical Biology

UNDERGRADUATE

4110-20-30 Undergraduate Research Participation (2,2,2) Experience in active biomedical research projects under supervision of faculty. Students may conduct own research projects within designated areas. Prerequisite: Junior or senior standing; prior consent of faculty member. S/NC grading only.

4210 Introduction to The Study of Cancer (3) Lectures, classroom discussion, and case reports surveying the major topics of oncology. Prerequisite: Biology 3110-30 or consent of instructor.

4310 Introduction to Hematology (4) Pathophysiology of the blood and the blood forming systems. Lectures, class discussions and demonstrations. Prerequisite: Upper division biology background to include histology and/or general anatomy.

4430 Clinical Genetics (3) Of human genetic disorders using case presentations. Prerequisite: General biology and general genetics background or consent of instructor.

GRADUATE

5000 Thesis (1-15)

5002 Non-Thesis Graduation Completion (3-15)

5900 Project in Engineering Administration (3)

5902 Non-Thesis Graduation Completion (3-15)

Energy, Environment, and Resources Center

The Energy, Environment, and Resources Center was created to encourage interdisciplinary studies at UT, directed at solutions to problems related to energy and the environment. The Center provides assistance to faculty interested in developing research and public service projects, manages research and development projects that involve several disciplines, and assists Tennessee government and industry in specific problems related to energy and environment. It also participates in the Statewide Consumer Education Program, especially in developing materials for the program.

Graduate School of Library and Information Science (620)

Ann E. Prentice, Director

Professors:


Associate Professors:

A. E. Prentice (Director) D.L.S. Columbia; W. C. Robinson, Ph.D. Illinois; G. M. Srinivakas, Ph.D. Pittsburgh; P. Wilson, Ph.D. Michigan.

Assistant Professors:

J. M. Pemberton, Ph.D. Tennessee; M. S. Stephenson, M.L.S. 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 science with the approval of their faculty advisers. The undergraduate minor is planned to fulfill the requirements for a major or minor in the College of Education or College of Liberal Arts.

COURSES

5002 Non-Thesis Graduation Completion (3-15)

5900 Project in Engineering Administration (3)

5902 Non-Thesis Graduation Completion (3-15)

Energy, Environment, and Resources Center

Director:

E. Lumsdaine, Ph.D. New Mexico State.

The Energy, Environment, and Resources Program was established to encourage interdisciplinary studies at UT, directed at solutions to problems related to energy and the environment. The Center provides assistance to faculty interested in developing research and public service projects, manages research and development projects that involve several disciplines, and assists Tennessee government and industry in specific problems related to energy and environment. It also participates in the Statewide Consumer Education Program, especially in developing materials for the program.

Graduate School of Library and Information Science (620)

Ann E. Prentice, Director

Professors:


5000 Thesis (1-15)

5002 Non-Thesis Graduation Completion (3-15)

5900 Project in Engineering Administration (3)

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. Prerequisite: Admission to teaching education or junior 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 need and interests of teenagers. Undergraduate credit only. Prerequisite: Admission to teaching education or junior standing in College of Liberal Arts. (Same as Educ. C & I 3520.)

3530 Books and Related Materials for Adults (3) Principles of materials selection, selection aids, annotations, book reviews, evaluation of adult books in various subject areas. Undergraduate credit only. Prerequisite: Admission to teaching education or junior standing in College of Liberal Arts.

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

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

4270 Organization of Library Collections I (6) Acquisitions, cataloging, and maintenance of library collections.

4320 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

5000 Thesis (1-15)

5002 Non-Thesis Graduation Completion (3-15)

5110 Problems in Library Science (3)

5120 Problems in Library Science (3)

5130 Problems in Library Science (3)

5140 Research Methods in Library Science (3)

5200 Subject Reference and Bibliography (3)

5210 Sources and Services for the Social Sciences (3)

5220 Sources and Services for the Natural Sciences (3)

5230 Sources and Services for the Humanities (3)

5240 Organization of Library Collections II (3)

5250 Government Publications I (3)

5250 Government Publications II (3)

5270 Legal Bibliography (3)

5300 Library Management (3)

5310 Multitype Networks (3)

5330 Academic Libraries (3)

5350 School Libraries (3)

5360 Special Libraries and Information Centers (3)

5370 The Library in the Community (3)
Life Sciences
Coordinating Council:

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 and molecular biology, environmental toxicology, ethology, plant physiology/biochemistry, and reproductive and developmental biology. 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)
D.A. Johnson; Director

Professors:

Associate Professor:
G. E. Bowen, M.A. George Washington.

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

The Graduate School of Planning offers a two-year graduate course leading to a degree of Master of Science in Planning.

Graduate School of Social Work (905)
Ben P. Granger, Dean
Betty J. Cleckley, Associate Dean

Lou M. Beasley, Branch Director
Roger M. Noe, Branch Director
Knoxville
M. Kate Mullins, Branch Director
Memphis

Professors:
G. W. Ayres, D.S.W. Tulane; L. M. Beasley, Ph.D. Denver; W. J. Bell, D.S.W. Tulane; B. J. Cleckley, Ph.D. Brandeis; C. T. Cruthirds, D.S.W. Tulane; J. C. Eades; Ph.D. Southern Illinois (Carbondale); R. W. Falcon, Ph.D. City University of New York; M. O. Feil, Ph.D. Pittsburgh; L. H. Ganguawar, M.S.W. Columbia; C. F. Heslond, Ph.D. Western Reserve; H. Hirayama, D.S.W. New York; D. D. Jurewicz, Ph.D. Michigan; P. Landon, Ph.D. Denver; E. K. Marshall, Ph.D. St. Louis; A. E. Moses, D.S.W. California (Berkeley); R. B. Prusakow, Ph.D. Arizona; H. Rubenstein, Ph.D. Chicago; D. A. Sullivan, M. S. Simmons; N. P. Tate, Ph.D. Brandeis; H. H. Vaughn, M.S.W. Tennessee; A. R. Wachtler, M.S.S.W. Tennessee; C. S. Wilks, Ph.D. St. Louis; P. G. Zarbock, M.S.S.W. Wisconsin.

Assistant Professors:
J. R. Cates, Ph.D. Michigan; M. Cefinogok, Ph.D. Washington; J. Charing, M.S.S.W. Tennessee; J. C. Collier, M.S.W. Tulane; H. P. Coye, Ph.D. Western Reserve; I. C. Faust, M.S.S.W. Tennessee; A. R. Ford, M.S.W. Atlanta; V. A. Gates, M.S.S.W. Tennessee; W. D. Harrison, Ph.D. Minnesota; K. Hirayama, D.S.W. Pennsylvania; J. F. Jankovic, Ph.D. Rutgers; D. C. Johnston, M.S.S.W. California (Berkeley); J. H. Michael, M.S.W. Ohio State; D. Parker, M.S.W. Loyola; P. R. Popple, Ph.D. Washington; 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 full two-year curriculum is offered in all three branch locations.

A special bulletin describing the facilities, admission, fees, and degree requirements is obtainable from The School of Social Work, 2014 Lake Ave., Knoxville, Tennessee 37996-3910.

Courses
5000 Thesis (1-15)
5002 Non-Thesis Graduation Completion (3-15)
5070 Social Work Research I (3)
5080 Social Work Research II (3)
5081 Evaluative Research in Social Work (2-3)
5082 Practicum in Social Work Research (3-9)
5083 Directed Readings in Research (2-4)
5090 Special Problems in Social Work (2-9)
5110 Social Welfare Policy and Services I (3)
5120 Social Welfare Policy and Services II (3)
5130 Social Policy Analysis (2-3)
5161 Social Welfare Seminar (2-3)
5210-20 Human Behavior and Social Environment I and II (3,3)

Radiation Biology (844)

Courses
Daniel Bilien, Director

5000 Thesis (1-15)
5300 Graduate Research Participation (3-9)
5610-20 Foundations of Radiation Biology (4,4)
5780 Radiation Physiology (4)
6000 Doctoral Research and Dissertation (3-15)
6910 Seminar in Radiation Biology (3)

UNDERGRADUATE
4100 Survey of Planning (3) History of city development and of planning with special attention to the U.S. experience in urban and other levels of planning. State of the art, the process, the comprehensive plan, and the implementation devices. Planning issues in society. Not for credit for Master of Science in Planning degree. (Same as Urban Studies 4100.)

GRADUATE
5000 Thesis (1-15)
5002 Non-Thesis Graduation Completion (3-15)
5005 The Planning Process (3)
5040 Communications for Planners I (1)
5045 Communications for Planners II (1)
5050 Communications for Planners III (1)
5100 Theory of Planning (3)
5110 Introduction to Planning (3)
5130 Planning Research Methods I (2)
5135 Planning Research Methods II (3)
5145 Library Research for Planning (1)
5160 Planning and Utilities (3)
5170 Planning for Historic Preservation (3)
5180 Planning Analysis and Forecasting (3)
5230 Urban and Site Design (3)
5235 Urban and Site Design II (3-6)
5270 Planning and Transportation (3)
5280 Planning Methods (5)
5300 Regional Planning (3)
5310 State Planning (3)
5340 Implementation (3)
5360 New Towns (2)
5380 Housing (3)
5390 Futures (3)
5410-20 Special Topics in Planning (1-3,1,3-1,3)
5435 Planning and Government (3)
5440 Planning and Land Use Controls (4)
5455 Urban Revitalization (3)
5460 Planning Administration (2)
5465 Planning and Property Development (3)
5500 Synthesis (9)
5570 Social Planning (2-3)
Courses

5000 Thesis (1-15)
5070 Airports and the Community (3)
5080 Collection and Distribution (3)

Aviation Systems (169)

The University of Tennessee Space Institute offers this program leading to the Master of Science with a major in aviation systems. The aviation systems program is designed for those who possess bachelor's degrees in engineering or science and who wish to study under a "systems philosophy" toward careers in research and development or administration in various phases pertinent to aviation. The program features 18 quarter hours of major field credit in various aspects of aviation systems, six or more quarter hours of credit in each of the areas of research-development and administration, and electives which permit further specialization in either area.

Courses

5000 Thesis (1-15)
5070 Airports and the Community (3)
5080 Collection and Distribution (3)

5090 Governmental Policies for Aviation (3)
5100 Project in Aviation Systems (3)
5210-20 Experimental Flight Mechanics (3,3)
5970 Special Topics in Aviation Systems (3)

Transportation Center

Director: K. W. Heathington, Ph.D., Northwestern, P.E.
Associate Director: M. S. Bronzini, Ph.D., Pennsylvania State, P.E.
Assistant Directors: D. H. Jones, M.S., Tennessee; P. R. Tutt, M.S. Texas (Austin).

The Transportation Center is a nationally recognized leader in transportation research. The Center utilizes the combined talents of University faculty and students in a research environment which emphasizes an interdisciplinary approach to problem-solving in the transportation of both goods and people. The Center assists the academic programs of the University by involving qualified undergraduate and graduate students in a variety of research projects. This support not only provides needed financial assistance to students but also creates the environment for addressing transportation problems in a professional manner.

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 addressing problem areas of concern to 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.
Institute of Agriculture

W. W. Armistead, Vice President
B. H. Pentecost, Assistant Vice President

The Institute of Agriculture traces its history to 1869 when the University was designated as Tennessee's Federal Land-Grant Institution. Under terms of the Federal Land-Grant Act, the University was 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. Whitley, 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 distributing 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, circulars, 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:

- Amos 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 Waybou. The 250-acre arboretum at Oak Ridge places emphasis on woody plants. Research in forestry studying genetics, species adaptation, fertilization, and other management practices are 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 Cumberlands including stripmine 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.

- Tobacco 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.

- 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 both 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 associated with fruit and vegetable production and dairy production. The USDA/SEA-AR cooperates with research on the soybean cyst nematode.

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Agricultural Extension Service

M. L. Downen, Dean
Troy W. Hinton, Associate Dean
Mildred F. Clarke, Assistant 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 meeting the specific needs of the residents of their counties. They work with both adults and youth. Educational activities for boys and girls are carried out through 4-H Clubs which 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 which appropriates funds for the program may have an office located there to serve its residents. Most offices are located in county seat towns.

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 Forestry, 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 forestry 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 agronomy, agricultural economics and rural sociology, agricultural education, agricultural mechanization, animal science, food technology and science, ornamental horticulture and landscape design, 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 in 198 quarter-hour credits, 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 required for 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 program should be made with the guidance of the faculty adviser.

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 UT-K campus must have a grade point average of 2.0. Each curriculum leading to a Bachelor of Science in Agriculture includes the requirements of the basic curriculum for agriculture. For this degree, the minimum requirement is 198 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 198 quarter-hour credits. For the degree of Bachelor of Science in Agricultural Engineering, the minimum requirement is 198 quarter-hour credits.

The use of transfer credit in technical agriculture to each organized curriculum will be considered and approved by the adviser 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 conducted under the supervision of the head of the department in the course.

A minimum of 27 quarter hours of upper-division technical agriculture appropriate to a specified major requirement, and approved by the major adviser, must be completed in residence to fulfill the requirements of baccalaureate degrees offered in the college.

Satisfactory/No Credit Courses

Students 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.

Graduate Study in Agriculture

MASTER OF SCIENCE PROGRAMS

Programs of graduate study leading to the Master of Science degree are offered in all departments in the College of Agriculture. See the Graduate Catalog for details.

A Winter Short Term for Agricultural Extension personnel and other professional agricultural workers is offered during the last half of the winter quarter. Those attending must be accepted by The Graduate School. Students may take three courses and earn nine quarter hours of graduate credit toward the Master of Science degree. A number of courses are offered annually in agricultural extension education and in other departments in the College of Agriculture.

Additional information and a five-year schedule of course offerings may be obtained by writing to Professor R. S. Dotson, Head, Department of Agricultural Extension Education, College of Agriculture, Knoxville.

DOCTORAL PROGRAMS

Graduate study programs lead to the Doctor of Philosophy degree in animal sciences, agricultural economics, agricultural engineering, food technology 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 Hall which houses the plant science departments; and greenhouses for vegetable and ornamental 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 (80 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 College. Cherokee Woodlot (120 acres), the Oak Ridge Forest (2,260 acres), and Ames Plantation (8,000 acres of forested land) provide excellent facilities for field work in forestry.

Transportation by bus is provided for classes of agricultural students from the agricultural campus to the University farms and to other points of interest where instruction may be given. Transportation by bus is provided between the agricultural campus and the main University campus so that students may take advantage of courses offered in the main University campus.

The facilities of the University on the main campus are available to agricultural students. Courses in the basic sciences, business, communications, engineering, etc., are open to students of the College of Agriculture.
agricultural students and are taught on the main University campus.

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 adviser 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 adviser to assist them in exploring agriculture and to guide them in planning the appropriate courses of study for the freshman year. When they choose a curriculum, an adviser will be assigned from that department.

Students with special interest in science, business, or production technology should consult the adviser 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 from another institution, or from other colleges recorded on their transcripts have single or multiple minors in agriculture or lead to the degree of Bachelor of Science in agriculture.

Selection of Curriculum

The selected curriculum. 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 one curriculum. For this purpose, the advisers of each curriculum should be consulted, the dean of the College of Agriculture should be informed, and each adviser 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 regard 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 2000 and above with the majority of credit hours at the 2000 and 3000 levels. At least 12 of the credit hours required for the minor must be completed at UK. 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 UK, should consult the dean if in doubt about the curriculum they wish to follow and for assignment to an appropriate adviser. 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 ornamental horticulture and landscape design working for a degree of Bachelor of Science in Agriculture will in their course of study the following minimum requirements. The sequence and the selection of courses not specified will be guided by the adviser.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture 1110</td>
<td>Introduction to Social Science for Agriculture</td>
<td>4</td>
</tr>
<tr>
<td>Agriculture 1110</td>
<td>Introduction to Agricultural Engineering</td>
<td>4</td>
</tr>
<tr>
<td>Agriculture 1130</td>
<td>Animal Science for Agriculture</td>
<td>4</td>
</tr>
<tr>
<td>Agriculture 1130</td>
<td>Plant Science for Agriculture</td>
<td>4</td>
</tr>
<tr>
<td>Agriculture 1130</td>
<td>Food Technology and Science for Agriculture</td>
<td>4</td>
</tr>
<tr>
<td>Agricultural Science</td>
<td>Courses listed in department curriculum</td>
<td>26</td>
</tr>
<tr>
<td>English and Communications</td>
<td>(English 1010 or 1011; 1020; 1031 or 1032 or 1033; Speech 2311, and 5 hours in communications)</td>
<td>18</td>
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<tr>
<td>Mathematics 1540-50-60</td>
<td>(general mathematics)</td>
<td>12</td>
</tr>
<tr>
<td>Biological Science</td>
<td>(entomology and plant pathology, biology, botany, microbiology, or zoology)</td>
<td>12</td>
</tr>
<tr>
<td>Physical Science</td>
<td>(Chemistry 1110-20-30 or 1120-20-30 and physics or geology)</td>
<td>16</td>
</tr>
<tr>
<td>Social Science and Humanities</td>
<td>(Economics 110-20 and electives, 12 hours—not more than 3 hours in each)</td>
<td>18</td>
</tr>
<tr>
<td>Other Courses or Elective Hours Specified</td>
<td>By Departments</td>
<td>76</td>
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<tr>
<td>TOTAL</td>
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</table>

The five basic courses in agriculture are not departmental, but the course outlines and content were developed by a group of experienced teachers representing the appropriate subject-matter areas. They are presented by a team of teachers who work together in presenting material in each course. The five courses are required of all agricultural students, except those majoring in ornamental horticulture and landscape design, 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 relation 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.

The primary objective of offering a major at the graduate level is to provide training in these 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 agricultural problems that constantly threaten Tennessee's dynamic agriculture.

Agricultural Economics and Rural Sociology

Agricultural Economics and Rural Sociology Advisers: Professor Martin; Associate Professors Brooker, McLemore, Mundy, Trevena, Park and Whipple

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 crops, livestock and poultry 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.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
<th>Credit</th>
</tr>
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<tbody>
<tr>
<td>Agriculture 1110-20-30-40-50</td>
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<tr>
<td>Biology 1210-20</td>
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<tr>
<td>English 1010 or 1011; 1020; 1031 or 1032 or 1033</td>
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<td>Mathematics 1540-50-60 or 1840-50-60</td>
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<tr>
<td>Sophomore</td>
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<tr>
<td>Agricultural economics elective</td>
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<tr>
<td>Biological science elective</td>
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<tr>
<td>Chemistry 1110-20 or 1510-20 and Physics 1120-20 or Geology 1130-50 or Chemistry 1110-20-30 or 1510-20-30 and Physics 1210 or Geology 1410</td>
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<tr>
<td>Computer Science 1410 or 1510 or Office Administration 2750</td>
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<td>Economics 3110</td>
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<td>Economics 3110-3210</td>
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<tr>
<td>Speech 2311</td>
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<td>Statistics 2100</td>
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<td>Electives</td>
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<td>Junior</td>
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<tr>
<td>Accounting 2110-20-30</td>
<td>9</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>
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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>
<td></td>
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<tr>
<td>Non-departmental agricultural electives</td>
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<tr>
<td>Non-departmental social science and humanities electives</td>
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<tr>
<td>Rural Sociology 3420</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Statistics 3220</td>
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</tr>
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<td>Electives</td>
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<tr>
<td>Senior</td>
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<tr>
<td>Agricultural Economics 4140, 4320, 4120 or 4510</td>
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<tr>
<td>Agricultural economics and rural sociology electives</td>
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<td></td>
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<tr>
<td>Agricultural Economics 4710 or Business Law 4110</td>
<td>4 or 3</td>
<td></td>
<td></td>
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<tr>
<td>Economics 5210</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Office Administration 4320</td>
<td>3</td>
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<tr>
<td>Non-departmental agricultural electives</td>
<td>3</td>
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</tbody>
</table>
AGRICULTURAL ECONOMICS AND RURAL SOCIOLOGY CURRICULUM

Advisers: Professor Martin; Associate Professors Brooker, McLemore, Mundy, Trevena, Park, and Whipple

This curriculum is designed to provide students with training in the social sciences as well as in the physical and biological sciences and technical agriculture. Recognition is given to the desire of many college graduates to work in agriculture where the major emphasis is in farm production and related areas. 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, governmental 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 speciality 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 advisers each quarter regarding the selection of courses.

Students majoring in agricultural engineering are eligible to participate in the Cooperative Scholarship program. They may also be eligible for selection into Tau Beta Pi and Alpha Zeta.

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 speciality 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 advisers each quarter regarding the selection of courses.

Students majoring in agricultural engineering are eligible to participate in the Cooperative Scholarship program. They may also be eligible for selection into Tau Beta Pi and Alpha Zeta.

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

Students majoring in agricultural engineering are eligible to participate in the Cooperative Scholarship program. They may also be eligible for selection into Tau Beta Pi and Alpha Zeta.

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

Students majoring in agricultural engineering are eligible to participate in the Cooperative Scholarship program. They may also be eligible for selection into Tau Beta Pi and Alpha Zeta.
<table>
<thead>
<tr>
<th>Hours Credit</th>
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<tbody>
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### Agricultural Extension Education

Advisers: Professor Dotson, Associate Professor Carter

No formal undergraduate curriculum is offered in agricultural extension education, but undergraduate courses are available as electives in each formal curriculum. Courses are designed to: (1) develop in prospective extension workers and other interested students an understanding of the functions, responsibilities, and techniques of the Cooperative Agricultural Extension Service, and (2) provide prospective extension workers with practical extension work experience in selected training counties. Graduate majors and minors are offered in agricultural extension education. Graduate courses are designed to develop in present extension workers and other interested students those competencies needed for improving the effectiveness of their work. Professor Dotson will give guidance for emphasis in agricultural extension education.

### Animal Science

Advisers: Professors Barth, Chamberlain, Lidwall, McLennan, Montgomery, Murphy, Richardson, Shirley, Shrode, Swanson; Associate Professor Hitchcock, Koehler, Messing; Assistant Professors Heitmann, Robbins, and Smalling.

This curriculum is designed to prepare students for leadership careers in livestock and in 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 course preparation for specialization. Elective selection permits special training for work with feed companies, meat animal, milk, egg, or poultry production, managerial or marketing groups, or 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 non-animal science curriculum may, if they desire arrange to minor in various other curricula. The requirements for these minors shall be stipulated by the department supervising that particular curriculum. Students majoring in other curricula may gain an animal science. A minor in animal science consists of a minimum of 28 hours and must include: Animal Science 2610, 2610, 3510, 3710, 3710, 3710, 21, b) One course from Animal Science 3510, 3620, 3630, 3640 or Food Technology and Science 3610 3 hrs. c) One course from Animal Science 4810, 4820, 4830, 4840, 4860 or 4860 h.

