both stress/structural analysis and materials properties. The engineering materials courses provide the student an opportunity to acquire this background.

The basic engineering science curriculum provides an opportunity to study significant blocks of the engineering science areas recognized by the American Society for Engineering Education such as (1) mechanics; (2) electrical science, electric and magnetic fields, circuits, and electronics; (3) mechanics and statistical mechanics; (4) materials science; (5) information science; (6) transfer and rate processes such as heat, mass, and momentum transfer. Other modern engineering fields which may be studied in the engineering science option are the space sciences and the environmental sciences. It is not expected that a student will study all the engineering sciences but will structure a course plan to provide depth in some of the engineering sciences.

Because of the large number of elective courses which are included in the engineering science degree program, faculty advising plays an essential role in the process of developing the student’s course of study. Before the end of the sophomore year, students in the engineering science program are required to develop, in concert with a faculty adviser, a statement of objectives and a course plan for the upper-division years. This course plan must be filed with the Office of Admissions and Records before the student’s senior standing sheet can be prepared.

MASTER OF SCIENCE AND DOCTORAL PROGRAMS

Graduate programs leading to the degrees of Master of Science and Doctor of Philosophy with a major in engineering science are available to graduates of recognized curricula in engineering, mathematics, or one of the physical or behavioral sciences. Prereq: Coreq: Math 1830 or equivalent. The Options include solid mechanics, fluid mechanics, biomedical engineering, and other engineering sciences. In the biomedical and engineering science option, interdisciplinary programs are arranged to meet individual needs or interests. Each applicant will be advised as to any prerequisite courses before entering a program; the student’s program of study must be approved by his or her advisory committee, and must comply with the requirements of the Graduate School. The student’s major professor may be selected from a department other than the Department of Engineering Science and Mechanics.

The flexibility and interdisciplinary aspects of the program options are intended to be of particular interest to prospective students currently employed in research, development, or design activities and whose interests in continuing education (either full-time or part-time) lie at one of the interfaces between science and engineering, or can best be met by interdisciplinary study in engineering. The department’s course offerings and research activities are also intended to meet the needs of students who seek preparation for employment in engineering areas requiring specialization in mechanics, or in related interdisciplinary studies such as biomechanics.

General policies of the Graduate School relating to admission, residence, examinations, and research are described in the Graduate Catalog.

Engineering Science and Mechanics (335)

2705 Elementary Statics and Dynamics (3) Resolution and composition of forces; moments; results of force systems. Prereq: Math 1830. Coreq: Math 1830 or equivalent.


2720 Dynamics (3) Absolute and relative kinematics of rigid bodies; motion of rigid bodies using Newton’s laws, work-energy, and impulse-momentum. Prereq: Math 1830. Coreq: Math 1830.

110-20-30 Fluid Mechanics (3, 3, 3) Basic laws of fluids, effects of viscosity and compressibility; empirical analysis: Navier-Stokes equations; boundary-layer concepts, potential flow. Must be taken in sequence. 3 hr. lab in 3120 and 3130. Prereq: Math 1200. Coreq: Math 1200.

3210 Biomechanics of Materials (3) Concepts of stress and strain, stress-strain relations, and Mohr’s circle; stresses and displacements in thin-walled pressure vessels, shafting, determinate, indeterminate, and nonhomogeneous beams, column theory. Must be taken in sequence. Prereq: Basic Engineering 1330.


4310 Biomedical Engineering (4) Designed to introduce the facets and potential opportunities of biomedical engineering and provide basic terminology and background knowledge for further courses in the field. Subjects include anatomy, physiology, biomaterials, mathematical models of body systems, etc. Coreq: Math 2840 or consent of instructor.

4320 Introduction to Clinical Engineering (3) Designed to train students in life sciences, health professions, and engineering in use and applications of medical instruments. Body systems are introduced, and instruments used in care of those systems are explained and demonstrated. Prereq: 4310, or consent of instructor.

3430 Perspectives on Medical Ceramics (3) Details development of implant material from both an engineering and a medical viewpoint. Demonstrates results of combined efforts of physician and biomedical engineer. Audiovisual aids and models are used to reinforce lecture topics. Prereq: Math 2560 and Metallurgical Engineering 2110.

3439 Medical Ceramics Laboratory (1) Surgical observations and laboratory experiments to illustrate design and control parameters. Design projects or paper required. Coreq: Math 3439.

3510 Materials of Engineering (3) Mechanical properties of engineering materials; behavior of materials under load, 3 hrs. or 2 hrs and 1 lab. Prereq: Math 2560. Coreq: Math 2840.

3700 Materials Behavior and Chemical Processes (3) Same as Metallurgical Engineering 3520.

3710 Intermediate Dynamics (3) Basic laws of dynamics of particles and rigid bodies; dynamics of bodies with varying mass; central force motion, Lagrange’s equations. Prereq: Math 2560.

4010 Project in Design and Development (4) Investigation, design, and report of an engineering science project. Prereq: Senior standing.

4011 Project in Design and Development (3) Investigation, design, and report of an engineering science project. Prereq: Senior standing.

4220 Engineering Aspects of Infection Control (3) Biomedical engineer’s role in infection control will be related to hospital and clinical activities. Fluid flow kinetics, pressure measurement methods, and basic bacteriological and mycological tests will be demonstrated. Course identifies new and critical role for biomedical engineer in health care systems, and includes analysis of hospital facilities and monitoring systems. Prereq: 3410, or consent of instructor.

4430 Orthopaedic Biomechanics (3) Introduction to engineering principles and applications in orthopaedics and rehabilitation. Topics include statics, Newton’s laws of motion, stresses in simple sections, engineering materials, and biological materials. Prereq: Consent of instructor.

4500 Applied Mechanics for Life Scientists (4) Concise and broad coverage of basic principles and concepts of mechanics. Fundamental concepts, statistics, vibrations, continuum mechanics and properties of materials. Applications in engineering and medicine. Prereq: Math 2560 or consent of instructor.

4520 Biomedical Fluid Mechanics (3) Discusses the basic phenomena associated with the flow of fluids in the human body and blood vessels, determinants of cardiac performance, analysis and measurement of flow and pressure in arteries, nonstratified fluid mechanics, circulatory system models, and the mechanics of fluid circulation. Applications to areas of hemodynamics, thrombosis, and fluid dynamics of heart assist devices. Coreq: Math 2840 or consent of instructor.

4529 Biomedical Fluid Mechanics Laboratory (2) Measurement and recording of flow characteristics in biological system. Project and/or term paper required. Coreq: 4520.

4530 Biomechanics (3) Discusses objectives, review foundations and present developments in areas of medical and biological systems. Coreq: Math 2840 or consent of instructor.

4540 Fracture-Safe Design (3) A critical review of mechanical properties of materials that are indicative of fracture resistance, including transition temperature, R-curves, stress intensity factors and J-integrals; the use of these properties in design. 3 hrs. or 2 hrs and 1 lab. Prereq: 3310 and Met Eng. 2110. Coreq: Math 2840.

