William S. Shields, former member of the University Board of Trustees, and his wife. The stadium, built and developed by the Department of Athletics over a period of years, can now accommodate over 90,000 spectators. 

STOKELY ATHLETICS CENTER
The hub of the University’s sports program is Stokely Athletics Center, which houses a 13,000-seat basketball arena and a fine indoor track. Also located here are coaches’ offices, dressing rooms for all sports, and a Hall of Fame room.

OTHER FACILITIES
The University is proud, too, of its Tom Black Track, host to regional and national meets. It was built to specifications. Hudson Field, newly remodeled baseball field and stadium seating 1,500 fans in addition to providing dugouts and press box facilities, is one of the best complexes in the conference.

Student Publications
A number of student publications are printed during each school year to serve as sources of information to new students, to report the many events of interest to the campus community, and to record the year’s activities.

The Daily Beacon, a student newspaper, The Volunteer, yearbook on campus activities, and The Phoenix, quarterly literary magazine, are sponsored by The University of Tennessee Student Publications Board.

Other student publications are:
- Sorority Scope, published annually by the Interfraternity Council to acquaint male students with the fraternities.
- The Tennessee Engineer, published by students and faculty of the College of Engineering to inform students and alumni of progress in the engineering field.
- The Tennessee Farmer, published quarterly by the College of Agriculture Student-Faculty Council for those students and alumni interested in developments in agriculture.
- The Tennessee Law Review, published quarterly by students of the College of Law.

Traditions
Traditions play an important part in the life of a University student by recalling the history and heritage of the past and by setting examples for future achievements.

For instance, the Volunteer Symbol, spirit of the state as well as of new students, to report the many events of interest to the campus community, and to record the year’s activities.

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 to see what students are saying and doing.

All-Sing, begun in the early 1930s to encourage 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 years 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 hemotological and oncologic problems.

Excellent facilities for animal and laboratory experimentations 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 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 other information about UT’s teaching, research, and continuing education activities and is distributed to alumni, faculty and staff, and friends of the University.

The University System of Tennessee
- 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, copyediting, 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 UTK. Some objectives of the S.G.A. are to provide a vehicle for representation 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 chairman of the Student Senate while the vice president administers the student services staff (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 Graduate School

L. Evans Roth, Vice Chancellor for Graduate Studies and Research
Clarence W. Minkel, Dean for Graduate Studies
Marla P. Peterson, Dean for Research
Mary P. Richards, Associate Dean for Graduate Studies
Thomas L. Bell, Assistant Dean for Research
Thomas H. Klinet, Assistant Dean for Graduate Studies

The University of Tennessee, Knoxville, is the official land-grant institution for the State of Tennessee. It is a comprehensive institution offering a wide range of graduate programs leading to the Master's and doctoral degrees. The University offers Master's programs in 116 fields of specialization and doctoral work in 52. approximately 6,000 graduate students are enrolled, both on and off campus. Administration of graduate student policies and regulations, and associated record keeping, is the responsibility of the Dean for Graduate Studies. 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. Graduate programs are available to students desiring full-time study toward the Master's and doctoral degrees or professional certification, those interested in continuing education for updating and broadening knowledge, and those pursuing postdoctoral research. Traditionally, universities have provided graduate programs primarily for full-time, degree-oriented students. Serving the needs of students engaged full-time in intensive study and pursuit of a degree continues to be a major emphasis of UT's graduate effort. At the same time, the University employs a variety of modes, traditional and non-traditional, in offering quality programs designed to serve students.

Complete information concerning graduate study at The University of Tennessee, Knoxville, is available in the Graduate Catalog published annually. For a copy, write or come to the 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. Gaebner, Ph.D., Purdue.
Assistant Professor:
M. D. Mamrack, Ph.D., Baylor.
Research Associate Professors:
Research Assistant Professor:
E. A. Hies, 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)
5310-20-30-40 Biomedical Sciences Laboratory (3,3,3,3)
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)
6219 Enzyme Regulation and Kinetics (3)
6240 Chemistry and Metabolism of Lipids (3)
6251 Molecular Biology of 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)

53
### Majors and Degrees Available

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<th>College of Agriculture</th>
<th>DEGREE</th>
<th>College of Business Administration</th>
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<td>Forestry</td>
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<td>Adult Education</td>
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<td>Plant and Soil Science</td>
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<td>Art Education</td>
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<td>Computer Science</td>
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<td>History</td>
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<td>Music</td>
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<td>Theatre</td>
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<th>College of Social Work</th>
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<tbody>
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<td>Social Work</td>
<td>M.S.S.W.</td>
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6520 Special Topics in Biomedical Sciences (3,3,3)
6600 Mammalian Genetics (3)
6610 Mammalian Biochemical Genetics (3)
6630 Microbial Genetics (3)
6750 Regulation of Intermediary Metabolism (3)

**Comparative and Experimental Medicine**

**MAJOR DEGREES**

Comparative and Experimental Medicine M.S., Ph.D.

Joint Coordinating Committee:
H. Kitchen (Chairperson); C. C. Congdon; J. E. Fuhr; J. M. Holland; J. E. Lawler; R. L. Michel.

The Comparative and Experimental Medicine degree program 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 UTK 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 during the junior and/or senior years. Students may conduct own research projects within designated areas. Prerequisites: 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. Prerequisites: Biology 1010-20 or consent of instructor.

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

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

**GRADUATE**

5000 Thesis (1-15)

5080 Graduate Research Participation (3)

5220 Special Topics in Cancer (1-3)

5320 Special Topics in Hematology (1-3)

5350 Biochemistry of Coagulation Fibrinolysis and Hemostasis (2)

5410 Molecular Basis for Metabolic Disease (5)

5420 Special Topics in Metabolic Disease (1-3)

5430 Metabolism of Drugs (2)

6000 Doctoral Research and Dissertation (3-15)

6110 Advanced Topics in Medical Biology (2)

6250 Special Topics in Pathology (1-3)

**Engineering Administration**

**COURSES**

5002 Non-Thesis Graduation Completion (3-15)

5900 Project in Engineering Administration (3)

**Energy, Environment, and Resources Center**

**Director:** E. Lumideine, Ph.D., New Mexico State.

The Energy, Environment, and Resources Center was created to encourage interdisciplinary studies at UTK, directed at solving 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 state 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. B. Prentice (Director), D.L.S., Columbia; W. C. Robinson, Ph.D., Illinois; G. M. Sinkankas, Ph.D., Pittsburgh; P. Wilson, Ph.D., Michigan.

**Assistant Professors:**

M. H. Karr, M.L.S., South Carolina; J. M. Pemberton, Ph.D., Tennessee; M. J. Stephenson, M.L.S., North Texas State.

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

**The Undergraduate Program**

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

The minimum requirements for a full-time position as school librarian in the state of Tennessee (both elementary and secondary) can be met through fulfilling the requirements for teacher certification and completion of the following library courses: 3510, 3520, 3530, 4140, 4150, 4270, 4530, and 4750.

**The Graduate Program**

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

**UNDERGRADUATE**

3510 Books and Related Materials for Children (3) Readings based on materials for children in leisure time or classroom activities; criteria for selecting books, magazines, recordings, films and related materials; story-telling and other devices for encouraging reading. Undergraduate credit only. Prerequisite: Admission to teacher 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 needs and interests of teenagers. Undergraduate credit only. Prerequisite: Admission to teacher 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 teacher 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.)

4210 Organization of Library Collections I (3) Acquisitions, cataloging, and maintenance of library collections.

4270 Organization of Library Collections II (3) Acquisitions, cataloging, and maintenance of library collections.

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

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)

5260 Government Publications II (3)

5270 Legal Bibliography (3)

5300 Library Management (3)

The Graduate School
Graduate School of Information, refer to the Graduate Catalog.

For complete information, refer to the Graduate Catalog. Coordination 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. Georgia Washington.

Assistant Professors:
- D. Arbel, Ph.D. Cornell; P. Fisher, Ph.D. Florida State; A. Lovel, Ph.D. Missouri.

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

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 (4)
5130 Planning Research Methods I (3)
5135 Planning Research Methods II (3)
5141 Statistics for Planners (4)
5145 Library Research for Planners (1)
5160 Planning and Utilities (3)
5170 Planning for Historic Preservation (3)
5180 Planning Analysis and Forecasting (4)
5230 Urban and Site Design (3)
5235 Urban and Site Design (3-6)
5270 Planning and Transportation (3)
5280 Planning Methods (6)
5300 Regional Planning (3)
5310 State Planning (3)
5340 Implementation (3)
5360 New Towns (2)
5380 Housing (3)
5390 Futures (3)
5410-20-30 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)
5670 Social Planning (2-3)

Radiation Biology (844)

Courses

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 (2)

Graduate School of Social Work (905)

Ben P. Granger, Dean
Betty J. Cieckley, Associate Dean
Lou M. Beasley, Branch Director, Nashville
Roger M. Nooe, Branch Director, Knoxville
M. Kate Mullins, Branch Director, Memphis

Professors:
- B. P. Granger (Dean), Ph.D. Brandeis; M. H. Bloch, M.S. Ohio State; R. C. Bonovich, D.S.W. Washington (St. Louis); G. W. Fryer, Ed.D. Columbia; G. McLarnan (Emeritus), M.S.S.W. Tennessee; M. K. McCune, Ph.D. Chicago; R. M. Neece, D.S.W. Tulane; B. Orchard (Emeritus), M.S. Western Reserve; S. W. Spencer (Emeritus), M.S. New York School of Social Work.

Associate Professors:
- R. W. Ayres, D.S.W. Tulane; L. M. Beasley, Ph.D. Denver; W. J. Bell, D.S.W. Tulane; J. R. Cates, Ph.D. Michigan; B. J. Cieckley, Ph.D. Brandeis; C. T. Cruikshank, D.S.W. Tulane; J. C. Edwards, Ph.D. Southern Illinois (Carbondale); M. D. Feil, Ph.D. Pittsburgh; R. K. Green, J.D. Tennessee; C. F. Hariston, Ph.D. Western Reserve; H. Hayyama, D.S.W. Pennsylvania; P. Landon, Ph.D. Denver; E. K. Marshall, Ph.D. St. Louis; A. E. Moses, D.S.W. California (Berkeley); R. B. Rowen, Ph.D. Arizona; N. C. Tate, Ph.D. Brandeis; H. H. Vaugn, M.S.S.W. Tennessee; A. R. Wachter, M.S.S.W. Tennessee; C. S. Wilks, Ph.D. St. Louis; P. G. Zatzkob, M.S.S.W. Wisconsin.

Assistant Professors:
- P. M. Campbell, M.S.S.N. Tennessee; M. Celingok, Ph.D. Washington; J. Charting, M.S.S.W. Tennessee; J. C. Collier, M.S.W. Tulane; H. P. Coyle, Ph.D. Western Reserve; J. C. Faust, M.S.W. Tennessee; A. R. Ford, M.S.W. Atlanta; V. A. Gates, M.S.S.W. Tennessee; W. D. Harrison, Ph.D. Minnesota; J. Jennings, Ph.D. Michigan; D. C. Johnston, M.S.W. California (Berkeley); G. Lowry, M.S.S.W. Tennessee; J. R. Michael, M.S.W. Ohio State; M. P. Strong, M.S.W. Tulane; J. F. Thompson, Ph.D. Rutgers.

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. The School also offers a Doctor of Philosophy degree with a major in Social Work. This new Ph.D. program will begin Fall Quarter 1983. 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)
5762 Seminar in Social Welfare Administration and Planning (3)
5771 Information Systems and Decision Making (2-3)
5772 Financial Management for Social Welfare Administration (2-3)
5800 Management of Residential Settings (2-3)
5812 Organizational Perspectives in Juvenile Justice (2-3)
5820 Social Aspects of Illness (2-3)
5825 Drugs: Use and Abuse (2-3)
5826 Social Work Treatment for Marital Adjustment (2-3)
5830 Law and Social Work (2-3)
5860 Social Gerontology (2-3)
5865 The Roles of Women (2-3)
5900 Graduate Seminar in Public Health (1-2)
5910-20 Field Practice (3,4)
5930-40-50-60 Field Practice (4,4-8,4-8)
5961 Integrative Seminar (2)
5970 Outcomes in Social Work Practice (2-3)
5980 Practicum in Government Social Welfare Policy Making (2-3)

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

Professors:
G. W. Braun (Emeritus), Ph.D. Goettingen; L. W. Crawford, Ph.D. Cincinnati; J. B. Dicks, Jr., Ph.D. Vanderbliff, F. W. Donaldson, Ph.D. Texas; W. Frost, Ph.D. Washington; B. H. Goethert (Emeritus), Ph.D. Technical University of Berlin; K. E. Harwell, Ph.D. California Institute of Technology; E. G. Huschback, Ph.D. Texas; M. Kurokawa, Ph.D. California Institute of Technology; A. A. Mason, Ph.D. Tennessee; M. K. Newman (Emeritus), Ph.D. Columbia; T. Paludan, Ph.D. Denver; K. C. Reddy, Ph.D. Indian Institute of Technology (India); F. Shahrokh, Ph.D. Oklahoma; C. H. Weaver (Dean, Space Institute; Vice President for Continuing Education), Ph.D. Wisconsin; P. E. M. A. Wright, Ph.D. Wales; J. W. W. Ph.D. California Institute of Technology; Y.-C. Wu, Ph.D. California Institute of Technology; R. L. Young, Ph.D. Northwestern, P.E.

Associate Professors:

Assistant Professors:
B. Antar, Ph.D. Texas; J. M. Carter, Ph.D. Missouri; J. E. Caruthers, Ph.D. Georgia Institute of Technology; R. D. Joseph, Ph.D. Case Institute of Technology; T. C. Powell, Ph.D. Kentucky; V. F. Smith, III; Ph.D. Georgia Institute of Technology.

*Alumni Distinguished Service Professor

The Space Institute is an interdisciplinary institute of graduate study and research offering academic programs leading to the M.S. and Ph.D. degrees in selected areas of engineering and the aeronautical and physical sciences. Further information concerning the Institute may be obtained from the Dean, The University of Tennessee Space Institute, Tullahoma, TN 37386.

Aviation Systems (169)
The University of Tennessee Space Institute offers a 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 Apartments 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 Directors: M. S. Bronzini, Ph.D. Pennsylvania State, P.E.; B. P. Middendorf, Ph.D. Tennessee.
Assistant Directors: D. H. Jones, M.S. Tennessee.

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

Water Resources Research Center

The Water Resources Research Center is a federally designated institute for the conduct of water research for the state. The purposes of the Center are: (1) to assist and support all the academic institutions of the state, public and private, in pursuing water resources research programs needed by the state; (2) to provide information, dissemination and technology transfer services to state and local government bodies, academic institutions, professional groups, environmental organizations, and others, including the general public, who have an interest in water resources matters; (3) to provide education in fields relating to water resources and to encourage the entry of promising students into careers in these fields.
The Institute of Agriculture traces its history 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 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. Whatley, Associate Dean
John I. Sowell, 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:

- **Ames Plantation** near Grand Junction includes 18,500 acres (about 10,000 acres in forest). The resources are held in trust by the Hobart Ames Foundation for use by the Institute of Agriculture. Large scale experiments involve forestry, farm management, crop production, and genetics and management of beef cattle and swine.
- **Dairy Experiment Station** near Lewisburg is operated in cooperation with USDA/SEA/AR. Major emphases are genetics, physiology, nutrition, and management of Jersey cattle. Production, handling and preservation of feed for dairy cattle are also being evaluated along with waste management systems.
- **Forestry Experiment Stations and Arboretum at Oak Ridge, Tullahoma, and Wartburg.** The 250-acre arboretum at Oak Ridge places emphasis on woody plants. Research in forestry studying genetics, species adaptation, fertilization, and other management practices is underway 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 strip-mine reclamation. The Highland Rim Forestry Station is located near Tullahoma. Research at this location deals primarily with tree improvement through genetics and also management problems associated with the forest of the Highland Rim.
- **Highland Rim Experiment Station** near Springfield emphasizes research on field crops and beef cattle. A major thrust is on the development and culture of improved darkfired tobacco varieties. Other research involves problems associated with other agronomic crops, horticultural crops, forages produced on the Highland Rim, and management of beef cattle.
- **Middle Tennessee Experiment Station** near Spring Hill is representative of high-phosphate Central Basin soils. Research studies are underway with agronomic crops, vegetables, fruits, ornamental horticulture, beef cattle, and dairy cattle of the Holstein breed.
- **Milan Experiment Station** is located in West Tennessee. Research emphases are production problems and mechanization of corn, cotton, and soybeans. Minimum tillage and other approaches to reduce soil erosion are a major thrust at this location.
- **Plateau Experiment Station** near Crossville consists of three farms. Studies with beef cattle, and agronomic and vegetable crops provide information about results to be expected under the cooler, more humid climate and special soil conditions of the Cumberland Plateau.
- **Toledo Experiment Station** is located near Greeneville. Extensive research on all phases of burley tobacco is in cooperation with USDA/SEA/AR. In addition, research is underway with beef cattle and other field crops.
- **UT Martin—The research farm, adjacent to the UT Martin campus, is used for both research and teaching. The research staff at Martin, jointly employed by the Experiment Station and the School of Agriculture, cooperate with other station personnel in planning and conducting research on field crops, beef cattle, dairy cattle, and swine. Emphasis is on problems of importance to the northwestern part of the state.**

### Middle Tennessee Experiment Station

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 forage production and dairy production. The USDA/SEA-AR cooperates with research on the soybean cyst nematode.
Agricultural Extension Service

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

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

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

Extension staff members develop and carry out programs to meet the specific needs of the residents of their counties. They work with both adults and youth. Educational activities for boys and girls are 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. Headquarters for the Agricultural Extension Service is at Knoxville and district administrative offices are located in Cookeville, Knoxville, Chattanooga, Nashville, and Jackson.

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

College of Agriculture

O. Glen Hall, Dean

Curricula in Agriculture

Broad opportunities for individuals to prepare for a future in agriculture, forestry, and wildlife and fisheries science are offered in the College of Agriculture. The college provides curricula leading to the degrees of Bachelor of Science in Agriculture, Bachelor of Science in Agricultural Engineering, Bachelor of Science in Forestry, and Bachelor of Science in Wildlife and Fisheries Science.

The professional degree program in agricultural engineering requires 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: animal, 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 outlined by the department in which the student is majoring in order to receive a degree. In all areas of specialization, particular emphasis is placed upon the sciences as a background for agricultural instruction; other courses are included to provide a liberal education. In all subject matter departments there is the opportunity to select elective courses appropriate to the educational objectives of individual students. The choice of electives in each curriculum should be made with the guidance of the faculty 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 UTK campus must have a grade point average of 2.0. Each curriculum leading to the degree of Bachelor of Science in Agriculture includes the requirements of the basic curriculum for agriculture. For this degree, the minimum requirement is 198 quarter-hour credits. A minimum of 45 hours in agricultural courses is required. For the 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 199 quarter-hour credits.

The use of transfer credit in technical agriculture appropriate 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 which the course is offered.

A minimum of 27 quarter hours of upper-division technical agriculture appropriate to a specified major requirement, and approved by the major advisor, 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.
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 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 the planning of 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 courses and content. A foundation for advanced study beyond the baccalaureate degree may be established in any curriculum if appropriate electives are included; also, courses may be elected in any of the curricula leading to the degree of Bachelor of Science in Agriculture, in preparation for employment with the Agricultural Extension Service. For this purpose, both the major-curriculum adviser and the agricultural-extension adviser should be consulted.