<table>
<thead>
<tr>
<th>Hours Credit</th>
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<tbody>
<tr>
<td>12</td>
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<tr>
<td>8</td>
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<tr>
<td>6</td>
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<tr>
<td>4</td>
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<td>4</td>
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<tr>
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<tr>
<td>6</td>
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<tr>
<td>4</td>
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<tr>
<td>27</td>
</tr>
</tbody>
</table>

### Institute of Agriculture

TOTAL: 198 hours

<table>
<thead>
<tr>
<th>Or equivalent honors courses.</th>
</tr>
</thead>
<tbody>
<tr>
<td>To be approved by departmental adviser.</td>
</tr>
<tr>
<td>15 hours must be taken in either the Business and Industry Option or in the Production and Processing Option.</td>
</tr>
<tr>
<td>61</td>
</tr>
</tbody>
</table>
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 the above 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 should check the requirements of those specific schools. Students intending to apply 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 student's junior year in order to meet the admission requirements. However, 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 UT College of Veterinary Medicine (3 and 1 program). See section on the College of Veterinary Medicine, page 71, 1982-83 General Catalog for additional information.

A suggested sequence 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 16 to 18 hours per quarter. See College of Veterinary Medicine—Animal Science requirements for minimal course requirements for admission to the professional program in the College of Veterinary Medicine (page 72, 1982-83 General Catalog).

### First year

| English 1010 or 1011; 1020; 1031 or 1032 or 1033 | 9 |
| Mathematics 1540; 1550, 1560 | 12 |
| Biology 1210-20-30 | 12 |
| Chemistry 1150-20-30 | 12 |
| Agriculture 1130 | 4 |
| Humanities electives | 4 |

### Second year

| Chemistry 3211-21-31 | 9 |
| Chemistry 3219-29-39 | 3 |
| Physics 2210-20-30 | 12 |
| Agriculture 1110 | 4 |
| Economics 2110 | 3 |
| Speech 2311 | 4 |
| Animal Science 3300 and 3303 and 3410 | 17 |

### Third year

| Biochemistry 4110-20-30 | 8 |
| Microbiology 2910-19 | 5 |
| Agricultural economics | 3 |
| Social science electives | 8 |
| Humanities electives | 8 |
| Animal science 3420, 3650 level evaluation services, production management (4 hrs) | 10 |
| Electives | 14 |

TOTAL: 59 hours

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

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

*Recommended elective for students with limited or no practical animal experience and required for those attempting to obtain the B.S. in Agriculture with a major in animal science in the regular program.*

*For students 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 completion of the first year in the College of Veterinary Medicine.*

*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 upon completion 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 6 hrs. (suggested Agriculture Mechanization 1460, Food Technology and Science 3840, Entomology and Plant Pathology 3410, Plant and Soil Science 3140).*

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

### Animal Science Curriculum with a Pre-Veterinary 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 requirements listed above, including Economics 2110-20 or 2130, 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 1460, Food Technology and Science 3840, Entomology and Plant Pathology 3210, Plant and Soil Science 3140). In addition, the following general requirements must be met in order to meet certain rules of UT and the College of Agriculture in granting degrees:

1. The last 45 hours of the three-year program must be taken at UTK.
2. At least 18 hours of upper-division technical agriculture must be taken at UTK.
3. The student must complete the first year in the UT College of Veterinary Medicine and with the substitution of appropriate courses from the first year and the completion of a minimum of 198 hours will be granted a B.S. in Agriculture with a major in animal science.

### Entomology and Plant Pathology

Adviser: Professor Southard

No undergraduate curriculum exists in agricultural biology, but a program leading to the Master of Science degree with a major in entomology and plant pathology is available (see Graduate Catalog). Courses in economic entomology, plant pathology, soil microorganisms, and plant parasitic 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 these 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 Tennessee’s dynamic agriculture.

### Food Technology and Science

Advisers: Professors Miles, Collins, Jaynes, and C. Melton, Associate Professor S. Melton, Assistant Professor Mourt.

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, dehydration, fermenting, preserving, etc., is taught with emphasis on basic principles rather than on specific commodity procedures. Therefore, men 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, packing specialist, 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.

### Freshman

<table>
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<tr>
<th>Hours Credit</th>
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<tbody>
<tr>
<td>Agriculture 1110-20-30-40-50</td>
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<tr>
<td>Biology 1220</td>
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<tr>
<td>English 1210-20-33</td>
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<tr>
<td>Mathematics 1540-50-60</td>
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<tr>
<td>Physics 1210-20</td>
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### Sophomore

<table>
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<th>Hours Credit</th>
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<tbody>
<tr>
<td>Agriculture 1120</td>
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<tr>
<td>Chemistry 1510-20-30</td>
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<td>Economics 2110-50</td>
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<td>Food Technology and Science 2200</td>
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<td>Microbiology 2910-19</td>
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<tr>
<td>Communications electives</td>
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<tr>
<td>Humanities-social science electives</td>
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### Junior

<table>
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<tr>
<th>Hours Credit</th>
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<tbody>
<tr>
<td>Agricultural Mechanization 3510</td>
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<td>Chemistry 3230, Nutrition 3330</td>
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<tr>
<td>Food Technology and Science 3300, 4130, 4140</td>
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<tr>
<td>Microbiology 3810</td>
</tr>
<tr>
<td>Nutrition 3200</td>
</tr>
<tr>
<td>Plant and Soil Science 3610</td>
</tr>
</tbody>
</table>
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 available 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 forest resource management curriculum including the recreation option, the degree of Bachelor of Science in Forestry (B.S.F.) is awarded.

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<thead>
<tr>
<th>Hours Credit</th>
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<tbody>
<tr>
<td>Freshman</td>
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<tr>
<td>Botany 1110-20 or Biology 1210-20</td>
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<td>Accounting 2110 or Political Science 3565 or 3566</td>
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<td>Psychology 2500</td>
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**FOREST RECREATION OPTION**

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

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**WILDERNESS AND FOREST SCIENCE**

Wildlife and fisheries management is 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 curriculum, the degree of Bachelor of Science in Wildlife and Fisheries Science is awarded.
Human needs go beyond food, clothing, and shelter. The control of the 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 of producing flowering plants in field and greenhouse, and the art and science of using these plants for the benefit of humans.

Opportunities are available as greenhouse managers, floral designers, retail salespersons, garden writers, research workers, and teachers.

Nursery management deals with the growing of trees, shrubs, and other ornamental plants for sale. Skills necessary to be a nursery manager include horticultural knowledge and a business sense. Students in this area are prepared to work in nurseries, garden centers, botanical gardens, and arboreta. They may find opportunities also in research, teaching, writing, sales, and landscape management.

Turfgrass management includes all aspects of growing and caring for turfgrass, whether be golf greens or home lawns. The increasing number of golf courses and home lawns and the emphasis on better quality make new opportunities for turfgrass managers. Such opportunities include golf course superintendents, park and recreational turf managers, operation of a lawn maintenance business, producer and seller of sod, research, teaching, and sales.

Landscape means modifying the outdoor environment for the greatest use, comfort, and enjoyment. It not only means the use of trees, shrubs, and other plant material to accomplish this goal, but it also means having an understanding of the requirements for working, recreation, and housing. Emphasis in the area of landscape design is on plant material and design courses. Opportunities in this area include landscape nursery operation, landscape maintenance, garden center operation, all sales highway landscaping, park development, research, teaching, and writing.

**Plant and Soil Science**

Adviser: Professors Reynolds, Seitz, Coffey; Associate Professors Allen, Lesman, and Reich

Plant and soil science deals with field and vegetable crops and soils. Plant science includes crop breeding and genetics for crop improvement and the introduction of new varieties, crop management for high quality products, and weed control for efficient crop production.

Soil science includes studies in soil formation and classification for better understanding of our soil resources; soil management for optimum crop production and conservation; soil fertility for utilizing fertilizers efficiently; and basic studies in chemistry, physics, and biology as they apply to the soil and to a better understanding of its properties and proper use.

The plant and soil scientist must have a knowledge of the basic physical and biological sciences and, in addition, be trained in communication skills. The scientist may be broadly trained or may specialize in a more specific phase of the subject. Regardless of interest, many good jobs are available for the well-trained plant and soil scientist.

Employment opportunities differ depending upon the individual's type of training and interest. For the person who is scientifically inclined, positions are available in research with both public and private agencies. For those who wish to apply their knowledge to the solution of practical problems, positions are available with the Agricultural Extension Service as extension agents or as specialists, with the Soil Conservation Service, Forest Service, Farmers Home Administration, Production Credit Association, and other public agencies. Many plant and soil scientists are employed in private industry as technical specialists, supervisors, and salespersons. Banks and other financial institutions employ plant and soil scientists as appraisers and farm managers. Others may farm on their own, manage farms for others, or work in foreign agricultural programs. Certainly, plant and soil science is basic to all agriculture, and people trained in this important field will find many opportunities to serve in modern agriculture.

Each student selecting this major must complete the basic curriculum for agriculture and fulfill the major group requirements. The curriculum in plant and soil science showing the manner in which the required courses may be taken by years is as follows:

**Freshman**

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<tr>
<th>Course</th>
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**Sophomore**

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**Junior**

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**Senior**

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<th>Course</th>
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<td>Plant and Soil Science 3210, 3215, 4150, 4160</td>
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**Total** 198 hours
Credit for Cooperative Work

A maximum of nine quarter hours of credit may be earned by supervised employment on approved jobs. To receive credit, the student must receive the recommendation of the employer, must present a satisfactory written report, and must receive a passing grade from the University professor in charge. Employment periods shall be not less than 12 weeks. At least one quarter must be spent in study on the campus between periods of employment.

Prerequisites: Junior classification, with grade point average of 2.2 or above, and permission of 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 advisers. Approximately 500 attend and inspect each department of the College.

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; fundamentals of inheritance, fundamental of feeding, and function of farm animals. Animal sanitation, animal products, and the relationship to public health. 4 hrs. and 1 lab.

1120 Introduction to Agricultural Engineering (4) Agricultural power and machinery fundamentals, agricultural structures, soil and water conservation controls, and agricultural uses of electricity. 3 hrs. and 1 lab.

1130 Animal Science for Agriculture (4) Animals in agriculture; body systems; development, principles of inheritance, fundamentals of feeding, and function of farm animals. Animal sanitation, animal products, and the relationship to public health. 3 hrs. and 2 labs.

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.

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

4018 Honors: Seminar (3) Selected topics. Offered alternate years. Open to juniors and seniors by invitation.

4110 Agricultural Industry Field Seminar (3) A travel study of the agricultural industry involving agricultural production, processing, marketing and services, and their interaction required. Prereq: Junior standing and permission of instructor.

Departmental Programs

Agricultural Economics and Rural Sociology

Professors:

J. A. Martin (Head), Ph.D. Minnesota; N. B. Badenhop, Ph.D. Purdue; J. R. Brooker, Ph.D. Florida; D. W. Brown, Ph.D. Iowa State; C. L. Cletend, Ph.D. Wisconsin; Irving Dubov, Ph.D. California; Berckle, L. H. Keller, Ph.D. Kentcufy; F. O. Leucht, Ph.D. Wisconsin; B. R. McManus, Ph.D. Purdue; B. H. Penecost, J. D. Tennessee; W. P. Ranney (Emeritus), Ph.D. Minnesota; C. B. Sappington, Ph.D. Illinois; T. J. Whatley, Ph.D. Purdue.

Associate Professors:


Assistant Professors:


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 utilizing fundamental economic concepts. Income, food prices, world food problems, natural resources, environment, rural development.

3120 Agricultural Prices (3) Factors determining prices of farm products. Effects on price of varying degrees of demand and supply. Sources of information on prices and related market data. Uses of price information and techniques of analysis in determining outlook for farm prices. Prereq: Agriculture 1110 and Economics 2120.

3320 Marketing Farm Products (3) American marketing system; alternative market structures, functions of marketing system, commodity marketing problems, current marketing problems, and possibilities for improvement. Prereq: Agriculture 1110 and Economics 2120.


3430 Agricultural Law (3) Survey of law and applicable to the farmer, his family, and agricultural industry. Property, contracts, torts, drainage and water rights, landlord-tenant relationships, taxation and insurances, forms of business organization, estate planning, regulatory laws, and other selected topics.

3440 Farm Income Tax Management (3) Legal and economic concepts and procedures in organizing and managing a farm business within the framework of federal income tax laws. Emphasis on recognizing potential farm tax shelters and avoiding tax traps that may be encountered in organizing the business and operating and transferring the farm. Prereq: Junior standing. 3 hrs.

3510 Commodity Futures Markets (3) Futures market as an instrument in marketing of primary industry products; process of passing to others the risk of adverse price changes; price analysis from two viewpoints; supply-demand and history (fundamentalist and chartist). Prereq: Junior standing. 3 hrs.

3710 Consumer Demand for Agricultural Products (3) Economic principles, practices, and budgeting techniques to use in purchasing of goods and services. Evaluation of advertising and other related information. Prereq: Agriculture 1110 and Economics 2120.

4120 Farm Management (3) Principles of farm organization and operation; locating land, labor, and capital to meet changing technologies; tenure arrangements and use of credit, risks, measures of success. Uses and analysis of records; excursions in planning farms. Field trips arranged. Prereq: Agriculture 1110 and Economics 2120.

4140 Introduction to Agricultural Production Economics (3) Resource allocation, product selection, scale of operation of agricultural firms; aggregate effects of decisions made by individual agricultural firms. Prereq: Agriculture 1110 and Economics 2120, and senior standing.

4210 Problems in Agricultural Economics (3) Supervised laboratory course in methods of collecting and analyzing information and in writing a report. Prereq: Agriculture 1110 and Economics 2120. May be repeated to a maximum of 9 credit hours.

4240 World Agriculture and Trade (3) Economic bases of world agricultural production and trade, resource location, land tenure systems, international trade, and commercial policy. Prereq: Agriculture 1110 and Economics 2120, or consent of instructor.

4250 Agricultural and Rural Planning (3) Decision-making concepts applied to design and implementation of local action programs. Case examples from the U.S. and other countries. Prereq: Agriculture 1110 and Economics 2120, or consent of instructor.

4310 Agricultural Finance (3) Nature and source of credit, credit problems of the farmers; kinds and sources of farm credit. Agricultural insurance and taxation. Prereq: Agriculture 1110 and Economics 2120.

4320 Agricultural Policies (3) Meaning of agricultural policy in democratic society, relationship of farm groups to public policy; problems giving rise to policy types of agricultural policy and appraisal of results of current policy problems. Prereq: Agriculture 1110 and Economics 2120.

4330 Land Economics (3) Problems and policies of land use, conservation, development, taxation, and tenure; population growth and demand for land; principles and theories of rent, property, value, and income. Prereq: Agriculture 1110 and Economics 2120.

4610 Management of Farm Supply and Marketing Firms (3) Operations of firms selling farm supplies and merchandising agricultural products. Emphasis on accounting data and the economic theories for decision making. Prereq: Agriculture 1110 and Economics 2120.


GRADUATE

5000 Thesis

5002 Non-Thesis Graduation Completion (3-15)

5011 Special Problems in Lieu of Thesis (3)

5120 Agricultural Price Analysis (3)

5130 Advanced Agricultural Production Economics (3)

5210 Seminar: Agricultural Policies (3)

5220 Seminar: Methodology of Research (3)

5230 Seminar: Adjustments to Industrialization (3)

5310 Research (3)

5410 Agricultural Marketing Analysis (3)

5420 Advanced Land Economics (3)

5440 Economics of Agricultural Development (3)

5510 Quantitative Methods in Agricultural Economics (3)

5710 Quantitative Methods in Agricultural Economics (3)
Rural Sociology (880)

3420 Rural Sociology (3) Nature of rural society; social systems concept; rural-urban differences; nature of social relations; population characteristics and movements; social problems associated with rural life. 3 hrs. and 1 lab. Graduate credit for non-majors only.

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 professional change agents, opinion leadership, and two-step flow hypothesis. Prereq: Rural Sociology 3420, or consent of instructor.

GRADUATE

5340 Special Problems (3)

5430 Rural Sociology Seminar (3)

5450 Advanced Rural Sociology (3)

5470 Research Problems in Rural Communities (3)

5490 Rural Population Analysis (3)

Agricultural Engineering

Professors: H. Luttrell (Head), Ph.D. Iowa State; B. L. Bledsoe, Ph.D. Oklahoma State, P.E.; J. J. McCow (Dean of Admissions and Records), Ph.D. Michigan State P.E.; J. L. Sewell (Assistant Dean, Ag Experiment Station), Ph.D. North Carolina State, P.E.; C. H. Shelton, M.S. Virginia Polytechnic.


Assistant Professors: D. O. Bakster, M. S. Missouri.

Agricultural Engineering (066)

1130 Introductory Agricultural Engineering (3) Basic engineering principles, field of agricultural engineering. 2 hrs. and 1 lab. Prereq: Open only to freshmen.

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

3610 Soil and Water Conservation Engineering (4) Integration of hydrologic, agronomic, and engineering principles in solving agricultural water management problems involving food and erosion control, drainage, irrigation, and water quality. Prereq: Agric. 1120. 1 hr. and 1 lab. Graduate credit for non-majors only.

3260 Structures for Production, Environmental Control, and Waste Management (4) Analysis of load and stress design of concrete, wood, steel, and other materials; structural and environmental requirements of facilities for livestock and crop production and storage; physiological requirements; heat, load, insulation, moisture relationships; ventilation and waste management; 3 hrs. and 1 lab. Graduate credit for non-majors only.

3630 Processing and Material Handling Systems (4) Application of basic sciences to processing and handling of agricultural products; physical properties; thermal processing, curing, and drying.

5000 Thesis

5240 Environmental Control in Agricultural Structures (3)

5340 Hydrology of Agricultural and Forest Lands (3)

5440 Instrumentation in Agricultural Systems (3)

5540 Engineering Properties of Agricultural Materials and Products (3)

5640 Research Problems in Agricultural Engineering (3)

5710-20 Similitude in Design and Research (3,3)

6000 Doctoral Research and Dissertation

6110 Seminar (1)

6310 Engineering Systems Analysis in Agriculture (3)

6160 Selected Topics Agricultural Engineering (3)

Agricultural Mechanization (080)

2119 Agricultural Drawing and Mapping (3) Fundamentals of geometry and mapping; emphasis on applications in agriculture and forestry. 1 hr. and 2 labs.

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

2140 Forest Surveying (2) Instruments, methods, and computations used in determining distances, angles, elevations, and area related to forest management problems. Credit cannot be given for both 2130 and 2140. Prereq: Math 1560. 1 hr. and 1 lab.

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

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

3140 Forest Surveying and Mapping (3) Use of topographic mapping techniques in surveying. Prereq: Math 1560. 3 hrs. and 1 lab.

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.

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

3510 Food Engineering Technology (3) 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.

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

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

4140 Agricultural Waste Utilization and Disposal (3) Equipment and structures for utilizing, treating, and disposing of agricultural wastes by land spreading, leaching, and processing. Prereq: Senior standing. 2 hrs. and 1 lab.

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

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

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.

4220 Special Problems in Agricultural Mechanization (3) Selection, analysis, solution, and report of research problem. May be repeated for credit. Prereq: Math 1550. 9 hrs. and 1 lab.

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

4610 Design of Water Control and Waste Utilization Systems (3) Design of water control and waste 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.

4620 Design of Structures for Production, Processing, and Environmental Control (3) Functional planning and structural design of agricultural buildings; emphasis placed on complete design of structure or systems; design to include functional structural and environmental aspects. Prereq: 3620. 1 hr. and 2 labs.

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.

4640 Design of Agricultural Machinery (3) Functional planning and structural design of machine component design; synthesis of mechanisms, mechanical and hydraulic drives, team effort in completing machine design project. Prereq: 3640 or consent of instructor. 1 hr. and 2 labs.

4640 Research Problems in Agricultural Engineering (3)

5000 Thesis
Agricultural Extension Education (075)

Dickson (Director), E.D.D. Cornell

Agricultural Extension

Graduate: R. S. Dickson (Head), Ph.D. Pennsylvania State; L. H.,
Dickson (Director), E.D.D. Cornell

Associate Professor: C. E. Carter, Jr., Ph.D. Ohio State.

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

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

Graduate: 5000 Thesis

5100 Special Problems in Agricultural Extension (1-6)

5210 Long-Range Extension Program Planning (3)

5220 Seminar (3)

5230 Evaluation in Programs of Agricultural Extension (3)

5310 History, Philosophy, and Objectives (3)

5320 Volunteer Leadership in Agricultural Extension Programs (3)

5330 Supervision of Agricultural Extension Programs and Personnel (3)

Animal Science (113)

Professors: D. O. Richardson (Acting Head), Ph.D. Ohio State; K. M. Barth, Ph.D. Rutgers; M. C. Bell, Ph.D. Oklahoma State; J. K. Kleter (Emeritus), Ph.D. Ohio State; C. C. Chamberlain, Ph.D. Iowa State; O. G. Hall, Dean, College of Agriculture) Ph.D. Iowa State; S. B. Hansard (Emeritus), Ph.D. Florida; H. M. Jamason, Ph.D. Tennessee; E. R. Lidvall, M.S. Tennessee; J. B. McElhinny, Ph.D. Auburn; M. J. Montgomery, Ph.D. Wisconsin; G. M. Merriman (Emeritus), D.V.M. Michigan State; R. L. Murphy, Ph.D. Wisconsin; H. V. Shindel, Ph.D. Boggs, R. R. Stroud, Ph.D. Oklahoma State; E. W. Swanson, Ph.D. Missouri; R. L. Tugwell (Emeritus), Ph.D. Kansas State; C. E. Wylie (Emeritus), A.M. Missouri.


Assistant Professors: J. A. Comley (Emeritus), Ph.D. Tennessee; R. N. Helmman, Ph.D. Maine; H. G. Kades, Ph.D., V.P. & S. U. K. R. Robbins, Ph.D. Illinois; J. D. Smallest, Ph.D. Texas A & M.


2610 Fundamentals of Food Animal Evaluation (4)
Criteria for food animal evaluation; market classes and grades of cattle, poultry, and pork products, lamb and wool, and swine; subjective and objective techniques for evaluation of beef cattle, dairy cattle, poultry, sheep, and swine. 2 hrs. and 2 labs.

2710 Introduction to Biometrical Aspects of Animal Breeding (3) Basic ideas in probability as introduction to concept of distributions. Expected values of variables as most probable values. Biometrical concepts for optimum utilization of genetic resources. Assessment of validity of hypotheses. 2 hrs. and 1 lab.