4560 Principles of Nondestructive Testing (3) Same as Physics 4560.

4610 Experimental Stress Analysis (3) Basic concepts; theory, techniques, and instrumentation of resistance strain gauges; theory and techniques of bridge circuit methods; introduction to other stress analysis methods. Prereq: 3310, EE 2030 or 3110. 2 hrs and a 3-hr lab.
6710 Impact and Stress Waves in Solids (3)
6800 Advanced Continuum Mechanics (3)
6810 Energy Methods (3)
6910 Special Topics in Engineering Mechanics (3)

Engineering Physics
Professor W.M. Bugg (Head); Physics staff as shown on page 223.

The curriculum in engineering physics is designed to fulfill the educational requirements for professional work in various fields of applied science which are based upon a thorough knowledge of physics. The first two years are concerned with fundamental courses in engineering, science, and mathematics. In the upper division, the curriculum allows some choice of courses in engineering and in physics depending upon the interest of the student. The undergraduate program is a complete, professional program, equipping the student for entry into a variety of work in industry and research. The program also leads to graduate work in either physics or engineering.

The courses in the engineering physics curriculum are shown in tabular form on page 151. Descriptions of the physics courses are found on page 223.

Industrial Engineering (556)
J.N. Snider (Head), Ph.D. Ohio State, P.E.; D.C. Douet, M.S. Tennessee, P.E.; H.P. Emerson (Emeritus), S.B. Massachusetts Institute of Technology, P.E.; R.M. LaForge (Emeritus), M.S. Georgia Institute of Technology, P.E., H.L. Loveless, M.S. North Carolina State, P.E.

Associate Professors:
W.W. Claycombe, Ph.D. Virginia Polytechnic; D.H. Hutchison, Ph.D. Georgia Institute of Technology; J.R. Buchan, M.S. Georgia Institute of Technology; D.H. Pike, Ph.D. Florida; W.G. Sullivan, Ph.D. Georgia Institute of Technology, P.E.

Assistant Professors:

UNDERGRADUATE

The undergraduate curriculum in industrial engineering provides a strong background in both fundamental engineering principles and the analytic methods necessary for solving the multifaceted problems associated with the production, maintenance, and delivery of goods and services. In particular, this curriculum emphasizes the knowledge and skills necessary to integrate systems of people, materials, equipment, and energy wherever they are found, such that the overall system functions at an optimal level and such that the needs of the human components of the system are adequately met.

This curriculum, which is built upon a strong background in mathematics and statistics, includes fundamental course work in all of the engineering sciences, introductory economics and accounting, training in fundamental human factors which influence engineering design, the economic analysis of alternative design choices, quality control techniques, manufacturing processes and materials, production and inventory system design and control, material handling systems and facilities design, the mathematical modeling and simulation of complex systems, and the design and installation of information acquisition and control systems. The technical and non-technical electives further allow the students to specialize in an area(s) which meet particular needs.

The solid, broad base in engineering combined with training in applying engineering methodology to traditionally non-engineering problem areas as provided through the industrial engineering curriculum leads to participation by industrial engineers in an unlimited range of fields including, among others, retail distribution, banking, health care delivery, corporate management, municipal management, aerospace systems, research groups and government as well as in the traditional area of manufacturing.

Masters of science program

The graduate program in industrial engineering contains a basic requirement of 18 hours of course work covering topics in industrial engineering at the graduate level. The remaining 18 hours in the program are based upon the educational objective of the student and determined with the approval of the student's advisor. A minor is usually taken in an area related to industrial engineering, and a thesis is required. The program is open to graduates of recognized curricula in all fields of engineering.

A non-thesis program of 45 hours of course work plus a three-hour project is also available and open to graduates in engineering or science. Basic courses (5110, 5520 and 5700, 5710, 5720) are 18 hours of the total and are identical to the basic courses in the program for thesis students. An option is selected from manufacturing, health systems, operations research, human factors or decision processes. Each option requires 9 hours of non-engineering electives to support the selected option. The project requires the design of a procedure or operating system based especially upon the course work in the selected option and clearly applicable as a solution to a problem in actual professional practice. The student is examined on the project and related course work.
3410 Textile Industry Systems (3) History, basic operations, products and economics of the industry; the application of industrial engineering techniques. Prereq: Junior standing and consent of instructor.


3440 Quality Control (3) Application of statistical methods to control quality of manufactured parts and techniques of inspection. Prereq: 3430.

3510 Introduction to Operations Research I (3) Introduction to methodology of operations research and the application of operations research to industrial problems. Topics covered include statistical inference, decision theory, and queuing theory. Prereq: 3430 and Computer Science 3150.

3520 Introduction to Operations Research II (3) Introduction to mathematical programming includes classical optimization theory, linear programming (with emphasis on the simplex method), the transportation problem, and the assignment problem), and dynamic programming. Prereq: Computer Science 3150 or consent of instructor.


3600 Motion and Time Study (3) Design of work methods, time and motion study, improvement, design of work, and determining standards. Laboratory work included. For non-industrial engineering students. Prereq: Junior standing.

3610 Human Factors in Work Design I (3) Human capabilities and limitations which must be reckoned in: work place layout; working environment specification; equipment and vehicle design; and in design of industrial communication-control systems. Prereq: Junior standing in College of Engineering or consent of instructor.

3620 Work Methods and Design (3) Job analysis, work evaluation, design of work structures, design of work-place layouts, flow charting, activity chart and analysis, and methods improvement. Laboratory work included. Prereq: 2310.

3630 Work Measurement (3) Use of work measurement tools such as time study, predetermined time systems, work sampling, historical data analysis. Construction of time formulas, development of standard time data, use of learning curves, and design of wage incentive systems. Laboratory work included. Prereq: 3220 and Statistics 3450.


4060 Material Requirements System Design (3) Theory and applications of forecasting, production planning, inventory analysis, planning and control, and systems design and implementation. Design of the material requirements process as an integrated system. Prereq: 3510-20.

4070 Production Systems Design (3) Theory and applications of production planning, scheduling, and control, and the design and implementation of production systems; design of production facilities as an integrated system. Prereq: 4060.

4080 Forecasting Methods in Industrial Engineering (3) Application of technological forecasting techniques to industrial engineering problems. Includes moving averages and exponential smoothing, linear and polynomial regression models, autocorrelated time-series analysis, Delphi methods and other selected industrial forecasting methods. Prereq: 4060.

4150 Project Control with CPA and PERT (3) A study of project planning and control based primarily on "critical path" techniques, including resource allocation, time-cost trade-off algorithms, multi-project control, and computer programs. Prereq: 3430.

4160 Materials Handling (3) Analysis and planning for the overall problem of moving, packaging, and storing of materials; equipment comparison and selection; cost analysis. Prereq: 3230, 4520, and Engr. Mech. 3310.


4200 Production Facilities Design (4) Design of production facilities including materials handling, plant layout, space allocation, inventory control, application, and operating procedures design. Prereq: 3230, 3510-20, 4060, 4520.

4230 Scheduling Systems (3) Performance measures for job shop and flow shop scheduling, including both static and dynamic conditions, as well as techniques for generating production schedules. Deterministic and probabilistic dispatching conditions. Prereq: 3820.

4250 Work Measurement Applications (3) Application of learning curves, queuing theory, standard data methods and incentive systems to the design of industrial work situations. Prereq: 3230.