A very careful choice of electives enables a student with an above average academic record to complete a double major by satisfying all the requirements in each curriculum. For this purpose, the 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 Minor: 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 credits in the 3000 and 4000 level. At least 12 of the credit hours required for the minor must be completed at UTK. Specific requirements are listed by each department offering a minor. Minors offered in the College of Agriculture are open to students of other colleges who have the approval of their advisor and department.

Students who transfer to the College of Agriculture from another institution, or from another college in UT, 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 first to the department 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 include in their course of study the following minimum requirements.

The sequence and the selection of courses not specified will be guided by the adviser.

### Hours Credit

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture 1110, Introduction to Social Science</td>
<td>4</td>
</tr>
<tr>
<td>Agriculture 1120, Introduction to Agricultural Engineering</td>
<td>4</td>
</tr>
<tr>
<td>Agriculture 1130, Animal Science for Agriculture</td>
<td>4</td>
</tr>
<tr>
<td>Agriculture 1140, Plant Science for Agriculture</td>
<td>4</td>
</tr>
<tr>
<td>Agriculture 1150, Food Technology and Science for Agriculture</td>
<td>4</td>
</tr>
<tr>
<td>Agricultural Science (courses listed in departmental curricula)</td>
<td>26</td>
</tr>
<tr>
<td>English and Communications. (English 1010 or 1011; 1020; 1031 or 1032 or 1033, Speech 2511, and 15 hours of literature or communications)</td>
<td>18</td>
</tr>
<tr>
<td>*Mathematics 1540-50-60. (general mathematics)</td>
<td>12</td>
</tr>
<tr>
<td>Biological Science. (entomology and plant pathology, biology, botany, microbiology, or zoology)</td>
<td>12</td>
</tr>
<tr>
<td>*Physical Science. (Chemistry 1110-20-30 or 1510-20-30 and physics or geology)</td>
<td>16</td>
</tr>
<tr>
<td>Social Science and Humanities. (Economics 2110 and electives, 12 hours—not more than three areas)</td>
<td>78</td>
</tr>
</tbody>
</table>

Other Courses or Electives Hours Specified by Departments: 198 hours

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.

Minor in Agricultural Business consists of 30 credit hours including Economics 2110-20-30, Agricultural Economics 3120 or 3320, Agricultural Economics 4140 or Accounting 2110, selection of 6 hours from Agriculture Electives 4610, 12 hours of Agricultural Economics and Rural Sociology electives.

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture 1110-20-30-40-50</td>
<td>26</td>
</tr>
<tr>
<td>Biology 1210-20</td>
<td>8</td>
</tr>
<tr>
<td>English 1010 or 1011; 1020; 1031 or 1032 or 1033</td>
<td>9</td>
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<tr>
<td>Mathematics 1540-50-60 or 1840-50-60</td>
<td>12</td>
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<tr>
<td>Sophomore</td>
<td>3</td>
</tr>
<tr>
<td>Agricultural economics elective</td>
<td>3</td>
</tr>
<tr>
<td>Biological science elective</td>
<td>4</td>
</tr>
<tr>
<td>Chemistry 1110-20 or 1510-20 and Physics 1210-20 or Geology 1410 or Chemistry 1110-20-30 or 1510-20-30 and Physics 1210 or Geology 1410</td>
<td>16</td>
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<tr>
<td>Computer Science 1410 or 1510 or Office Administration 2750</td>
<td>3 or 4</td>
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<tr>
<td>Economics 2110-20-30</td>
<td>9</td>
</tr>
<tr>
<td>*Non-departmental social science and humanities electives</td>
<td>4</td>
</tr>
<tr>
<td>Speech 2511</td>
<td>4</td>
</tr>
<tr>
<td>Statistics 2100</td>
<td>3</td>
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<tr>
<td>Electives</td>
<td>3</td>
</tr>
<tr>
<td>Junior</td>
<td>9</td>
</tr>
<tr>
<td>Accounting 2110-20-30</td>
<td>9</td>
</tr>
<tr>
<td>Agricultural Economics 3320</td>
<td>9</td>
</tr>
<tr>
<td>Agricultural economics and rural sociology elective</td>
<td>3</td>
</tr>
<tr>
<td>Economics 3110</td>
<td>3</td>
</tr>
<tr>
<td>Journalism 2210</td>
<td>3</td>
</tr>
<tr>
<td>Non-departmental agricultural electives</td>
<td>6</td>
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<tr>
<td>Non-departmental social science and humanities electives</td>
<td>8</td>
</tr>
<tr>
<td>Rural Sociology 3420</td>
<td>3</td>
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<td>Statistics 3220</td>
<td>3</td>
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<tr>
<td>Electives</td>
<td>3</td>
</tr>
<tr>
<td>Senior</td>
<td>9</td>
</tr>
<tr>
<td>Agricultural Economics 4140, 4320, 4120 or 4610</td>
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<tr>
<td>Agricultural economics and rural sociology electives</td>
<td>12</td>
</tr>
<tr>
<td>Agricultural Economics 4710 or Business Law 4110</td>
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<td>Economics 3120</td>
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<tr>
<td>Office Administration 4320</td>
<td>3</td>
</tr>
<tr>
<td>Non-departmental agricultural electives</td>
<td>6</td>
</tr>
<tr>
<td>*Business administration electives</td>
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</tr>
<tr>
<td>Electives</td>
<td>9 or 10</td>
</tr>
</tbody>
</table>
### Agricultural Education

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

The curriculum in agricultural education is designed to prepare students for entering professional agricultural educational service. Graduates are qualified to teach vocational agriculture. The curriculum also provides training for those who wish to enter farming, industry, and governmental services associated with agriculture, and other occupations.

### Agricultural Engineering

**AGRICULTURAL ENGINEERING CURRICULUM**

**Advisors:** Professors Luttrell, Bledsoe, and Henry. Associate Professors: Tompkins and Wilhelm.

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

The minimum requirements for admission include two units of algebra, one unit of 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 specialties areas: agricultural power and machinery, agricultural structures and environment, electric power and processing, soil and water conservation engineering, and food engineering.

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

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

### Institute of Agriculture

61
Credit toward graduation will not be granted for Mathematics 1760.

1Humanistic-social studies electives from such areas as history, economics, government, literature, sociology, psychology, or fine arts (not more than three areas).
2Agricultural engineering elective group: any two of Agricultural Engineering 4160, 4560, 4830, 4840.
3The selection of technical electives must have approval of student's adviser prior to registration in the course.

Agricultural Mechanization

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

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

Graduates are employed in industry, government, and educational institutions generally in the areas of management, promotion, sales, and training related to agricultural products, materials, and services.

Freshman

<table>
<thead>
<tr>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture 1110-20-30-40-50</td>
<td>20</td>
</tr>
<tr>
<td>Biology 1230</td>
<td>4</td>
</tr>
<tr>
<td>English 1010 or 1011; 1020; 1031 or 1032 or 1033</td>
<td>9</td>
</tr>
<tr>
<td>Mathematics 1540-50-60</td>
<td>12</td>
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</tbody>
</table>

Sophomore

<table>
<thead>
<tr>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural Mechanization 2110</td>
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</tr>
<tr>
<td>Agricultural Mechanization 2120</td>
<td>3</td>
</tr>
<tr>
<td>Animal Science 2810</td>
<td>3</td>
</tr>
<tr>
<td>Chemistry 1120-30 or 1510-20-30</td>
<td>12</td>
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<tr>
<td>Economics 2110-20</td>
<td>8</td>
</tr>
<tr>
<td>Journalism 2210</td>
<td>3</td>
</tr>
<tr>
<td>Physics 1210-20</td>
<td>8</td>
</tr>
<tr>
<td>Plant and Soil Science 2130</td>
<td>4</td>
</tr>
<tr>
<td>Speech 2311</td>
<td>4</td>
</tr>
<tr>
<td>English or communications elective</td>
<td>3</td>
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</table>

Junior

<table>
<thead>
<tr>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accounting 2110</td>
<td>3</td>
</tr>
<tr>
<td>Entomology and Plant Pathology 3210</td>
<td>4</td>
</tr>
<tr>
<td>Agricultural Mechanization 3100</td>
<td>4</td>
</tr>
<tr>
<td>Agricultural Mechanization 3110</td>
<td>3</td>
</tr>
<tr>
<td>Agricultural Mechanization 3210-20</td>
<td>6</td>
</tr>
<tr>
<td>Agricultural Mechanization 3510 or 3560</td>
<td>3</td>
</tr>
<tr>
<td>Computer Science 1410 or Office Administration 2750</td>
<td>3</td>
</tr>
<tr>
<td>Microbiology 2910-11</td>
<td>4</td>
</tr>
<tr>
<td>Plant and Soil Science 3220</td>
<td>3</td>
</tr>
<tr>
<td>Social science or humanities electives</td>
<td>6</td>
</tr>
<tr>
<td>Option electives</td>
<td>6</td>
</tr>
<tr>
<td>Electives</td>
<td>9</td>
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</tbody>
</table>

Senior

<table>
<thead>
<tr>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural Economics 3410 or 3440 or 3610</td>
<td>3</td>
</tr>
<tr>
<td>Agricultural Economics 4710</td>
<td>4</td>
</tr>
<tr>
<td>Agricultural Mechanization 4120</td>
<td>1</td>
</tr>
<tr>
<td>Agricultural Mechanization 4130</td>
<td>1</td>
</tr>
<tr>
<td>Agricultural Mechanization 4210</td>
<td>3</td>
</tr>
<tr>
<td>Agricultural Mechanization 4210-20</td>
<td>7</td>
</tr>
<tr>
<td>Agricultural Extension 3110</td>
<td>3</td>
</tr>
<tr>
<td>Food Technology and Science 3020 or 3840 or 4410</td>
<td>4 or 3</td>
</tr>
<tr>
<td>Special science or humanities electives</td>
<td>6</td>
</tr>
<tr>
<td>Option electives</td>
<td>9</td>
</tr>
<tr>
<td>Electives</td>
<td>11</td>
</tr>
</tbody>
</table>

TOTAL: 198 hours

Agricultural Extension Education

Advisers: Professors Dotson, Dickson and Carter.

No formal undergraduate curriculum is offered in agricultural extension education, but undergraduate courses are available as electives in each final 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 those 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 desired emphasis in agricultural extension education.

Animal Science

Advisers: Professors Barth, Lidvall, McLaren, Montgomery, Richardson, Shirley, Shrode; Associate Professors Backus, Hitchcock, Holloway, Mansoor, Robbins; Assistant Professors Heitmann, Katesh, 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, students may prepare for general or livestock farming, management, business, or science, or elect the pre-veterinary courses preparatory for specialization. Effective selection permits special training for work with feed companies, meat animal, milk, egg, or poultry production, managerial or marketing groups, other educational agencies, supply and equipment business, agricultural extension services, agricultural communication, public relations, and various organizations associated with agriculture.

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

A minor in animal science consists of 28 credit hours including 2610, 2810, 3210, 3310, 3410, 3510 and one 3600 course and one 4800 course.

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

Freshman

<table>
<thead>
<tr>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture 1110, 1120</td>
<td>8</td>
</tr>
<tr>
<td>Animal Science 2610, 2810</td>
<td>4</td>
</tr>
<tr>
<td>Chemistry 1110 or 1530, or 3211-19 or 2230, or Biochemistry 3110, or Nutrition 3110</td>
<td>8</td>
</tr>
<tr>
<td>Economics 2110-20 or 2130</td>
<td>6</td>
</tr>
<tr>
<td>Microbiology 2910-11</td>
<td>4</td>
</tr>
<tr>
<td>Plant and Soil Science 2130</td>
<td>3</td>
</tr>
<tr>
<td>Physics elective</td>
<td>4</td>
</tr>
<tr>
<td>Speech 2311 and communications elective</td>
<td>7</td>
</tr>
<tr>
<td>Electives</td>
<td>2</td>
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</table>

Junior

<table>
<thead>
<tr>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-animal science animal agriculture electives</td>
<td>6</td>
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<tr>
<td>Animal science (core requirement): Animal Science 3210, 3220, 3230, 3330, 3410, 3420, 3510</td>
<td>24</td>
</tr>
<tr>
<td>Directed electives-evaluation</td>
<td>3</td>
</tr>
<tr>
<td>Communications elective</td>
<td>2</td>
</tr>
<tr>
<td>Electives</td>
<td>9</td>
</tr>
<tr>
<td>Humanities-social science electives</td>
<td>6</td>
</tr>
</tbody>
</table>

Senior

<table>
<thead>
<tr>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-animal science agriculture electives</td>
<td>6</td>
</tr>
<tr>
<td>Animal Science 4910 (core requirement)</td>
<td>2</td>
</tr>
<tr>
<td>Directed electives</td>
<td>27</td>
</tr>
<tr>
<td>Humanities-social science electives</td>
<td>27</td>
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</tbody>
</table>

TOTAL: 198 hours

2 Or equivalent honors courses.
3 Or appropriate honors or extra credit.

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

Pre-Veterinary Medicine Option

Advisers: Professors Barth, Lidvall, McLaren, Montgomery, Richardson, Shirley, Shrode; Associate Professors Backus, Hitchcock, Holloway, Mansoor, Robbins; Assistant Professors Heitmann, Katesh, Smalling.

This program is designed to guide the student in meeting the admissions requirements.

TOTAL: 198 hours

2 Or equivalent honors courses.

Electives allow students to select an area for specialization. Those interested in production would select additional courses in agriculture, in business administration, economics, agricultural economics, finance, and accounting; in research in chemistry, zoology, physics, and statistics, etc. Electives should be chosen with care objectives in mind and in consultation with the advisor.
requirements of The University of Tennessee College of Veterinary Medicine. The completion of specific subject matter requirements and the attainment of a satisfactory grade point average comprise the minimum requirements for entrance to 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, ideally 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 spring quarter of the year in which they are applying. It is strongly recommended that students interested in veterinary medicine and planning a major in animal science after completion of the first year in the College of Veterinary Medicine (See below). Animal science courses required for the 3 and 1 program to permit the student to receive a B.S. in Agriculture with a major in animal science at the end of the first year in the College of Veterinary Medicine. 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, or other departmental science course, Plant and Soil Science 3140, or other departmental science course. Students with a strong math background may omit Math 1410 and start with 1500 or elect the 1400-50 series or 1401-51.

A suggested schedule for the Pre-veterinary Medicine—Animal Science student is given below which will (1) allow for the completion of the above pre-veterinary requirements by the end of the third year, and (2) allow the student to make normal progress toward completion of the pre-veterinary 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 admissions requirements for minimal course requirements for admission to the professional program in the College of Veterinary Medicine (page 73).

### First year

<table>
<thead>
<tr>
<th>Subject</th>
<th>Credits</th>
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<tbody>
<tr>
<td>English 1010 or 1011; 1020; 1031 or 1032 or 1033</td>
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</tr>
<tr>
<td>Mathematics 1540; 1550, 1560</td>
<td>12</td>
</tr>
<tr>
<td>Biology 1210-20-30</td>
<td>12</td>
</tr>
<tr>
<td>Chemistry 1120-30</td>
<td>12</td>
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<tr>
<td>Agriculture 1130</td>
<td>4</td>
</tr>
<tr>
<td>Humanities electives</td>
<td>4</td>
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</table>

### Second year

<table>
<thead>
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<th>Subject</th>
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<tbody>
<tr>
<td>Chemistry 2321-1F-31</td>
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<tr>
<td>Chemistry 2319-29-39</td>
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</tr>
<tr>
<td>Physics 2210-20-30</td>
<td>12</td>
</tr>
<tr>
<td>Agriculture 1110</td>
<td>4</td>
</tr>
<tr>
<td>Economics 2110</td>
<td>4</td>
</tr>
<tr>
<td>Speech 2311</td>
<td>4</td>
</tr>
<tr>
<td>Animal Science 2610-3; 2610-4; 32302 and 3330 and 3410-10</td>
<td>17</td>
</tr>
</tbody>
</table>

### Third year

<table>
<thead>
<tr>
<th>Subject</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>Biochemistry 4110-20</td>
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</tr>
<tr>
<td>Microbiology 2010-19</td>
<td>5</td>
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</table>

### Economics

<table>
<thead>
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<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>2120.0</td>
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<tr>
<td>Social science electives</td>
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<td>Humanities electives</td>
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</tr>
<tr>
<td>Animal science 3420, 3600 level</td>
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</tr>
<tr>
<td>evaluation (hrs)</td>
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<tr>
<td>4800 level</td>
<td>10</td>
</tr>
<tr>
<td>production management (hrs)</td>
<td>10</td>
</tr>
<tr>
<td>Electives</td>
<td>14</td>
</tr>
</tbody>
</table>

### TOTAL: 155 hours

**Students with a strong math background may omit Math 1410 and start with 1500 or elect the 1400-50 series or 1401-51.**

**Courses required to meet the minimum of 16 hours of animal science for admission to the veterinary college.**

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

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

For the student accepted at the end of the third year of pre-veterinary medicine and desiring to receive a B.S. in Agriculture with a major in animal science upon successful completion of the first year in The University of Tennessee College of Veterinary Medicine, the following are required, in addition to all of the courses above: Agriculture 1150 or equivalent food technology and science course, Plant and Soil Science 2130, or other departmental science course, Plant and Soil Science 3140. Students wishing to major in a department other than animal science, should consult with the appropriate departmental adviser 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 veterinary medicine upon completion of the first year in the College of Veterinary Medicine. The student will need to complete the requirements as established by the College of Veterinary Medicine. In addition, the student needs to complete the courses listed above, including Economics 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. Students with a strong math background may omit Math 1410 and start with 1500 or elect the 1400-50 series or 1401-51.

The last 45 hours of the three-year program must be taken at UTK.

(1) At least 16 hours of upper-division technical agriculture must be taken at UTK.

(2) 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. It is the student's responsibility to complete the above requirements and to initiate the request for the degree.

### Entomology and Plant Pathology

Advisers: Professors Southards, Hilty, Pless

**No undergraduate curriculum exists in the Dept. of Entomology and Plant Pathology, 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 those disciplines which deal with the natural hazards that are the major causes of losses in agricultural production. The training gives such a graduate the foundation necessary for coping with the myriad insect and plant disease problems that constantly threaten Tennessee's dynamic agriculture.**

### Food Technology and Science

Advisers: Professors Miles, Collins, and Jaynes; Associate Professor S. Melton; Assistant Professor Mount.

Food technology and science is the application of the sciences and engineering to the manufacture, preservation, storage, transportation, and consumer use of food products. Processing of raw food materials into consumer products by canning, freezing, dehydrating, fermenting, preserving, etc., is taught with emphasis on basic principles rather than on specific commodity procedures. Therefore, 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, packaging 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.

**Freshmen** | **Hours** | **Credit**
--- | --- | ---
Agriculture 1110-20-30-40-50 | 16 | 4
Biologic 1220 | 4 | 4
English 1010-20-33 | 9 | 9
Mathematics 1540-50-60 | 12 | 12
Physics 1210-20 | 8 | 8

**Sophomore** | **Hours** | **Credit**
--- | --- | ---
Agriculture 1120 | 4 | 4
Chemistry 1510-20-30 | 12 | 12
Economics 2110-20 | 6 | 6
Food Technology and Science 2220 | 3 | 3
Microbiology 2510-19 | 5 | 5
Speech 2311 | 4 | 4
Communications electives | 6 | 6
Humanities-social science electives | 9 | 9

**Junior** | **Hours** | **Credit**
--- | --- | ---
Agricultural Mechanization 3510 | 4 | 4
Chemistry 2320, Nutrition 3330-30-50 | 12 | 12
Food Technology and Science 3300, 4130, 4140 | 3 | 3
Microbiology 3810 | 3 | 3
Nutrition 3020 | 3 | 3
Plant and Soil Science 3910 | 3 | 3
Statistics 2310 | 3 | 3
Humanities-social science electives | 9 | 9

**Senior** | **Hours** | **Credit**
--- | --- | ---
Food Technology and Science 4010 | 3 | 3
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. Minor in Forestry consists of 24 credit hours from any courses having a Forestry designation. Prerequisites will not be waived.