2810 Farm Animal Management Practices (3) Integration of management practices and skills into cattle, horse, sheep, poultry, and swine enterprises. Practices and skills include dehorning, castrating, docking, feeding, inoculations, care, feeding, health, age determination, identification, planning programs, livestock microclimatic environment, immune response, and disease prevention. Facilities needed in livestock management including buildings, fences, corrals, equipment, and feeding requirements. 2-3 hrs. lab.

2820 Introduction to Light Horses (3) Scope and role of light horse industry, breeds—development, function, and use; unsoundness; tack; introduction to management problems. May not be used by animal science majors to meet graduation requirements. 2 hrs. and 1 lab.

3210 Anatomy and Physiology of Farm Animals (4) Skeletal and joint, skeletal muscles, blood and microcirculation, and nervous cardiovascular, respiratory, digestive, renal, and endocrine systems; demonstration of physiological phenomena. Prerequisite: Biology 1210 or Agriculture 1130, 3 hrs. and 1 lab.

3220 Physiology of Reproduction (3) Comparative anatomy and physiology of reproductive systems of higher vertebrates; gamogenesis, fertilization, implantation, prenatal development, parturition, and involution of lactation; endocrine regulation of reproductive phenomena. Prerequisite: 3210 or consent of instructor. 2 hrs. and 1 lab. (Same as Zoology 3220)

3310 Introduction to Animal Nutrition and Feeding (3) Nutrient composition, function, and requirements of farm animals; animal feeds, nutrient content, and factors affecting feeding value; balancing rations for beef and dairy cattle, swine, and poultry. Not available to students with credit in 3320. Prerequisite: Agriculture 1130, Chemistry 1130 or 1530. 2 hrs. and 1 lab.

3320 Animal Nutrition (3) Properties, functions, utilization, and deficiency symptoms of essential nutrients; nutrient intake. Prerequisite: or consent of instructor. Prerequisite: Agriculture 1130 and one quarter of organic chemistry

3330 Feeds and Ration Formulation (4) Feedstuffs, additives, feeding standards, nutrient requirements, and ration formulation for beef and dairy cattle, sheep, horses, swine, poultry, and laboratory animals. Prerequisite: 3320. 2 hrs. and 2 labs.

3410 Heredity in Animals (3) Basic chromosomal mechanism of heredity with emphasis on Mendelian principles and their relationship to the use of genetic material; characteristics of and significance of domestic animals. Prerequisite: biology 1210 or consent of instructor. 3 hrs. lab.

3420 Principles of Animals Breeding (3) Genetic principles involved in breeding of economic species. Genetic basis of variation. Partitioning of variation according to various kinds of causative differences as differences in genetic makeup and environment. Selection and consequences. Mating systems and effects on populations. Planning breeding programs. Prerequisite: 3410 or equivalent. 2 hrs. and 1 lab.

3430 Breeds of Farm Animals (3) Study of evolution and formation of breeds of cattle, horses, poultry, sheep, and swine. Breeding structure. History, development, characteristics, and improvement programs of various breeds. Prospects for purebred industry and impact of crossbreeding programs. 2 hrs. and 1 lab.

3510 Animal Hygiene and Sanitation (4) Parasitic, viral, and bacterial organisms in farm animals; immunization; control and protection against disease; veterinary regulations and their effect on breeding programs. Prerequisite: Microbiology 2910-11 or 2910-19 or consent of instructor. 3 hrs. and 1 lab.

3520 Avian Diseases (3) Major diseases; characteristics, prevention and treatment, management principles, and systems for domestic birds, upland game birds and water fowl. 2 hrs. and 1 lab.

3610 Meat Animal Selection (3) Evaluation, judging, classification, and selection of beef cattle, dairy cattle, sheep, and swine for functional efficiency. Prerequisite: 2610. 1 hr. and 2 labs.

3620 Dairy Cattle Judging and Classification (3) Comparative judging of different types of dairy cattle. Prerequisite: 3320. 1 hr. and 2 labs.

3300 Poultry Journeys (3) Grading of poultry and poultry products, according to USDA standards; factors affecting poultry quality. Prerequisite: Consent of instructor. 1 hr. and 2 labs.

3640 Horse Selection and Judging (3) Selection, judging, evaluation of soundness and scoring of working and pleasure horses for functional efficiency. Prerequisite: Consent of instructor. 1 hr. and 2 labs.

3680 Nutrition and Management of Laboratory Animals (3) Principles of feeding, breeding, and handling of animals in scientific investigations; specific species' requirements, peculiarities, and research for which best fitted; laws governing use and handling of laboratory animals. Prerequisite: Agriculture 1130 and consent of instructor. 2 hrs. and 1 lab.

4110 Special Problems in Animal Science (1-4) Special problems and/or special reports based on supervised independent study or review of literature dealing with subjects applicable to field of animal science; supervised special work experiences in state-federal laboratories or in private industry. May be repeated for a total of 8 credit hrs. Prerequisite: Senior standing and consent of instructor and department head.

4210 Physiology of Lactation (3) Development, anatomy, and function of mammary glands; endocrine interactions for mammary development and milk production; factors affecting yield and composition of milk. Prerequisite: 3210.

4220 Avian Physiology (3) Anatomy and physiology of avian species with emphasis on poultry. Prerequisite: 3210. 2 hrs. and 1 lab.

4300 Applied Reproduction in Farm Animals (3) Application of methods and techniques in collecting, evaluating, processing, and preserving semen; insemination of females; pregnancy determination; gestation and parturition. Male and female infertility. Prerequisite: 3220. 1 hr. and 2 labs.

4330 Feeding Applications for Farm Animals (3) Detailed application of feeding principles designed to allow students to discover and explore feeding options available to producers through problem solving. Prerequisite: 3330. 1 hr. and 2 labs.

4340 Experimental Animal Nutrition Laboratory (2) Laboratory feeding trials to demonstrate the basic animal nutrition concepts and the effect of feeding of experimental diets. Prerequisite: 3330. 2 labs.

4410 Applied Animal Breeding (3) Applications of principles studied in 3320. Taught by specialists in breeding of dairy cattle, meat animals, and poultry. Prerequisite: 3420. 2 hrs. and 1 lab.

4610 Advanced Beef Cattle, Dairy Cattle, Horse Poultry, Sheep, and Swine Judging (2) Specialization in judging, evaluation, selection, and presentation of oral reasons on classes of beef cattle, dairy cattle, horses, poultry, sheep, and swine. May not be repeated for credit. Prerequisite: Consent of instructor. 2 labs.

4610 Beef Cattle Production and Management (4) Integration of principles of nutrition, physiology, and breeding into complete beef cattle management program. Topics will include structure of industry, enterprise establishment, systems of production, production practices, and herd improvement programs. Alternatives evaluated in terms of production responses and
economic returns. Prereq: Completion of animal science sophomore and junior core courses or consent of instructor. 3 hrs. and 1 lab.

4830 Pork Production and Management (4) Integration of principles of selection, nutrition, breeding, physiolog-ical, and marketing into complete pork production and management program. Topics will include structure of industry, enterprise establishment, systems of production, production practices, and herd improvement. Alternatives evaluated in terms of production response and economic returns. Prereq: Completion of animal science sophomore and junior core courses or consent of instructor. 3 hrs. and 1 lab.

4840 Poultry Production and Management (4) Structure of poultry industry, organization and management of poultry enterprises including rearing, housing, feeding, processing, and marketing. Prereq: Completion of animal science sophomore and junior core courses or consent of instructor. 3 hrs. and 1 lab.

4850 Light Horse Production and Management (4) Integration of principles of nutrition, physiology, and breeding into light horse management program. Topics include structure of industry, systems and practices of production; individual animal and herd improvement programs; tack, equipment, and facilities for both pleasure owners and commercial producers. Alternatives evaluated in terms of pleasure, recreation, and economic returns. Prereq: Completion of animal science sophomore and junior core courses or consent of instructor. 3 hrs. and 1 lab.

4860 Lamb and Wool Production and Management (4) Integration of principles of selection, nutrition, breeding, and marketing into complete lamb and wool production and management program. Topics will include structure of industry, enterprise establishment, systems of production responses, and economic returns. Prereq: Completion of animal science sophomore and junior core courses or consent of instructor. 3 hrs. and 1 lab.

4910 Seminar (2) Review of literature and presentations on special topics and current research in animal science field. Prereq: Senior standing. 1 hr. and 1 lab.

GRADUATE

5000 Thesis

5101 Problems in Lieu of Thesis (1-6)

5110 Special Problems in Animal Science (1-6)

5210 Endocrine Relations in Animal Production (4)

5220 Advances in Mammalian Reproduction (3)

5240 Advanced Studies of the Secretion of Milk (3)

5311 Analytical Techniques in Animal Nutrition (3)

5322 Advanced Experimental Animal Nutrition (3)

5333 Nonruminant Animal Nutrition (4)

5344 Ruminant Animal Nutrition (3)

5410 Genetics of Animal Populations (3)

5510-20 Advanced Animal Physiology (5, 5)

5710 Methods of Evaluating Experimental Data in Animal Science (3)

5720 Design and Interpretation of Experiments in Animal Science (3)

5910 Seminar (1)

6000 Doctoral Research and Dissertation

6150 Topics in Milk Constituents (3)

6160 Topics in Dairy Microbiology (3)

6211 Advanced Topics in Animal Physiology (1-6)

6220 Environmental Physiology of Farm Animals (3)

6230 Animal Growth and Development (3)

6240 Physiology of the Heart (4)

6311 Advanced Topics in Animal Nutrition (1-6)

6322 Advanced Animal Nutrition (3)

6411 Advanced Topics in Animal Breeding (1-6)

6420 Animal Breeding Research Methods and Interpretation (3)

6811 Advanced Topics in Animal Products (1-6)

Seminar (1)

Entomology and Plant Pathology (341)

Professors:

C. J. Southards (Head), Ph.D. North Carolina State; J. W. Hilly, Ph.D. Ohio State; L. F. Johnson, Ph.D. Louisiana State; G. O. Pess, Ph.D. Clemson.

Associate Professors:


3130 Plant Pathology (4) Principles of plant pathology illustrated by diseases of common agricultural crops. Prereq: Botany 1120 or Biology 1220. 3 hrs. and 1 lab. (Same as Botany 3130.)

3140 Forest Pathology (4) Ecology, recognition, economic impact, and control of forest tree diseases, including wood decay and insect pests. Prereq: Botany 1120 or Biology 1220 or equivalent. 3 hrs. and 1 lab. No credit if 3130 previously taken.

3210 Economic Entomology (4) Structure, life history, habits, and principles of control of important insect pests of farm, garden, orchard, and household. 3 hrs. and 1 lab.

3220 Apiiculture (3) Biology of the honey bee, with emphasis on beekeeping equipment and apiary management practices relative to pollination of crops and production of honey and beeswax. 2 hrs. and 1 lab.

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

4030 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.

4220 Bakery Products (3) Baking ingredients and equipment. Practice in grading and selection, curing, freezing, and cookery. 3 hrs. and 1 lab.

4300 Meat Science (3) Processing methods, carcass characteristics of meat animals; slaughter, cutting, selection, economic factors, and distribution of fluid milk. Manufacture of frozen and condensed dairy products. 3 hrs. and 1 lab.


4410 Food Science Seminar (1-3) Review of literature, oral and written reports. May be repeated for a maximum of 3 credit hrs. Prereq: Junior standing and consent of instructor.

4420 Bakery Products (3) Baking ingredients and their interactions during production and storage of bakery products. Prereq: Food Technology and Sci-
4160 Introduction to Forestry (3) History of forestry; establishment, care, protection, and use of forest stands; forest products industries; organization and administration of forest resource management; forest resources.

3000 Current Events in Renewable Natural Resource Management (3) Current events influencing forest, wildlife, and fisheries management. Perspectives from other disciplines and professions which are affected by or which influence forest resource management. Extended views of natural resources, their allocation and management. Professional development and education for the disciplines of forestry, wildlife and fisheries. 1 hr. May be repeated. Maximum credit 4 hrs. S/NC. (Same as Wildlife and Fisheries Science 3000.)

3020 Forest Environments and Ecology (3) Environments and ecology of areas and forested lands; emphasis on the application of ecological principles to contemporary problems. Available for graduate credit for non-forestry majors only. Prereq: 8 hrs. of biology, botany, or zoology. 3 hrs.

3040 Dendrology and Silvics of Woody Angiosperms (3) Classification, nomenclature, identification, and silvical characteristics of the more common woody angiosperms native to North America; natural ranges, distribution patterns, and habitat requirements; regeneration requirements and life history; place in succession; ecological significance and commercial importance. Weekly field trips during scheduled lab period plus one weekend field trip. Available for graduate credit for non-forestry majors only. Prereq: 6 hrs. basic biology or botany. 2 hrs. and 1 lab.

3050 Dendrology and Silvics of Gymnosperms (3) Classification, nomenclature, identification, and silvical characteristics of the major North American conifers. Distribution patterns, habitat, and community relationships including classification, life history, regeneration requirements, place in succession, and importance. Available for graduate credit for non-forestry majors only. Prereq: 6 hrs basic biology or botany. 2 hrs. and 1 lab.

3110 Forest Measurements and Blometry (4) Measurements of individuals in animal and plant populations; numerical sampling of forest populations; growth and potential production. Prereq: Plant and Soil Science 3610 and Computer Science 1410 or equivalent. Available for graduate credit for non-forestry majors only.

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.

3130 Forest Protection (3) Destructive agencies; fire, insects, diseases; chemical, mechanical, and biological control; prevention and suppression.

3120 Forest Technology (3)

3150 Forest Foods Development (3)

3210 Forest Resource Economics (4) Allocation of forest resources via market and institutional systems. Application of economic rationale to decision making in the private and public sector. Prereq: Econ 2120.

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

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 and systems.

3250 Ecological Problems of Forest Recreational Land (3) Examination of major forms of ecological impacts occurring on forest recreational lands; emphasis on impact to vegetation, soil, and water quality; consideration of monitoring methods and management alternatives. Weekend field trip is required. Prereq: 3202 or equivalent, or consent of instructor: Plant and Soil Science 2130 recommended. 2 hrs. and 1 lab.

3320 Principles of Silviculture (3) Influence of site factors of reproduction, growth, development, and character of forest vegetation; classification of forest structure; silvicultural laws. Prereq: 3202 or Biology 2130, 3240, Plant and Soil Science 2130. 3 hrs.

3730 Conservation (3) Forest resources of state, nation, and world in soil and water conservation; wildlife management and recreation; conservation programs.

4002 Utilization (3) Wood-using industries; processing forest products-sawmills, tree-log-lumber grading, pulpwood operations, flooring plants; modifications of cutting methods to conform with desired goods and benefits. Prereq: 3320, 4000. 4 hrs. and 1 lab.

4020 Forest Watershed Management (3) Water as a forest resource; role of forests in the hydrologic cycle; control of water quantity, quality, and regimen; watershed planning. Prereq: 3320 or consent of instructor. 3 hrs. Two overnight field trips.

4110-30-30 Problems in Forestry (1-6, 1-6, 1-6) Special research or individual problems in forestry. Prereq: Senior standing. Total not more than 9 hrs.

4210 Forestry Organization and Administration (3) Planning and organization of forest resource management; problem analyses and decision making in forest resource management. Prereq: Senior standing in forestry; or 12 credits science or science of consent of instructor. 2 hrs. and 1 lab.

4220 Forest Resource Management (4) The forest as integration of resource uses; review of traditional timber management concepts; the multiple-use concept; valuation of forest resources for decision making and planning; taxation of forest firm. Prereq: 4210.

4230 Forest Resource Management Plans (4) Field problems and case studies in forest-resource management; the forest as a system; management of forest enterprises as a producer of timber, recreational services, watershed services, and wildlife; preparing multi-service plans; preparation of a complete plan based on optimizing forest uses. Prereq: 4210.

4240 Interpreting Forest Resources (3) Principles and techniques of interpreting forest resources; importance of environmental interpretation to management of forest resources; development and administration of interpretative services. Possible overnight field trips required. Prereq: 3240 or equivalent. 2 hrs. and 1 lab.

4330 Forest Policy (3) History of forestry in United States and development of forest resource policies; current policies influencing development and management of forest resources; brief survey of policy implications of forest resource policies in public and private sectors. Prereq: 4004.

4340 Aerial Photography in Forest-Resource Management (3) Use of conventional aerial photographs in forest-resource management; interpretation of detail, aerial inventories, preparation of cover-type maps, uses of other remotely sensed imagery. Prereq: 3110 or equivalent. 1 hr. and 2 labs.

4420 Forest Tree Improvement (3) Forest tree improvement related to silviculture; nature and purposes of tree improvement and forest genetics; principles of tree cytology and population genetics, importance of seed source; variation, selection of superior phenotypes, and development of seed orchards; hybridization, seed production, and establishment of large-scale programs; Prereq: 4006 or consent of instructor. 2 hrs. and 1 lab.

4430 Regional Silviculture of the United States (3) Factors that influence silvicultural management of important tree species in North America. Importance of forests and forestry to a region; physiography, geology, soils, climate and weather, sites and site types, ecology, problems of protection, and silvical characteristics of the more important species. Prereq: 4006 or consent of instructor.

4440 Forest Recreation (3) Forest lands as a recreation resource; interrelationships of forest recreation and other management activities; development and management of forest recreation areas; socioeconomic and political determinants of recreation development and management. Prereq: 4006 or economics. Junior standing. 2 hrs. and 1 lab.
4450 Recreational Behavior in Forest Environment (3) Review of sociological and psychological theories relevant to forest recreation planning, management, and administration. Implication and application of behavioral concepts to forest recreation problems. Prereq: 3240 and 6 hrs. in behavioral psyc.

4540 Wood Drying and Preservation (3) Concepts of wood drying including wood moisture relations, specific gravity, moisture content, density, and shrinkage. Discussion of commercial drying practices. Relationship of wood moisture content to attack by wood destroying organisms. Methods and materials used in commercial heating systems. Prerequisites: 3120, Math 1851, Physics 1220 or consent of instructor.

GRADUATE

5000 Thesis

5002 Non-Thesis Graduation Completion (3-15)

5011 Problem Analysis in Forest Resources (3)

5110 Special Problems In Forestry (1-4)

5220 Seminar in Forest Tree Biology (3)

5230 Seminar in Forest Management (3)

5240 Seminar in Forest Genetics (3)

5250 Recreation Planning for Forests and Associated Lands (3)

5260 Industrial Forestry (3)

5270 Topics in Forest Industries Management (3)

5280 Seminar in Forest Biometry (3)

5310 Seminar (1)

Wildlife and Fisheries Science (933)

3000 Current Events in Renewable Natural Resources (1) Current events influencing forestry, wildlife, and fisheries management. Perspectives form other disciplines and professions which are affected by and which influence natural resource management. Extended views of natural resources, their allocation and management. Professional development and education for the disciplines of forestry, wildlife, and fisheries. 1 hr. May be repeated. Maximum credit 4 hrs. S/NC. (Same as Forestry 3000.)

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

3230 Wildlife Management (3) Lives and ecological relationships of wild animals; biological, social and economic aspects of their management. Available for graduate credit for non-forestry and non-wildlife and fisheries science majors only.

4450 Game Mammals (4) Classification, identification, distribution, natural history, and management principles of game mammals in North America. Prereq: 3220 or one year of zoology. 2 hrs. and 2 labs.

4460 Game Birds (4) Biology, classification, identification, distribution, and management of game birds in North America; the influence of forests, and other plant life; contribution to economic and social development; importance and methods of conserving wildlife. General course for non-wildlife and fisheries science majors.

4500 Problems in Wildlife and Fisheries Sciences (1-6) Special research or individual problem in wildlife and fisheries science. Prereq: Senior standing. May be repeated. Maximum 9 credit hrs.

4510 Fish Populations (4) Principles and methods of fish population estimation; sampling techniques and equipment; population dynamics; age and growth. Prereq: 3320 or 1 year of zoology; 8 hrs. mathematics, or consent of instructor. 3 hrs. and 1 lab or field period.

4620 Fisheries Management (4) Methods of warm and cold water fisheries management including techniques of biological assessment, public relations, habitat modification, and stocking. Prereq: Biology 3130 or consent of instructor. 3 hrs. and 1 lab or field period.

GRADUATE

5000 Thesis

5110 Special Problems In Wildlife and Fisheries Science (1-6)

5210 Seminar in Wildlife Conservation (3)

5310 Seminar (1)

5400 Advanced Topics In Wildlife Science (3)

5450 Wildlife Diseases (3)

5460 Predator Ecology (3)

5500 Advanced Topics In Fisheries Science (3)

5550 Fish Physiology (3)

Ornamental Horticulture and Landscape Design (740)

Professors: D. B. Williams (Head), Ph.D. Pennsylvania State; L. M. Callahan, Ph.D. Rutgers; N. O. Peacock (Emeritus), Ph.D. Pennsylvania State.

Associate Professors: E. T. Graham, Ph.D. Pennsylvania State; G. L. McDaniell, Ph.D. Ohio State; H. Van de Werken, GAUST, Horticulture College (Frederickssand, Holland).


Instructor: E. L. Abbott, MS Tennessee.

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

3030 Plant Propagation (3) Physiology, methodology, and environmental requirements for propagation. Prereq: 6 hrs. of biological science. 2 hrs. and 1 lab.

3040 Floral Design (3) Principles and techniques in floral design. Lowering and arranging of 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 succession. Prereq: Junior standing and consent of instructor. 2 hrs. and 1 lab.

3210 Turfgrass Management (4) Practical turf-grass 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.

3310 Professional Practices in Ornamental Horticulture (3) Application of management and marketing practices for greenhouses, nurseries, flower shops, garden centers, plant stores, and landscaping firms. Investigation of practices and the solution of problems as they relate to the students' areas of interest in the establishment and operation of horticultural 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 3840 or equivalent. 2 hrs. and 1 lab.

3510 Grounds Maintenance and Management (4) Identification of landscape maintenance tasks; growth control, irrigation, soil amendments, transplanting, cultivation, pest, weed, and disease control, and use of equipment; schedules and management practices. Prereq: 3230. 2 hrs. and 2 labs.

3610 Fundamentals of Landscape Design (4) Development of basic graphic skills and techniques of plan delineation. Fundamentals of the processes theory of design, site analysis, program development, design synthesis, introduction to descriptive geographic interpretation, landscape construction materials and landscape structures. Development of awareness and sensitivity to landscape elements. 1 hr and 2 three-hour 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 applications. Technical aspects of plant design and implementation. Use of plant materials in designing small and moderate scale landscape situations. Prereq: 3610, 3810 or equivalent. 1 hr and 2 three-hour labs.