4310 Seminar (1) Discussions, lectures, and trips to unity student's educational experience. Prereq: Senior standing in industrial engineering.

4520 Engineering Economy (3) Methods and problems in selection or replacement of equipment. Decisions among engineering alternatives, involving capital recovery, economic life of equipment, and rate of return on investment.

4530 Case Studies in Engineering Economy (3) Extension of basic engineering economy principles to real problems faced by competitive firms and regulated industries. Case studies taken from literature form basis of classroom discussion. Out-of-class assignment is made which involves working with local companies to evaluate make or buy options, leasing versus cash purchases, equipment replacement studies, energy source economies, etc. Prereq: 4520.

4540 Industrial Development (3) Factors other than mechanical or chemical which enter into successful establishment of manufacturing enterprise. Cost and location studies and market analysis to determine the commercial feasibility of new plants or projects.

4590 Simulation (3) Generation of outcome of complex random process by computer. Models of complex systems using available simulation languages. Simulation as design tool in industrial systems. Prereq: 3430 and Computer Science 3150.

4600 Determined Time Systems (3) Work design and measurement using a predetermined time system such as Methods Time Measurement, Basic Motion Time-Study, or Work Factor. Theory and application. Prereq: 3230.

4610 Human Factors in Work Design II (3) Human capabilities and limitations affecting work place layout, working environment, design of tools and equipment, and communications and response in man-machine systems. Prereq: 3600, 3630 or consent of instructor.

4830 Health Systems Engineering (3) Hospital management systems and means by which they may be improved through application of modern industrial engineering principles and techniques. Prereq: 3220.

4840 Industrial Plant Problems Analysis (3) Industrial problems, application of industrial engineering, field assignment in local industry, problem definition, identification, and solution. Prereq: 3230, 3440, 3510, 3520, 4520, 4860.


4870 Mini-Computer Applications in Industrial Engineering (3) Introduction to computer hardware and man-computer interfaces; emphasis on small computers as an element of larger system; applications and limitations of small computers in solving industrial engineering problems. Prereq: Senior standing.

4910-20-30 Special Industrial Engineering Topics (3, 3, 3) May be repeated for credit. Prereq: Consent of instructor.

4950 Industrial Safety (3) Development of organization and programs for prevention and control of accidents with emphasis on OSHA Rules and Regulations. Prereq: Senior standing.

GRADUATE

5000 Thesis

5002 Non-Thesis Graduation Completion (3-15)

5110 Work Design (3)

5210 Advanced Work Measurement (3)

5240 Facilities Planning and Design (3)

5250 Advanced Scheduling (3)

5260 Information Systems Design (3)

5340 Applied Decision Theory (3)

5360 Statistical Methods in Industrial Engineering (3)

5300 Seminar (3)

5420 Reliability Engineering (3)

5520 Advanced Engineering Economy (3)

5600 Human Factors Engineering (3)

5610 Human Factors Engineering (3)

5700 Optimization Methods in Industrial Engineering (3)

5710 Linear, Quadratic and Dynamic Programming (3)

5720 Queuing Models, Inventory, and Simulation (3)

5730 Game Theory and Random Processes (3)

5810 Theory of Industrial Automatic Control (3)

5830 Health Systems Engineering II (3)

5840 Air Traffic Control Systems (3)

5850 Dynamic System Simulation (3)

5860 Industrial Systems Engineering (3)

5900 Design Project (1-9)

5910-20-30 Special Topics in Industrial Engineering (3, 3, 3)

6400 Probabilistic Methods in Engineering Systems (3)

6520 Operations Research Models in Engineering Economy Decisions (3)

6700 Nonlinear Programming (3)

6730 Dynamic Programming (3)

6740 Advanced Topics in Optimization and Dynamic Systems (3)

6910 Advanced Topics in Industrial Engineering (3)
Mechanical and Aerospace Engineering


*Alumni Distinguished Service Professor.
*Space Institute, Tullahoma.

BACHELOR OF SCIENCE PROGRAM

Separate, complete curricula are offered in aerospace engineering and mechanical engineering; however, the first two years of these curricula are identical. During the latter years, the curricula provide for training and study in the basic sciences of physics, mathematics and chemistry and engineering common to these fields. The third year of both programs continues with the development of the particular engineering sciences of the aerospace and mechanical engineering fields. In the senior year an opportunity is provided for the student to apply this fundamental knowledge to mechanical or aerospace engineering problems. Both curricula are arranged with flexibility in the upper-division years to permit emphasis on preparation for graduate study or technical employment.

Aerospace engineering has scientific foundations close to those of mechanical engineering. The aerospace engineer, however, applies this attention particularly to the research, development, design, testing, and production of aerospace vehicles—aircraft, spacecraft, missiles; auxiliary systems; cooling, guidance, control; and propulsion systems—piston engines, turbo-jets, ramjets and rockets.

Mechanical engineering has its foundation in the basic sciences and requires an understanding of such areas of applied science as solid and fluid mechanics, thermodynamics, heat transfer, structures, vibrations, mechanical design, manufacturing processes and instrumentation in order to resolve the complex engineering problems of the real world.

In the mechanical engineering curriculum, the student, with the aid and approval of an adviser, must select a senior year program of mechanical engineering and technical electives. The following areas of concentration are available:

Energy. A study of energy conversion systems and the laws governing energy transformations. This option includes the design and analysis of conventional and future power generating systems utilizing various sources. Central courses are Mech. Engr. 4100-50-60.

Environment. A study of the systems which control the environment within encircled spaces. The program includes the design and analysis of buildings, heating, ventilation, air conditioning, refrigeration, and heat pump devices encompassing heating, cooling, ventilation, humidifying, and noise control. The central courses are Mech. Engr. 4710-20-30.

Manufacturing. A study of manufacturing methods and production processes common to mass production industries. The program includes the selection of production equipment, tools and fixtures, numerical control, and analysis and design of the total manufacturing system. The central courses are Mech. Engr. 4621-22-23-24 with related courses in metalurgy.

Machine Design. The study and application of the principles of mechanics, materials, and manufacturing processes to the design and analysis of machine elements and structures. The central courses are Mech. Engr. 4660 and 4690.

Propulsion. The study of propulsion devices for ground vehicles, aircraft, and spacecraft. The course covers the analysis and design of internal combustion engines, gas turbines, jet and rocket engines using conventional and nonconventional fuels. The central courses are Mech. Engr. 4810, 4910, and Aero Engr. 4250-60.

Aerospace. The study of aircraft and spacecraft including the mechanics of flight and related systems and control and propulsion devices. The program includes the analysis and design of a variety of aerospace vehicles and systems. The central courses are Aero. Engr. 4250-60-60.

GRADUATE STUDY PROGRAMS

Graduate programs leading to the degrees of Master of Science, Master of Engineering, and Doctor of Philosophy with specialization in mechanical engineering or aerospace engineering are available to students holding undergraduate curriculum in mechanical or aerospace engineering and to graduates of other curricula who satisfy the necessary prerequisite courses. The general requirements for advanced degrees are summarized in the Graduate Catalog.

Mechanical Engineering (650)

2040 Introduction to Mechanical Engineering (1)
Presentation and discussion of topics related to mechanical engineering. S./NC.