**Freshman**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Botany 1110-20 or Biology 1210-20</td>
<td>3</td>
</tr>
<tr>
<td><em>English</em> 1010 or 1011; 1020; 1031 or 1032</td>
<td>9</td>
</tr>
<tr>
<td>Forestry 1620</td>
<td>3</td>
</tr>
<tr>
<td>Forestry 3110-20, 3240</td>
<td>12</td>
</tr>
<tr>
<td>Speech 2311</td>
<td>4</td>
</tr>
<tr>
<td><em>Electives</em></td>
<td>8-11</td>
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</table>

**Sophomore**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemistry 1510-20-30</td>
<td>12</td>
</tr>
<tr>
<td><em>Computer Science</em> 1410</td>
<td>3</td>
</tr>
<tr>
<td>Economics 2110-20-30</td>
<td>9</td>
</tr>
<tr>
<td>Forestry 3000</td>
<td>9</td>
</tr>
<tr>
<td>Forestry 4210-20-30, 4330, 4920</td>
<td>14</td>
</tr>
<tr>
<td><em>Electives</em></td>
<td>10-15</td>
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</tbody>
</table>

**Junior**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
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<tbody>
<tr>
<td><em>English</em> 1010 or 1011; 1020; 1031 or 1032</td>
<td>9</td>
</tr>
<tr>
<td>Forestry 1620</td>
<td>3</td>
</tr>
<tr>
<td>Forestry 3000</td>
<td>9</td>
</tr>
<tr>
<td>Mathematics 1700, 1841-51</td>
<td>12</td>
</tr>
<tr>
<td>Physics 1210 and 1220 or 2210 and 2220</td>
<td>8</td>
</tr>
<tr>
<td>Speech 2311</td>
<td>4</td>
</tr>
<tr>
<td><em>Electives</em></td>
<td>8-11</td>
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</tbody>
</table>

**Senior**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
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<tbody>
<tr>
<td><em>English</em> 1010 or 1011; 1020; 1031 or 1032</td>
<td>9</td>
</tr>
<tr>
<td>Forestry 1620</td>
<td>3</td>
</tr>
<tr>
<td>Forestry 3000</td>
<td>9</td>
</tr>
<tr>
<td>Mathematics 1700, 1841-51</td>
<td>12</td>
</tr>
<tr>
<td>Physics 1210 and 1220 or 2210 and 2220</td>
<td>8</td>
</tr>
<tr>
<td>Speech 2311</td>
<td>4</td>
</tr>
<tr>
<td><em>Electives</em></td>
<td>8-11</td>
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</table>

**TOTAL:** 198 hours

*Freshman Hours Credit*

<table>
<thead>
<tr>
<th>Degree</th>
<th>Hours Credit</th>
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<tbody>
<tr>
<td>Botany 1110-20 or Biology 1210-20</td>
<td>3</td>
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<tr>
<td>Forestry 1620</td>
<td>3</td>
</tr>
<tr>
<td>Mathematics 1700, 1841-51</td>
<td>12</td>
</tr>
<tr>
<td>Physics 1210 and 1220 or 2210 and 2220</td>
<td>8</td>
</tr>
<tr>
<td>Speech 2311</td>
<td>4</td>
</tr>
<tr>
<td><em>Electives</em></td>
<td>8-11</td>
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**Sophomore Hours Credit**

<table>
<thead>
<tr>
<th>Degree</th>
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<tbody>
<tr>
<td>Chemistry 1510-20-30</td>
<td>12</td>
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<tr>
<td>Computer Science 1410</td>
<td>3</td>
</tr>
<tr>
<td>Economics 2110-20</td>
<td>6</td>
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<tr>
<td>Forestry 3000</td>
<td>9</td>
</tr>
<tr>
<td>Forestry 4210-20-30, 4330, 4920</td>
<td>14</td>
</tr>
<tr>
<td><em>Electives</em></td>
<td>10-15</td>
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</table>

**Junior Hours Credit**

<table>
<thead>
<tr>
<th>Degree</th>
<th>Hours Credit</th>
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<tbody>
<tr>
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<td>9</td>
</tr>
<tr>
<td>Forestry 1620</td>
<td>3</td>
</tr>
<tr>
<td>Mathematics 1700, 1841-51</td>
<td>12</td>
</tr>
<tr>
<td>Physics 1210 and 1220 or 2210 and 2220</td>
<td>8</td>
</tr>
<tr>
<td>Speech 2311</td>
<td>4</td>
</tr>
<tr>
<td><em>Electives</em></td>
<td>8-11</td>
</tr>
</tbody>
</table>

**Senior Hours Credit**

<table>
<thead>
<tr>
<th>Degree</th>
<th>Hours Credit</th>
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</thead>
<tbody>
<tr>
<td>Forestry 1620</td>
<td>3</td>
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<tr>
<td>Forestry 3000</td>
<td>9</td>
</tr>
<tr>
<td>Mathematics 1700, 1841-51</td>
<td>12</td>
</tr>
<tr>
<td>Physics 1210 and 1220 or 2210 and 2220</td>
<td>8</td>
</tr>
<tr>
<td>Speech 2311</td>
<td>4</td>
</tr>
<tr>
<td><em>Electives</em></td>
<td>8-11</td>
</tr>
</tbody>
</table>

**TOTAL:** 198:204 hours

*For students entering the option with no math credit.*
WILDLIFE AND FISHERIES 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.

Minor in Wildlife and Fisheries Science consists of 24 hours as follows: 3220, any three (3) courses from the following: 4450, 4460, 4510, 4520, and 9 additional hours taken from a list of approved courses maintained in the Department of Forestry, Wildlife and Fisheries. Prerequisites will not be waived.

**Freshman Hours Credit**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
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<tbody>
<tr>
<td>Biology 1210-20-30</td>
<td>12</td>
</tr>
<tr>
<td>Mathematics 1700, 1841-51</td>
<td>15</td>
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<tr>
<td>English 1010 or 1011; 1020; 1031 or 1032 or 1033</td>
<td>9</td>
</tr>
<tr>
<td>Speech 2311</td>
<td>4</td>
</tr>
<tr>
<td>Forestry 1820</td>
<td>3</td>
</tr>
<tr>
<td>Forestry 3000</td>
<td>3</td>
</tr>
<tr>
<td>Physics 1210 or 2210</td>
<td>4</td>
</tr>
<tr>
<td><strong>Electives</strong></td>
<td>5</td>
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<tr>
<td><strong>Sophomore</strong></td>
<td>12</td>
</tr>
<tr>
<td>Chemistry 1510-20-30</td>
<td>12</td>
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<tr>
<td>Economics 2110-20</td>
<td>6</td>
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<tr>
<td>Biology 3130</td>
<td>4</td>
</tr>
<tr>
<td>Forestry 3040</td>
<td>3</td>
</tr>
<tr>
<td>Forestry 3000</td>
<td>3</td>
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<tr>
<td>Plant and Soil Science 2130, 3160</td>
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<tr>
<td>Animal Science 3210</td>
<td>4</td>
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<tr>
<td>Computer Science 1410</td>
<td>3</td>
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<tr>
<td><strong>Electives</strong></td>
<td>12</td>
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<tr>
<td><strong>Junior</strong></td>
<td>12</td>
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<tr>
<td>Zoology 3060, 4240</td>
<td>8</td>
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<tr>
<td>Wildlife and Fisheries Science 3230</td>
<td>4</td>
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<tr>
<td>Forestry 3110, 3230</td>
<td>7</td>
</tr>
<tr>
<td>Plant and Soil Science 3120</td>
<td>3</td>
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<tr>
<td>Botany 3300</td>
<td>4</td>
</tr>
<tr>
<td>Agricultural Mechanization 3210</td>
<td>3</td>
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<tr>
<td><strong>Electives</strong></td>
<td>21</td>
</tr>
<tr>
<td><strong>Senior</strong></td>
<td>12</td>
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<tr>
<td>Zoology 4200, 4660</td>
<td>9</td>
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<tr>
<td>Wildlife and Fisheries Science 4450, 4500</td>
<td>12</td>
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<tr>
<td>Wildlife and Fisheries Science 4510, 4520</td>
<td>6</td>
</tr>
<tr>
<td>Forestry 4210</td>
<td>3</td>
</tr>
<tr>
<td><strong>Electives</strong></td>
<td>21</td>
</tr>
<tr>
<td><strong>TOTAL: 198 hours</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Ornamental Horticulture and Landscape Design**

Adviser: Professor Crater

Human needs go beyond food, clothing, and shelter. We require a degree of control over our 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, business sense. Students in this area are prepared to work in nurseries, garden centers, botanical gardens, and arboreums. They may find opportunities also in research, teaching, writing, sales, and landscape maintenance.

Turfgrass management includes all aspects of growing and caring for turfgrass, whether it 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 design 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 using, 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 gardens, garden center operation, allied, sales highway landscaping, park development, research, teaching, and writing.

Minor in Ornamental Horticulture and Landscape Design consists of 27 hours as follows: required courses: 3030, 3110, 3210, 3610, and at least 13 hours of upper-division OHL electives. Prerequisites will not be waived.

**Freshman Hours Credit**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture 1410; 1110 or 1130 or 1150</td>
<td>12</td>
</tr>
<tr>
<td>Introductory biological science</td>
<td>12</td>
</tr>
<tr>
<td>1English 1010 or 1011; 1020; 1031 or 1032 or 1033</td>
<td>9</td>
</tr>
<tr>
<td>1Mathematics 1540-50-60</td>
<td>12</td>
</tr>
<tr>
<td>2Physics 1210 or 2210 or Geology 1410</td>
<td>4</td>
</tr>
<tr>
<td>2Social science or human electives</td>
<td>4</td>
</tr>
<tr>
<td><strong>Sophomore</strong></td>
<td>12</td>
</tr>
<tr>
<td>Agriculture 1120</td>
<td>4</td>
</tr>
<tr>
<td>Om. Hort. and Landscape Design 2230, 3610, 3910</td>
<td>11</td>
</tr>
<tr>
<td>1Chemistry 1511-20-30 or 1100-20-30</td>
<td>12</td>
</tr>
<tr>
<td>2Economics 2110-20 or 4030</td>
<td>6</td>
</tr>
<tr>
<td>Speech 2311</td>
<td>4</td>
</tr>
<tr>
<td>1English or communications electives</td>
<td>5</td>
</tr>
<tr>
<td>2Social electives</td>
<td>5</td>
</tr>
<tr>
<td>Plant and Soil Science 2130</td>
<td>4</td>
</tr>
<tr>
<td>Junior</td>
<td>4</td>
</tr>
<tr>
<td>Social science or human electives</td>
<td>4</td>
</tr>
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</table>

**Entomology and Plant Pathology 3150, 3210**

**Plant and Soil Science 3230, 3110, 3110, 3210, 3410, 3610**

**Orn. Hort. and Landscape Design 3030, 3110, 3210, 3410, 3610**

**Directed Electives**

**Senior**

**Plant and Soil Science 3040**

**Om. Hort. and Landscape Design 3930, 4150, 4610**

**Agricultural electives**

**Electives**

**TOTAL: 198 hours**

**Or equivalent honors courses**

**At least one foreign language requirement must be completed.**
A minor in Plant and Soil Science consists of 24 credit hours including 2130, 3020, 3040, and at least 14 elective hours to be taken by electing two (2) courses from Group A and two (2) courses from Group B. 3610 will not be accepted as a course to meet minor requirements.

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**
- Agriculture 1110-30-40-50: 16
- Lower-division biological sciences: 12
  - English 1010 or 1011; 1020; 1031 or 1032 or 1033: 9
- Mathematics 1540-50-60: 12
- Business Law 4110-20-30: 6

**Sophomore**
- Chemistry 1110-20 or 1510-20 or 310: 12
- Economics 2120-20: 6
- Business Sociology 3420: 3
- Plant and Soil Science 2130: 4
- Speech 2311: 4
- English 1010 or 1031: 3
- English and communications electives: 3

**Junior**
- Social science or humanities electives: 3
- Biological or physical science electives: 12
- Entomology and Plant Pathology 3150 or 3210 or 4101: 4
- Chemistry 2230 or 3211-19 or Nutrition 3910: 4
- Animal Science 3310 or 3320: 3
- Plant and Soil Science 3020 or 3040: 3
- Plant and soil science electives: 12
- Non-departmental agricultural electives: 6
- Electives: 4
- Botany 4910: 4
- Plant and Soil Science electives: 6
- Electives: 5

**Senior**
- Plant and Soil Science 3110, 3220, 3610, 4110, 4320: 24

**TOTAL:** 198 hours

*Or equivalent honors courses.
*Mathematics 1840-50-60 are suggested for students with high mathematics scores.
*Student should consult with departmental adviser for suggested courses.
*Only courses taught outside the College of Agriculture will fulfill these requirements.
*Plant and soil science electives must include at least three courses from Group A and three from Group B listed below.
*Plant and Soil Science 3610 can be counted in only one of the groups.

**GROUP A**
- Plant and Soil Science 3110, 3220, 3610, 4110, 4320

**GROUP B**
- Plant and Soil Science 3120, 3140, 3160, 3180, 3510, 3520, 3610, 3710, 4120

In addition to the specific courses, students can specialize in areas of their interest by selecting courses from the following groups. These lists are suggestive only. The departmental adviser will guide the student according to the student's individual objective.

**Agriculture**

**Agricultural Economics 4120, 4140, 4330**
- Agricultural Mechanization 3210, 4210
- Animal Sciences 2810, 3410, 3510
- Food Technology and Science 3840
- Rural Sociology 3420

**Business**
- Accounting 2110-20; Business Law 4110-20-30; Economics 2120; Finance 3110; Management 3010; Marketing 3110-20; Office Administration 4310-20.

**Science**
- Biology 3110-20-30; Botany 3030, 4310; Chemistry 2140-49, 3310, 3319, 3219-29-39; Geology 1410-20-30, Physics 1220-30.

**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. 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 department head and the dean of the College of Agriculture to register. Three credit hours each quarter.

**Short Courses and Special Events**
Practical short courses in agriculture are offered for those who desire special training in certain fields. Some of these short courses are held on the Knoxville campus, others at the Bufton 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.

**Graduate Studies**
- Agriculture 1150 Food Technology and Science in Agriculture
- Agricultural Economics 2410 Economics of Food and Rural Resources
- Agricultural Economics 2430 Interdepartmental Offerings
- Agricultural Economics 5120 Teaching Internship in Agriculture

**Departments of Instruction**

**Agriculture (088)**

1110 Introduction to Social Sciences for Agriculture
1120 Introduction to Agricultural Engineering
1130 Animal Science for Agriculture

1140 Plant Science for Agriculture

1150 Food Technology and Science in Agriculture

**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.

**GRADUATE**

5120 Teaching Internship in Agriculture (1)

**Departmental Programs**

**Agricultural Economics and Rural Sociology**

**Professors:**
- J. A. Martin (Head), Ph.D. Minnesota; M. B. Badenhop, Ph.D. Purdue; J. R. Brookier, Ph.D. Florida; C. L. Olstad, Ph.D. Wisconsin; Irving Dubov, Ph.D. California (Berkeley); L. H. Kolter, Ph.D. Kentucky; T. H. Kilday, Ph.D. Kentucky; F. G. Leuthold, Ph.D. Wisconsin; D. L. McMullen, Ph.D. Clemson, C. R. McMahan, Ph.D. Purdue; B. H. Penecost, J. D. Tennessee; W. R. Ranney (Emeritus), Ph.D. Minnesota; C. B. Sappington, Ph.D. Illinois; T. J. Whately, Ph.D. Purdue.

**Associate Professors:**
- C. M. Guskaden, Ph.D. Michigan State; D. L. McMullen, Ph.D. Clemson; S. D. Mundy, Ph.D. Tennessee; R. H. Orr, Ph.D. Illinois; R. W. Todd, J. D. Tennessee; O. N. Walker, Ph.D. Oklahoma State.

**Assistant Professors:**

**Agricultural Economics (047)**

2410 Economics of Food and Rural Resources

3120 Agricultural Prices (3) Analysis of contemporary problems and issues of public concern relating to food, agriculture, and rural areas using fundamental economic concepts. Farm income, food prices, world food problems, natural resources, environment, rural development.

3210 Agricultural Policies (3) Factors affecting prices in agricultural production, processing, distribution; prices in an enterprise economy; competitive, monopoly, and oligopoly pricing; space, form and time price differences; tools to measure price; farm price programs. Prereq: Agriculture 1110 and Economics 2120 or consent of instructor.

3320 Marketing Farm Products (3) Survey of the U.S. food and fiber marketing systems; marketing options of farmers and agribusinesses; industry structure in market channels for agricultural products; basic tools to analyze marketing problems. Prereq: Agric. 1110 and Econ. 2120 or consent of instructor.


3430 Agricultural Law (4) Survey of law and application to the farmer, his family, and agricultural industry. Property, contracts, torts, drainage and water rights, landlord-tenant relationships, taxation and insurance, forms of business organization, estate planning, regulatory laws, and other selected topics.

3440 Farm Income Tax Management (3) Legal and economic concepts and problems in organizing and managing a farm business within the framework of federal income tax laws. Emphasis is on recognizing problem areas, utilizing tax planning incentives, 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
Institute of Agriculture

5710 Linear Programming (3)
5820 Agricultural Price Analysis (3)
6000 Doctoral Research and Dissertation
6120-30 Seminars in Agricultural Economics (3,3)
6210 Agricultural and Rural Transformation Problems (3)
6410 Agricultural Supply Analysis (3)
6420 Marketing and Resource Use (3)

Rural Sociology (880)
4240 Rural Sociology (3) Nature of rural society; social systems concept; rural-urban differences; nature of social relations; population characteristics and movement; problems of rural people; tenancy, farm labor, health, services, educational facilities, churches, local government; impact of industrialization.
4450 Diffusion of Agricultural Technology (3) Analysis of diffusion processes 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. Birdseye, Ph.D., Oklahoma State; P. E.; Z. A. Hersey, Ph.D., North Carolina State; J. J. McDow, (Dean of Admissions and Records), Ph.D., Michigan State P. E.; J. I. Sewell (Assistant Dean, Ag Experiment Station), Ph.D., North Carolina State, P. E.; C. H. Shelton, M. S., Virginia Polytechnic.
Assistant Professors: D. O. Baxter, 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 freshman and sophomore students in agricultural engineering.
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 flood and erosion control, drainage, irrigation, and water quality. Coreq: Plant and Soil Science 2130; Engr. Sci. and Mech. 3110. 3 hrs. and 1 lab. Graduate credit for nonmajors only.
3620 Structures for Production, Environmental Control, and Waste Management (4) Analysis of loads and stresses; design of wood, steel, and concrete members; structural and environmental requirements of facilities for livestock and crop production and storage; physiological requirements; heat loads; insulation; moisture relationships; ventilation and waste management, 3 hrs. and 1 lab. Graduate credit for non-majors only.
3640 Power Units and Machinery (4) Components and operating characteristics of internal combustion engines and tractor systems; functional analyses and capabilities of agricultural machines; machinery system performance and cost analyses. Prereq: Engr. Sci. and Mech. 3700, Mech. Engr. 3311, 3 hrs. and 1 lab. Graduate credit for non-majors only.
4120-30 Seminar (1,1) Presentations, discussions, reports. 4120—Professional development topics. 4130—Industry trip. Prereq: Consent of department head.
4220 Special Problems in Agricultural Engineering (3) Selection, analysis, solution, and report of research problem. May be repeated for maximum of nine credit hrs. when engaged in cooperative engineering or other approved industrial work. Prereq: Consent of department head. 3 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 involving earth dams, irrigation, drainage, land grading, hydraulic transport of wastes, and application and disposal of agricultural and industrial 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 system; design to include functional structural and environmental aspects. Prereq: 3600, 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 requirements of agricultural machinery. Elements of machine components; design of 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.