3630 Landscape Construction and Contracting (4) Application of construction techniques and management 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. Landscape contracts, specifications and bidding procedures. Prereq: 3610. Agr. Mech. 3210 recommended. 1 hr and 2 three-hour labs.

3810 Basic Landscape Plants (4) Identification, classification, adaptation, culture, and landscape design uses for basic 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 foliage and flowering plants. 1 hr. and 2 labs.

3830 Interior Plants (3) Identification, classification, adaptation, culture and interior uses for foliage and flowering plants. 1 hr. and 2 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: 3620. 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, planting design, construction detailing, estimating, construction contracts and bidding included in total package project. Prereq: 3510, 3620, 3830, 1 hr and 2 three-hour labs.

4220 Advanced Turfgrass Management (4) Principles and scientific basis of turfgrass fertilization, soil ecology, physiology, soil fertility, and grass nutrition; climatic influences on grass culture, physiology of clipping and water management; traffic effects and compaction; and the physiological influences of pest infestations and control measures. Prereq: 3210. 3 hrs. and 1 lab.

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

4400 Individual Problem Study (1-5) May be repeated to maximum of 10 credit hrs.

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

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5000 Thesis

5100 Special Problems in Ornamental Horticulture and Landscape Design (3)

5210 Golf Course Design, Development, and Management (4)

5310 Park and Public Grounds Management Systems (4)

5410 Histological Microtechnique (4)

5500 Seminar (1)

Plant and Soil Science (792)

Professors: D. E. Deyton, Ph.D. North Carolina State; W. J. McLaurin, Ph.D. Louisiana State; R. J. Miles, Ph.D. Texas A&M; D. R. West, Ph.D. Nebraska; J. D. Woll, Ph. D. Auburn.


Assistant Professors: E. D. Dayton, Ph.D. North Carolina State; W. J. McLaurin, Ph.D. Louisiana State; R. J. Miles, Ph.D. Texas A&M; D. R. West, Ph.D. Nebraska; J. D. Woll, Ph. D. Auburn.

*Oxley B. Austin Distinguished Professor.

2130 Soils (4) Nature and properties of soils. Physical, chemical, biological processes in soils and their influence on plant growth. Prereq: Chemistry 1120 or 1250 or 1620. 3 hrs. and 1 lab.

3020 Crop Ecology (3) Crops and environment: geographic location; site; heat, light, water, and interplant relationships as a basis for judgment of cultural practices used to modify environmental factors. Prereq: 8 hrs. biological science. 2 hrs. and 1 lab.

3040 Crop Physiology (3) Physiology of crop plants; growth phenomena related to crop production; use of general theories of physiology, effects of season, growth regulating substances, functions of light, heat, air, minerals, and water. 2 hrs. and 1 lab. Prereq: 8 hrs. biological science.

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

3120 Grain and Oil Crops (3) Distribution, improvement, management, and utilization of grasses and legumes for pastures, hay, and silage. Prereq: 2130. 8 hrs. biological science. 2 hrs. and 1 lab.

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.

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.

3180 Fruit Crops Management (4) Soils, planting, cultivation, development of fruit crop plantations; pest control, harvesting, packing, storage and pruning. Prereq: Ent. & Ph. Path. 3210, 3130. 3 hrs. and 1 lab.

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.

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.

3510 Commercial Production of Cool Season Vegetables (3) Characteristics, economic importance, adaptability, and production for fresh and processing markets; emphasis on greens, salad, cole, root, bulb crops, perennials and leafy vegetables. Prereq: 8 hrs. biological science. 2 hrs. and 1 lab.

3520 Commercial Production of Warm Season Vegetables (3) Characteristics, economic importance, adaptability, and production for fresh and processing markets; emphasis on sweet potatoes, beans, tomatos, pepper, cucumbers, sweet corn, and okra. Need not have 3510 as prerequisite. Prereq: 8 hrs. of biological science. 2 hrs. and 1 lab.

3610 Interpretation of Agricultural Research (3) Statistics as applied to agriculture. Statistical methods in interpretation of research results. Prereq: Math 1550.

3710 Principles of Weed Science (4) Basic principles of weed science, history, ecology, economic losses, means of control, types of herbicides, and specific recommendations for the control of non-crop weeds. Prereq: 8 hrs. biological science and 3 hrs. organic chemistry. 3 hrs. and 1 lab.

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.

4120 Principles of Crop Breeding (4) Genetic principles and techniques used in crop improvement. Prereq: 8 hrs. of biological science or consent of instructor. 3 hrs. and 1 lab.

4250 Agricultural Chemicals and the Environment (4) Characteristics, use, mode of action, degradation, and environmental impact of chemicals used in agriculture, forestry, and related areas with emphasis on agricultural pesticides; environmental safeguards imposed by federal and state regulations on chemical development and use. Prereq: Prereq: One year biological science and one year chemistry. 3 hrs. and 1 lab.

4320 Soil Formation, Morphology, and Classification (4) Soil formation; properties, distribution, and classification of soils; interpretation of morphology, use of soil surveys. Prereq: 2130. 3 hrs. and 1 lab.

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.


GRADUATE

5000 Thesis

5100 Special Problems in Plant and Soil Science (1-6)

5200 Soil-Crop Relationships (3-5)

5240 Soil and Water Conservation (4)

5250 Soil Quality (4)

5310 Design and Interpretation of Experiments (4)

5340 Soil Physics (3)

5370 Advanced Soil Fertility (3)

5390 Soil Physical Chemistry (3)

5600 Seminar (1)

5710 Advanced Plant Genetics (3)

5720 Quantitative Genetics (3)

5750 Advanced Plant Breeding (4)

5810 Crop Climatology (4)

5820 Advanced Crop Physiology and Ecology (4)

5850 Mechanisms of Herbicide Action (3)

6000 Doctoral Research and Dissertation

6100 Special Topics in Soil Science (3)

6200 Special Topics Plant Breeding (3)

6300 Special Topics in Crop Physiology and Ecology (3)

6410 Experimental Designs (3)

6510 Growth Control with Chemicals (3)

6600 Seminar (1)

College of Veterinary Medicine

Hyram Kitchen, Dean
C. F. Reisch, Jr., Associate Dean
W. H. Grau, Jr., Associate Dean

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

The College is organized into six academic departments: Animal Science (jointly with the College of Agriculture), Environmental Practice, Microbiology (jointly with the College of Liberal Arts), Pathobiology, Rural Practice, and Urban Practice.

Primary objective of the College is to educate veterinarians for private practice. However, the professional curriculum provides an excellent basic medical education, in addition to training in diagnosis, disease prevention, medical treatment, and surgery.

Graduates are qualified to pursue careers in many facets of veterinary medicine and related health professions.

Most veterinarians are engaged in private practice. The majority of these are in general practices which deal with the diseases of all kinds of animals. About one-fourth of the veterinarians in the United States are engaged exclusively in pet or companion animal practice. A growing number are concerned with the health problems of zoo animals, laboratory animals, wildlife, and aquatic species.

Veterinarians also find rewarding careers in the U.S. Public Health Service, the U.S. Army and Air Force, and in state, county, or local health agencies. A large number of veterinarians are employed by the U.S. Department of Agriculture and by state departments of agriculture for important work in livestock disease control, meat and poultry inspection, serum and vaccine production, and the protection of our country against the importation of foreign animal diseases.

Institute of Agriculture
Excellent opportunities exist for veterinarians interested in research–both research for the direct benefit of animals and research conducted with animals but for the benefit of humans. Such opportunities are available at colleges and universities, and with governmental agencies, private research institutions, and biological and pharmaceutical companies.

Facilities
Administrative offices of the College of Veterinary Medicine are located at Morgan Hall on the Agricultural Campus. The Department of Animal Science is housed in Brehm Animal Science Building, also on the Agricultural Campus, and the Department of Microbiology is located in Walters Life Sciences Building on "The Hill" of The University of Tennessee, Knoxville.

The Veterinary Medicine Building on the Agriculture Campus houses the Departments of Environmental Practice, Rural Practice, Urban Practice, and Pathobiology. Additionally, the Veterinary Hospital, clinics, and the Agriculture/Veterinary Medicine Library are contained within this modern structure of 246,000 square feet.

The College has research facilities on Cherokee Farm adjacent to the UT Hospital. Satellite teaching-research facilities are located in Middle and West Tennessee.

Admission Requirements
Admission to the professional program of the College of Veterinary Medicine is limited to that number for which an education of high quality can be provided with the resources available to the College.

To qualify for admission a candidate must have completed at least the following minimum pre-veterinary requirements:

<table>
<thead>
<tr>
<th>Subjects</th>
<th>Minimum Credits Quarter Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>English, including speech</td>
<td>12 8</td>
</tr>
<tr>
<td>Humanities</td>
<td>12 8</td>
</tr>
<tr>
<td>Social sciences</td>
<td>12 8</td>
</tr>
<tr>
<td>Mathematics through introductory calculus</td>
<td>6</td>
</tr>
<tr>
<td>Chemistry: general</td>
<td>12 8</td>
</tr>
<tr>
<td>organic</td>
<td>12 8</td>
</tr>
<tr>
<td>biochemistry</td>
<td>6* 4*</td>
</tr>
<tr>
<td>Physics</td>
<td>12 8</td>
</tr>
<tr>
<td>Biology or zoology</td>
<td>12 8</td>
</tr>
<tr>
<td>Microbiology</td>
<td>4 3</td>
</tr>
<tr>
<td>Animal science, including nutrition and antigeneics</td>
<td>9</td>
</tr>
</tbody>
</table>

*Excluding laboratory.
Includes history, literature, music or art appreciation, philosophy, religion, or foreign language.
Includes economics, anthropology, political science, psychology, sociology, and geography.

Pre-veterinary requirements may be completed in any accredited college or university which offers courses equivalent to those at The University of Tennessee.

The College of Agriculture of The University of Tennessee offers an excellent three-year pre-veterinary curriculum which satisfies all the course requirements for admission to the College of Veterinary Medicine. (For description see Pre-veterinary Medicine Curriculum, College of Agriculture.) Students who are admitted to the College of Veterinary Medicine following completion of this pre-veterinary curriculum will receive a Bachelor of Science degree in Animal Science upon completion of the first year (three quarters) of the professional veterinary medicine curriculum. (For the specific description see Pre-veterinary Medicine Curriculum, College of Agriculture.)

Admission Procedure
Admission of new students will be for the fall quarter each year. Applicants will be screened carefully by a faculty committee to determine those best qualified for admission within the College enrollment quota.

Applicants will be considered in the following order of priority: (1) residents of Tennessee; (2) legal residents of states with which The University of Tennessee has contracts for veterinary medical education; (3) residents of other states or foreign countries.

Forms and instructions for making application for admission may be obtained from:
Director of Admissions
320 Student Services Building
University of Tennessee
Knoxville, Tennessee 37996-0200

Applications must be completed and mailed so as to reach the Director of Admissions by January 15 each year. All pre-veterinary requirements must be completed by the end of the spring term of the year in which the student plans to enroll in the College of Veterinary Medicine.

Course Load
The professional curriculum of the College of Veterinary Medicine requires a specific number of hours of each quarter. A student may enroll for fewer or more than that number only with the permission of the dean. Because of the sequential and highly integrated character of the professional curriculum, all courses in a given quarter are considered prerequisite to those in the succeeding quarter.

Extramural Programs
The opportunity to participate in off-campus learning experiences may be available for a limited number of students during the elective portion of the third year of the professional curriculum. Selection of an extramural learning experience will require approval by the department concerned and the College of Veterinary Medicine Curriculum Committee five weeks prior to registration. The extramural program identified by the student must represent a learning experience not available within The University of Tennessee, Knoxville.

Professional Curriculum
The professional curriculum in veterinary medicine is an 11 academic quarter, year-round program, including summers. The first year (three quarters) consists mostly of pre-clinical subjects such as anatomy, physiology, microbiology, parasitology, and general pathology. The second year (four quarters) includes the study of diseases, their causes, diagnosis, treatment, and prevention. The final year (four quarters) is devoted to intensive training in the solving of animal disease problems, including extensive clinical experience in the teaching hospital. The curriculum also provides for education in the science and art of veterinary medicine and in paramedical subjects such as animal behavior, medical communication, professional ethics, jurisprudence, economics, and practice management.

FIRST YEAR

<table>
<thead>
<tr>
<th>Quarter</th>
<th>Hours Credit</th>
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</thead>
<tbody>
<tr>
<td>Fall</td>
<td></td>
</tr>
<tr>
<td>Vet. Animal Science 8510</td>
<td>5</td>
</tr>
<tr>
<td>Vet. Animal Science 8530</td>
<td>5</td>
</tr>
<tr>
<td>Vet. Medicine 8310</td>
<td>2</td>
</tr>
<tr>
<td>Vet. Microbiology 8101</td>
<td>5</td>
</tr>
<tr>
<td>Vet. Animal Science 8240</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>21 hours</td>
</tr>
<tr>
<td>Winter</td>
<td></td>
</tr>
<tr>
<td>Vet. Animal Science 8520</td>
<td>4</td>
</tr>
<tr>
<td>Vet. Animal Science 8550</td>
<td>4</td>
</tr>
<tr>
<td>Vet. Microbiology 8102</td>
<td>4</td>
</tr>
<tr>
<td>Vet. Animal Science 8250</td>
<td>4</td>
</tr>
<tr>
<td>Environmental Practice 8611</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>20 hours</td>
</tr>
<tr>
<td>Spring</td>
<td></td>
</tr>
<tr>
<td>Vet. Microbiology 8103</td>
<td>4</td>
</tr>
<tr>
<td>Pathobiology 8730</td>
<td>4</td>
</tr>
<tr>
<td>Pathobiology 8710</td>
<td>4</td>
</tr>
<tr>
<td>Vet. Medicine 8010</td>
<td>1</td>
</tr>
<tr>
<td>Vet. Medicine 8311</td>
<td>2</td>
</tr>
<tr>
<td>Environmental Practice 8612</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>21 hours</td>
</tr>
</tbody>
</table>

TOTAL: 62 hours

SECOND YEAR

<table>
<thead>
<tr>
<th>Quarter</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summer</td>
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</tr>
<tr>
<td>Vet. Medicine 8312</td>
<td>3</td>
</tr>
<tr>
<td>Vet. Medicine 8341</td>
<td>3</td>
</tr>
<tr>
<td>Vet. Medicine 8362</td>
<td>3</td>
</tr>
<tr>
<td>Vet. Medicine 8352</td>
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</tr>
<tr>
<td>Vet. Medicine 8320</td>
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<tr>
<td></td>
<td>21 hours</td>
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<tr>
<td>Fall</td>
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</tr>
<tr>
<td>Vet. Medicine 8350</td>
<td>6</td>
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<tr>
<td>Vet. Medicine 8340</td>
<td>4</td>
</tr>
<tr>
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</tr>
<tr>
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<td>1</td>
</tr>
<tr>
<td></td>
<td>24 hours</td>
</tr>
<tr>
<td>Winter</td>
<td></td>
</tr>
<tr>
<td>Vet. Medicine 8360</td>
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</tr>
<tr>
<td>Vet. Medicine 8361</td>
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</tr>
<tr>
<td>Vet. Medicine 8334</td>
<td>4</td>
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<tr>
<td>Vet. Medicine 8366</td>
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<tr>
<td>Vet. Medicine 8344</td>
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</tr>
<tr>
<td></td>
<td>23 hours</td>
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<tr>
<td>Spring</td>
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<tr>
<td>Vet. Medicine 8370</td>
<td>9</td>
</tr>
<tr>
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<td>Vet. Medicine 8364</td>
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<tr>
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<td>3</td>
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<tr>
<td>Vet. Medicine 8344</td>
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</tr>
<tr>
<td>Vet. Medicine 8365</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>20 hours</td>
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<tr>
<td></td>
<td>TOTAL: 88 hours</td>
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THIRD YEAR

<table>
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<tr>
<th>Quarter</th>
<th>Hours Credit</th>
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<tbody>
<tr>
<td>Summer and Fall</td>
<td></td>
</tr>
<tr>
<td>Vet. Medicine 8360</td>
<td>5</td>
</tr>
<tr>
<td>Vet. Medicine 8361</td>
<td>5</td>
</tr>
<tr>
<td>Vet. Medicine 8334</td>
<td>4</td>
</tr>
<tr>
<td>Vet. Medicine 8366</td>
<td>4</td>
</tr>
<tr>
<td>Vet. Medicine 8344</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>23 hours</td>
</tr>
</tbody>
</table>

Winter and Spring Quarters
Pathobiology & Inter-Quarter Clinics              2-5
Electives                                         18
                  | 20-23 hours |
TOTAL: 236 hours
Six hours credit of inter-quarter clinical training are required of each third year student.

During the third year one-half of the students in that class will progress through Rural Practice 8900 and the other half through Urban Practice 8800 during the summer quarter. During the fall quarter, groups will be reversed.

Identification of electives by the student will be made with the recommendations and guidance of a faculty adviser.

Departments of Instruction

Animal Science (114)-Veterinary Medicine

Professors: D. C. Richardson (Acting Head), Ph.D. Ohio State; K. M. Barth, Ph.D. Rutgers; M. C. Bell, Ph.D. Oklahoma State; J. K. Bietler, Ph.D. Ohio State; C. C. Chamberlain, Ph.D. Iowa State; S. L. Hansard, Ph.D. Florida; H. M. Jamison, Ph.D. Tennessee; J. E. McLaurin, Ph.D. Auburn; M. J. Montgomery, Ph.D. Washington State; B. I. Mueck, Ph.D. Wisconsin; J. W. Oliver, D.V.M. Ph.D. Purdue; H. V. Shirley, Ph.D. Illinois; R. R. Shrodde, Ph.D. Iowa State; E. W. Swanson, Ph.D. Missouri; R. L. Tugwell, Ph.D. Kansas State; C. E. Wylie (Emeritus), A.M. Missouri.


Assistant Professors: J. A. Corrlick, Ph.D. Tennessee; D. G. Doyle, Ph.D. Cornell; H. Heismann, Ph.D. Maine; K. Robbins, Ph.D. Illinois; J. D. Smalling, Ph.D. Texas A & M.

Instructors: G. C. McShee, B.S. Tennessee.

In addition, academic expertise of staff members at CARR, and Oak Ridge is used on appropriate occasions.

8240-50 Veterinary Physiology (3-4) Introduction to concepts and problems in physiology which form a base for clinical applications and for formal training in pharmacology, medicine, pathology, and surgery. Order of sequence: Cellular, cardiovascular, renal, respiratory, neural and endocrine physiology. 8240: Three lectures and 1 demonstration. 8250: 4 lectures and 1 demonstration.

8510-20 Veterinary Histology/Embryology (3-4) The cytology, histology and organology of animal body systems, emphasizing structural and functional interrelationships. Embryonic development from fertilization and the organ of congenital defects. Correlated with 8240-50 and 8540-50. 8510: Three lectures and 2 labs. 8520: Two labs and 2 lectures.

8540-50 Veterinary Gross Anatomy (3-5) Laboratory courses covering gross and applied anatomy of common domestic animals (dog, cat, horse, cow). Methods include dissection of embalmed specimens; study of prosecutions, slides, models, and living animals. Sequence of organ system correlated as much as possible with 8510-20.

8570 Special Problems in Animal Science (2-20) Specially designed study for students interested in certain topics in anatomy, histology and physiology. May be repeated.


Environmental Practice (346)

Professor: J. B. Jones (Head), D.V.M. Illinois, J. W. Oliver, D.V.M. Ph.D. Purdue.


Residents: S. L. Huntress, D.V.M. Oklahoma State.

8600 Basic Clinical Rotation In Environmental Practice (2) Introductory clinical experience in laboratory animal and zoo animal medicine, epidemiology, and other related disciplines. May be repeated.

8611-12 Pharmacology (2,5) Consideration of principles of pharmacodynamics as well as pharmacodynamic properties of veterinary drugs including modes of action, pharmacologic effects, chemical and physical properties, metabolism, toxicology, important idiosyncrasies, and clinical application. Correlated with 8430, 8520, and 8331. Two hours of lecture for 8611; five for 8612.


8670 Special Problems in Environmental Practice (2-8) Special problems in public health and epidemiology. May be repeated.

8675 Advanced Seminar in Environmental Practice (1-4) Advanced seminars in various topics such as comparative medicine, public health, epidemiology, Prereq: Envr. Prac. 8660. Pathobiology 8700, Rural Prac. 8900, and Urban Prac. 8800. May be repeated.

Graduate Theses (1-7)

5010 Special Topics in Environmental Medicine (1-3)

5611-12 Pharmacology (1,2)

6000 Doctoral Research and Dissertation (3-15)

6010 Advanced Topics in Environmental Medicine (1-3)

Microbiology (685)-Veterinary Medicine

Professors: A. Brown (Head), Ph.D. Chicago; R. W. Beck, Ph.D. Wisconsin; J. H. Coggins, Jr., Ph.D. Chicago; D. F. cottman (Emeritus), Ph.D. Ohio State; A. L. Girard, Ph.D. Pennsylvania; J. D. Mund, Ph.D. Michigan State; B. T. House, B.V.S. University of Bristol (England); Ph.D. University of Guelph (Canada); J. M. Woodward, Ph.D. Kansas; C. J. Wust, Ph.D. Indiana.

Associate Professors: J. M. Beckner, Ph.D. Cincinnati; D. A. Brian, D.V.M., Ph.D. Michigan State; T. C. Monte, Ph.D. Maryland; W. S. Riggsby, Ph.D. Yale.

Assistant Professors: D. A. Bernis, Ph.D. Cornell; R. V. Miller, Ph.D. Illinois; G. S. Sayler, Ph.D. Idaho.

8101 Veterinary Bacteriology and Mycology (5) An introduction to the bacteriology of bacterial and fungi diseases. Organized as a taxonomic study relating microbial structure, metabolism and genetics to the patterns of disease and the mode of action of antimicrobials. Three hours lecture and 2 labs.

8102 Veterinary Virology (4) Structure and replication of animal viruses, classification of viruses, mechanisms of viral pathogenesis. Techniques for quantitating viruses, viral antigens, and antiviral antibodies. Fundamental for understanding of the best approaches to viral diagnosis, and immunoprophylaxis. Two hours lecture and 2 labs.

8103 Veterinary Immunology (4) Basic concepts of immunobiology, mechanisms of immune reaction, diag-

nostic immunity, and the role of the immune response in preserving the integrity of the body as well as in causing disease. Two hours lecture and 2 labs.