3000 Energy—An Overview (4) Introduction to available energy resources, recovery and utilization; power generation techniques including conservation schemes; emphasis on the resources—environment—man interaction associated with energy; primarily for non-engineering students.

3040 Seminar (1) Presentation and discussion of topics related to mechanical engineering. Prereq: Junior standing. S./NC.


3321-30 Engineering Thermodynamics (2, 3) Properties of gases and gas mixtures; chemical reactions; equilibrium; applications to mechanical engineering problems. Prereq: 3311 and 3321 respectively.

3410 Fluid Flow (3) Development of continuity, momentum and energy principles for fluid systems; applications to mechanical and aerospace engineering problems. Prereq: Math 2850; coreq: 3311.


3520-30-40 Thermal Sciences (3, 3, 3) Fundamental principles of thermodynamics and transport phenomena as applied to engineering design. For non-departmental majors. To be taken in sequence. Prereq: Math 2820 and Basic Engr. 1330.


3620 Mechanics of Machinery—Dynamics (3) Applications of Newton's laws, work, energy, and impact to machinery. Force analysis of mechanisms, balancing, gyroscopic effects, fly-whheels. Prereq: 3610.


3660 Manufacturing Processes (3) Selection of processes as related to the design of machine parts. Casting, hot and cold forming, metal removal and welding. Manufacturing tolerances and surface finishes. 2 hrs and 2-1/2 lab. Prereq: Met. Engr. 2110.

3681 Dynamics of Machines (3) Motion and forces in mechanical, fluid, thermal, and structural systems; and balance of rotating and reciprocating machines. Prereq: Graphics 1320 and E&M 2720 or 3700.

3682 Selection of Machine Elements (3) Combined stresses in design, fatigue loading, and stress concentration of machine elements; selection of shafts, beltings, gears, and bearings. Prereq: E&M 3310 or 3311.
DOCTORAL PROGRAM

A program leading to the Ph.D. degree is available in nuclear engineering. For details, see the Graduate Catalog.

2310-20-30 Seminar (1, 1, 1) Presentation and discussion of topics related to nuclear engineering. S/NC.

3030 Introduction to Reactor Analysis (3) Nuclear reactions and radiations, cross section, fission process, diffusion and slowing down, steady state reactor theory, criticality conditions, controlled reactors. Prereq: Phys 3720; Math 4710.

3040 Environmental Effects of Nuclear Technology (3) Study of effects on environment since advent of military and peaceful uses of nuclear energy. Prereq: One year of biological or physical science.

3150 Dynamics and Controls (3) Systems differential equations; solution by classical methods; Laplace transform method; frequency response, stability, and control. Prereq: 3030.

3210-20 Thermodynamics (4, 4) Properties and laws of thermodynamic systems. First and second laws used to analyze power producing plants—both fossil and fission. Prereq: Math 2860 and Basic Engr. 1330.

3730 Momentum Transport (4) Development of differential and integral momentum equations; elementary theory of turbulence, applications to piping systems, pumps and nuclear reactors. 3 lecs. and one lab. Prereq: Math 4710.


4110-20-30 Introduction to Nuclear Reactor Theory (3, 3, 3) Nuclear structure; radioactive decay laws; neutron interaction; fission process, chain-reacting systems; diffusion equation including multigroup diffusion theory, neutron moderation; reactivity coefficients; perturbation theory. Prereq: Physics 3730 or consent of instructor.

4140 Thermonuclear Systems (3) Fusion reactions; properties of plasmas; plasma containment; plasma diagnostics; thermonuclear devices. Prereq: Physics 3730; Math 4550.

4210-20-30 Nuclear Engineering Laboratory (3, 3, 3) Radiation detection and counting instrumentation, counting statistics, half-life and decay schemes, gamma spectrometry, cross-section measurements, analog computation, diffusion properties of neutrons, critical loading experiments, control rod calibration, statistical weight, shielding, xenon poisoning, prompt critical reactor behavior, fission density and adjoint flux. Prereq: 4110 (or registration therein), or equivalent.


4530 Reactor Simulation Laboratory (3) Simulation of reactor design and operation with analog computer; reactor kinetics; single and multigroup theory; reactivity coefficients, poison, control rod calibration; power reactor; subcritical assembly. Prereq: 4120.

4610-20-30 Reactor Power Systems (3, 3, 3) Nuclear structure, decay laws, neutron diffusion, time behavior of reactors, heat removal, analysis of reactor power plants; economic, safety, and environmental aspects of nuclear power. Prereq: Math 4610; non-nuclear engineering students only.

4710 Energy Transport (3) Development of differential and integral energy conservation equations; conduction, convection, and radiation heat transfer; application of nuclear reaction fuel elements and heat exchangers. Prereq: 3730.
4720 Reactor Thermal Design (3) Hydrodynamics and heat transfer in boiling systems; boiling crises; fuel element thermal design, steam generator design. Prereq: 4710.

4730 Nuclear Reactor Design (3) First order reactor design, integration with non-nuclear heat transfer and power conversion system, economic evaluation; optimization procedures, description of typical systems. Coreq: 4130.


4820 Reactor Kinetics and Controls (3) Derivation of kinetic equations; basic kinetics parameters; transient response with feedback; control and protective systems. Prereq: 4110.

4840 Nuclear Reactor Safety (3) Presentation of reactor safety concepts and criteria; credible accidents; fission product release and transport; containment systems; accident analysis; engineered safeguards. Prereq: 4120.

4930 Nuclear Fuel Management (3) Discussion of problems associated with processing of nuclear materials; fuel cycle analysis; burn-up calculation. Prereq: 4120.

GRADUATE

5000 Thesis

5002 Non-Thesis Graduation Completion (3-15)

5110-20-30 Transport Processes in Nuclear Engineering (3, 3, 3)

5210 System Dynamics (3)

5220 Reactor System Dynamics (3)

5230 Experimental Methods in Reactor Dynamics (3)

5240 Reactor Instrumentation (3)

5310-20-30 Nuclear Systems Reliability (3, 3, 3)

5510-20-30 Nuclear Systems (3, 3, 3)

5710-20-30 Nuclear Reactor Theory (3, 3, 3)

5740 Reactor Shielding (3)

5790 Monte Carlo Shield Design Shielding (3)

5840-50 Fast Breeder Reactors (3, 3)

5910-20 Advanced Nuclear Reactor Design (3, 3)

5970 Special Topics in Nuclear Engineering (3)

5980 Nuclear Engineering Practice (3-12)

6000 Doctoral Research and Dissertation

6110-20-30 Selected Topics in Reactor Theory (3, 3, 3)

6140 Radiation Shielding (3)

6150 Reactor Dynamics (3)

6710 Two-Phase Flow and Heat Transfer (3)
College of Home Economics

Lura M. Odland, Dean
Grayce E. Goertz, Associate Dean
Virginia S. Anagnost, Assistant Dean

Home economics is an integral part of The University of Tennessee’s academic program in its three major functions of teaching, research, and extended services. The College ranks among the top three colleges of home economics in the nation in enrollment and second in the number of Master's degrees granted and in the number of doctoral students enrolled. Much of the qualitative and quantitative growth of the College is due to its highly qualified faculty and staff who, being aware of the current community problems and needs, have made its programs relevant to the goals and aspirations of today’s students.