GRADUATE
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)
6610 Selected Topics Agricultural Engineering (3)

Agricultural Mechanization (080)
2110 Agricultural Drawing and Mapping (3) Fundamentals of graphics and mapping, with 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 and mapping; area computation. Prereq: Math 1560 or consent of instructor. 1 hr. and 2 labs.

5100 Seminar (1) Presentations, discussions, reports on research techniques. Prereq: Consent of department head.

5110 Agricultural Mechanics (3) Organizing, equipping, and managing school and farm shops; techniques, materials, and procedures in design and construction of shop projects; machine work and welding. 1 hr. and 2 labs.

5120 Forest Surveying (3) Principles, methods, and instruments in measurement of horizontal and vertical distances and angles, with emphasis on forest management applications; computation of traverses, areas and volumes; map types, plotting and drafting. Prereq: Math 1841. 2 hrs. and 1 lab.

5140 Forest Surveying and Mapping (3) Use of low-precision methods of instruments including pacing, Abney level, topographic trailer tapes, hand compass, and staff compass. Field measurements, computations and layouts involving random and true lines, traverses, topographic mapping, and forest roads. Prereq: 2140. Ten periods of 6 hrs. per period.

5210 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.

5220 Agricultural Structures (3) Functional planning of structures; environmental control, construction methods, properties of building materials, and cost estimation. Prereq: Math 1550. 2 hrs. and 1 lab.

5310 Food Engineering Technology (4) Application of basic engineering principles of food processing. Fluid flow, heat transfer, refrigeration, drying evaporation, and materials handling. Prereq: Agriculture 1120 or Physics 1220. 3 hrs. and 1 lab.

5360 Electrical Systems in Agriculture (3) Electrical terms and fundamentals, distribution, wiring practice, governing codes, control, 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—Industry trip. Prereq: Consent of department head.

4160 Agricultural Waste Utilization and Disposal (3) Techniques, 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 engines; 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 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 maximum of 9 credit hrs. when engaged in approved industry work. Prereq: 2140 or 2150. 3 hrs. and 1 lab.

GRADUATE

5000 Thesis

5110 Research Problems in Agricultural Mechanization (3)

5210 Electromechanical Systems in Agriculture (3)

5410 Agricultural Machinery System Analysis (3)

5610 Selected Topics in Agricultural Mechanization (3)

Agricultural Extension Education (075)

5220 Seminar (3) Introduction to Agricultural Extension (3)

5110 Introduction to Agricultural Extension (3) History, philosophy, organization, teaching methods, relationships with other educational agencies.

5140 Field Studies (3,3) Supervised work experience with county extension agents in a designated county. For senior and graduate students. Prereq: 3110 and consent of instructor. Requires living off-campus for a specified time.

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 (Head), Ph.D., Ohio State; K. M. Barth, Ph.D. Rutgers; M. C. Bell, Ph.D. Oklahoma State; J. K. Bletner (Emeritus), Ph.D., Ohio State; C. C. Chamberlain (Emeritus), Ph.D., Iowa State; O. G. Hall, (Dean, College of Agriculture) Ph.D. Iowa State; S. S. Hansard (Emeritus), Ph.D., Florida; E. R. Lidvall, M.S., Tennessee; J. B. McLaren, Ph.D. Auburn; J. K. Miller, Ph.D. Georgia; J. M. Montgomery, Ph.D., Wisconsin; G. M. Merriman (Emeritus), D.V.M. Michigan State; R. L. Murphee (Emeritus), Ph.D., Wisconsin; H. V. Shirley, Ph.D., Illinois; R. R. Shoeds, Ph.D., Iowa State; E. W. Swanson, Ph.D. Missouri; R. L. Tugwell (Emeritus), Ph.D., Kansas State; C. E. Wylie (Emeritus), A.M. Missouri.


Assistant Professors: W. C. Cullen, Ph.D. Minnesota; R. N. Heitmann, Ph.D. Maine; H. G. Kattke, Ph.D. VIP & SLI; K. R. Robbins, Ph.D. Illinois; T. W. Schultz, Ph.D. Tennessee; J. D. Smaling, Ph.D. Texas A & M.


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

2710 Introduction to Biometrical Aspects of Animal Science (3) Biometrical concepts for optimum comprehension of material presented in upper-division animal science courses. Basic ideas in probability as introduction to concept of distributions. Expected values, variances, and standard deviations, binomial and normal distributions and their prevalence in biological material. Planning effective experiments. Association or relationship of variables. 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. Principles and skills involved in discerning, caring for, feeding, housing, docking, food care, shearing, age identification, titration, preparing for show and sale, vaccinating and immunizing, controlling parasites. Facilities needed in livestock management including buildings, fences, corrals, equipment, space requirements, and restraining devices. 2 hrs. and 1 lab.

2620 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 joints, skeletal muscles, blood and muscle metabolism, and endocrine, nervous, digestive, renal, and endocrine systems; demonstration of physicochemical phenomena. Prereq: Biology 1210 or Agriculture 1150. 3 hrs. and 1 lab.

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

3310 Introduction to Animal Nutrition and Feeding (3) Nutrient utilization, function, and requirements of farm animals; animal feeds, nutrient content, and factors affecting feeding value; balancing rations for beef and dairy cattle, sheep, horses, poultry, and laboratory animals. Prereq: 3320. 2 hrs. and 2 labs.

3320 Animal Nutrition (3) Properties, functions, utilization, and deficiency symptoms of essential nutrients; nutritive value determinations and their use. Prereq: Agriculture 1130 and one quarter of organic chemistry.

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

3410 Heredity in Animals (3) Basic chromosomal mechanism of heredity with emphasis on Mendelian principles and exceptions such as linkage and cytoplasmic inheritance. Concepts of animal genetics; principles of basis of heredity and to quantitative inheritance. Illustrations of principles related to species familiar to agriculture students. Prereq: Agriculture 1130. 2 hrs. and 1 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 such as differences in genetic makeup and environment. Selection and consequences. Genetics of mental retardation. 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. Breeds—domesticization, development, characteristics, and improvement programs of various breeds. Prospects for purebred industry and impact of crossbreeding. Prereq: 3410 or equivalent. 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 medicines, and effects of various medicines and treatment programs. Prereq: 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 prac-
tives and systems for domestic birds, upland game birds and waterfowl. 2 hrs. and 1 lab.


3620 Dairy Cattle Judging and Classification (3) Comparative judging, oral reasons; type classification programs. Economic value of classification ratings. Prereq: 2610 or consent of instructor. 3 hrs.

3630 Judging Poultry Production (3) Grading of poult, fryer, and market birds according to USDA standards; factors influencing quality. Prereq: 2610 or 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. Prereq: Consent of instructor. 1 hr. and 2 labs.

3810 Nutrition and Management of Laboratory Animals (3) Principles of feeding, breeding, and handling of animals. Emphasis on specific techniques; selection of species' requirements, peculiarities, and research for which best fitted; laws governing use and handling of laboratory animals. Prereq: Agriculture 1130 and consent of instructor. 2 hrs. and 1 lab.

4110 Special Problems in Animal Science (1-4) Special research and/or special reports based on supervised independent study or review of literature dealing with problems related to field of animal science; approved supervised work experiences in state-federal laboratories or in private industry. May be repeated for a maximum of 9 credit hrs. Prereq: 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 secretion; factors affecting yield and composition of milk. Prereq: 3210.

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

4230 Applied Reproduction in Farm Animals (3) Application of methods and techniques in collecting, evaluating, processing, and preserving semen; insemination of females; pregnancy determination; selection of species' and parturition. Male and female infertility. Prereq: 3220 and permission of instructor.

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

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

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. Prereq: Consent of instructor. 2 labs.

4810 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 sophmore 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, physiology, 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 program. Alternatives evaluated in terms of production responses and economic returns. Prereq: Completion of animal science sophmore 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 sophmore 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 sophmore 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, physiology, 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 sophmore 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.

5000 Thesis

5011 Problems in Lieu of Thesis (1-6)

5110 Special Problems in Animal Science (1-6)

5210 Advanced Animal Nutrition (3)

5220 Plant Disease Control (3)

5230 Advanced Mammalian Reproduction (3)

5322 Advanced Experimental Animal Nutrition (3)

5333 Nonruminant Animal Nutrition (4)

544 Ruminant Animal Nutrition (3)

5410 Genetics of Animal Populations (3)

5510-20 Advanced Animal Physiology (5, 5)

571 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

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)

6910 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; C. D. Pless, Ph.D. Clemson.

Associate Professors:


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

3140 Forest Pathology (3) Etiology, recognition, economic impact, and control of forest tree diseases, including wood decay and other diseases important to urban forestry and forest nurseries. 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, field, garden, orchard, and household. 3 hrs. and 1 lab.

3220 Apiculture (2) 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.

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: 3141 or equivalent. 3 hrs. and 1 lab.

5000 Thesis

5010 Research Methods and Instrumentation in Plant Pathology and Entomology (3)

5110 Plant Disease Diagnoses (3)

5120 Insect Diagnostic Clinic (3)

5210 Plant Parasitic Nematodes (4)

5220 Plant Disease Control (3)

5230 Field Crop and Vegetable Insects (3)

5240 Plant Virology (4)

5250 Medical and Veterinary Entomology (4)

5260 Insect Pest Management (4)

5310 Special Problems in Entomology (1-6)

5320 Special Problems in Plant Pathology (1-6)

5330 Special Problems in Nematology (1-6)

5410 Seminar (1)

Food Technology and Science (390)

Professors:

J. T. Miles (Head), Ph.D. Wisconsin; J. L. Collins, Ph.D. Maryland; T. B. Harrison (Emeritus), M.S.A. Tennessee; H. O. Jaynes, Ph.D. Illinois; W. W. Overcast (Emeritus), Ph.D. Iowa State.
2200 Food Processing I (3) Introduction to art and sciences of manufacturing food products. 2 hrs. and 1 lab.

3205 Dairy Products I (4) Procurement, processing, and distribution of fluid milk. Manufacture of frozen and condensed dairy products. 3 hrs. and 1 lab.

3300 Food Laws and Regulations (3) State and federal laws concerning food industry. Organization and operation of regulatory agencies. Food grades and standards. Prereq: Agriculture 1150 or 2200 or equivalent.

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

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

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

4000 Problems in Food Technology (1-4) Research problems in student's area of interest. Required written report. Supervised experiences in state or federal laboratories or approved industries encouraged. May be repeated. Maximum 8 credit hrs. Prereq: Consent of department head.

4010 Food Technology and 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.

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

4130 Food Chemistry I (3) Minerals, fats, oils, and vitamins in food as affected by processing and storage. Prereq: Nutrition 3320 or equivalent. 2 hrs. and 1 lab.

4140 Food Chemistry II (3) Reactions of proteins, carbohydrates, and natural food colorants in food materials. Protein structure, food enzymology, and biological actions. Effects of storage and processing on proteins and carbohydrates with emphasis on nutritional value and functionality. Prereq: Nutrition 3920 or equivalent. 2 hrs. and 1 lab.

4200 Food Processing II (4) Prevention of deterioration and spoilage of foods. Methods of preservation and packaging. Prereq: 2200 and Agriculture Mechanization 3510. 3 hrs. and 1 lab.

4210 Food Additives (3) Substances used in food manufacturing with emphasis on properties and functions. Prereq: Nutrition 3320 or equivalent.

4300 Food Processing III (3) Water, sanitation, and waste control as applied in food industry. Prereq: Agriculture 1150 or Microbiology 2910-19 or equivalent.

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

4420 Bakery Products (3) Baking ingredients and their interactions during production and storage of bakery products. Prereq: Food Technology and Science 4130 and Chemistry 2230 or equivalents. 2 hrs. and 1 lab.

4810 Microbiology in Food Manufacturing (3) Relationship of growth of common food microorganisms in fermentative and enzymatic changes occurring during processing and manufacturing of foods. Prereq: Microbiology 2510-19 or equivalent. 1 hr. and 2 labs.

4820 Fermented Foods (3) Role of microorganisms in preparing foods with emphasis on development of certain desirable characteristics, flavor, aroma, texture, and keeping quality. Prereq: Microbiology 3610. 2 hrs. and 1 lab.

4840 Meat Products Manufacturing (3) Prepared meat products with emphasis on sausage making and information relating to cost controls, inspection, and meat science. Prereq: 3840 or consent of instructor. 1 hr. and 2 labs.

4920 Analysis of Physical Properties of Foods (4) Physical stability of food materials, water, viscosity, colloids, gels, foams, crystals, color. Quantitation and changes induced by processing. Prereq: Food Technology and Science 4200 and Agricultural Mechanization 3510 or consent of instructor. 3 hrs. and 1 lab.

4940 Advanced Meat Science (3) Qualitative and quantitative characteristics of meat and poultry as related to palatability, cookery, preservation, packaging, and merchandising. Prereq: Food Technology and Science 3640.

GRADUATE

5000 Thesis

5200 Seminar (1)

5120 Food Color (3)

5130 Food Enzymology (3)

5140 Food Flavors (3)

5150 Fats and Oils (3)

5200 Research (1-5)

5310 Food Products Development (3)

5320 Food Thermobiology (3)

5420 Advanced Food Quality Assurance (3)

5510 Meat Technology (3)

5530 Microorganisms Common in Food Products (3)

5540 Microbial Cultures in Foods (3)

6000 Doctoral Research and Dissertation (3-15) Taken concurrently. 2 hrs. and 2 labs.

6110 Forest Measurements and Biometry (4) Measurements of individuals in animal and plant populations; linear regression, sampling of forest populations; growth and production. Prereq: Plant and Soil Science 3610 and Computer Science 1410 or equivalent. 3 hrs. and 1 lab. Available for graduate credit for non-forestry majors only. Prereq: 6 hrs. basic biology or botany. 2 hrs. and 1 lab.

6120 Wood Technology (4) Wood properties; identification and silvicultural characteristics of the more common woods. Prereq: 3040, 3050 (3050 may be taken concurrently). 2 hrs. and 2 labs.

6130 Forest Protection (3) Destructive agencies; fire, insects, diseases; silvicultural control; biological control; prevention and suppression.

6210 Forest Resource Economics (4) Allocation of forest resources via market and institutional systems. Application of economics to forest resource decision making in the private and public sector. Prereq: Economics 2120.

6220 Forest Products and Utilization (3) Harvesting, processing, marketing factors in stand conversion, intermediate and harvest cuts. Prereq: 3120.

6240 Introduction to Forest Recreation (3) Concepts of commercial woods by macro and micro characteristics. Prereq: 3040, 3050 (3050 may be taken concurrently). 2 hrs. and 2 labs.

6320 Forest Protection (3) Destructive agencies; fire, insects, diseases; silvicultural control; biological control; prevention and suppression.

6310 Forest Resource Economics (4) Allocation of forest resources via market and institutional systems. Application of economics to forest resource decision making in the private and public sector. Prereq: Economics 2120.

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6320 Forest Protection (3) Destructive agencies; fire, insects, diseases; silvicultural control; biological control; prevention and suppression.

6310 Forest Resource Economics (4) Allocation of forest resources via market and institutional systems. Application of economics to forest resource decision making in the private and public sector. Prereq: Economics 2120.
4003 Field Methods of Timber Inventory (4) Field measurements of forest trees; timber cruising; determining appropriate sample design for specific purposes; tree and stand growth; site evaluation; field problems. Prereq: 3110 and Agricultural Mechanization 3140.

4004 Forest Practice (3) Management of forest lands by planning and programming; "multiple-use" concept as it influences management decisions; impact of public pressure for outdoor recreation or management decisions; management prescriptions. Prereq: 4006. S/NC.

4006 Silvicultural Methods (4) Methods and application of intermediate and regeneration cuttings; site preparation, planting and seeding; modifications of cuttings in response to the specific factors required; field problems. Prereq: 3320, 4002, 4003.

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.

4110-20-30 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, organizing, and leading concepts and cases. Problem analysis and decision making in forest resources management. Prereq: Senior standing in forestry or wildlife and fisheries science or consent of instructor. 2 hrs. and 1 lab.

4220 Forest Resource Management (4) The forest as an 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; producing multiple services; 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.

4310 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 development of forest resource organizations 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 genotypes, and development of seed orchards; hybridization; seed production and seed certification. Prereq: 4006 or consent of instructor. 2 hrs. and 1 lab.

4430 Regional Silviculture of the United States (3) Factors influencing 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 silvicultural characteristics of the more important species. Prereq: 4005 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 recreation areas; socioeconomic and political determinants of recreation development and management. Possible overnight field trips required. Prereq: 6 credits in sociology and/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; interpretation of characteristics of recreation development, application of psychological concepts to forest recreation problems, and review of methodologies for assessing recreational behavioral settings. Integration of biological and psychological concepts in managing forest recreation. Prereq: 4240 or consent of instructor. 3 hrs.

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 treating systems. Prerequisite: 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 (1-6)

5220 Seminar in 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 from 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.)

3220 Wildlife Resources and their Conservation (3) Wildlife in the United States; their interaction with man; their management; methods and principles of controlling wildlife. General course for 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: 3230 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. Prereq: 3230 or one year of zoology. 3 hrs. and 1 lab plus one weekend field trip.

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.

Prefer: Biology 3130, 8 hrs. mathematics, or consent of instructor. 3 hrs. and 1 lab or field period.

4520 Fisheries Management (4) Methods of warm and cold water fisheries management including techniques of biological assessment, public relations, habitat improvement, and population control. Prereq: 3230 or one year of forestry, 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 Predatory Ecology (3)

5500 Advanced Topics in Fisheries Science (3)

5550 Fish Physiology (3)

Ornamental Horticulture and Landscape Design (740)

Professors: G. D. Crabbe, Head), Ph.D. Ohio State; L. M. Canaan, Ph.D. Rutgers; N. D. Peacock (Emeritus), Ph.D. Michigan State; D. B. Williams , Ph.D. Pennsylvania State.


Assistant Professors: D. T. Kendall, M.A. Louisiana State.

Instructor: E. L. Abbott, M.S. 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, effectively using, planting and caring for trees, shrubs, turfgrass, herbaceous landscape plants and house plants. 3 hrs.

3030 Plant Propagation (3) Physiology, methodology, and environmental requirements for propagation. Prereq: 8 hrs. of biological science. 2 hrs. and 1 lab.

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

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

3210 Turfgrass Management (4) Practical turfgrass management with emphasis on arrangements for home, church, and special occasions. 1 hr. 2 labs.