8175 Advanced Seminar in Microbiology (1-4) Advanced seminar in various topics in applied microbiology such as serologic diagnosis, clinical immunology. Prereq: Envr. Prac. 8660. Pathobiology 8700, Rural Prac. 8900, and Urban Prac. 8800. May be repeated.

Pathobiology (742)


Associate Professors: M. D. McCracken, D.V.M. Kansas State, Ph.D. Purdue; C. S. Patton, D.V.M. Ohio State.


8700 Basic Pathobiology Rotation (2) Rotation through Laboratory, Department of Pathobiology. Prac. and/or demonstrations in laboratory diagnostic techniques including postmortem pathology, clinical pathology, parasitology, and microbiology. May be repeated.

8710 Veterinary Pathology (5) Principles of pathology including causes of disease, disturbances of cell growth, inflammation, and neoplasia. 3 hrs. of lecture and 2 labs.

8730 Veterinary Parasitology (4) Basic principles of parasitology (protozoology, helminthology, and entomology) and their relation to disease in animals. 3 hrs. of lecture and 1 lab.

8760 Veterinary Pathobiology (1-20) Provides student with particular interest in laboratory diagnosis further training in these techniques and additional experience in interpretation of observations. Prereq: Envr. Prac. 8660. Pathobiology 8700, Rural Prac. 8900, and Urban Prac. 8800. May be repeated.

8770 Special Problems in Pathobiology (2-10) Provides student with opportunity to design and execute research problem. May be repeated.

8775 Advanced Seminar in Pathobiology (1-4) Advanced seminars in various diagnostic topics such as cytology, electron microscopy, histologic techniques. Prereq: Envr. Prac. 8660. Pathobiology 8700, Rural Prac. 8900, and Urban Prac. 8800. May be repeated.

Graduate Theses (1-7)

5010 Comparative Pathology (5)

6000 Doctoral Research and Dissertation (3-15)

6010 Special Topics in Pathology (1-3)

6020 Special Problems in Pathobiology (1-5)

6052 Pathogenesis and Diagnosis of Virus Diseases in Domestic Animals (5)

Rural Practice (870)


Associate Professors:
Assistant Professors:

Residents:
K. A. Spaulding, D.V.M. Purdue.

Interns:
M. M. Dowler, D.V.M. Louisiana; S. F. Wild, D.V.M. Georgia.

Veterinary Medicine (987)

8010 Client Relations and Communication Skills (1)
1-2 hrs. of lecture and 1 lab.

8340 Integumentary System (4)
Diseases of integument, with emphasis on the anatomic, physiologic, and pathologic features.

8343 Patterns of Disease (5)
Host - agent relationships in diseases of animals. Pathology, laboratory diagnosis, control and public health significance. Principles of epidemiology and their application in the study of diseases in animal populations.

8346 Reproductive System (6)
Diagnosis, therapy and prevention of those conditions causing a reduction of the reproductive efficiency of domestic animals. Abnormal conditions of the mammary gland with emphasis on mechanisms and the pathologic and clinical features of animal mammary disorders.

8460 Extramural Programs (2-20)
Supervised off-campus educational program with an approved institution. Limited enrollment. Prereq: Consent of department and the College of Veterinary Medicine Curriculum Committee.
School of Architecture

Roy F. Knight, Dean
William J. Lauer, Associate Dean, Administration

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 arts 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 sciences 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 professionals. 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 already 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 with 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 architectural as well as art exhibits are mounted.

The principal library holdings of the school are located in the James D. Hoskins Library, and additional volumes in the Undergraduate Library.

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. Sponsorships 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 student's 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 by 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 a journal of architecture, Portfolio. 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. 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 are arranged to include a full quarter's credit for advanced students and includes design, history, and theory of architecture.

General Information

Students are advised to consult the University's general requirements as stated in the front section of this catalog as well as the requirements described in the School of Architecture's Student Handbook. Self advising will not be permitted in the School of Architecture. Students must plan their schedule by consulting with an assigned adviser. Electives will be chosen with the concurrence of the adviser and with full consideration of the necessary prerequisites.

Freshman Admission Requirements

The School of Architecture, being a professional program and having limited resources, has a restricted enrollment based on the following criteria:
General Studies

General courses are required of all students. They provide the knowledge of fundamental principles required for the practice of architecture. Broad in scope and addressing non-technical matters, these courses are also suitable for enrollment of students from other departments of the University. Courses, in addition to English, mathematics, and physics, fall into the following areas:

Basic Design and Visual Studies
Analytical Studies
Man-Environment Systems
Physical Systems
Historical Studies

Professional Studies

Professional studies constitute courses which cover subjects fundamental to the competent professional practice of architecture. These include courses in:

- Architecture Design
- Professional Practice
- Structural Analysis and Design
- Materials of Construction
- Energy and Environmental Design
- Acoustics
- Urban Design
- History of Architecture
- Landscape Architecture
- Architecture and Society
- Urban Design
- Special Topics
- Advanced Studio

ACCELERATED STUDIES

Students demonstrating an exceptional proficiency in any of the professional subjects may be approved for selected accelerated studies, thereby reducing the time needed to complete study requirements and allowing more time for concentration in the student's chosen area. Formal review and approval by the school is mandated of all candidates for accelerated studies.

Curricula for Architecture

All students studying for a Bachelor of Architecture degree will include the following:

- Architecture Design course electives
- Approved electives
- Electives

required courses in their first three years of study. During the fourth and fifth years, the student's work will be concentrated in one of the following options: design, history, criticism, restoration/preservation, management, administration, development, structures, systems, building, or environmental controls. Refer to the 4300 sequence for architecture design course electives. Any exceptions to the curriculum outline have been footnoted. For any additional specialized requirements, the student should refer to the Student Handbook of the School of Architecture and the student's adviser.

SERVICE PRACTICUM REQUIREMENT

A three-month, non-credit internship in an architect's, engineer's, or contractor's office or related work may be approved by the school. This must be evidenced by a letter from the employer indicating type and quality of student's work and time of employment prior to graduation. It must be completed before entry to senior standing, fifth year.

OPTIONS

ARCHITECTURAL DESIGN

<table>
<thead>
<tr>
<th>Fourth Year</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Architecture design course electives</td>
<td>8</td>
</tr>
<tr>
<td>Approved electives</td>
<td>4</td>
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<tr>
<td>Electives</td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fifth Year</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Architecture design course electives</td>
<td>8</td>
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<tr>
<td>Approved electives</td>
<td>4</td>
</tr>
<tr>
<td>Electives</td>
<td>4</td>
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</tbody>
</table>

Total: 240 hours

HISTORY

<table>
<thead>
<tr>
<th>Fourth Year</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Architecture design course electives</td>
<td>8</td>
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<tr>
<td>Architecture electives</td>
<td>4</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Fifth Year</th>
<th>Hours Credit</th>
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<tbody>
<tr>
<td>Architecture design course electives</td>
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<tr>
<td>Approved electives</td>
<td>4</td>
</tr>
<tr>
<td>Electives</td>
<td>4</td>
</tr>
</tbody>
</table>

Total: 240 hours

ACCELERATED STUDIES

Students demonstrating an exceptional proficiency in any of the professional subjects may be approved for selected accelerated studies, thereby reducing the time needed to complete study requirements and allowing more time for concentration in the student's chosen area. Formal review and approval by the school is mandated of all candidates for accelerated studies.

Curricula for Architecture

All students studying for a Bachelor of Architecture degree will include the following:
### Approved Electives

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electives 4752-53</td>
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<td>4</td>
</tr>
<tr>
<td>Electives 4766</td>
<td>4</td>
<td>16</td>
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</tbody>
</table>

**Total: 240 hours**

*Mathematics 1920 may be substituted for Mathematics 1860. Credit for either course will count as approved elective credit. Students in Structure and Environmental Controls, and Systems Building options take a approved elective and Architecture 3701.*

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>Architecture 4741-42</td>
<td>4</td>
<td>4</td>
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</tbody>
</table>

**Total: 160 hours**

### Second Baccalaureate Degree Program

A program leading to a Bachelor of Architecture is available for students who already have a bachelor's degree or an advanced degree in another field. This program consists of a core of accelerated and professional courses which include knowledge and skills fundamental to professional competence. The length of the program is three years. Advanced credit through Exam credit may be given to applicants who have had advanced academic work in architecture. Exceptional professional experience may also be considered.

Applicants must show a minimum of 2.5 overall grade point average as well as goals and abilities appropriate for the program. Prerequisite courses include Math 1840-50 or 1550-60 and Physics 2240-50-60 or their equivalents.

### Approved Electives Lists

#### ARCHITECTURAL DESIGN OPTIONS

**Accounting 2110-20; Anthropology 2510, 2530, 3410; Architecture 2101, 2102, 3113, 3712, 3910, 4110, 4137, 4160, 4710, 4720, 4721-22, 4725-26-27, 4734, 4735, 4736-37, 4739, 4771-72-73, 4775, 4780, 4800, 4910; Art 3735, 3736, 3737, 4756, 4765; Botany 1110-20, 3030, 3090; Broadcasting 3650, 4020, 4030, Business Law 4110; Child and Family Studies 2110, 3510, 3515, 3520, 4260, 4430, 4830; Chemistry 1110-20-30; Civil Engineering 4430; Interior Design and Housing 3125, 3256, 4155, 4160, 4180; Communication and Computer Science 3410; Educational Curriculum and Instruction 3310; Economics 2110-20-30; 3110, 3340, 4150; Electrical Engineering 4850; Environmental Systems Engineering 3000, 4700; Finance 3120-30, 4350-60, 4370; Geography 3000, 3430, 3520, 3530, 4720, 4740; Geology 3610; History 4670; Industrial Engineering 4150; Journalism 3710; Law 6490; Marketing 3110, 3120, 3210; Mechanical Engineering 4220; Office Administration 2750; Philosophy 1510-20; Physical Education 3930; Political Science 4580-90; Psychology 2500, 2530, 3150, 3210, 4230; Real Estate 2610, 3610, 4120, 4130; Sociology 3000, 3410, 4330; Statistics 2100, 3230, 3310.

**HISTORY/CRITICISM, RESTORATION/ PRESERVATION OPTIONS**

Agricultural Economics 4330; Rural Sociology 3420; Anthropology 3575, 3580, 3610, 3640, 3660, 3716, 4740; Architecture—all courses 2100-22, 2715, 2725, 3704, 3715, 3716, 3725, 3726, 3735, 3736, 3745, 3746, 3746, 3766, 3775, 3777, 3778, 3811; Classics 3120, 3220, 3230, 3310, 3320, 3330, 3360, 3350; Engineering Sciences 4100, 4200, 4300; English—all courses 2000 level and above; Environmental Engineering 4820; Geography, 3000, 3430, 3450, 3490, 4240; Germanic and Slavic Languages—all German and Russian courses; History—all courses 2000 level and above; Philosophy 3330, 3740-50, 3910; Romance Languages—all Arabic, French, Italian, Portuguese and Spanish courses; Sociology 3410, 3420.

**MANAGEMENT, PRODUCTION AND DEVELOPMENT OPTIONS**

Accounting 2110-20, 3050-60; Architecture 4510, 4515, 4520, 4525, 4530, 4531, 4532, 4535, 4540, 4545, 4550, 4556; Business Administration 1110, Business law 4110, 4120, 4130, 5050; Economics 2110-20-30; Finance 3510, 3120-30, Journalism 3710; Management 3010, 5010; Marketing 3110, 3120; Office Administration 4510, 5050; Real Estate 2610, 3610, 3630, 4120, 4130; Statistics 2100.

**STRUCTURE AND ENVIRONMENTAL CONTROLS, SYSTEMS BUILDING OPTIONS**

Architecture 3712, 4710, 4711-12, 4715, 4721-22, 4725-26-27, 4734-35, 4735, 4736-37, 4739, 4771-72-73, 4775, 4780, 4800, 4910; Art 3735, 3736, 3737, 4756, 4765; Botany 1110-20, 3030, 3090; Broadcasting 3650, 4020, 4030, Business Law 4110; Child and Family Studies 2110, 3510, 3515, 3520, 4260, 4430, 4830; Chemistry 1110-20-30; Civil Engineering 4430; Interior Design and Housing 3125, 3256, 4155, 4160, 4180; Communication and Computer Science 3410; Educational Curriculum and Instruction 3310; Economics 2110-20-30; 3110, 3340, 4150; Electrical Engineering 4850; Environmental Systems Engineering 3000, 4700; Finance 3120-30, 4350-60, 4370; Geography 3000, 3430, 3520, 3530, 4720, 4740; Geology 3610; History 4670; Industrial Engineering 4150; Journalism 3710; Law 6490; Marketing 3110, 3120, 3210; Mechanical Engineering 4220; Statistics 3450; Theatre 3321-22, 4341-42.

### School of Architecture Faculty

**Professor:**


**Associate Professors:**

J. Bulin, M. Arch. Academy of Fine Arts (Prague); A. DeMoura, Ph.D. Pennsylvania State; R. M. Kelso, M.S.; Tennessee; W. E. Martella, B. Arch. California (Berkeley); M. Mollet, Ph.D. M.I.T.; R. Quin, Ph.D. Georgia; J. Lehigh, J. Watson, M. Arch. Pennsylvania.

**Assistant Professor:**


**Assistant Professor:**

1001 Introduction to Human and Environmental Properties and Transactions (4) Schematic, architectural, and environmental control systems. Interrelationship of context, values, behavior, and design decisions.

2006 Physical Systems (4) Introduction to properties of two- and three-dimensional visual organizations. Relation of properties of visual elements and their ability to communicate information and create legible visual systems.

1003-04-05 Introduction to Architecture (1,1,1) Lectures in field of architecture with special emphasis on design methodologies and analytic techniques. Lectures may cover visual organizations, structures, environmental controls, behavioral and natural systems, design philosophy, history, and criticism. Presentations include lectures by faculty from this school and universities, visiting speakers, and multimedia programs. Held once a week. In addition, special lectures are announced each quarter.

2007 Historical Studies I (4) Introduction to architectural periods with selected illustrations from local examples. Relationship of historical and development to the built environment from antiquity through Byzantine period. Assignments to present-day design issues.

3001 Architectural Design Lab I (8) Controlled exercises designed to demonstrate integration and application of design theory and methodologies into design process. Exercises directed to aspects of architectural issues such as site analysis and planning, facility programming and program analysis, and integration of multiple complex architectural systems into comprehensive architectural resolutions.

3002 Architectural Design Lab II (8) Experimental exercises designed to demonstrate integration and application of design theory and methodologies into a creative design process. Exercises directed to aspects of architectural issues such as site analysis and planning, facility programming and program analysis, and integration of multiple complex architectural systems into comprehensive architectural resolutions. Prereq: 3001.

3003 Architectural Design Lab III (8) Advanced exercises designed to refine fundamental abilities in problem solving, problem solving, and communication and to provide overview of comprehensive architectural design process. Exercises directed to aspects of architectural issues such as site analysis and planning, facility programming and program analysis, and integration of multiple complex architectural systems into comprehensive architectural resolutions. Prereq: 3002; coreq: 3016.

3007 Historical Studies III (4) Overview of historical and cultural events from mid-eighteenth century to the present including a study of the Industrial Revolution as a movement. Applications to present-day issues, changing concepts of ethically, aesthetics, and architectural theory. Prereq: 1007 and 3006.

3101 Professional Practice I (4) Survey of legal responsibilities of architect in servicing contractual arrangements; contract documents, contract administration, codes and zoning regulations, liability, and insurance factors in building delivery. Prereq: Third-year standing.

3104 Professional Practice II (4) Principles and methods of economics of architecture, management, project production and management, cost analysis, budgeting, programming, and construction management. Prereq: 3013.


3102 History of the City (4) Evolution of town planning theories; modern theory, city of today and tomorrow.

3103 American Architecture I (4) The development of North American architecture, from the arrival of the immigrants in 1607, until 1860. Architecture and settlement patterns will be discussed in relationship to the changing cultural context which emerged as America changed from a colony to a republic, and expanded westward to the Pacific Ocean.

3104 American Architecture II (4) Historical periods of the Victorian era from the Gothic Revival and the Italianate through the Greek Revival and Beaux-Arts Classicism, in the twentieth century.

3110 Oriental Survey (4) The eastern expansion of the Fertile Crescent to the Indus Valley, Hindu, Buddhism, and Mughal architecture in India. Architecture in China and Japan from the earliest beginnings.

3113 Contemporary Architecture (4) Styles and theories from 1865 to present; design and technology of architecture.

3115 Latin American Survey (4) Native and colonial architecture in Central and South America.

3120 Indigenous Traditions (4) Introduction to the "sustainable" architecture reliant upon climatic conditions, availability of materials, and economic level of the people. Prehistoric structures, residential, defensive, and provincial examples of architecture. The vernacular as a method of style change and the seventeenth century expression of the modern movement.

3225-36 History of Architectural Technology IUI (4,4) History of construction techniques, hardware, materials, and systems: I: before 1850; II: 1850 to present.

3120 History of Architectural Technology I (4) Philosophies of science, the emergence of technology, and theories of design since 1500.

3135 Tennessee Architecture (4) Immigrant traditions, regional developments, national styles, contemporary architecture.

3137 Architecture Since 1845 (4) New directions and views of the future.

3140 Studies of Architectural Writing (4) Survey of architectural and design criticism from Pugin to the present; the relation between literature and design. May be repeated. Maximum credit 8 hrs.

3701-02 Application of Computer in Architecture (4,4) Survey of computer applications in the architectural profession. Computer graphics; use of commercial programs and systems; program planning and implementation. Prereq: 3701 for 3702.

3712 Mathematical Models in Architecture (4) Illustrates how mathematics and mathematical models are used in architectural science. Survey and classification of mathematical models in architectural science, including numerical methods and use of digital computer.


3906 Environmental Design Education: Problems, Practice, and Structures (4) Focus directed to surveying case studies related to architectural concepts and solutions, introduction of techniques for delineation of form, space, material texture, light, shadow, and figurative interest. Both freehand and mechanical drawing techniques developed through variety of media. Problems of graphic and layout decisions in relation to audience and designed level of presentation impact and sophistication addressed.


3920 Environmental Design Education: Problems, Practice, and Structures (4) Focus directed to surveying case studies related to architectural concepts and solutions, introduction of techniques for delineation of form, space, material texture, light, shadow, and figurative interest. Both freehand and mechanical drawing techniques developed through variety of media. Problems of graphic and layout decisions in relation to audience and designed level of presentation impact and sophistication addressed.

3930 Behavioral Approaches to Environmental Design (8) Major concern in the lecture course is the
innovations in manufacturing and construction with emphasis on production, transportation, erection, distribution, precasting equipment, unions, codes, contract administration, regulatory agencies, specifications, quality control, and cost control. Prereq: 4702 or equivalent.

4720 Design and Construction of Tall Buildings (4) The design, construction, and operation of buildings of conventional or special type or scale. Prereq: Consent of instructor.

4724 Advanced Structural Design (4) Advanced structural design of steel, concrete, and masonry structures. Prereq: Consent of instructor.

4765 Thesis/System Laboratory (16) Independent study directed toward the completion of an original thesis by a graduate student. Prereq: Consent of instructor.

4920 Advanced Architectural Photography (4) A survey of photographic techniques employed in the field of architectural photography. Prereq: Consent of instructor.

4930 Environmental Management (4) The study of environmental management, with emphasis on resource conservation. Prereq: Consent of instructor.

4940 Proxemics (4) Seminar for graduate students examining the role of proxemics in human behavior. Prereq: Consent of instructor.

4950 Environment as Code (4) Seminar for graduate students examining the role of environment as code in human behavior. Prereq: Consent of instructor.

4990 Senior Thesis (8-12) Independent study directed toward the completion of an original thesis by a graduate student. Prereq: Consent of instructor.

ACCELERATED CORE COURSES

4020 Accelerated Visual Studies (4) Theory and application of theories and methodologies of graphical analysis and communication principles, i.e., principles of visual coding and ordering applicable to behavioral analysis. Selected exercises shall demonstrate manipulation of both static and dynamic properties to produce visual order, form, and rhythm. Prereq: Admission to accelerated core program; coreq: 4022.

4021 Accelerated Basic Design and Analysis I (4) Investigation of elements and behavior of complex physical systems. Theoretical and computer-integrated visualization applicable to design decision-making and problem solving are investigated through controlled research exercises. Prereq: 4020.

4022 Accelerated Analytical Studies I (4) General systems theory and scientific methods of analysis applicable to design decision-making and problem solving. Prereq: 4020.

4023 Accelerated Basic Design and Analysis II (4) Investigation of human responses of varied configurations of built environments. Knowledge of response to human behavior and activity patterns of applied visual design process to create new environmental forms subjected to performance evaluation measured to analytical analysis. Selected exercises shall include various graph types and scales to incorporates scientific research methods and design methodologies. Prereq: 4020 and 4022; coreq: 4024.

4024 Accelerated Analytical Studies II (4) Basic research methods and applied visual design and other data for research and evaluation purposes. Objective is to be qualified with fundamental concepts and techniques to utilize potential of electronic data processing technologies as as research tool. In addition to the regular lecture series of 2014, students are required independently to research aspects of study area for presentation to an accelerated seminar supplement. Prereq: 4022; coreq: 4023.

4027 Accelerated Man-Environment Systems (4) Study of casual, descriptive, behavioral, and predictive properties of human environment systems and their transactions. Selected examination of cultural response variables of socio/physical change illustrates the dependence of human systems, activity systems, and physical systems. In addition to the regular lecture series of 2000, students are required to independently research aspects of study area for presentation to an accelerated seminar supplement. Prereq: Admission to the accelerated core program.

4029 Accelerated Professional Practice (4) Examination of professional responsibility of architect in evaluating contractual agreements, contract documents, contracts, administration, codes and zoning, liability and insurance, Principles of contracting and management, project production and management, costs analysis, budgeting, programming, and construction management. Prereq: Admission to accelerated core program.
4031 Accelerated Historical Studies I (4) Introduction to evolution of architectural periods with selected illustrations from local examples. Advanced examination of relationships of historical and cultural developments to the built environment from antiquity through Byzantine period with applications to present-day design issues. Independent student projects on topics related to course materials. Prereq: Admission to accelerated core program.

4032 Accelerated Historical Studies II (4) Advanced examination of relationship of historical and cultural developments to the built environment from Romanesque period through neoclassicism with applications to present-day design issues. Study of historical research methods and analysis. Independent student projects on topics related to course material. Prereq: 4031.