Today’s students are seeking professional positions in which they can better serve people—individuals, families, consumers—by helping them predict and solve problems arising from the increasingly rapid changes occurring in the society in which we live. The basis of the College’s professional programs is to prepare young men and women to serve the needs of people in their many varied environments and different stages of life.

The philosophy of the College might best be stated as follows: home economics, while it does seek knowledge which describes and analyzes, is not content with only studying “what is,” but also is concerned with promoting “what can and should be” in order to enhance the quality of life and well-being of people and societies.

The College's mission is twofold: its graduate programs are geared toward research producing alternative solutions to technical and social problems which are and will be encountered by the people who are to be served; its undergraduate programs prepare students to work with people in a professional capacity so that they may make use of what has been learned in serving as professional agents of change.

The University of Tennessee pioneered as one of the first institutions of higher education in the South to offer home economics and has continued to hold a position of leadership. The first class was taught in 1897.

The faculty of the College numbers sixty full-time teaching and research staff. There are five departments with curricula leading to the Bachelor of Science degree: Child and Family Studies; Crafts, Interior Design, and Housing; Food Science, Nutrition, and Food Systems Administration; Home Economics Education; and Textiles and Clothing. The undergraduate program in Home Economics Education is offered in cooperation with the College of Education and the Home Economics Extension Education program is offered in cooperation with the Institute of Agriculture. Approximately 350 courses are offered in these departments. The graduate programs leading to the Master of Science degree were begun in the summer of 1925. Programs for the Doctor of Philosophy degree were initiated in 1960. The Doctor of Philosophy degree program in home economics now includes three options: Interdisciplinary, Food Science, Nutrition. Food Systems Administration may be taken as a concentration in the Food Science doctoral option.

Special Resources
Several special programs enhance the offerings of the College:
Selected students have the opportunity to study for one quarter at the Merrill-Palmer Institute for Human Development and Family Life in Detroit, Michigan or at the Child Development Center of the Center for Health Sciences in Memphis. Credits earned may be applied toward a Bachelor of Science degree in most curricula of the College.
Model research programs for infant care and preschool day care and nursery school provide home economics students the opportunity to train for careers as directors of, and teachers in, child care facilities. The need for appropriate child day care facilities staffed with well-trained, competent staff is recognized as one of the most urgent problems of today's urban society. Opportunities for home economics graduates with special interest in preschool programs are numerous and continue to increase. The Nursery School through Grade Three program offered jointly with the College of Education provides certification for teachers in early childhood education.

Each summer the craft workshops in Gatlinburg, Tennessee, are made possible through cooperative efforts between the Department of Crafts, Interior Design, and Housing and the Pi Beta Phi Arrowmont School of Crafts. The Pi Beta Phi Fraternity provides the funds, the facilities and the management for Arrowmont. The University of Tennessee, Knoxville, College of Home Economics, Department of Crafts, Interior Design, and Housing appoints the instructors, and provides for the administration of craft classes with appropriate accreditation. In addition to providing advanced instruction in designer-created crafts through classes taught by nationally known craftsmen, the craft workshops have expanded to a 43rd-year program serving as a training center for artists and craftspersons from throughout the United States. Also, cooperation with national and local craft organizations has so stimulated the work of craftspersons throughout the area that their work has gained national recognition.

The U.S. Department of Agriculture Textiles and Clothing Research Laboratory is a part of the Southern Region Mid-Atlantic Area and was located at The University of Tennessee in 1967. Textiles and clothing researchers collaborate with the U.S.D.A. staff to conduct investigations that will (1) determine consumer needs for textiles and clothing and the adequacy of products available to meet these needs, (2) develop basic principles to guide consumers in selection and caring for textiles and clothing, and (3) solve other economic and technical
problems pertaining to the field. Graduate students in this area may be trained at the laboratory. International study tours in several areas of home economics are offered when a demand is indicated. The course "Home Economics 4910 International Study Tour" is offered for 6 credit hours at the undergraduate level. At the graduate level, "Home Economics 5100 International Studies" is available, depending on demand and resources, for up to 15 graduate credit hours. The length of the tours may vary from 6 to 8 weeks and the program is under the direction of a member of the faculty.

The Department of Food Science, Nutrition, and Food Systems Administration has a cooperative arrangement in which food service systems, such as those of the University, hospitals, schools, hotels, and restaurants are available for laboratory experience for food systems administration students and in those areas in the food science curriculum. During the senior year, students in the Coordinated Undergraduate Program in Dietetics receive clinical experience integrated with courses in hospitals and other health care facilities. The Food and Lodging Administration program offers coordination of theory and experience with industry during all four years. Graduates of the Coordinated Program will be eligible for membership in the American Dietetics Association (ADA) and application for ADA registration. The Nutrition program is affiliated with the Child Development Center, UT Center for Health Sciences, Memphis, for special study in mental retardation and developmental disorders. A liaison is maintained with the Knox County Health Department to provide current field experience for students in the Community Nutrition option. The Nutrition Science and Community Nutrition programs also meet academic requirements for membership in the American Dietetic Association.

All departments of the College conduct basic and applied research which may be supported in part by the College, by special grant and contract funds, and by the Agricultural Experiment Station. The University of Tennessee Atomic Energy Commission program at Oak Ridge also provides opportunity for training and research. Workshops on special topics of current importance are offered by the different departments in home economics. These will be of special interest to those desiring to work for advanced degrees. Announcements are sent upon request.

The Continuing Education Program provides advanced courses in all areas of home economics at centers across the state for updating and retraining as faculty resources permit. The program includes short courses, workshops, evening courses, and special video-tape and tele-course courses. Individually planned graduate programs should be arranged with the appropriate department heads.

Facilities
The Jessie W. Harris Home Economics Building was dedicated in 1926. Since that time two wings have been added, one in 1937 and another in 1959. All departments have well-equipped laboratories for both graduate and undergraduate work. The Child Development Center is a separate building especially planned as a laboratory for teaching and research with preschool children. It houses an infant day care center, nursery school classrooms for two-, three-, four- and five-year old children, a preschool curriculum laboratory, and rooms for observation and research.

A separate Child Day Care Center housed in the UT Golf Range Apartments is staffed by the College and provides a laboratory for study as well as an adequate center for group care of children 2 to 8 years of age. The Family Life Center provides office space.

Food science, nutrition, and food systems administration facilities include well-equipped laboratories for basic food science, experimental food science, experimental animal nutrition, and chemistry for graduate and undergraduate students. A reading room and audio-tutorial laboratory provide opportunity for independent study. Laboratories include instruments for the evaluation of the chemical, physical, histological, and sensory properties of food, in addition to facilities for metabolic and survey studies of human nutrition.

Home economics education offices and laboratories are located in the Home Economics Building.

The Department of Crafts, Interior Design, and Housing facilities include provisions for study, regular classroom, laboratory and studio experiences. Laboratories for crafts and interior design and housing studies are especially equipped for the purpose.

Textile research facilities are available to undergraduate and graduate students and to research personnel interested in textile studies that benefit fiber producers, fabric and clothing manufacturers, and consumers. Laboratories are well-equipped for the physical and chemical analyses of fabrics, yarns, and fibers.