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. Investigating of practices and the solution of problems as they relate to the students' areas of interest in the establishment and operation of floricultural, nursery, landscape planning and maintenance enterprises, including compliance with governmental regulations and other operational practices specific to the ornamental horticulture industry. 3 hrs.
3410 Basic Floriculture (3) Principles and practices emphasizing propagation major cut flowers and potted plant crops. Application of principles of plant physiology as they relate to the control of flowering, harvesting schedules, and quality. Prereq: 3110 and Plant and Soil Science 3040 or equivalent. 2 hrs. and 1 lab.

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

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

3620 Intermediate Landscape Design (4) Application of skills and knowledge acquired in 3610 to a variety of landscape projects. Refinement of graphic skills. History of landscape design as it relates to contemporary applications. Technical aspects of planning and design specification. Use of plant material in design of small and moderate scale landscape situations. Prereq: 3610, 3610 or equivalent. 1 hr. and 2-3 hr. labs.

3630 Landscape Construction and Contracting (4) Application of construction methods, materials and practice concerned with landscape installation and contracting. Site layout procedures, earthwork, drainage, grading, and planting materials; application through detail drawings and small scale projects. Landscape contracts, specifications and bidding procedures. Prereq: 3310. 3610. Ag. Mech. 2100 recommended. 1 hr. and 2-3 hr. 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. 3 hrs. and 1 lab.

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

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

4100 Nursery Production (4) Modern methods of producing liners, field and container grown woody ornamental plants. History and evolution of nursery industry and modern production recommendations for woody ornamental plants. Prereq: 3630, 3610 and Plant and Soil Science 2130. 2 hrs. and 2 labs.

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.

4150 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 qualities 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 completion of a major project. Analysis, programming, planning design, construction detailing, estimating specifications, contracts and bidding included in total project. Prereq: 3510, 3620, 3630. 1 hr. and 2-3 hr. labs.

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

4230 Specialty Floriculture (3) Specific practices in the production of minor cut flowers and potted plant crops. Production methods for scheduling flowering or vegetative growth of specialty 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.

4510 Seminar (1) Current problems in ornamental horticulture and landscape design. Prereq: Junior standing and consent of instructor.

GRADUATE

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:
L. F. Seatz (Head), Ph.D. North Carolina State; F. F. Ball (Emeritus), Ph.D. Iowa State; D. L. Coffey, Ph.D. Purdue; B. V. Conner, Ph.D. Washington State; H. A. Fribourg, Ph.D. Iowa State; L. S. Jefferies, Ph.D. North Dakota State; L. M. Josephson (Emeritus), Ph.D. Wisconsin; W. L. Parks, Ph.D. Purdue; B. S. Pickett (Emeritus), Ph.D. Michigan State; J. H. Reynolds, Ph.D. Wisconsin; L. N. Skold (Emeritus), M.S. Kansas State; M. E. Springer (Emeritus), Ph.D. California (Berkeley); H. D. Swingle (Emeritus), Ph.D. Louisiana State.

Associate Professors:

Assistant Professors:
D. E. Deyton, Ph.D. North Carolina State; R. J. Miles, Ph.D. Texas A&M; D. R. West, Ph.D. Nebraska; J. D. Wolst, Ph.D. Auburn.

1 Clyde 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 1520 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, morphology, culture, harvesting, and utilization of corn, small grains, soybeans, sorghum, sunflowers, and related crops. 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; 6 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 crops; pest control, harvesting, packing, storage and pruning. Prereq: Ent. & P. 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 specific crop and farming conditions. Prereq: 2130. 3 hrs. and 1 lab.

3250 Soils in Forestry (3) Soils as a medium for tree growth; relation of physical, chemical, and biological properties of soils to forest 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 Irish potatoes. 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 squash, tomatoes, pepper, cucurbits, sweet corn, and okra. Need not have 3510 as prereq. 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 various crop and non-crop uses. 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. 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: 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 soils 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 (3-6)

5240 Soil Productivity and Management (3)

5250 Pedology (4)

5310 Design and Interpretation of Experiments (4)
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. Excellent opportunities for veterinarians interested in research both 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 in Morgan Hall on the agricultural campus. The Department of Animal Science is housed in Brehm Animal Sciences 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 agricultural campus houses the Departments of Environmental Practice, Rural Practice, Urban Practice, and Pathobiology. Additionally, the University Hospital, clinics, and the Agriculture/Veterinary Medicine Library are contained within this modern structure of 246,000 gross square feet.

The college has research facilities on Cherokee Farms, UT Veterinary Hospital, and 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>Subject</th>
<th>Minimum Quarter</th>
<th>Credits Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>English, including speech</td>
<td>12</td>
<td>8</td>
</tr>
<tr>
<td>Humanities</td>
<td>12</td>
<td>8</td>
</tr>
<tr>
<td>Social sciences</td>
<td>12</td>
<td>8</td>
</tr>
<tr>
<td>Mathematics through introductory calculus</td>
<td>12</td>
<td>8</td>
</tr>
<tr>
<td>Chemistry: general</td>
<td>12</td>
<td>8</td>
</tr>
<tr>
<td>Organic</td>
<td>12</td>
<td>8</td>
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<tr>
<td>Biochemistry</td>
<td>12</td>
<td>8</td>
</tr>
<tr>
<td>Physiology</td>
<td>12</td>
<td>8</td>
</tr>
<tr>
<td>Biology or Zoology</td>
<td>12</td>
<td>8</td>
</tr>
<tr>
<td>Microbiology</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Animal science, including nutrition and genetics</td>
<td>13</td>
<td></td>
</tr>
</tbody>
</table>

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

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

The Colleges of Agriculture and Liberal Arts of The University of Tennessee offer a three-year pre-veterinary curriculum which satisfies all the course requirements for admission to the College of Veterinary Medicine. Students who are admitted to the College of Veterinary Medicine following completion of this pre-veterinary curriculum will receive a Bachelors degree upon completion of the first year (three quarters) of the professional veterinary medicine curriculum.

**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) residents of other states.

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

Application materials need to be completed and mailed no later than 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 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 latter half of the final year of the professional curriculum. Selection for an extramural learning experience will require approval by the department concerned and the College of Veterinary Medicine Curriculum Committee.

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-academicquarter, year-round program, including summers. The first year (three quarters) consists mostly of preclinical 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 calendar year 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>
<th>Vet. Animal Science 8510</th>
<th>Vet. Animal Science 8540</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall</td>
<td></td>
<td>115</td>
<td>78</td>
</tr>
</tbody>
</table>

**Institute of Agriculture**

**College of Veterinary Medicine**

Hyram Kitchen, Dean
W. H. Grau, Jr., Associate Dean
C. F. Reed, Jr., Associate Dean
Departments of Instruction

**Animal Science (114)—Veterinary Medicine**

**Professors:** D. C. Richardson (Head), Ph.D. Ohio State; K. M. Barth, Ph.D. Rutgers; M. C. Bell, Ph.D. Oklahoma State; J. K. Bliether (Emeritus), Ph.D. Ohio State; C. C. Chamberlain (Emeritus), Ph.D. Iowa State; S. L. Hansard (Emeritus), Ph.D. Florida; E. R. Liddell, M.S. Texas; G. M. Merriman (Emeritus), D.V.M. Michigan State; J. B. McLaren, Ph.D. Auburn; J. K. Miller, Ph.D. Georgia; M. J. Montgomery, Ph.D. Wisconsin; R. L. Murphree (Emeritus), Ph.D. Wisconsin; H. V. Shirley, Ph.D. Illinois; R. F. Shrobe, Ph.D. Iowa State; E. W. Swanson, Ph.D. Missouri; R. L. Tugwell (Emeritus), Ph.D. Kansas State; C. E. Wyile (Emeritus), A.M. Missouri.

**Associate Professors:** W. R. Backus, Ph.D. Tennessee; R. E. Carte, D.V.M. Kansas State; H. Eller, D.V.M., Ph.D. Illinois; J. P. Jenkins (Emeritus), Ph.D. Michigan State; J. W. Holloway, Ph.D. Oklahoma State; F. B. Masino, Ph.D. Kansas State; K. Robbins; Ph.D. Illinois; M. H. Sims, Ph.D. Auburn.

**Instructors:** D. C. McGhee, B.S. Tennessee.

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

**8240-50 Veterinary Physiology (4.5)** 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: 3 lectures and 1 demonstration. 8250: 4 lectures and 1 demonstration.

**8510-20 Veterinary Histology/Embryology (5,4)** The cytology, histology and organology of animal body systems, emphasizing structural and functional interrelationships. Embryonic development from fertilization and the origin of congenital defects. Correlated with 8440-50 and 8540-50. 8510: 3 lectures and 2 labs. 8520: 2 lectures and 2 labs.

**8540-50 Veterinary Gross Anatomy (5.5)** Laboratory courses covering gross and applied anatomy of common domestic animals (dog, cat, horse, cow). Methods include dissection of embalmed specimens, study of prospections, slides, models, and living animals. Sequence of organ system study correlated as much as possible with 8510-20.

**8570 Special Problems in Animal Science (3-20)** Specially designed study for students interested in certain topics in anatomy, histology and physiology. May be repeated.

**8575 Advanced Seminar in Animal Science (1-4)** Advanced seminars in various special aspects of applied anatomy, histology and physiology.

**8600 Basic Clinical Rotation in Environmental Practice (3)** Introductory clinical experience in laboratory animal and zoo animal medicine, epidemiology, and other related disciplines.

**8611-12 Pharmacology (2.5)** Consideration of principles of pharmacokinetics as well as pharmacodynamic properties of veterinary drugs including mode of action, pharmacologic effects, chemical and physical properties, metabolism, toxicology, important idiosyncrasies, and clinical application. Correlated with 8240, 8250, and 8311. 8611: 2 hrs. lecture. 8612: 5 hrs. lecture.

**8690 Environmental Clerkships (2-20)** Advanced clinical experience and training in practice of laboratory and zoo animal medicine. Prereq. Environ. Practice 8690, Pathology 8670, Rural Practice 8690, and Urban Practice 8690. May be repeated.

**8670 Special Problems in Environmental Practice (2-16)** Special problems in public health and epidemiology. May be repeated.

**8750 Advanced Seminar in Environmental Practice (1-4)** Advanced seminars in various topics such as comparative medicine, public health, epidemiology, and pharmacology.

**GRADUATE**

**5000 Thesis (1-15)**

**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. M. Becker, Ph.D. Cincinnati; R. J. Courteney, Ph.D. Syracuse; T. C. Morrise, Ph.D. Maryland; J. O. Mundt (Emeritus), Ph.D. Michigan State; W. S. Riggsby, Ph.D. Yale; B. T. House, B.V.S. University of Bristol (England); Ph.D. University of Guelph (Canada); J. M. Woodward (Emeritus), Ph.D. Kansas; C. J. Wust, Ph.D. Indiana.

**Associate Professors:** D. A. Bunch, D.V.M., Ph.D. Michigan State; G. S. Sayler, Ph.D. Idaho.

**Assistant Professors:** D. A. Berrie, Ph.D. Cornell; R. M. Moore; Ph.D. Texas-Austin; K. M. Sirokin, Ph.D. Michigan State; G. Stacey, Ph.D. Texas-Austin.

**8101 Veterinary Bacteriology and Mycology (5)** An introduction to the pathogenesis of bacterial and fungal diseases. Organized as a taxonomic study relating microbial structure, metabolism and genetics to the patterns of disease and the mode of action of antimicrobials. 3 hrs. lecture and 2 labs.

**8102 Veterinary Virology (4)** Structure and replication of animal viruses, classification of viruses, mechanisms of viral pathogenesis. Techniques for quantitat-
ing viruses, viral antigens, and antiviral antibodies. Fundamental for understanding of the best approach to viral diagnosis and immunoprophylaxis. 2 hrs. lecture and 2 labs.

8103 Veterinary Immunology (4) Basic concepts of immunology; mechanisms of immune reaction, diagnostic immunology, and the role of the immune response in preserving the integrity of the body as well as in causing disease. 2 hrs. 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.

Pathobiology (742)


Associate Professors: M. D. McCracken, D.V.M. Kansas State, Ph.D. Purdue University; D. L. Sholl, D.V.M. Ohio State, S. Patton, Ph.D. Kentucky.


8700 Basic Pathobiology Rotation (3) Practice and/or demonstrations in laboratory diagnosis including postmortem examination and clinical pathological, parasitological, and microbiological techniques.

8710 Veterinary Pathology (5) Principles of pathology including causes of disease, disturbances of cell growth, inflammation, and neoplasia. 3 hrs. 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 Advanced Pathobiology (3) Further training in clinical laboratory diagnostic procedures, and in postmortem examinations.

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

8775 Advanced Seminar in Urban Practice (1-4) Advanced seminars in various specialty disciplines, such as neurology, cardiology, surgery, ophthalmology.

GRADUATE

5000 Thesis (1-15)

6000 Doctoral Research and Dissertation (3-15)

Urban Practice (896)


8800 Basic Clinical Rotations in Urban Practice (12-16) Introductory clinical training in food animal, equine, ambulatory and herd health practices.

8875 Advanced Seminar in Rural Practice (1-4) Advanced seminars in various specialty areas such as equine medicine, food animal surgery, clinical toxicology.

GRADUATE

5000 Thesis (1-15)

6000 Doctoral Research and Dissertation (3-15)

Veterinary Medicine (987)

8010 Client Relations and Communication Skills (1) Interpersonal skills as they apply to client relations and communication with clients, employees, and the general public. 1 lab. S/NC.

8310 Introduction to Veterinary Medical Practice (2) Animal species, breed identification, basic care, feeding, restraint, and handling. Introduction to physical diagnosis, intravenous techniques, blood sampling, etc. 1 hr. lecture and 1 lab.

8311 Introduction to Veterinary Medical Practice (2) Physical diagnosis, history taking, and client relations; anesthetic principles, agents, and techniques. 1 hr. lecture and 1 lab.

8312 Introduction to Veterinary Medical Practice (3) Basic surgical principles, preparation for surgery, wound healing and suturing; fundamentals of radiology. Correlated with 8320. 2 hrs. lecture and 1 lab.

8320 Medical Science Interaction Laboratory (2) Multidisciplinary laboratory designed to provide learning and reinforcement of concepts in the disciplines of veterinary medical practice: differential etiology, diagnostic, and treatment of certain diseases. 3 hrs. of lecture and 2 labs.

3800. May be repeated.

8875 Advanced Seminar in Rural Practice (1-4) Advanced seminars in various specialty disciplines, such as neurology, cardiology, surgery, ophthalmology.

8885 Advanced Clinical Rotation in Urban Animal Practice (3-16) Advanced clinical rotation in anesthesiology, medicine, radiology, and surgery of companion animals.

8860 Advanced Clinical Rotation in Urban Animal Practice (3-16) Advanced clinical rotation in anesthesiology, medicine, surgery, and orthopedics of companion animals.

8870 Special Problems in Urban Practice (2-10) Provides students with opportunity to design and execute research projects. May be repeated.

8875 Advanced Seminar in Urban Practice (1-4) Advanced seminars in various specialty disciplines, such as neurology, cardiology, surgery, ophthalmology.

Interdepartmental Offerings

Veterinary Medicine (987)
76 Institute of Agriculture

dures and medical therapy applicable to equines and ruminants.

8362 Veterinary Toxicology (3) Basic concepts of toxicology with emphasis on the molecular mechanisms and the pathologic and clinical features of animal diseases caused by common toxic agents.

8363 Public Health (2) Public health aspects of veterinary medicine and nature of related laws, ordinances, and regulations. Veterinarian's role in the protection of environment, ecology, and quantity and quality of food.

8364 Animal Dietetics (1) Applied nutrition of cattle, swine, horses, dogs and cats for the veterinarian. Diets and methods of feeding for both normal and special situations.

8365 Radiology (3) Advanced and special techniques in radiology; interpretation and use of radiology in diagnosis of clinical cases in medicine and surgery.

8366 Respiratory System (4) The detection and diagnosis of upper and lower respiratory diseases of domestic animals. Includes the pathophysiology and pathology of infectious and noninfectious diseases.

Lectures and laboratories with live and simulated case studies.

8370 Neurosciences (9) Normal and abnormal neural structure and function in animals, with emphasis on clinical neurology and neuropathology.

8371 Visual and Auditory Systems (3) Methods of examination and treatment of diseases involving eyes and ears of animals, with emphasis on anatomic, physiologic, and pathologic features.

8372 Comparative Medicine (4) Diagnosis, prevention, and treatment of diseases of laboratory animals, avian species, and marine mammals seen most commonly by practicing veterinarians.

8373 Principles of Medicine (3) Physiologic and pathologic principles underlying mechanisms of disease. Selected examples of human and animal diseases with particular emphasis on recent scientific advances and their effects on veterinary medicine.

8401 Clinical Radiology (3) Training in radiographic techniques and in the interpretation of radiographs as part of the diagnostic process. May be repeated.

8402 Special Medical Services (3) Clinical training in specialty areas such as anesthesiology and ophthalmology, with casework in both urban and rural animal clinics.

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.

GRADUATE

5000 Thesis (1-15)

5343 Patterns of Disease (5)

5362 Veterinary Toxicology (3)

5363 Public Health (2)

5372 Comparative Medicine (4)

5375 Principles of Medicine (4)

6000 Doctoral Research and Dissertation (3-15)
School of Architecture

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

The School of Architecture offers a program of professional studies which prepares its graduates for the practice of architecture. While emphasizing knowledge and skills required by architects in guiding the processes of building, the school is especially concerned that its students learn that kind of good judgment which particularly distinguishes the architect from all other professionals who serve the building industry. Therefore, the student is regularly called upon to pay attention to cultural, philosophical and ethical issues that appropriately concern the architect in performance of the art of building. The student is also required to discover and understand the principles by which our physical universe appears to operate in order to know the science of building as fully as possible. It is important for the student to learn the characteristics of the natural environment while learning the physical behavior of materials in structures. Furthermore, the program of the school is concerned with preparing the student to be adaptable to change. An understanding of society is important as we see it developing in sometimes surprising ways. This places special demands upon the 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, Holsapple, Inc. It contains as its major feature a large interior mall or street. Opening off this large gathering space, which serves as a campus focal point, are amply designed classrooms, a reference library which contains extensive slide collections and other reference materials, computer rooms, faculty offices, lecture rooms, administrative offices, an elaborate darkroom, workshop, and a gallery in which architecture as well as art exhibits are mounted.

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

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 in the field as an honor to be appointed to this lectureship. The most prominent architects from around the world are brought to the School of Architecture for this aid, but it is primarily awarded to student's of third- and fourth-year standing.

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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 Denmark each year at varied locations. These are designed to include visits to prominent new architectural sites and major historic locations.

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.

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 Association

Requirements

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

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.

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.

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Studies abroad, which are arranged to include a full quarter's credit for advanced students, include 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 Association

Requirements

The School of Architecture, being a professional program and having limited resources, has a restricted enrollment based on the following criteria:
will count as hours for graduation, although taken by full-time students is 12 hours; the maximum which may be taken without Course Load and Dean of the School of Architecture, who is the Architectural Academic Standards Committee. Persons interested must concentration. The minor will consist of not which are relevant to their major areas of colleges to pursue studies in architecture and is possible to complete within three years. A minimum of 9 quarters residency is required. The degree is the first professional degree recognized for purposes of eventual qualification for the license to practice architecture. Applicants must provide a transcript of previous academic work and must have attained at least a 2.5 overall grade point average. Appropriate goals and abilities must be shown by the applicant as well.