4033 Accelerated Historical Studies III (4) Advanced examination of historical and cultural events of Industrial Revolution which gave rise to modern movement in architecture and design with applications to present-day design issues. Changing concepts of ethics, aesthetics, and architectural theory. Independent student projects on topics related to course material. Prereq: 4031 and 4032.
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 that they may help each other to benefit academically; and (d) to develop in its students the ability to see the 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, political, and economic environment in which the firm exists.

The college has one goal: to have each student leave school with a reasonably articulate 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 College of Business Administration

C. Warren Neel, Dean
John R. Moore, Associate Dean
John A. Bachmann, Assistant Dean for External Affairs and Director, Management Development Programs
Francis A. Chamblin, Assistant Dean for Graduate Programs
David A. Hake, Director, Center for Business and Economics Research

The nationally recognized body which accredits programs in business administration is the American Assembly of Collegiate Schools of Business (AACSBS). The college has been a member of AACSB since 1941, and both its undergraduate and graduate programs are fully accredited.

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 28 of this catalog.

Students Advising Center

The College of Business Administration maintains a Student Advising Center. The center is staffed with full-time academic advisers to assist the freshman and sophomore student on an individual basis with their programs. Junior and senior students are assigned to advisers from the faculty of the student's selected major. The objective of working with students individually is to assist them in their own particular needs for academic information and to prepare them to answer their own 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 nationally. 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 the 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 ideas and operational concepts with contemporaries in other business areas and with TEDP faculty as well.

The faculty for the TEDP consists of senior professors who teach business-related subjects in the University's graduate programs and nationally recognized professors of other institutions. Each participating faculty member has deep experience in either consultation with...
or actual operations in business and industry. The TEDP faculty is augmented by outstanding practitioners in their fields of business and industry.

### 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 which, 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 the earning of 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 reports covering job experiences.

All students interested in the program are referred to the Center for Extended Learning, Student Services Building.

### Preparation for Teaching

Students desiring to teach business, economics, or distributive subjects in the secondary schools of Tennessee may follow majors in accounting, office administration, or marketing and also meet the requirements for certification by the State Department of Education.

Students should consult an adviser 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.

### Business Minor for Non-Business Majors

Students who are non-business majors, but who wish to attain a minor in business, must successfully complete 21 hours of the following required courses: Accounting 2110-20-30, Economics 2110-20-30, 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 may take 19. In unusual circumstances permission to take a course load in excess of these maximums may be granted by the Assistant 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 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 requirement by selecting from specified courses. Where electives are provided, the courses taken must meet the approval of the adviser.

A maximum of 30 credit hours of upper-division studies 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 87.

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 211020-30; Finance 3510 (Political Science 4370 for public administration majors), 3120-30, Management 4101, 3111 (for management majors); Marketing 3110-20; Office Administration 2750 or Computer Science 1410 (3150 for Management Science Option); and Statistics 2100 and three hours of upper-division statistics electives or as designated by the curriculum (3450-60 for Management Science Option).

### ENGLISH REQUIREMENT

The English requirement can be fulfilled by both English 1010 or 1011, 1020 and either 1031, 1032, or 1033, as well as hours selected from English 2510-20-30, 2540, 2560-70, 2660-70-80. Speech 2311, unless specifically required by a curriculum, may be used to satisfy four of the elective English hours required. English courses beyond 1000 level may be taken in any order. Students making a B average 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 (any eight-hour sequence plus any additional four hours of natural science for the business education curriculum) in any of the following fields: astronomy, biology, botany, chemistry, geology, or physics.

### SOCIAL SCIENCE REQUIREMENT

The social science requirement can be fulfilled by selecting from the following courses: Anthropology 2510-20-30; Geography 1610-20, 2110-20, 2130-20; History 2410-20, 1610-20, 1950-60, 2510-20 (2518-28); Honors 1138; Human Services 2690; Philosophy 1510-20, 2310, 2510-20; Political Science 2020, 2510-20 (2518-28); Psychology 2500 (2518), 250340; Religious Studies 2610 (2611), 2620; and Sociology 1510-20. Students who have not completed a year of American history in high school must select American History 2570-20 (or 2518-28) and 2511 or 2521 as part of the 16 hours of social sciences.

### COMPUTER SCIENCE REQUIREMENT

A computer programming course satisfies this requirement: Computer Science 1410 or Office Administration 2750 is recommended.

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<thead>
<tr>
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<td><strong>Freshman</strong></td>
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<tr>
<td>Non-business electives</td>
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<tr>
<td>Non-business electives</td>
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<tr>
<td><strong>Sophomore</strong></td>
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<tr>
<td>English electives</td>
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<tr>
<td>Speech 2311 or 2381</td>
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<tr>
<td>Economics 2110-20-30</td>
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<td>Accounting 2110-20</td>
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<tr>
<td>Statistics 4130</td>
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<tr>
<td>Accounting 3430</td>
</tr>
<tr>
<td>Economics 3110</td>
</tr>
<tr>
<td>Finance 3120</td>
</tr>
<tr>
<td>Finance 3130</td>
</tr>
<tr>
<td>Management 3010, 3110</td>
</tr>
<tr>
<td>Marketing 3110-20</td>
</tr>
<tr>
<td>Statistics 3220</td>
</tr>
<tr>
<td>Statistics 4415</td>
</tr>
<tr>
<td><strong>Senior</strong></td>
</tr>
<tr>
<td>Accounting 480, 4850</td>
</tr>
<tr>
<td>Accounting 4430, 4440</td>
</tr>
<tr>
<td>Accounting 4680</td>
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<tr>
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</tr>
<tr>
<td>Business Law 4110-20</td>
</tr>
<tr>
<td>Business and/or non-business electives</td>
</tr>
<tr>
<td>Finance 330</td>
</tr>
</tbody>
</table>

TOTAL: 193 hours
Banking

Students 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 banking regulatory agencies may major in banking.

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.

<table>
<thead>
<tr>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>II</td>
</tr>
<tr>
<td><strong>Freshman</strong></td>
<td></td>
</tr>
<tr>
<td>English 1010 or 1011; 1020; 1031 or 1032</td>
<td>3</td>
</tr>
<tr>
<td>Mathematics 1054-50-60 or 1840-50-60</td>
<td>4</td>
</tr>
<tr>
<td>Natural science electives</td>
<td>4</td>
</tr>
<tr>
<td>Business and/or non-business electives</td>
<td>-</td>
</tr>
<tr>
<td><strong>Sophomore</strong></td>
<td></td>
</tr>
<tr>
<td>Business Law 2120-30</td>
<td>3</td>
</tr>
<tr>
<td>Economics 2110-20-30</td>
<td>3</td>
</tr>
<tr>
<td><strong>Junior</strong></td>
<td></td>
</tr>
<tr>
<td>Business Administration 4430</td>
<td>-</td>
</tr>
<tr>
<td><strong>Senior</strong></td>
<td></td>
</tr>
<tr>
<td>Business Administration 4430</td>
<td>-</td>
</tr>
<tr>
<td>TOTAL: 188 hours</td>
<td></td>
</tr>
</tbody>
</table>

*See Requirements for All Curricula.

To be taken when topic is banking.

Business Education

This major is offered in cooperation with the Department of Vocational Technical Education in the College of Education. The program meets requirements for certification in business subjects as approved by the State Department of Education. At least a C average must be maintained in each endorsement area in business for which a student is to be recommended. Additional information is available from Dr. Betty J. Brown, Business Education Coordinator.

<table>
<thead>
<tr>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>II</td>
</tr>
<tr>
<td><strong>Freshman</strong></td>
<td></td>
</tr>
<tr>
<td>English 1010 or 1011; 1020; 1031 or 1032</td>
<td>3</td>
</tr>
<tr>
<td>Mathematics 1540-50-60 or 1840-50-60</td>
<td>4</td>
</tr>
<tr>
<td>Natural science electives</td>
<td>4</td>
</tr>
<tr>
<td>Business and/or non-business electives</td>
<td>-</td>
</tr>
<tr>
<td><strong>Sophomore</strong></td>
<td></td>
</tr>
<tr>
<td>Philosophy electives</td>
<td>3</td>
</tr>
<tr>
<td>English literature elective</td>
<td>-</td>
</tr>
<tr>
<td>Accounting 2110-20-30</td>
<td>3</td>
</tr>
<tr>
<td>Economics 2110-20-30</td>
<td>3</td>
</tr>
<tr>
<td><strong>Junior</strong></td>
<td></td>
</tr>
<tr>
<td>Computer science elective</td>
<td>3</td>
</tr>
<tr>
<td>Psychology 2500</td>
<td>3</td>
</tr>
<tr>
<td>Teaching Field</td>
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</tr>
<tr>
<td>School Health 3510, Public Health 3210, or Nutrition 1230</td>
<td>3</td>
</tr>
<tr>
<td>Physical education elective</td>
<td>3</td>
</tr>
<tr>
<td><strong>Senior</strong></td>
<td></td>
</tr>
<tr>
<td>Philosophy, anthropology, or upper-division history elective</td>
<td>3</td>
</tr>
<tr>
<td>Management 3510, 3110</td>
<td>3</td>
</tr>
</tbody>
</table>

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 requires for an economics major in the College of Business Administration are listed below with an additional explanation given on page 90.

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 page 104 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.

<table>
<thead>
<tr>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>II</td>
</tr>
<tr>
<td><strong>Freshman</strong></td>
<td></td>
</tr>
<tr>
<td>English 1010 or 1011; 1020; 1031 or 1032</td>
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</tr>
<tr>
<td>Mathematics 1540-50-60 or 1840-50-60</td>
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<td>Natural science electives</td>
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<tr>
<td>Social science electives</td>
<td>4</td>
</tr>
<tr>
<td>Business Administration 4430</td>
<td>3</td>
</tr>
<tr>
<td><strong>Sophomore</strong></td>
<td></td>
</tr>
<tr>
<td>Philosophy elective</td>
<td>3</td>
</tr>
<tr>
<td>Accounting 2110-20-30</td>
<td>3</td>
</tr>
<tr>
<td>Economics 2110-20-30</td>
<td>3</td>
</tr>
<tr>
<td><strong>Junior</strong></td>
<td></td>
</tr>
<tr>
<td>Economics electives</td>
<td>3</td>
</tr>
<tr>
<td>Business Administration 4430</td>
<td>-</td>
</tr>
<tr>
<td>TOTAL: 187 hours</td>
<td></td>
</tr>
</tbody>
</table>

*See Requirements for All Curricula.

To be taken when topic is banking or finance.

Finance

Curricula in the finance department include those in finance, banking, insurance, and real estate and urban development. The finance curriculum offers courses in the following major areas: business financial management, security analysis and investments, financial institutions, and international agencies.

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.

<table>
<thead>
<tr>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>II</td>
</tr>
<tr>
<td><strong>Freshman</strong></td>
<td></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 or 1840-50-60</td>
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<tr>
<td>Natural science electives</td>
<td>4</td>
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<tr>
<td>Non-business elective</td>
<td>4</td>
</tr>
<tr>
<td>Social science elective</td>
<td>-</td>
</tr>
<tr>
<td>Business Administration 4430</td>
<td>3</td>
</tr>
<tr>
<td><strong>Sophomore</strong></td>
<td></td>
</tr>
<tr>
<td>Accounting 2110-20-30</td>
<td>3</td>
</tr>
<tr>
<td>Economics 2110-20-30</td>
<td>3</td>
</tr>
<tr>
<td><strong>Junior</strong></td>
<td></td>
</tr>
<tr>
<td>Business Law 3120-30</td>
<td>3</td>
</tr>
<tr>
<td>Business Administration 4430</td>
<td>3</td>
</tr>
<tr>
<td>TOTAL: 187 hours</td>
<td></td>
</tr>
</tbody>
</table>

*See Requirements for All Curricula.

To be taken when topic is banking or finance.

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, personnel management, 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.

<table>
<thead>
<tr>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>II</td>
</tr>
<tr>
<td><strong>Freshman</strong></td>
<td></td>
</tr>
<tr>
<td>Business Administration 4430</td>
<td>-</td>
</tr>
<tr>
<td>Economics electives</td>
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<tr>
<td>Business and/or non-business electives</td>
<td>6</td>
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<tr>
<td><strong>Sophomore</strong></td>
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</tr>
<tr>
<td>Accounting 2110-20-30</td>
<td>3</td>
</tr>
<tr>
<td>Business Administration 2160</td>
<td>3</td>
</tr>
</tbody>
</table>

*See Requirements for All Curricula.
## 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 of materials management, scheduling and control, work measurement, quality assurance, and supervision.
- **Personnel Management**—designed for students who wish to prepare for careers in personnel management, including the specialized fields of employment, wage and salary administration, job evaluation, training, and human resources management.
- **General Management**—designed for students who do not wish to specialize in operations or personnel. 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.

### Management Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>English 1010 or 1011; 1020; 1031 or 1032 or 1033</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Mathematics 1540-50-60 or 1840-50-60</td>
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<tr>
<td>Natural science electives</td>
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</tr>
<tr>
<td>Nonbusiness elective</td>
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<tr>
<td>Business electives</td>
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<td>2</td>
</tr>
<tr>
<td>Management 2110-20</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Accounting 2111-20-30</td>
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<td>3</td>
</tr>
<tr>
<td>Economics 2120-30</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Computer science elective</td>
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<td>1</td>
</tr>
<tr>
<td>Non-business electives</td>
<td>6</td>
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</table>

### Senior Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Hours</th>
<th>Credit</th>
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<tbody>
<tr>
<td>Business Administration 4610</td>
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<tr>
<td>Marketing 4110-20</td>
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<tr>
<td>Finance 4110-20</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Economics 4440</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Economics 4710-20</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Accounting 4740-50</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Business and/or non-business electives</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

TOTAL: 187 hours

*See Requirements for All Curricula.

**To be taken when topic is insurance.**

### Operations Concentration

- Management 4210, 4230, 4420
- Business and/or non-business electives

### Personnel Concentration

- Management 4710, 4410, 4420
- Concentration electives

### General Concentration

- Concentration electives

### TOTAL: 187 hours

### 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, promotional 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: 3210, 4210, 4510, 4650, 4710.

### Marketing Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>English 1010-20; 1031 or 1032 or 1033</td>
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</tr>
<tr>
<td>Mathematics 1540-50-60 or 1840-50-60</td>
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</tr>
<tr>
<td>Management 3210, 4230, 4410, 4420, 4610</td>
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<td>3</td>
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<tr>
<td>Accounting 3330, 4410</td>
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<tr>
<td>Economics 3330, 4410, 4420, 4470, 4530, 4550, 4610, 4620, 4710</td>
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<tr>
<td>Marketing 4610</td>
<td>3</td>
<td>3</td>
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</tbody>
</table>

TOTAL: 187 hours

*See Requirements for All Curricula.

**To be taken when topic is insurance.**

### Operations Concentration

- Management 4210, 4230, 4420
- Business and/or non-business electives

### Personnel Concentration

- Management 4710, 4410, 4420
- Concentration electives

### General Concentration

- Concentration electives
Business and/or non-business electives... 3 - 3
Non-business electives... 3 - 3
Nondepartmental electives... 9 3
TOTAL: 187 hours

Office Administration

Students entering the field of office administration may choose a specialized program to prepare for supervisory, administrative, or managerial positions in the office. Students following the office administration major may meet teacher certification requirements by taking the appropriate education courses in consultation with the faculty advisor.

Transfer Students: To graduate with a major in office administration, 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. A minimum of 12 hours must be in office administration.

<table>
<thead>
<tr>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>II</td>
</tr>
</tbody>
</table>

Freshman

| English 1010 or 1011; 1020, 1031 or 1025 or 1033 | 3 3 3 |
| Mathematics 1540-50-60 or 1840-50-60. | 4 4 4 |
| Natural science electives. | 4 4 |
| Business Administration 1110. | - |
| Social science electives. | 4 4 |
| Nondepartmental electives. | - |
| Non-business electives. | - |

Sophomore

| English electives... | 4 4 |
| Accounting 2110-20-30 | 3 3 3 |
| Economics 2110-20-30 | 3 3 3 |
| Statistics 2100 | 3 - |
| Office Administration 2750. | - |
| Social science electives... | 4 3 |
| Nondepartmental electives. | - |
| Non-business electives. | - |

Junior

| Management 3010, 3110. | 3 3 |
| Marketing 3110-20 | 3 3 3 |
| Finance 3120-30-310 | 3 3 3 |
| Statistics upper-division elective... | 3 3 |
| Economics elective... | - |
| Computer science area elective. | - |
| Office Administration 3110, 3180, 3310... | 3 3 3 |
| Nondepartmental electives... | 3 3 3 |

Senior

| Business, Law 4110-20 | 3 3 3 |
| Business Administration 4430. | - |
| Political Science 4410 | - |
| Government Finance 4460-20 | 3 3 3 |
| Finance 4530-60-70 | 3 3 |
| Business electives... | 3 3 |
| Business and/or non-business electives... | 3 3 |
| Social science electives... | 4 4 |

TOTAL: 187 hours

Real Estate and Urban Development

This major is 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.

Transfer Students: A minimum of 30 quarter hours of required upperdivision 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 real estate and urban development courses.

<table>
<thead>
<tr>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>II</td>
</tr>
</tbody>
</table>

Freshman

| English 1010 or 1011; 1020, 1031 or 1025 or 1033 | 3 3 3 |
| Mathematics 1540-50-60 or 1840-50-60. | 4 4 4 |
| Natural science electives... | 4 4 |
| Social science electives... | 4 4 |
| Business Law 3100, 3110... | 3 3 |
| Economics 3110, 3340 | 3 3 3 |
| Finance 3120-30 | 3 3 |
| Accounting 3510 | 3 3 |
| Management 3010, 3110... | 3 3 3 |
| Statistics upper-division elective... | 3 3 |
| Political Science 3545 | 3 3 |
| Business electives... | 3 |

Junior

| Business Law 4110-20 | 3 3 3 |
| Business Administration 4430 | - |
| Political Science 4410 | - |
| Government Finance 4460-20 | 3 3 3 |
| Finance 4530-60-70 | 3 3 |
| Business electives... | 3 3 |
| Business and/or non-business electives... | 3 3 |
| Social science electives... | 4 4 |

TOTAL: 187 hours

Statistics

A major in statistics is recommended for students interested in positions involving process control and quantitative research in business, industry, and government.

<table>
<thead>
<tr>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>II</td>
</tr>
</tbody>
</table>

Freshman

| English 1010 or 1011; 1020, 1031 or 1025 or 1033 | 3 3 3 |
| Mathematics 1540-50-60 or 1840-50-60. | 4 4 4 |
| Natural science electives... | 4 4 |
| Social science electives... | 4 4 |
| Business and/or non-business electives... | 3 3 |
| Economics 3110, 3340 | 3 3 3 |
| Finance 3120-30 | 3 3 |
| Accounting 3510 | 3 3 |
| Management 3010, 3110... | 3 3 3 |
| Statistics upper-division elective... | 3 3 |
| Political Science 3545 | 3 3 |
| Business electives... | 3 |

Senior

| Business, Law 4110-20 | 3 3 3 |
| Business Administration 4430 | - |
| Political Science 4410 | - |
| Government Finance 4460-20 | 3 3 3 |
| Finance 4530-60-70 | 3 3 |
| Business electives... | 3 3 |
| Business and/or non-business electives... | 3 3 |
| Social science electives... | 4 4 |

TOTAL: 187 hours

Transportation and Logistics

A major in transportation and logistics is recommended for students who plan careers with: (1) transportation companies that supply freight and/or passenger services; (2) industrial and marketing organizations that coordinate traffic, warehousing, and related distribution activities to achieve optimal business logistics systems; or (3) transport regulatory and planning agencies at all levels of government.

The program prepares students for the examinations of the American Society of Traffic...
and Transportation. A number of scholarships for transportation and logistics majors are available. To graduate with a major in transportation and logistics, 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 21 hours of transportation and logistics courses in residence.

### 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 level of ability 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, industrial management, marketing, personnel management, real estate and urban development, statistics, and transportation.

### Accounting M.S.O.

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. These students must take as one of their technical electives an upper-division course approved by the accounting department advisor, and it must not be an accounting course.

Transfer Students: An option in Accounting M.S.O. requires a minimum of 30 quarter hours of required upper-division College of Business Administration courses which 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, 4630, and either 4140 or 4430.

### Finance M.S.O.

Transfer Students: An option in Finance M.S.O. requires a minimum of 30 quarter hours of required upper-division College of Business Administration courses which 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.

### General Business M.S.O.

Transfer Students: An option in General Business M.S.O. requires a minimum of 30 quarter hours of required upper-division College of Business Administration courses which 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.
CONCENTRATION
3 3
3 3
3 3

TOTAL: 187 hours

See Requirements for All Curricula.

Marketing electives: Accounting 4530, Business Administration 4400, Computer Science 4310, Economics 3450, 4410, 4470.

Senior Accounting 4510, 4610-20
Management 4610-20
Marketing 4710
Transportation 3115
Business and/or non-business electives
Non-departmental elective

See Requirements for All Curricula.

Real Estate and Urban Development M.S.O.

Freshman

English 1010 or 1011; 1020; 1031 or 1032 or 1033
Mathematics 1840-50-60
Natural science electives
Economics 2110

Sophomore

Economics 2120-30
Accounting 2110-20-30
Statistics 3450-60
Accounting 3120-30
Non-business electives

Junior

Finance 3130-20, 3510
Marketing 3110-20
Management 3010, 3110
Statistics 3450-60
Economics 3410-60
Real Estate 3610, 3615, 3630
Non-business elective

Senior

Finance 4110-20
Business Administration 4400
Management 4610-20
Office Administration 4320
Real Estate 4120-30, 4640
Real Estate 4810
Finance 4650
Business 4910
Business Administration 4110-20

TOTAL: 187 hours

See Requirements for All Curricula.

Statistics M.S.O.

Freshman

English 1010 or 1011; 1020; 1031 or 1032 or 1033
Mathematics 1840-50-60
Natural science electives
Economics 2110

Sophomore

Accounting 2110-20
Economics 2120-30-40
English elective
Mathematics 2840-50-60
Economics 3450-60

Junior

Accounting 3120
Economics 3110 or 3220 or 3430
Computer Science 3150
Economics 3110
Economics 3210 or 3210 or 3340 or 3410
Finance 3120-30
Accounting 3120
Management 3101
Management 3110-20
Marketing 3120
Marketing 4510-20
Statistics 3550
Transportation 3110

Senior

Business Administration 4430
Business Law 4110-20
Management 4610-20
Marketing 4710
Transportation 3115
Business and/or non-business electives
Non-departmental elective

See Requirements for All Curricula.