Certification in Vocational Home Economics Education
Certification to teach vocational home economics requires either a Bachelor's or Master's degree from an institution offering a curriculum for teacher training approved by the State Board for Vocational Education and by the United States Office of Education. The University of Tennessee, Knoxville, is approved for the training of teachers in home economics.

A description of the vocational home economics education curriculum leading to recommendation for certification will be furnished upon request. Graduate students interested in meeting certification requirements should consult the head of the Department of Home Economics Education. Transfer and graduate students who desire to qualify for vocational certification in home economics should state this when applying for admission so that their credits may be evaluated in terms of this goal.

Certification in Early Childhood Education
A joint program in Early Childhood Education—Nursery School through Grade Three was recently approved for the Department of Child and Family Studies (College of Home Economics) and the Department of Curriculum and Instruction (College of Education). In addition to preschool education, graduates are certified to teach kindergarten through third grade.

Educational Programs for Home Economics
Extension Education
Students interested in careers as home economists have many opportunities for earning credit in service to urban and rural families. Special programs of study can be arranged for such students in cooperation with the Institute of Agriculture. The student selects a major in one of the curricula offered by the College of Home Economics. Elective courses may be selected by the student from those recommended by a joint advisory committee of the College of Home Economics, the College of Agriculture, and the home economics unit of the Agricultural Extension Service.

Summer field work experience, coordinated by the Department of Agricultural Extension Education, is available to selected students with a minimum 2.5 grade point average. The student must enroll in Agricultural Extension Education 3110 during the fall or spring quarter of the junior year prior to enrolling in Agricultural Extension Education "4110-20 Field Studies" in the summer quarter (see page 66 for course descriptions). Six hours credit is awarded for summer field studies during which the student works ten weeks as a Junior Assistant County Agent of the Tennessee Agricultural Extension Service.

Students interested in this program should contact their adviser and the administrative assistant in the Office of the Dean of the College of Home Economics for detailed information.

Undergraduate Study in Home Economics
Curricula in the following areas lead to the degree of Bachelor of Science in home economics:

- Child and Family Studies (CFS)
  - Option 1—Early Childhood Development
  - Option 2—Human Development and Family Studies
  - Option 3—Nursery School-Grade 3

- Crafts, Interior Design, and Housing (CIDH)
  - Option 1—General Professional
  - Option 2—Professional Interior Design
  - Option 3—General Crafts
Food Science, Nutrition, and Food Systems Administration (FSNFSA)

Option 1—Food Science Endorsement
Option 2—Nutrition Science
Option 3—Community Nutrition
Option 4—Coordinated Undergraduate Program in Dietetics (ADA)
Option 5—Food and Lodging Administration

Textiles and Clothing (T & C)
Option 1—Merchandising
Option 2—Textile Technology

Vocational Home Economics Education (HEEd)
Option 1—Food Services Endorsement
Option 2—Child Care and Guidance Endorsement
Option 3—Clothing Management, Production and Services Endorsement

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 their particular college or school.

For the degree of Bachelor of Science in Home Economics, students generally plan to complete the last forty-five quarter hours of work (three quarters) at The University of Tennessee, Knoxville. Seventy-two hours must be earned in courses numbered above 3000 at The University of Tennessee, Knoxville. The prerequisite for the student is to complete the total college program before starting any college-level work. Careful planning prior to transferring to the College of Home Economics is essential to maintain a program of study with maximum utilization of credit and sequence of course work. All new freshman and transfer students whose majors require chemistry must enroll in the freshman chemistry course sequence until requirements are completed. It is recommended that transfer students complete the freshman chemistry requirement before transferring to the College of Home Economics.

Students wishing to transfer 36 or more credit hours into the College must have an average of 2.0 for admission. Students with an average of less than 2.0 are not eligible for enrollment in junior or senior courses.

During the first quarter of residence, each student takes courses basic to all curricula and is assigned a faculty advisor for program planning.

A normal student load per quarter is 15-16 hours. The maximum load is 19 credit hours per quarter (18 hours maximum for the Coordinated Undergraduate Program in Dietetics) unless otherwise approved by the dean.

When a student has completed one quarter in residence at The University of Tennessee, Knoxville (with at least a 2.0 average in course work), the student will be eligible to participate in self-registration. Students participating in the voluntary academic registration program bear full responsibility for meeting degree requirements in the proper sequence.

A College of Home Economics student may choose to take, for elective credit only, a course (outside the specific requirements of the College of Home Economics and outside the major department) in which the student will receive a satisfactory or no credit grade. The purpose of the satisfactory/no credit (S/NC) grading system is to encourage the student to explore subject matter areas outside of the requirements and other courses of the major by minimizing the causes for the student's concern that performance may be somewhat less outstanding than that in preferred subject areas. These courses will count as hours for graduation but not for calculating the student's grade point average. A final grade of C or better will be recorded as satisfactory. The maximum satisfactory or no credit hours which could be counted toward a degree is 30 hours. When the student wishes to take a satisfactory or no credit course, the student must so indicate at the time of registration.

Proficiency examinations are offered for numerous courses of the College. Information for which proficiency examinations are offered may be obtained from departments of the College of Home Economics.

Field training provides the opportunity for practical preprofessional experience and constitutes an integral part of many of the college's programs. Students enrolled in certain College of Home Economics courses who have had field experiences are required to participate in the group liability insurance plan offered through the College of Home Economics. The annual cost to the student for this insurance coverage is $4.00 (subject to change).

The first digit in course numbers indicates the student group for whom the course is primarily offered: 1000 indicates courses for freshmen, 2000 for sophomores, 3000 for juniors, 4000 for seniors, 5000 and 6000 for graduate students.

Education 3810 should be elected in the sophomore year by those students majoring in the vocational home economics education curriculum. This course is a prerequisite for other required courses in education. Psychology 2500 is a prerequisite for Education 3810. For majors in the food science, nutrition or textiles curricula, Nutrition 3310 should be taken preferably in the sophomore year and not later than the first quarter of the junior year.

The following four courses are fundamental to home economics and are required in all curricula:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home Economics 1510 Family</td>
<td>4</td>
</tr>
<tr>
<td>Systems: Human Development</td>
<td></td>
</tr>
<tr>
<td>Quarter</td>
<td>4</td>
</tr>
<tr>
<td>Freshman</td>
<td></td>
</tr>
<tr>
<td>Home Economics 1520 Family</td>
<td>4</td>
</tr>
<tr>
<td>Systems: Aesthetic Environment</td>
<td></td>
</tr>
<tr>
<td>Freshman</td>
<td></td>
</tr>
<tr>
<td>Home Economics 2510 Family</td>
<td>4</td>
</tr>
<tr>
<td>Systems: Physiological Well-being</td>
<td></td>
</tr>
<tr>
<td>Sophomore</td>
<td>4</td>
</tr>
<tr>
<td>Home Economics 3510 Family</td>
<td>4</td>
</tr>
<tr>
<td>Systems: Consumer Resources</td>
<td></td>
</tr>
</tbody>
</table>
### OPTION 2. HUMAN DEVELOPMENT AND FAMILY STUDIES

This option is for undergraduate CFS majors who want a generalist background in individual and family studies. This option does not prepare for a career in preschool education. Students interested in Cooperative Extension Service, community agencies, general family counseling, social work, and graduate work would choose this undergraduate option.