SECOND DEGREE PROGRAM MINIMUM REQUIREMENTS

<table>
<thead>
<tr>
<th>First Year</th>
<th>Hours Credit</th>
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<tbody>
<tr>
<td>Architecture 1160, 1290, 3300</td>
<td>6 6 6</td>
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<tr>
<td>Architecture 1191, 1291, 3317</td>
<td>2 2 2</td>
</tr>
<tr>
<td>Architecture 2207, 2307, 3107</td>
<td>3 3 3</td>
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<tr>
<td>Physics 2240-50-60</td>
<td>4 4 4</td>
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<tr>
<td>History 1510-20</td>
<td>4 4 4</td>
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<tr>
<td>Approved Elective</td>
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<thead>
<tr>
<th>Second Year</th>
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<tbody>
<tr>
<td>Architecture 2100, 2200, 3200</td>
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<td>Architecture 2101, 2201, 3201</td>
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<tr>
<td>Architecture 2114, 2214, 3317</td>
<td>3 3 3</td>
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<td>Physics 2240-50-60</td>
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<thead>
<tr>
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<tbody>
<tr>
<td>Architecture 3100, 3200, 3300</td>
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<tr>
<td>Architecture 3114, 3214</td>
<td>4 4 4</td>
</tr>
<tr>
<td>Architecture 3116, 3216, 3316</td>
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<tr>
<td>Architecture Elective</td>
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<table>
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<tr>
<th>Approved Electives</th>
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<tbody>
<tr>
<td>Architecture 4101</td>
<td>3 3 3</td>
</tr>
<tr>
<td>Architecture 4116</td>
<td>3 3 3</td>
</tr>
<tr>
<td>Architecture 4213, 4313</td>
<td>3 3 3</td>
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</tbody>
</table>

Total: 143 hours

To be admitted to the third year the students must have his or her work reviewed by designated faculty of the school. A GPA of 3.0 in Architecture 1190, 1290, 3100, 3200, 3300 is required along with an overall 2.5 GPA.

Approved Electives List

Approved Electives: First & Second Year Students

<table>
<thead>
<tr>
<th>First Year</th>
<th>Hours Credit</th>
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</thead>
<tbody>
<tr>
<td>Architecture Laboratory Electives, 4600, 4700, 4800</td>
<td>6 6 6</td>
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<tr>
<td>Architecture 4501</td>
<td>3 3 3</td>
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<tr>
<td>Architecture electives</td>
<td>3 3 3</td>
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<tr>
<td>Approved electives</td>
<td>3 - 3</td>
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</tbody>
</table>

Total: 245 hours

Bachelor of Architecture as a Second Degree

A curriculum leading to a Bachelor of Architecture degree is available to students who already hold a bachelor's degree or an advanced degree in another field. This program begins with intensive studies in architecture and is possible to complete within three years. A minimum of 9 quarters residency is required. The degree is the first professional degree recognized for purposes of eventual qualification for the license to practice architecture. Applicants must provide a transcript of previous academic work and must have attained at least a 2.5 overall grade point average. Appropriate goals and abilities must be shown by the applicant as well.
2100 Fundamentals of Site Design (4) Projects involving site orientation, climate, energy conservation, access, topography, grading and drainage. Prereq: 1900 and 1901; coreq: 2101.

2101 Design in the Environment (2) Introduction to design beyond site and building. Basic environmental considerations and their effects on the built environment. Review of exemplary approaches in current practice. Prereq: 1300 and 1301; coreq: 2100.

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

2200 Elements of Architecture (1) Design of small buildings with special consideration for site, structural implications, space allocation, and social and cultural implications. Presentation sketches, constructed drawings, and sketch models. Prereq: 2100 and 2101; coreq: 2201.

2201 Building Use (2) Introduction to techniques of building programming. Space allocation and balance. Inter-relationships of spaces in terms of use. Examination of user requirements. Typical approaches to entry, access, circulation, and public and private zoning. Diagrammatic presentations and sketches from field observations. Prereq: 2100 and 2101; coreq: 2200.

2207 Architectural History I (3) Development of architecture from antiquity through the Byzantine period, with consideration for cultural conditions and form of selected buildings. Emphasis on basic discipline required for clear communication of architectural ideas. Introduction to computer graphics. Prereq: 1100 and 1101: Coreq: 1201.


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

2307 Architectural History II (3) Development of western architecture from the medieval period through the Baroque. Prereq: 2207.


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

3114 Structures in Wood and Steel (4) Introduction to design and selection of steel and wood structural elements. Basic design requirements for building codes. Use of construction and building codes, handbooks, and design tables - selection of structural members.

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


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

3216 Mechanical Systems in Architecture (4) Introduction to the functioning of air conditioning systems, including both passive and active solar energy systems. Plumbing and fire protection systems. Prereq: 3116.


3317 Structural and Mechanical Applications (4) Analysis and selection of structural and mechanical systems for a specific case study to integrate technical information into a unified design solution. Prereq: solution to 3214 and 3316; coreq: 3300.

3318 Research Methods for Designers (3) General introduction to variety of research methods and techniques available to designer and appropriate for uncovering basic user requirements during design process. Prereq: 2000.

3390 Behavioral Approaches to Environmental Design (3) Of major concern in the lecture content of this course is the exploration of the environmental factors in human behavior. Particular emphasis will be placed upon the role of environmental factors in human development, learning, adaptation, stress and satisfaction, recreation behavior, and life-cycle functions. Studio problems will explore the design of environment for children and environmental supports for various types of physical disabilities for people of all ages. Prereq: Consent of instructor.

3390 Behavioral Approaches to the Design of Prosthetic Environments (3) Many standard features of the prosthetic environment are designed for the functioning of individuals with various types of physical disability, study of architectural barriers in relation to the design for the disabled. Particular emphasis will be upon the role of environmental factors in human development, learning, adaptation, stress and satisfaction, recreation behavior, and life-cycle functions. Studio problems will explore the design of environment for children and environmental supports for various types of physical disabilities for people of all ages. Prereq: Consent of instructor.

4000 Service Practicum I (6) A non-credit internship for minimum of 3 months duration to be completed prior to fifth year.

4100 Advanced Architectural Design I (6) Large-scale buildings, form, and structure design. Exercises in exploration of appropriate image which resolves complex use and context requirements. Prereq: 3300.

4101 Community Form (3) Patterns of community development. Study of selected historical and contemporary examples. Emphasis on organization of basic, urban, design issues and exemplary design approaches through lectures, readings, essays, and sketch studies.


4200 Advanced Architectural Design II (6) Design at community scale, emphasizing attention to patterns of community design in response to user requirements and the physical environment. Consideration for sense of place, energy conservation, land use, access and
circulation, spatial form and character, studied through diagramming, sketches, drawings, and models. Course sections may be housed in off-campus locations. Prereq: 4100 and 4101.

4213 Professional Practice I (3) Principles and methods of economics and management for architectural offices: project production, cost analysis, budgeting, office and construction management.

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

4313 Professional Practice II (3) Legal responsibilities of architects: contract documents, contract administration, codes and zoning regulations, liability, and insurance. Prereq: 4213.

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

4410 Development and Design (6) Research and design projects conducted in various locations abroad.

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

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

4500 Architecture and Preservation (6) Rehabilitation, restoration, and adaptive uses of existing buildings.

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

4450 Design Service in Communities (6) Studies conducted under direction of architect or expert in an allied profession, in service to public service organizations or agencies of government, and public groups. Off-campus locations.

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

4460 Energy Efficient Design (6) Architectural design for energy efficiency and detailed consideration of specialized energy conservation techniques.

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

4481 Architecture-Engineering Laboratory (6) Large scale architectural projects of complex nature and with emphasis on engineering systems. Directed research application of new structural concepts. Consideration of codes, economics, urban design, utility services, environmental controls and construction.

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

4501 Architectural Programming (3) Emphasis is placed on the fundamental questions and to identify critical basic issues in design. Examination of information sources and their proper use. Formulation of objectives and requirements. Verbal, written, and diagrammatic presentation illustrating a basic design approach, concept, and method. Preparation for 4500.

4500 Comprehensive Architectural Design Project (6) Diamond: design of buildings for complex buildings with attention to clarity of concept. Search for appropriate form and structure, technical requirements and design of details. Full complement of written and visual presentations which support students' arguments for design concept and its development. Required review by faculty representing all areas of the architectural program. Prereq: 4501.


4802 American Architecture II (3) Stylistic periods from the Gothic Revival through the nineteenth century. Examples from prehistoric structures through twentieth century vernacular.

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


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

4810 Aesthetics in Architecture (3) Philosophies of art underlying the practice of architecture.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

4849 Supervision (3) Theories, methods, and site study of job inspection during construction phase and construction administration.

4850 Elementary Structural Matrix Methods (4) Introduction to the generalized matrix methods of analysis of structures. Review of matrix algebra and vectors; development of member stiffness and flexibility matrices; assembly of structure stiffness and flexibility matrices. Prereq: Consent of instructor. (Same as Civil Engineering 4850 and Engineering Science and Mathematics 4855.)


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

4864-65 Advanced Mechanical and Electrical Systems (3,3,9) In-depth analysis and innovative concepts in design of heating, ventilating, air conditioning, lighting and electrical distribution systems in buildings. Prereq: 3316.

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

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


4882-83 Advanced Structural Design I, II (4,4) Analysis, and design of basic building structures. Structural and constructional aspects of building, including struc-
tures in steel, concrete, masonry, and timber to satisfy loading and building code requirements. Prereq: 3214 or equivalent.

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

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


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

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


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

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

4940 Proxemics (4) Seminar for graduate students and upper-division students. Introduction to proxemic research. Definition of proxemic variables. Proxemic notation exercises. Analysis of etic data and the identification of emic categories. Observer bias and methods and bias reduction. Members of seminar required to design, conduct, and present original proxemic research. Prereq: 2000 or consent of instructor.

The College of Business Administration seeks to prepare men and women for positions as executives and specialists in business. Seeing the business firm as operating in a dynamic social, political, and economic environment, the college has four functions with respect to its purpose: (a) to offer its students the firm base of liberal education consistent with that possessed by all educated people; (b) to present to its students business-oriented instruction in professional fields so that they may understand the business process as a whole and the function of specific areas of business in particular; (c) to associate closely with other colleges of the University in order to enrich the understanding of its students by offering an opportunity to learn from psychology, sociology, and other areas related to the behavior of people; (d) to develop in its students the ability to see their four years in the college as the initial step to a lifetime commitment to personal growth and intellectual maturity through continuing education.

The college centers its teaching, subject matter, and research activity around two themes: the manager as a planner, decision maker, implementer, and controller of operations in a business firm; and the manager as an analyst of and an adapter to the larger social, economic, and political environment in which the firm exists.

The college has one goal: to have each student leave school with a reasonably 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 nationally recognized body which accredits programs in business administration is the American Assembly of Collegiate Schools of Business (AACSB). The college has been a member of AACSB since 1941, and both its undergraduate and graduate programs are fully accredited.

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 27 of this catalog.

Student 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 students 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 with their personal needs for academic information and to prepare them for self-sufficiency in responding to their questions and concerns.

Center for Business and Economic Research

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

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

Management Development Programs Department

The Management Development Programs Department offers a wide variety of programs ranging from two-to-three-day public seminars and customized "in plant" programs to the four-week University of Tennessee Executive Development Program.

The University of Tennessee Executive Development Program (TEDP) is designed to provide extensive continuing educational opportunities for executives from firms and organizations in Tennessee, the South, and the nation. The major objectives of the program are to prepare and develop executives for increasingly higher levels of management responsibility and to sharpen existing executive skills needed for comprehensive decision making and leadership. Other major aims of the TEDP are to teach the fundamentals of analytical thinking and the use of decision tools and to examine the economic, political, technological, and other environmental factors affecting the firm's operations.

The TEDP limits enrollment; 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 as well as nationally recognized professors from other institutions. Each participating faculty member has substantive experience in other or concurrent 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. This program, under the direction of a coordinator, combines classroom study with practical experience. Effort is made to place students in jobs which offer maximum educational and financial advantages. Students alternate quarterly between work in business or industry and study at the University.

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

The student may earn a maximum of nine hours of elective credit for field work but must do a satisfactory job as determined by the employer and coordinator, including 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, 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 as well.

Business Minor for Non-Business Majors

Students who are non-business majors, but who wish to attain a minor in business, must successfully complete 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 UKT. 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 enroll in a course load in excess of these maximums may be granted by the Associate Dean for Undergraduate Programs in Business Administration.

Requirements for All Curricula

In order to qualify for the Bachelor of Science in Business Administration degree, a student must have been accepted for association with the College at the upper division level and must complete the curriculum outlined by the major department. Where no course number is indicated or where a choice is allowed, the student will fulfill the requirement in any one subject area.

A maximum of 30 credit hours of unconventional grading (S/NC, P/F, P, etc.) courses may be applied to the total credit hours required for a degree of Bachelor of Science in Business Administration. Such credit hours may be used to meet only the requirements identified in the curriculum as "non-business electives," "non-departmental electives," "business and/or non-business electives," and "business electives."

A Management Science Option is available for students with facility and interests in mathematical applications to business. See page 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 2110-20-30; Finance 3510 (Political Science 4370 for public administration majors), 3120-30; Management 3010, 3110 (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 elective or as designated by the curriculum (3450-60 for Management Science Option).

ENGLISH REQUIREMENT

The English requirement can be fulfilled by two English 1010 or 1020, 1031 or 1032, or 1033, as well as hours selected from English 2150-20-30, 2300, 2350-70-80, and 2360-70-80. 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, 2110-20-30; History 1510-20 (1518-28), 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), 2530-40; Religious Studies 2610 (2611), 2620; and Sociology 1510-20.

Other students may take 19. In unusual circumstances, permission to enroll in a course load in excess of these maximums may be granted by the Associate Dean for Undergraduate Programs in Business Administration.

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 enroll in a course load in excess of these maximums may be granted by the Associate Dean for Undergraduate Programs in Business Administration.

Requirements for All Curricula

In order to qualify for the Bachelor of Science in Business Administration degree, a student must have been accepted for association with the College at the upper division level and must complete the curriculum outlined by the major department. Where no course number is indicated or where a choice is allowed, the student will fulfill the requirement in any one subject area.

A maximum of 30 credit hours of unconventional grading (S/NC, P/F, P, etc.) courses may be applied to the total credit hours required for a degree of Bachelor of Science in Business Administration. Such credit hours may be used to meet only the requirements identified in the curriculum as "non-business electives," "non-departmental electives," "business and/or non-business electives," and "business electives."

A Management Science Option is available for students with facility and interests in mathematical applications to business. See page 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 2110-20-30; Finance 3510 (Political Science 4370 for public administration majors), 3120-30; Management 3010, 3110 (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 elective or as designated by the curriculum (3450-60 for Management Science Option).

ENGLISH REQUIREMENT

The English requirement can be fulfilled by two English 1010 or 1020, 1031 or 1032, or 1033, as well as hours selected from English 2150-20-30, 2300, 2350-70-80, and 2360-70-80. 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, 2110-20-30; History 1510-20 (1518-28), 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), 2530-40; Religious Studies 2610 (2611), 2620; and Sociology 1510-20.

Other students may take 19. In unusual circumstances, permission to enroll in a course load in excess of these maximums may be granted by the Associate Dean for Undergraduate Programs in Business Administration.
### Bankiing

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 institutions, state or federal bank regulatory agencies, may major in banking.

**Transfer Students**: A minimum of 25 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.

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<th>Hours Credit</th>
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<td><strong>Freshman</strong></td>
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| English 1090 or 1091; 1092; 1093 or 1092  | 3 3 3  
| Mathematics 1450-50-60 or 1840-50-60  | 4 4 4  
| **Sophomore** |
| English electives  | 4 4 4  
| Economics 2120-30  | 3 3 3  
| Accounting 2110-20-30  | 3 3 3  
| Nonbusiness elective  | 4 4 4  
| **Junior** |
| Business Law 4110-20  | 3 3 3  
| Business Administration 4430  | 3 3 3  
| *Education & Business 4710-20 and Business 4810*  | 3 3 3  
| **Senior** |
| Statistics upper-division elective  | 3 3 3  
| Business Law 4110-20  | 3 3 3  
| Business Administration 4430  | 3 3 3  
| *Education & Business 4710-20 and Business 4810*  | 3 3 3  
| **TOTAL: 188 hours** |

### Economics

The Department of Economics offers specialized courses for those who desire to serve as economic analysts and specialists in business, education, government, and various international agencies. The curriculum requirements for an economics major in the College of Business Administration are listed below with an additional explanation given on page 69.

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 12 hours of finance 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 a minimum of 12 hours of accounting, economics, and finance courses.

### Accounting electives
- Statistics elective

### Business electives
- Finance elective
- Departmental elective

### Senior
- Business Administration 4430
- Business Law 4110-20
- Economics 4440
- Finance 4110, 4800*
- Office Administration 4320
- Business elective

### Finance electives
- Insurance 4740-50
- Business or non-business electives

**TOTAL: 187 hours**

*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 and service industries, including the specialized 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 desire careers in management, but 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.

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### College of Business Administration

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<td>Marketing 3110-20</td>
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### Economics 3420
- Non-business electives

### Operations Concentration
- Industrial Engineering 3600
- Statistics 3310
- Management 3111

### Personnel Concentration
- Industrial Engineering 3600
- Statistics 3310
- Management 3111

### General Concentration
- Statistics upper-division elective
- Concentration elective
- Social science elective
- Business Administration 4110-20
- Business Administration 4430
- Management 4210, 4320
- Business and/or non-business electives

### Operations Concentration
- Management 4470, 4410, 4420
- Concentration electives
- Consumer Behavior 4520, 4530
- Concentration electives
- Concentration electives

**TOTAL: 187 hours**

*See Requirements for All Curricula.

**Marketing**

This major is designed to prepare students for careers with companies engaged in the marketing of consumer and industrial goods and their distribution by manufacturers, wholesalers, and retailers. The curriculum trains students for positions in sales, advertising, promotion, research, and marketing management. The integrated sequence of courses enables students to obtain broad training in the analysis of marketing decision problems.

Transfer Students: A minimum of 30 quarter hours of required upper division College of Business Administration courses must be completed in residence at The University of Tennessee, Knoxville. These must include the following required marketing courses: 3210, 4210, 4510, 4650, 4710.

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### Economics 3420
- Non-business electives

### Operations Concentration
- Industrial Engineering 3600
- Statistics 3310
- Management 3111

### Personnel Concentration
- Industrial Engineering 3600
- Statistics 3310
- Management 3111

### General Concentration
- Statistics upper-division elective
- Concentration elective
- Social science elective
- Business Administration 4110-20
- Business Administration 4430
- Management 4210, 4320
- Business and/or non-business electives

### Operations Concentration
- Management 4470, 4410, 4420
- Concentration electives
- Consumer Behavior 4520, 4530
- Concentration electives
- Concentration electives

**TOTAL: 187 hours**

*See Requirements for All Curricula.

Management Science 2110-20 is recommended to fulfill 6 hours of the sophomore elective.

*Concentration electives: Accounting 4430; Business Administration 4610; Computer Science 3410, 3910; Economics 4470; Industrial Engineering 3600; Insurance 3029, 3030, 3040; Management 3330, 4330, 4410, 4420, 4470, 4520, 4530, 4530, 4620, 4710. Students may, with the approval of their advisors, substitute other career-relevant courses for concentration electives.

Half of the concentration electives in the general management concentration will be courses offered by the Department of Management.
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. Each major in office administration may meet certification requirements by taking the appropriate education courses in consultation with the faculty advisor.