Graduate Studies

The College of Business Administration offers advanced programs in economics leading to the Master of Arts, the Master of Science, the Master of Arts in College Teaching, and the Doctor of Philosophy degrees. The Master of Business Administration degree program is offered in the fields of accounting, economics finance, forest industries management, governmental financial administration, management, management science, marketing, real estate and urban development, statistics, and transportation and logistics. The Master of Accountancy is offered in accounting. 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 the M.S. and the Ph.D. degrees. The M.S. degree in statistics is also available. 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.A.C.T., M.S., and Ph.D. programs take 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 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 966, Princeton, New Jersey 08540, and from most colleges and universities.

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

Departments of Instruction

Accounting and Business Law

Professors:
Accounting (009)

2110-20 Fundamentals of Accounting (3, 3) Introductory 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, including cost terminology, cost determination, cost-volume-profit analysis, and cost management. Topics include cost product costing, cost behavior analysis for decision making, standard costing, and budgeting. Prereq.: 2110.

3110-20-30 Intermediate Financial Accounting (3, 3, 3) In-depth study of theory, principles, and procedures related to the valuation of assets, liabilities, and equities; measurement of periodic income and preparation of financial statements. Prereq.: 2120 for 3110; 3110 with a grade of C or better for 3120; and 3120 with a grade of C or better for 3130.

3158 Honors: Intermediate Accounting (3) Intermediate financial accounting theory, designed for increased enrichment of student with superior ability and interest. Prereq.: Same as for 3130 and consent of department head. Substitutes for Accounting 3130 in student's program.

2120-20-30 Managerial Cost Accounting (3, 3, 3) An in-depth analysis of the use of cost data for external reporting, decision making, planning and control. Specific topics include product costing, budgeting, performance evaluation, and the role of cost data in decision models. Prereq.: 2120 and Mathematics 1560 or 1860. Credit not given for both 2130 and 3120. Prereq.: for 3220: 3210 and Statistics 2100 or 3450. Prereq.: for 3230: 3220 with a grade of C or better and Statistics 3220 or 3460.

3238 Honors: Managerial Cost Accounting (3) Designed for increased enrichment of student with superior ability and interest. Prereq.: Same as for 3220 and consent of department head. This course substitutes for accounting 3230 in student's program.


3510 Not-for-Profit Accounting (3) Theory and practice of budgeting, financial and managerial accounting and reporting, planning-programming, budgeting, and auditing for not-for-profit entities. Prereq.: 3210 or equivalent.

4110 Principles of Auditing (3) Role of auditing in society, professional auditing standards, auditor's legal responsibility, internal control, use of statistical sampling, working papers, evidence, and reporting. Prereq.: 3310 with grade of C or better; Computer Science 3910. Prereq. or coreq. Statistics 3410.

4118 Honors: Principles of Auditing (3) Introductory course in auditing designed for increased enrichment of student with superior ability and interest. Prereq.: Same as for 4110 and consent of department head. Substitutions for accounting 4110 in student's program.

4120 Advanced Auditing (3) Case-oriented course including audit of specific asset, liability, revenue, and expense accounts, with emphasis on reporting, data processing, statistical sampling, and internal auditing. Prereq.: 4110 with grade of C or better.

4140-50 Advanced Financial Accounting (3, 3) Analysis of issues and alternatives in advanced problem areas including business combinations, partnerships, foreign operations, segment reporting, price level and current value accounting, interim reporting, pensions, leases, and selected other current topics. Courses are not required to be taken in sequence. Prereq. for either: 3130 with a grade of C or better.

4148 Honors: Accounting for Business Combinations (3) Designed for increased enrichment of student with superior ability and interest. Prereq.: Same as for 4140 and consent of department head. Substitutes for Accounting 4140 in student's program.

4158 Honors: Advanced Accounting (3) Designed for increased enrichment of student with superior ability and interest. Prereq.: Same as for 4450 and consent of department head. Substitutes for Accounting 4450 in student's program.

4430 Advanced Federal Taxes (3) Fundamental problems of federal taxation with emphasis on alternatives available for reporting taxable income. Prereq.: 3130 and 3430.

4438 Honors: Advanced Federal Taxes (3) Designed for increased enrichment of student with superior ability and interest. Prereq.: Same as for 4450 and consent of department head. Substitutes for Accounting 4430 in student program.

4440 Taxation of Estates and Gifts (3) Topics include transfers at death, inter vivos transfers, life insurance, annuities, and employee death benefits, marital and other deductions and exemptions, and estate and gift tax returns. Prereq.: 4430.

4630 Analysis and Design of Information Systems (3) General systems concepts, flow charting, planning and systems studies, determination of systems objectives, development and evaluation of design alternatives, implementation, documentation, and control. Prereq.: Computer Science 3910.

4638 Honors: Analysis and Design of Information Systems (3) Designed for increased enrichment of student with superior ability and interest. Prereq.: Same as for 4630 and consent of department head. Substitutes for Accounting 4630 in the student's program.

4650 Individual Research in Accounting (3) Special projects undertaken by undergraduate majors in accounting under direction of faculty members of professional rank. Prereq.: 3130 with grade of C or better.

4990 Accounting Theory (3) Theory and conceptual framework underlying measurement of income and financial position as related to the resolution of key reporting problems. Prereq.: 3130 with grade of C or better.

GRADUATE
See page 88 for information on graduate programs.

5002 Non-Thesis Graduation Completion (3-15)

5010 Financial Accounting (3)

5020 Corporate Reporting Problems (3)

5030 Managerial Accounting (3)

5110 Seminar in Accounting Theory (3)

5120 Seminar in Advanced Auditing (3)

5130-40 Seminar in Current Accounting Topics (3, 3)

5160 Graduate Internship in Accounting (3)

5210 Seminar in Advanced Managerial Cost Accounting (3, 3)

5310 Auditing Concepts (3)

5320 Advanced Auditing (3)

5330 Advanced Income Tax (3)

5340 Consolidations and Business Combinations (3)

5420 Tax Research (3)

5430 Tax Planning (3)

5440 Taxation of Estates and Gifts (3)

5510 Not-for-Profit Accounting (3)

5630 Accounting Systems and EDP Concepts and Control (3)

5640 Seminar in Accounting Information Systems (3)

5950 Seminar in Accounting Research (3)

5990 Individual Research in Accounting (3)

6000 Doctoral Dissertation and Research

6110-20-30 Doctoral Seminar in Accounting (3, 3, 3)

Business Law (216)

4110 Environmental Business Law (3) Principles of law comprising legal environment appropriate to common business transactions. Strongly integrated with basic political and economic concepts. Review of U.S. legal system and business-related law.

4120 Law of Business Organizations and Regulations (3) General principles of law as these pertain to business and corporations, affect taxation, and treat agencies regulating business. Prereq.: 4110.

4130 Administrative Regulation of Business (3) Analyzes nature and extent to which business operations are controlled by administrative agencies operating at federal, state, and local levels. Includes nature of administrative agencies, jurisdiction, administrative procedures, and significant laws administered by such agencies. Prereq.: 4120.

4330 Business Law (3) Fundamentals of business law designed for professional examination required for licensing or certification in fields of public accounting, certified public accounting, chartered property and casualty underwriters, chartered life underwriters, and certified professional secretaries.

GRADUATE

5010 Legal and Social Environment of Business (3)

Economics (283)

Professors: P. D. Qualls (Head), Ph.D. California (Berkeley); R. L. Bowby, Ph.D. Texas; S. L. Carroll, Ph.D. Harvard; W. E. Cole, Ph.D. Texas; G. R. Feiwell, Ph.D. McGill; C. B. Garrison, Ph.D. Kentucky; J. F. Holly (Emeritus), Ph.D. Clark, H. E. Jensen, Ph.D. Texas; F. Y. Lee, Ph.D. Michigan State; A. Mayhew, Ph.D. Texas; J. R. Moore (Associate Dean), Ph.D. Cornell; W. C. Neale, Ph.D. London School of Economics; G. A. Spiva, Jr., Ph.D. Texas.

Associate Professors: H. S. Chang, Ph.D. Vanderbilt; E. Gustafson, Ph.D. Stanford; H. W. Herzog, Jr., Ph.D. Maryland; D. L. Kaserman, Ph.D. Florida; K. E. Phillips, Ph.D. Washington (Seattle); A. M. Schlotmann, Ph.D. Washington (St. Louis).

Economics (283)

Professors: P. D. Qualls (Head), Ph.D. California (Berkeley); R. L. Bowby, Ph.D. Texas; S. L. Carroll, Ph.D. Harvard; W. E. Cole, Ph.D. Texas; G. R. Feiwell, Ph.D. McGill; C. B. Garrison, Ph.D. Kentucky; J. F. Holly (Emeritus), Ph.D. Clark, H. E. Jensen, Ph.D. Texas; F. Y. Lee, Ph.D. Michigan State; A. Mayhew, Ph.D. Texas; J. R. Moore (Associate Dean), Ph.D. Cornell; W. C. Neale, Ph.D. London School of Economics; G. A. Spiva, Jr., Ph.D. Texas.

Associate Professors: H. S. Chang, Ph.D. Vanderbilt; E. Gustafson, Ph.D. Stanford; H. W. Herzog, Jr., Ph.D. Maryland; D. L. Kaserman, Ph.D. Florida; K. E. Phillips, Ph.D. Washington (Seattle); A. M. Schlotmann, Ph.D. Washington (St. Louis).

Economics (283)

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Achievement, prevention of monopoly and concentration through antitrust laws; direct regulation of business performance. Prereq: 2130.

3341 Government and Business II (3) Topics in antitrust policy, direct regulation, and other forms of social control, evaluation, product and managerial responsibility, government-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: 210300.


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. Prereq determined by department each time course is offered. Numerical grade is given to law students. May be repeated for credit.

4110 Managerial Economics (3) Application of economic theory to business decision making, emphasis on profit objectives, measurement and forecasting demand and costs, and capital budgeting. Prereq: 2110-20.

4130 Business Cycles (3) Fluctuations in income, employment, prices, and output in the economic system; subjects discussed are historical facts concerning booms and depressions, statistical methods for analyzing business fluctuations, theoretical explanations of cycles, and policies that have been proposed to combat them. Prereq: 3120 or consent of instructor.

4150 History of Economic Thought (3) Development of economic thought, tools of analysis, and economics as a social science, behavior with an analysis of social-economic conditions which influenced this development. Period covered: 1776 through 1936. Prereq: 2110, 2120, 2130, and consent of instructor.

4170-90 Introduction to Mathematical Economics (3, 3) Application of mathematical methods in theoretical study of micro and macro economic phenomena. Designed for undergraduate students who have limited training in analytic geometry and calculus. Must be taken in sequence. Prereq: Economics 3110 and Mathematics 1840-45, or equivalent.

4220 Problems in International Trade and Economic Development (3) Problems of current importance in fields both of international economics and economic development. Prereq: 3210 or 3220.

4231 The Political Economy of Latin America (3) Description, analysis, and comparison of major economic problems and policies of various Latin American countries.

4232 The Political Economy of Asian Development (3) Description, analysis, and comparison of major economic problems and policies of India, China, and Southeast Asian countries.

4233 The Political Economy of the Soviet Union and Eastern Europe (3) Analysis of the major economic strategies, policies, and problems of the Soviet Union and Eastern Europe.

4260 Economics of Resources and Environmental Policy (3) Economic analysis of environmental policy and examination of policies aimed at solving development of natural resources and impacts of growth on environment. Prereq: 2130.


4420 Economics of Human Resources (3) Analysis of current problems in human resource development and examination of policies and programs. Benefits and costs of income redistribution of these programs discussed may include unemployment, education and training, poverty and income redistribution, discrimination based on sex or ethnicity, or otherwise. Prereq: 3410.

4430 Labor Legislation (3) Economic background and effects of governmental regulation of labor relations, with emphasis on detailed examination of National Labor Relations Act as amended. Prereq: 3420.


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 88 for information on graduate programs.

Economic Theory

5010 Introduction to Economic Analysis (3)

5020 Managerial Economics (3)

5030 Economic Fluctuations, Forecasting, and Stabilization (3)

5090 Workshop in Economics (3-6)

5110 Fundamentals of Microeconomics (3)

5111-12 Microeconomic Theory I, II (3, 3)

5120 Fundamentals of Macroeconomics (3)

5121-22 Macroeconomic Theory I, II (3, 3)

5150 History of Economic Thought (3)

5180-90 Mathematical Methods in Economics (3, 3)

5510 Quantitative Methods in Economic Research (3)

5520 Introduction to Econometrics (3)

5710 Public Finance: Revenues (3)

5720 Public Finance: Expenditures (3)

5740 Seminar In Public Finance (3)

5810 Financial Markets and Intermediaries (3)

5820 Monetary Theory and Policy (3)

5830 Commercial Bank Management (3)

6111 Advanced Microeconomic Theory (3)

6121 Advanced Microeconomic Theory (3)

6150-60 History of Economic Doctrines (3, 3)

6160-61 Advanced Microeconomic Theory (3)

6170-80-90 Econometric Methods (3, 3, 3)

6710-20 Seminar: Fiscal Theory and Public Finance (3, 3)

International Trade and Development

5210 Seminar in International Trade Theory (3)

5220 Seminar in Economic Development (3)

5250 Economic History of Europe (3)

5260 Economic History of the United States (3)

5810 Location and Regional Development Theory (3)

5820 Methods of Regional Analysis (3)

6211-12, 6221-22 Seminar in International Econom-
Weir, Ph.D. North Carolina.
T. P. Boehm, Ph.D. Washington; D. Choi, Ph.D.
Associate Professors:
Angeles); K. E. Quindry, Ph.D. Kentucky; C. P. White
Washington (St. Louis); W. W. Dotterweich, Ph.D.
6000 Doctoral Dissertation and Research
6910-20-30 Economics Seminar (1,1,1)
5011-12 Problems In Use of Thesis (3, 3)
5002 Non-Thesis Graduation Completion (3-15)
Other Economics Courses
5000 Thesis
5002 Non-Thesis Graduation Completion (3-15)
5911-12 Problems In lieu of Thesis (3, 3)
5910-20-30 Economics Seminar (1, 1, 1)
6000 Doctoral Dissertation and Research

Finance
Professors:
R. M. Duvall (Head), Ph.D. North Carolina; L. P.
Anderson, Ph.D. Wisconsin; R. A. Bohm, Ph.D.
Pennsylvania (St. Louis); W. W. Dotterweich, Ph.D.
Pennsylvania; D. S. Kidwell, Ph.D. Oregon; E. W.
Lambert, Jr., Ph.D. Alabama; G. C. Phillips, Ph.D.
New York; R. E. Shriever, Ph.D. California (Los
Angeles); K. E. Quindry, Ph.D. Kentucky; C. P. White
(Emeritus), Ph.D. Pennsylvania.
Associate Professors:
A. L. Auxier, Ph.D. Iowa; W. F. Fox, Ph.D. Ohio State;
J. C. Golden, DBA George Washington; W. C.
Goodyear, Ph.D. Wisconsin; J. M. Wachowicz, Jr., Ph.D.
Illinois (Urbana).
Assistant Professors:
T. P. Boehm, Ph.D. Washington; D. Choi, Ph.D.
Pennsylvania State; W. P. Lau, M.S. Brown; H. A.
Weir, Ph.D. North Carolina.
1Blount National Bank Professor of Finance
IC. H. Butcher, Jr. Professor of Banking and Finance
Prerequisites: Accounting 2110-20-30.
Economics 2110-20-30, and Statistics 2100 for all courses offered in the finance department except Insurance 3020.

Finance (349)
3120-30 Business Finance (3, 3) Principles of financial management. Analysis of demand for funds, internal and external supplies of funds, and their costs to the firm. Prereq: 3120 for 3120.
3510 Money and Banking (3) Nature and functions of money and credit; analysis of monetary and credit systems; money creating role of commercial banks and the Federal Reserve Systems.
4110 Investment Analysis (3) Theory of investment value of various types of securities and options. Prereq: 3100 and Statistics 3220 or 4310 or 3110.
4130 Topics In Investments (3) Portfolio management policies of institutions, efficient market hypotheses and evidence, options and commodities. Prereq: 4120.
4150-60 Evolution and Function of Financial Institutions (3) Financial system of the United States; emphasis on historical role and functions of financial institutions.
4350-60 Public Finance (3, 3) Public expenditures, federal and state revenue systems, financial administration, budgeting, and public debt management.
4370 State and Local Finance (3) Emphasis on revenue systems and division of tax sources.
4510 Monetary Theory and Policy (3) Role of money in the economy. Emphasis upon factors that affect demand for the supply of money. Evaluation of current policy.
4520 Commercial Banking (3) Operations of commercial banks; emphasis on asset and liability management. Prereq: 3110.
4660 Problems In Financial Management (3) Financial decision-making, a case approach. Prereq: 4650.
4800 Business Executive in Residence (3) Develops practical areas of finance curriculum. Leading financial executives, bankers, insurance executives, and realtors will conduct classes. May be repeated. Maximum credit 6 hrs. Prereq: Consent of department.
4990 Senior Seminar (3) Intensive investigation of specific topic in student's area of concentration. Taken last quarter of senior year. Required of all students majoring in finance, or real estate.

GRADUATE
See page 88 for information on graduate programs.
5002 Non-Thesis Graduation Completion (3-15)
5010 Financial Management and Asset Valuation (3)
5020 Financial Decision Making and Analysis (3)
5120 Quantitative Techniques In Financial Management (3)
5130 Financial Administration (3)
5140 Seminar: Managerial Finance (3)
5420-30 Investments (3, 3)
5440 Commodity Futures and Stock Options (3)
5710 Public Finance: Revenues (3)
5720 Public Finance: Expenditures (3)
5730 Finance Administration of Government (3)
5740 Seminar in Public Finance (3)
5800 Executive-in-Residence Seminar for M.B.A. (3)
5810 Financial Markets and Intermediaries (3)
5820 Monetary Theory and Policy (3)
5830 Commercial Bank Management (3)
5990 Research in Finance (3)
6000 Doctoral Dissertation and Research
6110-20 Seminar in Monetary Theory (3, 3)

6410 Analysis for Financial Decisions (3)
6420 Theory of Finance (3)
6510 Seminar in Financial Management (3)
6710-20 Seminar: Fiscal Theory and Public Finance (3, 3)
6810 Financial Institutions and Markets (3)
Insurance (580)
3020 Introduction to Risk and Insurance (3) Consumer-oriented view of risks faced by individuals and business. Methods of risk management, with particular emphasis on life, property, and casualty insurance.
3220 Business Risk Management (3) Principles of risk bearing and risk analysis, economics of risk and insurance.
4710 Life Insurance and Estate Planning (3) Coordination of life health insurance with protection, conservation, and distribution of estate assets.
4720 Employee Benefit Plans (3) Plan design, cost factors, and funding media for employee benefits, including business life insurance, group insurance, pensions, profit sharing, and other forms of deferred compensation.
4740-50 Property-Casualty Insurance Planning (3, 3) Property and casualty contracts and forms and their application to business and personal risks. Must be taken in sequence.

GRADUATE
5110 Theory of Risk Management (3)

Real Estate and Urban Development (849)
2610 Introduction to Real Estate (3) Basic concepts, tools, and analysis of real estate. May not be used for degree requirements in business administration.
3610 Principles of Real Estate and Urban Development (3) Introduction to real estate value. Prereq: Economics 3110.
3615 Real Estate Appraisals (3) Theory and practices of determining real estate value. Prereq: 3610.
3630 Real Estate Finance (3) Institutional and governmental procedures and techniques for financing real estate transactions. Prereq: 3610.
4120 Urban Growth and Land Use (3) Analysis of urban growth processes and land use patterns. Prereq: 3610.
4130 Problems of Urban Development (3) Current problems of land use and urban developments. Prereq: 3610.
4640 Management and Development of Real Property (3) Real estate investment analysis and taxation. Prereq: 3630.
4810 Analytical Methods in Real Estate (3) Applications of regression, correlation, and computer based models to real estate investment decisions. Prereq: 3615 and Statistics 4310.

GRADUATE
5002 Non-Thesis Graduation Completion (3-15)
5110 Urban Economic Analysis (3)
5120 Real Estate Analysis (3)
5130 Housing and Urban Land Markets (3)
5140 Real Estate Investment and Taxation Analysis (3)

Management
Professors:
H. D. Dewhirst (Head), Ph.D. Texas; R. W. Boling, Ph.D. Stanford; M. E. Gordon, Ph.D. California.
College of Business Administration

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.

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

3111 Operations Management (3) Analysis and synthesis of concepts and techniques for decision making in the operations 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.


3330 Experiences in Organizational Behavior (3) General concepts and personal experience, interpersonal and organizational communication, practice and evaluation.

3460 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.

4210 Managerial Strategy and Tactics Applications (3) A general business simulation 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.

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

4320 Organization of Structure and Behavior (3) Organization of production function. Prereq: 3110-20 or approval of instructor.

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.

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

4460 Organizational-Industrial Psychology (3) An analytical and empirical approach to application of psychological tools and knowledge to organizations. Prereq: Statistics 3110 (or Statistics 3310 with consent of instructor). Cannot be taken for credit by students who have credit for Management 3460. (Same as Psychology 4460.)

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

4520 Evaluation of Personnel Programs (3) Methodologies for evaluation developed analyze 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 method and conclusions from personnel research as reported in professional journals.

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

4710 Enterprise Planning and Control (3) Concepts and cases in managerial functions of planning and control in business firm or non-profit organization. Emphasis on formal long-range strategic planning in changing environment. Team project to develop long-range plan for hypothetical enterprise.

5001-02-03 Readings and Research in Personnel Management (1, 2, 3) Prereq: 4460, Statistics 4310, and consent of instructor.

5000 Thesis

5002 Non-Thesis Graduation Completion (3-15)

5010 Quantitative Analysis for Management Decisions (3)

5310-20-30 Management Science Methods (3, 3, 3)

5335 Mathematical Programming Computational Systems (2)

5340 Application of Management Science Methods (3)

5610 Special Topics in Management Science (3)

5910 Management Science Problems (1-6)

6000 Doctoral Research and Dissertation

6110-20-30 Models for Production Systems (3, 3, 3)

6210-20 Network Flows (3, 3)

6310 Integer Programming (3)

6410 Large Scale Mathematical Programming (3)

6510 Nonlinear Optimization (3)

6610 Markovian Decision Models (3)

6620 Queuing Models (3)

6710 Location Models (3)

6810 Special Topics (3)

6910-20-30 Management Science Seminar (1-3, 1-3, 1-3)

Marketing and Transportation

Professors:
G. H. Nickle (Chair), DBA Indiana; D. J. Barnaby, Ph.D. Purdue; F. W. Davis, Jr., Ph.D. Michigan State; M. O. Dills (Emeritus), Ph.D. Ohio State; J. L. Frye, Ph.D. Florida; E. G. Eason (Emeritus), MBA Ohio State; F. L. Hendrix, Ph.D. North Carolina; G. E. Hille, DBA Indiana; E. P. Patton, Ph.D. North Carolina; R. B. Woodworth, DBA Indiana.