#### Freshman  
**Hours Credit**
- **Home Economics 1510**  
  - 4
- **CFS 2110**  
  - 3
- **Home Economics 1530**  
  - 4
- **Natural science**  
  - 12
- **English 1510-20**  
  - 8
- **Nutrition 1230**  
  - 3
- **Home Economics 2510**  
  - 4
- **Physical education elective**  
  - 2
- **Speech 1221 or 2021 or 2351**  
  - 4
- **Physical or biological science elective**  
  - 4
- **Social sciences**  
  - 16
- **History or political science elective**  
  - 4
- **Elec.**  
  - 4

#### Sophomore  
**CFS 2120**  
**Literature elective**  
**Nutrition 1230**  
**Home Economics 2510**  
**Physical education elective**  
**Speech 1221 or 2021 or 2351**  
**Physical or biological science elective**  
**Social sciences**  
**History or political science elective**  
**Elec.**  
**Elec.**

#### Junior  
**CFS 2410 or Sociology 3150**  
**CFS 3210**  
**CFS 3220**  
**CFS 3510**  
**CFS 3515**  
**CFS 3520**  
**Home Economics 3510**  
**Economics 2110**  
**History or political science elective**  
**Philosophy or religious studies electives**  
**Elec.**  
**Elec.**

#### Senior  
**CFS 3220 or 4230 or 4350**  
**CFS 4610**  
**CFS 4110-11**  
**Elec. C & I 4490-51**  
**Elec. C & I 4451**  
**Spec. Ed. 3333**  
**Elec.**

**TOTAL: 191 hours**

*Twelve hours selected from the following: Biology 1210-20, Chemistry 1510-20, Physics 1410-20, Zoology 2461-71, Sociology 2920-30.*
*Requirement may be satisfied by Mathematics 3000 or Psychology 3510 to be taken junior year.*
*Requirement may be satisfied by Educational Psychology 4110 to be taken senior year.*
*Requirement may be satisfied by Nutrition 3020 to be taken junior year.*
*Selected from at least 2 of the following areas: Psychology 2920, 2530, 2540, Sociology 1510-20, Anthropology 2510, 2520, 2530.*

### OPTION 3. NURSERY SCHOOL-GRADE THREE

This option is appropriate for persons interested in working with young children up to the age of eight in a variety of settings. A joint program with the Department of Curriculum and Instruction, this option provides certification for grades K-3.

#### Freshman  
**Hours Credit**
- **HE 1510**  
  - 4
- **HE 1520**  
  - 4
- **CFS 1500**  
  - 8
- **English 1510-20**  
  - 8
- **Speech 2021 or 2311**  
  - 8
- **Music 1210 or 1220 or**  
  - 8
- **Art 1815 or 1825**  
  - 8
- **Philosophy or religious studies**  
  - 4

#### Sophomore  
**CFS 3210**  
**Art Ed. 2100-10**  
**Music Ed. 2100**  
**P.E. 3450**  
**Physical science**  
**Literature elective**  
**Culture and society elective**  
**History elective**  
**Social science elective**  
**Economics 2110**

#### Junior  
**HE 3510**  
**CFS 3120**  
**Educ. C & I 4490-51**  
**Educ. C & I 3300**  
**Educ. C & I 3720**  
**Educ. C & I 4303**  
**Educ. C & I 3010-20-30**

#### Senior  
**CFS 3220 or 4230 or 4350**  
**CFS 4610**  
**CFS 4110-11**  
**Educ. C & I 4490-51**  
**Educ. C & I 4451**  
**Spec. Ed. 3333**  
**Elec.**

**TOTAL: 191 hours**

*Courses should be chosen from: Biology 1210 or 1220 or 1230 or Botany 1110 or 1120 or Zoology 2920 or 2930.*
*Courses should be chosen from: Philosophy 1510 or 1520 or 2310 or 2510, 2520 or Religious Studies 2610 or 2611 or 2620.*
*Nutrition 2230 recommended.*
*Courses should be chosen from: Chemistry 1110, 1510, 1610 (choose one) or 1120, 1520, 1620 (choose one), or Geology 1510 or 1520 or 2210, or Astronomy 2110 or 2120, or Physics 1210 or 1220 or 1410 or 1420.*
*Course should be any 2000-level English literature course.*
*Course should be chosen from: Anthropology 2530 or 3410 or Human Services 2680, 3100, 3210, 3300 or Psychology 2520, 2530 or 3616 and 3626, or Sociology 1510, 1520, 3410, or 3420.*
*Course should be chosen from 1000- to 2000-level history courses.*
*Course should be any course in areas of anthropology, economics, geography, human services, political science, psychology, sociology.*
*All students who desire teacher certification are required to apply for admission to the Teacher Education Program in the College of Education.*
*Application for student teaching (CFS 4110-4111, C & I 4850-4851) must be filed no later than January 1 of the academic year preceding the actual experience.*

### Crafts, Interior Design, and Housing

**Acquisition and Exhibition**

The department reserves the right of acquisition and exhibition of work completed in its studios under the guidance of the faculty.

**OPTION 1. GENERAL PROFESSIONAL**

This general curriculum is designed for students preparing for positions in business, educational and public service programs and provides background for advanced study in crafts, interior design and housing.

#### Freshman  
**Hours Credit**
- **Chemistry 1110-20-30 or 1510-20-30**  
  - 12
- **English 1510-20**  
  - 8
- **Food Science 1010**  
  - 3
- **Home Economics 1510**  
  - 4
- **Home Economics 1520**  
  - 4
- **Nutrition and social science electives**  
  - 12
- **Elec.**  
  - 3
- **ODH 1419**  
  - 2

#### Sophomore  
**Home Economics 2510.**  
**Economics 2110-20**  
**English 2510 or 2520 or 2540**  
**Psychology 2520 and 2530 or 2540**  
**ODH 2210**  
**Sociology 1910.**  
**Speech 2311**  
**Zoology 2920-30**

#### Junior  
**Food Science 3020**  
**CFS 3420**  
**Microbiology 2010**  
**Nutrition 3200**  
**ODH 3110**  
**ODH electives**  
**Social science elective**  
**Textiles and Clothing 3420**  
**Home Economics 3510**  
**Elec.**  
**Elec.**

#### Senior  
**CFS 3210 or 3220**  
**CFS 3510 or 3520**  
**ODH 3430**  
**Humanities and social science electives**  
**ODH 4410**  
**Elec.**  
**Elec.**

**TOTAL: 188 hours**

*Select from anthropology, art history, sociology, psychology, history.*
*Select from anthropology, political science, history.*
OPTION 2. PROFESSIONAL INTERIOR DESIGN

The following curriculum provides for those students who are primarily interested in becoming professional interior designers.