Each major in office administration will select an option area of 12 hours from one of these areas: accounting, banking, bilingual, computer science, insurance, logistics, marketing, management, political science, real estate, secretarial, statistics, and transportation.

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 at the University of Tennessee, Knoxville. A minimum of 12 hours must be in office administration.

### Faculty Hours Credit

**Freshman**

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**Sophomore**

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**Junior**

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**Senior**

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### Course Descriptions

- **Office Administration 4430**: Marketing and management of office services. Emphasis on productivity, work teaming, and decision making.
- **Management 3010**: Management principles and practices. Focus on leadership, decision making, and organizational behavior.
- **Marketing 3110**: Principles and practices of marketing. Emphasis on market analysis, strategy, and management.
- **Finance 3120**: Basic principles of finance. Focus on financial management and decision making.
- **Statistics**: Analysis of data and statistical methods. Focus on inferential statistics and decision making.
- **Economics**: Principles of economics. Focus on microeconomics and macroeconomics.
- **Psychology**: Principles of psychology. Focus on cognitive, social, and personality psychology.
- **Sociology**: Principles of sociology. Focus on social structure, social change, and social problems.
- **Political Science**: Principles of political science. Focus on government, politics, and public policy.
- **Computer Science**: Principles of computer science. Focus on programming, data structures, and algorithm design.
- **English**: Principles of English. Focus on writing, literature, and language.
- **Social Science Electives**: Electives from the social science disciplines.
- **Business Electives**: Electives from the business disciplines.
- **Non-Business Electives**: Electives from non-business disciplines.
- **Non-Departmental Electives**: Electives from non-departmental areas.
- **Social Science Electives**: Electives from social science disciplines.
- **Business Administration**: Electives from the business administration discipline.
- **Marketing**: Electives from the marketing discipline.
- **Finance**: Electives from the finance discipline.
- **Accounting**: Electives from the accounting discipline.
- **Psychology**: Electives from the psychology discipline.
- **Sociology**: Electives from the sociology discipline.
- **Political Science**: Electives from the political science discipline.
- **Computer Science**: Electives from the computer science discipline.
- **English**: Electives from the English discipline.
- **Social Science**: Electives from the social science discipline.
- **Business**: Electives from the business discipline.
- **Non-Business**: Electives from the non-business discipline.

### Total Hours

- **Freshman**: 12 hours
- **Sophomore**: 12 hours
- **Junior**: 12 hours
- **Senior**: 12 hours

**Total**: 36 hours

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### Notes

- **See Requirements for All Curricula**
- **Office Administration 3110**: Emphasis on productivity, work teaming, and decision making.
- **Management 3010**: Focus on leadership, decision making, and organizational behavior.
- **Marketing 3110**: Focus on market analysis, strategy, and management.
- **Finance 3120**: Focus on financial management and decision making.
- **Statistics**: Focus on inferential statistics and decision making.
- **Economics**: Focus on microeconomics and macroeconomics.
- **Psychology**: Focus on cognitive, social, and personality psychology.
- **Sociology**: Focus on social structure, social change, and social problems.
- **Political Science**: Focus on government, politics, and public policy.
- **Computer Science**: Focus on programming, data structures, and algorithm design.
- **English**: Focus on writing, literature, and language.
- **Social Science Electives**: Electives from the social science disciplines.
- **Business Electives**: Electives from the business disciplines.
- **Non-Business Electives**: Electives from non-business disciplines.
- **Non-Departmental Electives**: Electives from non-departmental areas.
- **Social Science Electives**: Electives from social science disciplines.
- **Business Administration**: Electives from the business administration discipline.
- **Marketing**: Electives from the marketing discipline.
- **Finance**: Electives from the finance discipline.
- **Accounting**: Electives from the accounting discipline.
- **Psychology**: Electives from the psychology discipline.
- **Sociology**: Electives from the sociology discipline.
- **Political Science**: Electives from the political science discipline.
- **Computer Science**: Electives from the computer science discipline.
- **English**: Electives from the English discipline.
- **Social Science**: Electives from the social science discipline.
- **Business**: Electives from the business discipline.
- **Non-Business**: Electives from the non-business discipline.

### Requirements

- **See Requirements for All Curricula**
- **Office Administration 3110**: Emphasis on productivity, work teaming, and decision making.
- **Management 3010**: Focus on leadership, decision making, and organizational behavior.
- **Marketing 3110**: Focus on market analysis, strategy, and management.
- **Finance 3120**: Focus on financial management and decision making.
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- **Computer Science**: Focus on programming, data structures, and algorithm design.
- **English**: Focus on writing, literature, and language.
- **Social Science Electives**: Electives from the social science disciplines.
- **Business Electives**: Electives from the business disciplines.
- **Non-Business Electives**: Electives from non-business disciplines.
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, 4830, and either 4140 or 4430.

**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 making decisions.

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Management M.S.O.

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<th>Hours</th>
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English elective
Mathematics 2840-50-60
Speech 2311
Statistics 3450-60
Social science elective
Non-business elective

Management Account 3210
Accounting 3110 or 3220 or 3430
Computer Science 3150
Economics 3110
Economics 3120 or 3210 or 3340 or 3410
Finance 3120-30
Finance 3510
Marketing 3110
Marketing 3210
Marketing 4510
Statistics 3650
Transportation 3110
Senior
Business Administration 4430
Business Law 4110-20
Management 4610-20
Marketing 4650
Business electives (9 hours from Marketing 4140, 4150, 4250, 4620, 4608, 4618-28, Transportation 4720, Business Administration 4610)
Marketing 4700
Transportation 3115
Business and/or non-business electives
Non-departmental elective

TOTAL: 187 hours

See Requirements for All Curricula.

Real Estate and Urban Development M.S.O.

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Real estate elective
Mathematics 2840-50-60
Speech 2311
Statistics 3450-60
Social science elective
Non-business elective

Finance 3120-30
Finance 3510
Management 4610-20
Marketing 4650
Business electives (9 hours from Marketing 4140, 4150, 4250, 4620, 4608, 4618-28, Transportation 4720, Business Administration 4610)
Marketing 4700
Transportation 3115
Business and/or non-business electives
Non-departmental elective

TOTAL: 187 hours

See Requirements for All Curricula.

Graduate Studies

The College of Business Administration offers advanced programs in economics leading to the Master of Arts, the Master of Science, 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, management, management science, marketing, 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 to the M.S. and the Ph.D. degrees. The M.S. degree in marketing 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 Business Administration offer a coordinated dual program leading to the Master of Business Administration degree program. See the Graduate Catalog for detailed information.

Students applying for the MBA, M.Acc., and DBA programs are required to take the Graduate Management Admission Test (GMAT). Applicants for the M.A., M.S., and Ph.D. programs may take either the GMAT or the Graduate Record Examination (GRE). Applicants whose native language is other than English must submit results of the Test of English as a Foreign Language (TOEFL) unless a degree has been earned at an accredited U.S. institution attended by the applicant for four academic years within five years prior to date of application. Scheduled dates and locations for taking these examinations may be obtained from Educational Testing Service, P. O. Box 966, Princeton, New Jersey 08540, and from most colleges and universities.

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

Departments of Instruction

Accounting and Business Law

Professors:

Associate Professors:

Assistant Professors:

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

Accounting (009)

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

2130 Survey of Managerial Cost Accounting (3) User-oriented survey of managerial cost accounting topics designed as a terminal course. Topics include product costing, cost behavior analysis for decision making, standard costing, and budgeting. Prereq. 2120.

3110-30-35 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.

3210-20-30 Managerial Cost Accounting (3, 3, 3) An in-depth analysis of the use of cost data for external reporting, and internal planning and control. Special topics include product costing, budgeting, performance evaluation, and the role of cost data in decision models. Prereq. for 3210: 2120 and Mathematics 1500 or 1860. Credit not given for both 2130 and 3210. 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.


3510 Not-for-Profit Accounting (3) Theory and practice of accounting, 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, audit evidence, and reporting. Prereq. 3130 with a 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. Substitutes 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 Auditing (3) Designed for increased enrichment of student with superior ability and interest. Prereq. Same as for 4156 and consent of department head. Substitutes for Accounting 4156 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 4430 and consent of department head. Substitutes for Accounting 4430 in student’s 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.


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 student’s program.

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 68 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 Selected Topics-Current Accounting Practice (3)

5140 Selected Topics-Current Accounting Theory (3)

5160 Graduate Internship in Accounting (3)

5210 Seminar in Advanced Managerial Cost Accounting (3)

5220 Budgetary Planning and Control Systems (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 Regulation (3) General principles of law as these pertain to business and partnerships and corporations, affect taxation, and treat agencies regulating business. Prereq. 4110.

4130 Administrative Regulation of Business (3) Analysis, nature and scope of 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)

5130 Administrative Regulation of Business (3)

Economics (283)

Professors:
P. D. Chua (Head), Ph.D., California (Berkeley); R. L. Bowley, Ph.D., Texas; S. L. Carroll, Ph.D., Harvard; W. E. Cole Ph.D., Texas; R. G. Feiwei1, 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. Mayhey, 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. Glusoff, Ph.D., Stanford; H. W. Herzog, Jr., Ph.D., Maryland; D. L. Kaserman, Ph.D., Florida; K. E. Philips, Ph.D., Washington (Seattle); A. M. Schlottmann, Ph.D., London School of Economics; A. M. Schlottmann, Ph.D., London School of Economics; G. A. Spiva, Jr., Ph.D., Texas.

Assistant Professors:
D. E. Wickham, (part-time) Ph.D., Stanford; H. W. Herzog, Jr., Ph.D., Maryland; D. L. Kaserman, Ph.D., Florida; K. E. Philips, Ph.D., Washington (Seattle); A. M. Schlottmann, Ph.D., London School of Economics; A. M. Schlottmann, Ph.D., London School of Economics; G. A. Spiva, Jr., Ph.D., Texas.

1Emeritus Distinguished Service Professor.

Requirements for a major in economics consist of: (1) Economics 2110, 2120, and
2130 or equivalent honors courses; and (2) a minimum of 33 additional hours in upper-division economics courses. Economics 3110 (or 3111 and 3112) and 3120 are required as a part of the upper-division work and should be taken as late as possible in the upper-division program as possible.

2001 Current Economics Problems (3) Discussion of selected economic policies and events. Several topics including controversial issues of current or continuing interest will be considered. Emphasis will be on non-technical treatment. Designed for non-economics and non-College of Business Administration majors. May be used for degree requirements in business administration and may not be substituted for Economics 2110 or 2120 or 2130.

2110-20-30 Introductory Economics (3, 3, 3) 2110—
Basic economic concepts introduced through study of evolution of modern capitalism and the ideas of major economists; organization of the U.S. Economy. 2120—
Macroeconomics: national income, money and banking, employment, inflation. 2130—Microeconomics: supply and demand, competition, monopoly. Prereq: 2110 for both 2120 and 2130. Third-quarter standing required for admission to 2110.

2118-28-38 Honors: Introductory Economics (3, 3, 3) Honors course designed for students of superior ability and interest. Entrance into 2118 requires a B average; selection; acceptance will be based on high school records, American College Testing Program scores, and grade record during the last two years. Entrance into 2128 is necessary for entry into 2128. An A or B in 2118 automatically gives credit for 2116 also, with grade record used for correlation purposes. Grade of B in 2118 is necessary for acceptance into 2128. An A or B in 2128 automatically gives credit for 2126 also, with grade record used for correlation purposes. Grade of B in 2128 is necessary for acceptance into 2130.

310 Intermediate Micro Theory (3) Allocation of resources and price determination; market demand, production, cost, and supply, distribution. Students may not receive credit for both 3110 and 3111. Prereq: 2110, 2120.


3120 Intermediate Macro Theory (3) Aggregate demand, output, and level of employment; price level, inflation, and deflation; economic growth. Prereq: 2110, 2120.


3220 Regional Economics (3) Overview of regional differences in local, agricultural, and industrial areas. Regional location; the economic basis for land use patterns and central places; regional structure, growth and change; regional development; national assistance for regional economic development. Prereq: 2120 and 2130.

3240 Economic History of the United States (3) Historical developments in agriculture, industry, commerce, government, and trade and changes in governmental economic policy. Prereq: 2110-20.

3250 Economic History of Europe (3) Beginnings of capitalism in medieval Europe, expansion of Europe and dominance of mercantilism in early modern times, mechanization of industry, changes in agricultural organization, and the importance of commercial revolution of the 19th century; two world wars and their economic consequences. Prereq: 2110-20.

3310 Comparative Economic Systems (3) Description and analysis of economic goals, institutions and policies in different societies with emphasis on alternative organizational principles and structure. Systems examined will include soviet-type economies. Prereq: 2110-20-30.

3340 Government and Business I (3) Microeconomic objectives and alternative public policies for their achievement; prevention of monopoly and concentration threats; 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; regulating information, product and employment policies; government-business relations; selected cases. Prereq: 3340.

4140 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 resource policy. Prereq: 2120-30.


4900 Special Topics (3) Student-generated course offered at convenience of department upon student request. Subject matter and content determined by students and instructor with approval of department. Prerequisites determined by instructor; 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: 2110-20-30.

4130 Business Cycles (3) Fluctuations in income, employment, prices, and output in the economic system; selected cases. Prereq: 4110.

4150 History of Economic Thought (3) Development of economic thought, tools of analysis and economics as a social science, together with an analysis of socioeconomic conditions which influenced this development. Prereq: 2110-20-30. Prereq: 2110, 2120, 2130, and consent of instructor.

4170-80 Introduction to Mathematical Economics (3, 3) Application of mathematical methods in theoretical study of micro and macro economic phenomena. Designed for graduate students. May be repeated. Maximum total credit 4 hrs.

4210 Managerial Economics (3) Application of economic principles to business decision-making, emphasis on profit objectives and alternative public policies for their achievement. Prereq: 4110-20.


4420 Economics of Human Resources (3) Analysis of current problems in human resource development and examination of policies aimed at their solution. Problems discussed may include unemployment, education and training, poverty and income redistribution, discrimination based on sex or ethnicity, or others. Prereq: 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.


5090 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 (3-5)

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 Macroeconomic Theory (3)

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

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

6170-90 Seminar: Fiscal Theory and Public Finance (3, 3)

International Trade and Development
Finance (349)

3120-30 Business Finance (3, 3) Principles of financial management. Analysis of demand for funds, internal and external supply of funds, and their costs to the firm. Prereq: 3120 for 3130.

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 System.

4110 Investment Analysis (3) Theory of investment value of various types of securities and options. Prereq: 3130 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 Graduate Completion (3-15)

5011-12 Problems in Lend of Thesis (3, 3)

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

6000 Doctoral Dissertation and Research

College of Business Administration

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)

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

5990 Research in Finance (3)

6000 Doctoral Dissertation and Research

6110-20 Seminar in Monetary Theory (3, 3)

6410-20 Seminar in Theory of Finance (3,3)

6510 Seminar in Financial Management (3)

6520 Seminar in Capital Markets (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 and 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: 3650.

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. Dowhret (Head), Ph.D. Texas; R. W. Boling, Ph.D. Stanford; M. E. Gordon, Ph.D. California (Berkely); H. Y. Honry, Ph.D. Michigan; A. H. Kealy (Emeritus), MBA Pennsylvania; J. M. Larsen, Jr., Ph.D. Purdue; S. K. Reid, Ph.D. Edinburgh; S. G. Vance (Emeritus), Ph.D. Pennsylvania; G. H. Whitlack, Ph.D. Tennessee; M. S. Wortman, Ph.D. Minnesota.

Associate Professors:
F. A. Chamblin (Emeritus), MBA Indiana; O. S. Fowler, Ph.D. Georgia; R. C. Maddox, Ph.D. Texas; C. W. Reel (Dean), Ph.D. Alabama; M. C. Rush, Ph.D. Akron.

Assistant Professors:
K. C. Gilbert, Ph.D. Tennessee; R. T. Ladd, Ph.D. Georgia; G. B. Roberts. MBA Georgia State.

1Alumni Distinguished Service Professor.

Management (625)

Junior standing is prerequisite to all management courses.

3010 Principles of Management (3) Analysis of basic management functions of planning, organization, and control.
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 is used for information processing to provide experience in organization and analysis of managerial data. Emphasizes decision-making skills related to oral and written communication. 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 Structure and Behavior (3) Structure and behavior in organization: models, concepts, and problems.
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.
4530 Personnel Problems Seminar (3) Case problems in personnel analyzed, applying experimental method and conclusions from personnel research as reported in professional journals. Prereq: 4460-70; Statistics 3110.
4610-20 Management Science (3, 3) Applications of mathematical and statistical techniques to problems of production management. Prereq: 30 hours of mathematics and statistics, and consent of instructor.
4710 Enterprise Planning and Control (3) Concepts and cases on managerial functions of planning and control in business firm or not-for-profit organization. Emphasis on long-range strategic planning in changing environment. Team project to develop long-range plan for hypothetical enterprise.
4801-02-03 Readings and Research in Personnel Management (1, 2, 3) Prereq: 4460, Statistics 4310, and consent of instructor.

GRADUATE

See page 88 for information on graduate programs.

5000 Thesis
5002 Non-Thesis Graduation Completion (3-15)
5010 Organizational Theory and Behavior (3)
5020 Operations Management (3)
5110 Organization Theory I (3)
5130 Managerial Planning and Control (3)
5140 Corporate Management Simulation (3)
5170-80-90 Proseminar in Organizational Psychology (3, 3, 3)
5210 Personnel Management (3)
5220 Wage and Salary Administration (3)
5230 Human Problems in Administration (3)
5250-80 Organizational-Industrial Psychology (1-3, 1-3)
5280 Independent Study, Project or Research in Management (1-3)
5320 Management Problems in Industrial Research (3)
5410-20-30 Production Management (3, 3, 3)
5610-20 Organizational Behavior (3, 3)
5630 Research Methods in Management (3)
5710 International Business Management (3)
5810 Energy Management: Theory and Practice (3)
6000 Doctoral Dissertation and Research
6110 History of Management Thought (3)

6120 Advanced Organizational Theory (3)
6130 Seminar in Contemporary Management Issues (3)
6250-60-70 Seminar in Organizational Psychology (3, 3, 3)
6380 Seminar in Industrial Psychology (3)
6900 Field Work in Industrial Psychology

Management Science Programs

Graduate Program:

1210-20 Decision Models (3, 3) Introduction to the use of quantitative techniques in the decision-making process. Prereq: Mathematics 1560, Statistics 2100, and Computer Science 1410 or Office Administration 2750.

GRADUATE

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)
5810 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 Markov 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

Graduate Programs:

Marketing:

Professors:
G. N. Dicer (Head), DBA Indiana; D. J. Barnaby, Ph.D. Purdue; E. O. Dill (Emeritus), Ph.D. Ohio State; J. L. Frye, Ph.D. Florida; E. E. Garrison (Emeritus), MBA Ohio State; F. L. Hendrix, Ph.D. North Carolina; C. J. Langley, Jr., Ph.D. Pennsylvania State; R. A. Mundy, Ph.D. Pennsylvania State; E. P. Patton, Ph.D. North Carolina; R. B. Woodruff, DBA Indiana.

Associate Professor:
E. R. Candela, Ph.D. Ohio State; J. H. Foggins, Ph.D. Indiana; R. L. Jenkins (Associate Dean), Ph.D. Ohio State; J. R. McMillan, Ph.D. Ohio State; R. C. Reizenstein (Associate Dean), Ph.D. Cornell; G. D. Sentell, DBA Indiana; R. L. Spiro, Ph.D. Georgia.