Associate Professors:

Assistant Professors:
F. L. Barbour, Ph.D. Illinois; L. D. Duffus, Ph.D. Purdue.

Marketing (632)

Economics 2110-20-30 or the equivalent are prerequisites to all courses in Marketing. Prereq: Economics 2110-20 or the equivalent are prerequisites to all courses in Marketing. Prereq: 3110-20 or the equivalent are prerequisites to all courses in Marketing.

3110 Marketing Problems (3) Marketing in our economy. Influence of environment: social, economic, ethical, legal, and technological forces on marketing.

3120 Marketing Management (3) Analysis of marketing management, identifying market opportunities, planning marketing program, and implementing competitive strategies. Prereq: 3110.

3210 Marketing Systems (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: 3120.

4140 Marketing Communications I (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.

4150 Marketing Communications II (3) Mass communications theories and concepts. Advertising and its relationship to marketing program of firm.

4210 Buyer Behavior (3) Industrial and ultimate consumer purchasing behavior. Theories underlying buying decision processes, marketing management and pivotal concepts in behavioral sciences.

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.

4310 Retailing Management (3) Structure and environment of retailing and its relationship to other parts of the economy. Research and decision making in select retail store management.

4440 Environmental Issues in Marketing (3) Environmental forces which serve as constraints on business decision maker. Emphasis is placed upon current issues and social and ethical implications of marketing decisions.

4510 Marketing Information Planning (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: Statistics 4310 or 3220 or 4250.

4650 Market Opportunity Analysis (3) 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: 4510.

4710 Marketing Decisions and Strategies (3) Pragmatic orientation to application of advanced, analytical concepts and skills within marketing environment. Emphasis is upon integration of knowledge from the component areas of marketing into cohesive, well-organized marketing program. Prereq: 24 hrs. of marketing including 4210, 4510 and 4650 or consent of instructor. Course should be taken as close to graduation as possible.

4808 Honors: Executive-In-Residence Seminar (3) Student interaction with top-level marketing executives. Topics under study will include pivotal concepts in behavioral sciences.

4810 Buyer Behavior Analysis (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.

4820 Current Topics in Transportation and Logistics (3) Seminar designed to study specific current problem areas in transportation and distribution. Topics announced prior to offering. May be repeated once for credit. Prereq: Consents of instructor.

4830 Supervised Readings in Transportation and Logistics (3) Directed readings and research on subject of mutual interest to student and staff member. Prereq: Senior standing with minimum of 18 hours of transportation.

4910 Carrier Liability and Claims (3) Rights and liabilities of carriers, consignors, and consignees; claim procedures and claim prevention.

4920 Transportation Law and Procedures (3) Analysis of interstate Commerce Act and related statutes, practices, and procedures before regulatory agencies.

4930 Transportation Policy (3) Analysis of regulatory, professional and planning activities of federal, state, and local governmental units.

GRADUATE
See page 88 for information on graduate programs.

5002 Non-Thesis Graduation Completion (3-15)

5010 Marketing and Distribution Management (3)

5020 Marketing Strategy and Decision Making (3)

5210 Sales Force Management (3)

5220 Promotion Management (3)

5320 Analysis and Design of Marketing Systems (3)

5330 Marketing Research (3)

5350 Buyer Behavior Analysis for Marketing (3)

5400 Analyzing Market Opportunity for Marketing Decisions (3)

5410 Advanced Marketing Strategy (3)

5450 International Marketing Management (3)

5900 Research in Marketing (3)

6000 Doctoral Dissertation and Research

6050 Theoretical Foundations of Marketing (3)

6100 Design and Measurement in Marketing Research (3)

6150 Marketing Research Applications (3)

6200 Buyer Behavior (3)

6250 Selected Problems in Consumer Behavior (3)

6300 Marketing Decision Models (3)

6350 Current Topics in Marketing (3)

Transportation (981)

Nine quarter hours in general economics are prerequisite to all courses in transportation. Transportation 3110-20 or consent of instructor are prerequisite to all courses numbered above 4000.

3110 Introduction to Transportation (3) Survey of the demands made by society upon the nation's transportation system and the problems facing carriers and government in meeting these demands.

3155 Introduction to Logistics (3) Business logistics as a functional area within the firm. Discussion of logistical system components and their interaction. Prereq: 3110, Statistics 2100.

3120 Traffic Management (3) Problems and opportunities in shipper's utilization of carrier services with emphasis on classification and tariff systems analysis; rate determination and selection procedures. Prereq or coreq: 3115.

4410-15 Surface Transportation (3, 3) Analysis of characteristics, regulatory provisions, and managerial policies of railroads, motor carriers, and domestic barge lines. Courses should be taken in numerical sequence.

4420 Air Transportation (3) Analysis of economic characteristics, regulatory provisions, and organizational patterns of commercial aviation.

4510 Urban Transportation (3) Analysis of economic characteristics, regulatory provisions, and management of transportation firms operating in urban areas.

4610 Carrier Pricing Strategy (3) Historical development of carrier pricing systems and analysis of current strategy.

4620 Carrier Management Seminar (3) Senior seminar in applications of management decision making in transportation. Prereq: Minimum of 16 hours in transportation/logistics Transportation 440-15 recommended.

4720 Logistics Systems Management Seminar (3) Senior seminar in development of business logistics strategy and the management of logistical system. Course approach includes case studies, lectures, and computer simulation. Prereq: 3115, Management Science 2110.

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.

4810-15 International Transportation and Logistics (3, 3) Introduction to the ocean shipping and international air service, import-export traffic management, international distribution strategy, government policy, and operation of transportation systems in other countries. Courses must be taken in sequence. Prereq or coreq: Business Administration 3110 or consent of instructor.

4920 Current Topics in Transportation and Logistics (3) Seminar designed to study specific current problem areas in transportation and distribution. Topic announced prior to offering. May be repeated once for credit. Prereq: Consents of instructor.

4930 Transportation Policy (3) Analysis of regulatory, professional and planning activities of federal, state, and local governmental units.

GRADUATE
See page 88 for information on graduate programs.

5002 Non-Thesis Graduation Completion (3-15)

5010 Survey of Transportation and Logistics (3)

5110 Theory and Functions of Economic Regulation (3)

5120 Management and the Pricing Problem (3)

5130 Carrier Transportation Management (3)

5220 Logistics Systems Management (3)

5510 Urban Transportation Policy (3)

5810 International Transportation Policy (3)

5910 Advanced Law and Regulation (3)

5900 Independent Study in Transportation/Logistics (3)

6000 Doctoral Dissertation and Research

6110 National Transportation Policy (3)

6210 Seminar in Transportation and Logistics Models (3)

6220 Research Methodology in Transportation and Logistics (3)

Office Administration (735)

Professors: J. W. Ballard (Program Director), Ph.D. Ohio State; W. Davis (Emeritus), M.A. New York; D. Reese, Ph.D. Iowa; E. H. Smith, Ph.D. Ohio; G. A. Wagner (Emeritus), M.S. Indiana.

Associate Professor: B. J. Brown, Ed.D. Tennessee.

Assistant Professors: P. G. Campbell, M.S. Austin Peay State; H. C. Petree, M.S. Tennessee.

Junior standing or the approval of the department head is required for registration in courses numbered 3000 or above.

2110 Beginning Typewriting (3) Development of typewriting skills, straight-copy speed stressed. Introduction to letters, tabulations, and manuscripts. For students with no previous training or with one-half unit
Emphasis on logical thinking, problem solving, and decision making in office management, and synthesizing previous learning. Taken as a capstone experience during senior year. Prereq: 3110, 3180, and 3310, 4510 or 4520.

4650 Practicum (3) Development of office supervisory competencies in supervised work experience. Minimum of 15 hours a week of paid work experience in position with office supervisor or management personnel. Assignment to a position consistent with student's career goals. Prereq: 3110, 3180, and 3310, 4510 or 4520; coreq: 4640. Students may be exempt from practicum if they have had one full-time equivalent work experience consistent with their career goals. S/NC.

4810-20-30 Problems in Office Administration (1-3, 1-3, 1-3) Subject and title vary each quarter. May be repeated. Maximum credit 3 hrs. for each course.

GRADUATE

5011 Problems in Lieu of Thesis (3)

5050 Data Processing in Business (3)

Statistics (962)

Professors:
C. C. Thiessen (Head), Ph.D. Virginia Polytechnic; D. S. Chambers (Emeritus), MBA Texas; R. A. McLean, Ph.D. Purdue; J. W. Philpot, Ph.D. Virginia Polytechnic.

Associate Professors:
G. B. Ranney, Ph.D. North Carolina State (Raleigh); S. W. Ward, Ph.D. Virginia Polytechnic.

Assistant Professors:
H. A. Laster, Ph.D. Rutgers; D. D. Sanders, Ph.D. Texas; D. J. Wheeler, Ph.D. Southern Methodologist; M. S. Younger, Ph.D. Virginia Polytechnic.

S. Younger, Ph.D. Virginia Polytechnic.

S. Walker, Ph.D. Virginia Polytechnic.

Associate Professors:
J. W. Philpot, Ph.D. Virginia Polytechnic.

Assistant Professors:
H. A. Laster, Ph.D. Rutgers; D. D. Sanders, Ph.D. Texas; D. J. Wheeler, Ph.D. Southern Methodologist; M. S. Younger, Ph.D. Virginia Polytechnic.

S. Younger, Ph.D. Virginia Polytechnic.

S. Walker, Ph.D. Virginia Polytechnic.

S. Chambers (Emeritus), MBA Texas; R. A. McLean, Ph.D. Purdue; J. W. Philpot, Ph.D. Virginia Polytechnic; D. S. Chambers (Emeritus), MBA Texas; R. A. McLean, Ph.D. Purdue; J. W. Philpot, Ph.D. Virginia Polytechnic.

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.

3110 Regression and Correlation Methods (3) Methods of linear and multiple-linear regression and correlation; nonparametric measures of association. Some properties of estimators. Determination of sample size. Not available for credit to students with credit for 3410.

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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.

GRADUATE
See page 88 for information on graduate programs.

5310 Business Policy (3)
5410 Business and Its Societal Environment (3)
5610 Seminar in Applied Business Analysis (3)

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
K. E. Quindry, Research Professor, Ph.D. Kentucky
W. F. Fox, Research Associate Professor, Ph.D. Ohio State
R. A. Hoffer, Research Assistant Professor, B.A. Old Dominion
J. W. Mayo, Research Assistant Professor, M.A. Washington University (St. Louis)
P. A. Price, Research Associate, B.S. Tennessee
P. D. Postma, Research Assistant Professor, Ph.D. Tennessee
N. C. Schoening, Research Associate, M.S. Ohio State
College of Communications

Donald G. Hileman, Dean
Paul Ashdown, Assistant Dean for
Undergraduate Studies
Herbert H. Howard, Assistant Dean for
Graduate Studies

Communication has become increasingly significant in today's complex society. The growth of specialization, the widening gaps among segments of society, and the inescapable nature of world conflict point up the need for a greater understanding of communication processes and for the education of young men and women capable of perceptive understanding of the communications media.

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 communications 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 beyond which choices will permit the student to develop special interests.

The American Council on Education for Journalism has accredited the Advertising, News-Editorial, Public Relations and Professional Master's programs. The college is a member of the American Association of Schools and Departments of Journalism and the Broadcast Education Association.

Admission Requirements

Association with the College of Communications may take place at any time. Those interested in this college should obtain a copy of the Program Planning Guidebook of the College of Communications.

Freshman admitted to the College of Communications are temporarily classified as premajors. They may apply for admission to a major degree program after they pass typing and spelling proficiency tests and complete, with at least a 2.0 cumulative average, the following courses:

- English 1010 or 1011, 1020, 1032 (with a minimum grade of C in each course).
- 12 hours of natural science
- History 1510-20
- Communications 1110-1118
- 9 hours of foreign language
- Sociology 1510

A final decision on admission 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's typing and spelling tests before enrolling in or preregistering for any course in the college other than Communications 1110 or 1118. Students may not enroll in courses numbered 3000 or above in the college (with the exception of Advertising 3000) until they have successfully completed the core courses. The core courses by major are:

- Advertising — Communications 1110 or 1118, Journalism 2215, Advertising 3000
- Broadcasting — Journalism 2215, Advertising 3000, Broadcasting 2750
- Journalism — Journalism 2215, Journalism 2220, Journalism 2230

Transfer students may apply for admission into the College of Communications after they have completed all the premajor requirements including the core courses and 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 adviser, they may plan individual programs leading to newspaper, magazine, radio, television, public relations, or advertising work. 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, or they may combine training in communications with work in secretarial science.

Students in other divisions of the University may take certain courses for training in effective communication or for an understanding of the social role of the mass media.

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

Upper Division

Consent of instructor is prerequisite for all 3000-and 4000-level courses, with the exception of Advertising 3000, in the College of Communications.

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. Students who have completed the basic courses in the college other than Communications 1110 or 1118 may take certain courses for training in secretarial science.

Consent of instructor is prerequisite for all courses, except for Communication 1110-1118 where approval of the adviser and the departmental head is required. Course approval must be obtained before the course is begun.

Course Load

The maximum number of hours an undergraduate can take without special
permission is 17 hours. Permission to take 18 or more hours must be obtained from either the dean or the assistant dean for undergraduate study. It is recommended that the student have the recommendation of the student's adviser and department chairman or school director.

Cooperative Program

The college, in cooperation with the University-wide Undergraduate Cooperative Education Program, has developed a cooperative program with the media, advertising and public relations agencies, and the communications departments of business organizations where interested students might combine their education with a productive work experience. At present, only a limited number of such opportunities are available. Although other arrangements can be made, a student will enter the program only after completing one or two quarters at the University. A student will alternate with another student, with one working full-time for the employer for one quarter while the other person is in school, etc. 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 the 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 also may lead to permanent employment after graduation.

Information concerning this program may be obtained by writing to the Undergraduate Cooperative Education Program, Division of Continuing Education, 415 Communications and Extension Building, The University of Tennessee, Knoxville, Tennessee 37996-0332.

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 editor of The Memphis Press-Scimitar, Turner Catledge, former executive editor of The Chicago Daily News, and founding editor of The Knoxville News, which later became the News-Sentinel.

Kelly Leiter, former columnist, feature writer and assistant city editor of The Chicago Daily News and the Indianapolis News, is the first permanent fulltime faculty member to hold the position.

Trumbull Catledge, former executive editor of The New York Times, and John Hohenberg, longtime administrator of the Pulitzer Prizes and outstanding teacher at the Columbia University Graduate School of Journalism, have held this professorship.

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, the college radio station WUTK, and the University radio station WUOT provide practice for communications majors. The Tennessee Press Association and Tennessee High School Press Association, centerpiece 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 in the major will be applied to the 194 hours. Journalism 2210 is the only course in the college that may be taken by correspondence.

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. These hours may be applied to the general electives requirement.

FOREIGN LANGUAGES

One year of foreign language on the college level is required unless two units of high school credit are presented in which case students may substitute eight or nine hours of courses listed below by majors.

Advertising and broadcasting majors may substitute the following courses (unless otherwise required in the student's major): Anthropology 2510-20-30; Geography 1810-20, or 2110-20-30; Mathematics 1540-50-60, or 1840-50; Philosophy 1510-20-30, or 3111-21-31-41; Psychology 2500; 2530; 2540; Religious Studies 2510-11-12.

Journalism majors in the news-editorial sequence must take either Mathematics 1540-50-60 or Accounting 2110-20-30.

Journalism majors in the public relations sequence may substitute any of the courses listed above for the advertising and broadcasting majors with the adviser's permission (in the sequence) and in addition may substitute any of the following courses: Art 1615-25; any Black Studies course; Music 1210-20; Theatre 1310 and any Women's Studies course.

The student may also fulfill the requirement with a foreign language.

NATURAL SCIENCE

You may take 12 hours of the following in any combination: Astronomy 2110-20-50; Biology 1210-20-30; Botany 1110-20; Chemistry 1510-20-30; Geology 1410-20-30; or Physics 1410-20-30 or 1210-20-30.

ENGLISH

This requirement is fulfilled by English 1010-11; 1020 or 1032 or appropriate honors courses. The eight hours of literature may be selected from English 1090-10-20-30 and 2760-70-80 (and Comparative Literature 2010 for journalism majors). Upper-division literature courses may be substituted by students with a B+ average in freshman English at UTK.

PROFESSIONAL COURSES

The advertising major requires certain professional courses which may be selected from the following: Accounting 2110-20; Advertising 3740, 4510-20-30, 5310, 5350; Art 2515, 3515; Broadcasting 2750, 3360, 4020-30, 4670-80, Educational Curriculum and Instruction 4750; English 1033; Journalism 3120, 3410, 3710-20, 4710, 3810, 3910, 3990, 4410-20, 4950; Marketing 4140, 4230, 4310, 4440, 4510-20, 4710; Mathematics 3000; Office Administration 2750, 4310-20; Psychology 3120, 4640; Speech 3011; Statistics 3410.

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 adviser. 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 adviser'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

<table>
<thead>
<tr>
<th>Freshman</th>
<th>Hours</th>
<th>Credit</th>
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<tbody>
<tr>
<td>*English 1010-20, 1032</td>
<td>9</td>
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<td>Natural science electives</td>
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<td>History 1510-20</td>
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<td>*Foreign language electives</td>
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<td>Sociology 1510</td>
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<td>Economics 2110-20</td>
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<td>Sociology 1550</td>
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<td>Speech 2311</td>
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*See Requirements for Graduation.

Broadcasting

LOWER-DIVISION CURRICULUM

(Required of all broadcasting majors)

<table>
<thead>
<tr>
<th>Freshman</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>*English 1010-20, 1032</td>
<td>9</td>
<td></td>
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<tr>
<td>Natural science electives</td>
<td>12</td>
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</tbody>
</table>

College of Communications
### Departments of Instruction

**Communications (259)**

Professors:
- J. A. Crook, Ph.D. Iowa State; A. D. Fletcher, Ph.D. Illinois; J. B. Haskins, Ph.D. Minnesota; D. G. Hileman, Ph.D. Illinois; D. W. Holt, Ph.D. Northwestern; H. H. Howard, Ph.D. Ohio; B. K. Leiter, Ph.D. Southern Illinois; D. D. Nimmo, Ph.D. Vanderbilt.

Associate Professors:
- G. A. Everett, Ph.D. Iowa; M. Miller, Ph.D. Michigan State; M. W. Singletary, Ph.D. Southern Illinois.

**1110 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 to majors who have had no communications courses and to non-majors below junior level.

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

**GRADUATE**

- **5000 Thesis**
- **5100 Introduction to Graduate Studies (3)**
- **5120 Communications Research Design (3)**
- **5121 Communications Research Methods (3)**
- **5130 Advanced Principles of Mass Communications (3)**
- **5140 Mass Communication Theory I (3)**
- **5150 Seminar in Communications Issues (3)**
- **5200 Seminar in Communications Education (3)**
- **5410 Seminar in Communications Law (3)**
- **5420 Seminar in Communications History (3)**
- **5470 Seminar in Media Economics and Management (3)**
- **5970 Independent Study (3)**
- **6000 Doctoral Research and Dissertation**
- **6100 Introduction to Doctoral Studies (1)**
- **6140 Mass Communication Theory II (3)**
- **6141 Mass Communication Theory III (3)**
- **6200 Seminar in Communication Topics (3)**
- **6300 Survey Research Methods in Communications (3)**
- **6310 Experimental Research Methods in Communications (3)**
- **6320 Seminar in Historical Research Methods in Communications (3)**
- **6330 Content Analysis (3)**

**Advertising (012)**

Professors:
- R. J. Beskid, M.A. Wisconsin; A. D. Fletcher, Ph.D. Illinois; D. G. Hileman, Ph.D. Illinois;
on media research, rate structure, programming, creativity; television commercials.

3610 Radio-Television News (3) Theory and techniques of writing news stories 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.

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.

3670 Television News (3) Theory and techniques of portable video tape and film production for television. Ethical considerations and editing techniques. Emphasis on news and information programs. 2 hrs. and 1 lab. Prereq: 3610 with grade of C or better or consent of instructor.

4010 Speech for Broadcasting (3) Fundamental broadcast conditions affecting the announcer, pronunciation and oral interpretation of general American speech. Italian, German, and French pronunciation. Prereq: Speech 2311.

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.

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.

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

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.

4510-20-30 Practicum (1, 1, 1) Prereq: Consent of instructor. S/NCG.

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

4670 Radio-Television Management (3) Business policies and practices of network and station departments. Methods of sales techniques, promotion, advertising agencies, and government regulations. Lectures by commercial broadcasters. Prereq: 2750 or consent of instructor.

4880 Broadcast Sales Management (3) Problems and procedures of television and radio sales, case studies in sales development, pricing, promotion, and other areas of sales management. Prereq: 2750 or consent of instructor.

5410 Educational Broadcasting (3) Creative projects for educational broadcasting. Prereq: Consent of instructor. S/NCG.

5510 Creative Projects (3)

5970 Independent Study (3)

School of Journalism (594)

Professors:
J. A. Crook (Director), Ph.D. Iowa State; J. B. Hawkins, Ph.D. Minnesota; B. K. Leiter (Emeritus)

Distinguished Professor), Ph.D. Southern Illinois; D. D. Nimmo, Ph.D. Vanderbilt.

Associate Professors:

Instructors:
M. L. Kerr, M.S. Florida State; A. R. Padron, M.S. Columbia.

Assistant Professors:

Graduate Students:
J. A. Crook (Director), Ph.D. Iowa State; J. B. Hawkins, Ph.D. Minnesota; B. K. Leiter (Emeritus)

Distinguished Professor), Ph.D. Southern Illinois; D. D. Nimmo, Ph.D. Vanderbilt.

Associate Professors:

Instructors:
M. L. Kerr, M.S. Florida State; A. R. Padron, M.S. Columbia.
phasis on survey techniques. Interpretation and communication of research findings to public.

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.

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.

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.

4420 Newspaper Management (3) Daily and weekly business operations. Developments in newspaper management.

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.

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 Relation 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.

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

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.

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

GRADUATE

5210 Government and the Press (3)

5250 Public Opinion and Mass Media (3)

5510-20-30 Writing and Editing Projects (3,3,3)

5560 Magazine Article Writing (3)

5710 Studies in Public Relations Communications (3)

5950 Communications and International Development (3)

5970 Independent Study (3)