Transportation:

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

Associate Professor:
J. K. Ho, Ph.D. Stanford; R. E. Rosenthal, Ph.D. Georgia Tech.
Marketing (632)
Economics 2110-20 or the equivalent are prerequisite to all courses in Marketing:
Marking 3110-20 or the equivalent are prerequisite to all 4000 level marketing courses.
3110 Introduction to Marketing (3) Marketing in our economic environment: social, economic, ethical, legal, and technological forces on marketing activities. Assessment of dimensions of the firm's marketing program. Prereq: Economics 2110-20.
3120 Marketing Management (3) Analysis of marketing management. Identifying marketing 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 the 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 selected areas of 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 processes, data collection process, methods of analysis, and interpretation procedures are integrated to serve the decision maker. Prereq: Statist 3110 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 on 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 is used as a primary vehicle to show how conceptual marketing knowledge is applied in the business world in a major marketing subject area (e.g., promotion, consumer behavior, marketing strategy, etc.) Prereq: Marketing 3210, 4210, 4510, and consent of instructor. 4650 is a recommended but not required prerequisite.
4818-28 Honors: Marketing (3, 3) Marketing trends and developments. Advanced marketing theories and application. Can be substituted for eligible students for other courses in marketing with consent of department. Prereq: Consent of department.

GRADUATE
See page 88 for information on graduate programs.
5002 Non-Thesis Graduation Completion (3-15)
5010 Marketing and Distribution Management (3) Marketing and distribution management. Emphasis on the nature and importance of marketing and distribution strategies associated with service and product oriented firms. Prereq: 4610.
5020 Marketing Strategy and Decision Making (3) Organization and implementation of the marketing function. Emphasis on the role of the marketing function as a decision-making system in the firm. Prereq: 5210.
5210 Sales Force Management (3) Promotional Techniques, interpretation of marketing information, market research, analysis, and forecasting. Prereq: 5020.
5230 Analysis and Design of Marketing Strategies (3)
5300 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)
6180 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 3110-15 or consent of instructor are prerequisite to all courses numbered above 4000.
3110 Introduction to Transportation (3) Survey of the demand and supply of transportation services by society upon the nation's transportation system and the problems facing carriers and government in meeting these demands.
3115 Introduction to Logistics (3) Business logistics as a functional area within the firm. Discussion of logistical policies and their interrelationships. 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.
410-15 Surface Transportation (3, 3) Analysis of organizational structures, operational characteristics, 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 18 hours in transportation/logistics. Transportation 4410-15 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 ocean shipping and international air service, import-export traffic management, international distribution strategy, government policy, discussion of transportation systems in other countries. Courses must be taken in sequence. Prereq. or coreq: Business Administration 3110 or consent of instructor.
4820 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: Consent 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 (5) Analysis of Interstate Commerce Act and related statutes, practices, and procedures before regulatory agencies.
4930 Transportation Policy (3) Analysis of regulatory, promotional, and planning policies 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 (2)
5810 International Transportation Policy (3)
5910 Advanced Law and Regulation (3)
5990 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. J. Stallard (Program Director), Ph.D., Ohio State; D. Reese, Ph.D., Iowa; E. R. Smith, Ph.D., Ohio State; G. A. Wagoner (Emeritus), M.S., Indiana.

Associate Professor:
4510 Office Management (3) Strategic and operational planning of the office objectives; relating the tasks and human resources to the objectives; recruiting, selecting, training, and developing office staff; directing of office staff through leadership, motivation, communications; measuring office performance, comparison to standards, and corrective actions; and applications of decision making to the office.

4520 Office Systems (3) Synthesis of systems and subsystems applicable to centralized and decentralized office functions. Emphasis placed on cost analysis in contemporary office environment, technology, and research analysis.

4640 Seminar (3) Integration of knowledge and skills acquired in previous courses in office administration. Emphasis on 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 person; assignment to a position consistent with student's career goals. Prereq: 3110, 3180, and 3510, 4510 or 4520; coreq: 4640. Students may be exempt from practicum if they have had one year of 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. Thigpen (Head), Ph.D., Virginia Polytechnic; R. A. McLean, Ph.D., Purdue; J. W. Philip, Ph.D., Virginia Polytechnic.

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

Assistant Professors: G. B. Ranney, Ph.D., North Carolina State (Raleigh); S. W. Ward, 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 equivalent.

3110 Regression and Correlation Methods (3) Methods of linear and multiple-linear regression and correlation; nonparametric measures of association. Cannot be taken for credit by students who have credit for 4310. Prereq: 2100 or 3450.

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

3310 Industrial Statistics (3) Shewhart Control Charts, acceptance sampling by attributes, Military Standard sampling plans. Special applications of time control charts, acceptance sampling theory and procedures. Prereq: 2103 or 3450.

3410 Sampling Methods Useful for Surveys (3) Expository treatment of various types of probability sampling methods illustratively developed. Emphasis on procedures for selection of sample and calculation of estimates of parameters. Not available for credit to students with credit for 4415. Prereq: 2100 or 3450.

3450 Statistics for Engineering (3) Survey of statistical methods with special application for engineering students, frequency distributions, selected sampling distributions, some tests of significance. Cannot be taken for credit concurrently with 2100. Prereq: Mathematics 2850.

3460 Statistics for Engineering (3) Continuation of 3450 with emphasis on chi-square statistic, analysis of variance, and multiple regression analysis. Prereq: 3450, Mathematics 2850.


4250 Nonparametric Methods (3) Measures of association, two-sample tests, analysis of variance with ranked data, paired and multiple comparisons in preference testing; questionnaire evaluation.

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

4410 Design of Experiments (3) Principles and procedures for experimental design. Randomization, choice of size and number of experimental units, utilization of blocking arrangements. Interpretation of experimental data.

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

4750 Statistical Problems in Business (3) Case study course of statistical problems in variety of business areas. Prereq: 15 hours in statistics and consent of instructor.

GRADUATE

Offers for a major: Mathematics 2840-50-60, Statistics 3450 or equivalent.

5002 Non-Thesis Graduation Completion (3-15)

5010 Probability and Statistical Inference (3)

5020 Statistical Methods (3)

5050-60-70 Statistical Analysis for the Behavior Sciences (3, 3, 3)

5110 Introduction to Probability Theory (3)

5120-30 Theory of Statistical Inference (3)

5210 Stochastic Processes (3)

5211 Elementary Statistics (3)

5250-60-70 Applied Statistics for Engineering and Natural Sciences (3, 3, 3)

5610 Special Topics in Statistics (3)

5900 Applied Multivariate Analysis (3)

6070 Factor Analysis (3)

6210 Stochastic Processes II (3)

Interdepartmental Unit

Business Administration (205)

1100 Business Administration (3) Introduction to business. Not open to students with more than 3 credit hrs. of economics.
3110 Introduction to International Business (3) A survey of the strategic implications of conducting business operations in an international context. Emphasis on the analysis of relevant cross-national environments including cultural, political, economic and legal characteristics. Prereq: Economics 2120 or consent of instructor.

4430 Business Policy (3) Analysis of business problems and managerial decision making through case study method and written reports. Prereq: Core requirements except Business Law (see page 83) and senior standing. Open only to students who have been admitted to the Upper-Division programs of the College of Business Administration.

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

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. North Carolina
R. A. Hofler, Research Assistant Professor, Ph.D. 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 G. Ashdown, Assistant Dean for Undergraduate Studies
Herbert H. Howard, Assistant Dean for Graduate Studies and Research

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.

Association Requirements

Association with the College of Communications may take place at any time. At least 45 quarter hours in residence in the college is required for a degree. Those interested in this college should obtain a copy of the Planning Guidebook of the College of Communications.

Freshmen associated with the College of Communications are temporarily classified as premajors. They may apply 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 or 1118
- 9 hours of foreign language, or approved electives if two years of high school language credit are presented.
- Sociology 1510

A final decision may be deferred until students complete the core courses in their intended major with a minimum grade of B in one core course and no grade below C in other core courses. Students granted early admission must also meet these standards. Students must pass the college'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 association with 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. A student who wishes to take a S/NC course must indicate this at the time of registration. Under no circumstances may the student change from S/NC to regular credit or from regular credit to S/NC after the deadline for adding courses.

Course Load

The maximum number of hours an undergraduate can take without special
permission is 17 hours. Permission to take 18 or more hours must be obtained from either the dean or the assistant dean for undergraduate studies with 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 for students in the communications fields. At least 27 of the hours in the major will 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. Those 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 1640-50; Philosophy 1510-20-30, or 3111-21-31-41; Psychology 2500, 2530, 2540, Religious Studies 2610-11-12.

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 (unless otherwise required in the sequence) and in addition may substitute any of the following courses: Art 1815-25; 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 2110-20-30; 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 or 1011 or 1018; 1020 or 1032 or appropriate honors courses. The eight hours of literature may be selected from English 2510-20-30-40 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 UT.

PROFESSIONAL COURSES

The advertising major requires certain professional courses which may be selected from the following: Accounting 2110-20; Advertising 3740, 4810-20-30, 5310, 5360; Art 2515, 3515; Broadcasting 2750, 3360, 4020-30, 4670-80; Educational Curriculum and Instruction 4750; English 1033; Journalism 3120, 3410, 3910-20, 4710, 3810, 3910, 5990, 4410-20, 4580; Marketing 4140, 4230, 4310, 4440, 4510-20, 4710; Office Administration 2750, 4310-20; Psychology 3120, 4840; 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 advisor. Humanities electives may be selected from English, speech and theatre (not performance courses), music (except applied music), art (except applied art), classics (except grammar and composition), language culture courses (not grammar and composition), and upper division philosophy and religious studies.

GENERAL ELECTIVES

All electives are subject to the 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

Freshman Hours Credit

English 1010-20, 1032 9
Natural science electives 12
History 1510-20 6
Foreign language electives 9
Sociology 1510 4
Communications 1110 or 1118 3
Economics 2110-20 6
Sophomore

Sociology 1520 4
Economics 2130 3
English literature electives 8
Mathematics 1540-50 8
Marketing 3110-20 6
Psychology 2530 3
Journalism 2215 4
Art 2516 4
Junior

Political Science 2510-20 8
Anthropology electives 4
Advertising 3500 3
Advertising 3630 3
Advertising 3650 3
Advertising 4000 3
Journalism 3310 3
Mathematics 3000 4
Marketing 4210 4
Professional courses 6
General electives 6
Senior

Advertising 4360 3
Advertising 4460-70 7
Computer Science 3010 3
Professional courses 14
Social science or humanities electives 10
General electives 9

TOTAL: 194 hours

See Requirements for Graduation.

Broadcasting

LOWER-DIVISION CURRICULUM (Required of all broadcasting majors)

Freshman Hours Credit

English 1010-20, 1032 9
College of Communications

**Freshman**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours Credit</th>
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<tr>
<td>1101-1011</td>
<td>Introduction to Communications</td>
<td>3</td>
</tr>
<tr>
<td>1106-1010</td>
<td>Social Science Electives</td>
<td>9</td>
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<tr>
<td>1110-1110</td>
<td>Language and Communication</td>
<td>3</td>
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<tr>
<td>1210-1210</td>
<td>Speech and Theatre 2031 and 3561</td>
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**Sophomore**

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>2110-2110</td>
<td>Media Production and Business</td>
<td>8</td>
</tr>
<tr>
<td>2210-2210</td>
<td>Communication Theory</td>
<td>3</td>
</tr>
<tr>
<td>2310-2310</td>
<td>Communication Research</td>
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**Junior**

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<tbody>
<tr>
<td>3101-3101</td>
<td>Communication Issues</td>
<td>3</td>
</tr>
<tr>
<td>3201-3201</td>
<td>Communication Skills</td>
<td>3</td>
</tr>
<tr>
<td>3301-3301</td>
<td>Communication Practice</td>
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**Senior**

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<tr>
<td>4101-4101</td>
<td>Communication Theory</td>
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<tr>
<td>4201-4201</td>
<td>Communication Research</td>
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</tr>
<tr>
<td>4301-4301</td>
<td>Communication Practice</td>
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**Total:** 194 hours

**NEWS-EDITORIAL SEQUENCE**

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<th>Hours Credit</th>
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<tr>
<td>1101-1101</td>
<td>Introduction to Communications</td>
<td>3</td>
</tr>
<tr>
<td>1210-1210</td>
<td>Speech and Theatre 2031 and 3561</td>
<td>7</td>
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**Total:** 194 hours

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**Communications 2 (59)**

**Professors:**
- J. A. Crook, Ph.D., Iowa State
- A. D. Fletcher, Ph.D., Illinois
- J. B. Haas, Ph.D., Minnesota
- D. G. Hileman, Ph.D., Illinois
- D. W. Holt, Ph.D., Northwestern
- B. K. Lintz, Ph.D., Southern Illinois
- D. N. Nimo, Ph.D., Vanderbilt

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

**1110 Introduction to Communications (3)**

Nature, functions, and 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, and responsibilities of mass communications media and agencies, with in-depth study of special problems. Open only to those majors selected on the basis of placement scores and high school record.

**GRADUATE**

**5000 Thesis**

**5100 Introduction to Graduate Studies (3)**

**5120 Communications Research Design (3)**

**5121 Communications Research Methods (3)**

**5133 Advanced Principles of Mass Communication (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. Head (Head), M.A., Wisconsin
- A. D. Fletcher, Ph.D., Illinois
- D. G. Hileman, Ph.D., Illinois

**Black Studies:** Geography 1810-20 to 2110-20; Mathematics 1540-50-60 or 1840-50; Music 1210-20; Philosophy 1510-20, 2510-20; Religious Studies 2610-11-12; Theatre 1210, Women's Studies.
Associate Professor: D. Jackson, M.S. Tennessee.

Assistant Professor: J. B. Dunlap, Ed.D. Akron.

3000 Advertising Principles (3) Advertising in business and society. Types and functions of advertising. Fundamentals of broadcast and publications advertising. Stress on communications aspects of advertising. Prereq: Sophomore standing or higher. Prereq: Communications 1110 or 1118 for communications majors only.

3630 Advertising Copy and Layout (4) Ideas and their translation into persuasive words and pictures. Principles and techniques of copy and layout. Lecture and labs. Prereq: 3000 with grade of C or better or consent of instructor.

3650 Basic Advertising Research (3) Use of research in solving media, creative, and managerial problems in advertising. Introduction to secondary information sources and primary research methodology. Prereq: 3000 with grade of C or better or consent of instructor.

3740 Retail Advertising and Promotion (3) Planning of retail advertising and promotion, practice in retail copy and layout; selecting media; research. Prereq: 3000 or Marketing 4150.

4000 Advanced Advertising Copy and Layout (4) Creative strategy and execution of advertisements for major media. Problems in idea creation for advertisers. Lecture and labs. Prereq: 3830 with grade of C or better or consent of instructor.

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

4460 Cases and Problems (3) Case approach to study of advertising problems. Analysis of campaigns and trends. Prereq: 3630, 3650, and 4360 with grades of C or better, or consent of instructor.

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

4474 Advanced Advertising Campaigns (4) Application of theory in planning and execution of campaigns. Market and consumer research; development and allocation of budgets. Choice of appeals and approaches; media selection; preparation of advertisements. Prereq: 3650, 4000 and 4360 with grades of C or better, or consent of instructor.

4475 Advertising Campaigns (4) Application of theory in planning and execution of campaigns. Market and consumer research; development and allocation of budgets. Choice of appeals and approaches; media selection; preparation of advertisements. Prereq: 3650, 4000 and 4360 with grades of C or better, or consent of instructor.

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

4610 Broadcast News Operation (3) Theory and practice in covering local news and public affairs events for radio and television. Gathering and production of news broadcasts, using tools of broadcast news reporting. Prereq: 3619 and 3670 or consent of instructor.

4670 Radio-Television Management (3) Business policies and practices of networks and stations. Departmental functions, cost and income figures, sales techniques, promotion, advertising agencies, and governmental regulations. Lectures by commercial broadcasters. Prereq: 2230 or consent of instructor.

4680 Broadcast Sales Management (3) Problems and practices of television and radio sales, case studies in sales development, pricing, promotion, and other areas of sales management. Prereq: 2750 or consent of instructor.

4750 Introduction to Broadcasting (3) Theory, history, regulation, and economic aspects of broadcasting industry and its functions in society. Prereq: Communications 1110 or 1118 for communications majors only.

5360 Television and Radio Advertising (3) Principles of successful radio-television advertising; emphasis on media research, rate structure, programming, creativity, and television commercials.

3810 Radio-Television News (3) Theory and technique of writing news and features for broadcast media. Editing and rewriting press association dispatches, gathering local news, recording interviews, and preparing newscasts and feature programs. 2 hrs. and 1 lab. Prereq: Journalism 2220 or consent of instructor.

3850 Radio-Television Writing (3) Theory and technique of writing broadcasting scripts except news and drama. Special events, interviews, musical scripts, radio talks, documentaries, and promotion material.

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

4010 Speech for Broadcasting (3) Fundamental broadcast conditions affecting the announcer; pronunciation and oral interpretation of general American speech. Prereq: Speech 2011.

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

4021 Advanced Radio Production (3) Application of the techniques, 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 inexperienced 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/N/C.

4610 Broadcast News Operation (3) Theory and practice in covering local news and public affairs events for radio and television. Gathering and production of news broadcasts, using tools of broadcast news reporting. Prereq: 3619 and 3670 or consent of instructor.

4670 Radio-Television Management (3) Business policies and practices of networks and stations. Departmental functions, cost and income figures, sales techniques, promotion, advertising agencies, and governmental regulations. Lectures by commercial broadcasters. Prereq: 2230 or consent of instructor.

4680 Broadcast Sales Management (3) Problems and practices of television and radio sales, case studies in sales development, pricing, promotion, and other areas of sales management. Prereq: 2750 or consent of instructor.

4850 Print Journalism (3) Theory and practice of writing for major types of mass communications media. Not available to majors in the College of Communications. Prereq: English 1010 or 1011; 1020; 1031 or 1032 or 1033.

2210 Writing for Mass Media (3) Principles and practice of writing for major types of mass communications media. Not available to majors in the College of Communications. Prereq: English 1010 or 1011; 1020; 1031 or 1032 or 1033.

2215 Basic News Writing (4) Information gathering and writing under deadline. Observation, interviewing, speech reporting for print and broadcast media. Grammar workshops. Prereq: English 1023. Communications 1110 or 1118 and typing proficiency of 30 wpm.

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

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

3110 Communications History (3) Development of newspapers, magazines, broadcasting, photography, film, and publishing in America and their relationship to society.

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

3210 Advanced Reporting (3) Gathering and writing news in depth on current issues and concerns under deadline. Special emphasis on business news. Use of video display terminals. Prereq: 2230.

3220 News Editing and Display (3) Principles and practice in making up newspapers and magazines. Advanced work in copyediting, rewriting, and headline writing. Presswork workshops. 2 hrs. and 1 lab. Prereq: 2230.

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

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

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

3710 Public Relations (3) Theories and principles of public relations. Overview of PR as a management tool of business, government, institutions, and organizations.

3720 Advanced Public Relations (3) Preparation of communications materials to gain support from various publics: planning public relations programs. Prereq: 3710.

3810 Specialized Publications (3) Editorial and design considerations for company publications and small magazines. Prereq: 2220 and 3310 or consent of instructor.

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

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

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.

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.

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

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)