**Freshman**
- **Hours Credit**
- **Home Economics** 1510... 4
- **Home economics 1520**... 4
- **CIDI 1419**... 2
- **Art 1115-25-35**... 12
- **Art 1815-25**... 8
  - Natural science electives... 12
  - English 1510-20... 8

**Sophomore**
- **English 2510**... 4
- **CIDI 2115-16**... 4
- **CIDI 3125**... 5
- **CIDI 3130**... 3
- **Speech 2311**... 3
- **Economics 2110-20**... 6
- **Home Economics 2510**... 4
  - Electives... 8

**Junior**
- **Psychology 2500 and 2530 or 2540**... 8
- **Marketing 3110**... 3
- **Textiles and Clothing 3420**... 3
- **CIDI 3260**... 3
- **CIDI 3255-56**... 12
- **Home Economics 3510**... 4
  - Electives... 8

**Senior**
- **Collateral area electives**... 8
- **CIDI 4320**... 3
- **CIDI 4410**... 3
- **CIDI 3510**... 2
- **CIDI 4190**... 3
- **CIDI 4250**... 3
- **Textiles and Clothing 5220**... 3
- **Art 3745**... 4
  - Electives... 9
  - **TOTAL: 189 hours**

*Natural science electives (12-hour sequence) from one of the following sequences: Biology 1210-20-30, Chemistry 1510-20-30, Physics 1410-20-30, Botany 1110-20, 1140.

*An area which directly reinforces the major chosen from ornamental horticulture and landscape design, history, textiles, art, architecture, business administration, child and family studies.

OPTION 3. GENERAL CRAFTS

**Freshman**
- **Hours Credit**
- **Natural science sequence**... 12
- **Home Economics 1510-20**... 8
- **CIDI 1419**... 2
- **Art 1115-25-35**... 12
- **Home Economics 1510**... 4
- **Electives**... 4

**Sophomore**
- **Home Economics 2510**... 4
- **Psychology 2540**... 4
- **English 2510**... 4
- **CIDI 2210**... 4
- **Speech 3115-25**... 8
- **Sociology 1510**... 4
- **Economics 2110-30**... 6
- **Accounting 3110 and/or Marketing 3110 and/or Finance 3110**... 8
- **Electives**... 8

**Junior**
- **CIDI 3270**... 4
- **CIDI 3110**... 3
- **Speech 2311**... 4
- **CIDI 3310 or 3710**... 4
- **CIDI 4510**... 4
- **CIDI 3410, 3420, or 3430**... 8
- **CIDI 3610**... 4
- **CIDI craft courses**... 8
- **Home Economics 3510**... 4
  - Electives... 9

**Senior**
- **CIDI 4140**... 4
- **CIDI 4310**... 3
- **CIDI craft courses**... 8
  - Humanities and/or social science electives... 6
- **Art history**... 6
- **Electives**... 10
  - **TOTAL: 189 hours**

*Natural science sequences: Botany 1210-20-30; Botany 1110-20-40; Chemistry 1510-20-30 or 1110-20-30; Physics 1410-20-30 or 1210-20-30.

*Select from anthropology, art history, sociology, psychology, history.

Professional Curricula in the Department of Food Science, Nutrition, and Food Systems Administration

Entering freshmen interested in Options 1, 2, 3, or 4 will be enrolled as departmental majors and a departmental adviser will be assigned to assist with planning freshman courses. Students will not register in a particular option until their third quarter in residence. They will apply for admission to a specific option by April 1. Designation of an option for each applicant will be made by a faculty committee by May 15, and each student will be assigned to an adviser associated with the chosen option. A second choice of option will be required if Option 4 is the first choice. If a student is listed as an alternate for an option of interest, admission may be reconsidered at a later date. Applications may be considered periodically as openings occur.

Transfer students must apply to the Director of Admissions and be admitted to The University of Tennessee, Knoxville, before initiating the application procedure for admission to Options 1, 2, 3, or 4.

OPTION 1. FOOD SCIENCE

The food science curriculum is concerned with relating the cultural and scientific aspects of food science to people and their environment. Emphasis is placed on the application of the social sciences to world feeding problems, consumer reaction to food acceptability and marketing problems; application of the physical sciences is made in the study of food composition and properties and changes associated with processing, preparation, and storage. This curriculum prepares students for positions in food product development and evaluation in industry and government, work in communications media or for direct entrance into a Master's degree program needed for college teaching and research. Information concerning modifications necessary to meet the academic requirements of the American Dietetic Association is available from the department.

**Freshman**
- **Hours Credit**
- **Chemistry 1110-20-30 or 1150-20-30**... 12
- **English 1510-20**... 8
- **Food Science 1010**... 3
- **Home Economics 1510**... 4
- **Home Economics 1520**... 4
- **Mathematics 1540-50 or 1540-60**... 8
- **Psychology 2500**... 4
  - Electives... 8

*Application and selection by a faculty committee required to enter sophomore year.

**Sophomore**
- **Economics 2110, 2130**... 6
- **English 2510 or 2520**... 8
- **or 2530 or 2540**... 4
- **Food Science 2510**... 3
- **Home Economics 2510**... 4
- **Journalism 2210**... 4
- **Microbiology 2010**... 4
- **Psychology 2510 and 2520**... 8
- **Electives**... 12

**Junior**
- **CFS 3420 or 4210 or 4830**... 3
- **Food Science 3210, 3215, 4010**... 9
- **Home Economics 3510**... 4
- **Nutrition 3310-20-30-39**... 12
- **Social science electives**... 8
  - **TOTAL: 190 hours**

*Or English 2560 or 2570 or 2580.

*Select from anthropology, art, history, sociology, psychology, history.

OPTION 2. NUTRITION SCIENCE

This curriculum provides in-depth training in the basic biological sciences as well as nutrition. This option is designed for students who are interested in graduate study to become college teachers and researchers or who are interested in graduate study and/or a dietetic internship, to become a clinical nutrition specialist.
### Freshman

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemistry 1110-20-30 or 1510-20-30</td>
<td>12</td>
<td>8</td>
</tr>
<tr>
<td>English 1510-20</td>
<td>1</td>
<td>3</td>
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<tr>
<td>Food Science 1010</td>
<td>1</td>
<td>3</td>
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<tr>
<td>Home Economics 1510</td>
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<td>Home Economics 1520</td>
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<td>Mathematics 1540</td>
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<tr>
<td>Nutrition 1230</td>
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<tr>
<td>Psychology 2500</td>
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</tr>
<tr>
<td>Sociology 1510</td>
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<td>4</td>
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</table>

Application and selection by a faculty committee required to enter sophomore year.

### Sophomore

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
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</thead>
<tbody>
<tr>
<td>Economics 2110-20 or 30</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>*Enth 2510 or 2520</td>
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<td>3</td>
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<tr>
<td>2530 or 2540</td>
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<td>Home Economics 2510</td>
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<td>4</td>
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<tr>
<td>Journalism 2210</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Nutrition 3310-20-30-39</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>Physical education activity elective</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Speech 2311</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Zoology 2920-30</td>
<td>1</td>
<td>4</td>
</tr>
</tbody>
</table>

Electives ............................................. | 4     | 8      |

**TOTAL: 188 hours**

*Or English 2560 or 2570 or 2590.

### Option 3. Community Nutrition

This curriculum is designed for those students interested in community services or graduate work in public health nutrition.

### Freshman

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemistry 1110-20-30 or 1510-20-30</td>
<td>12</td>
<td>8</td>
</tr>
<tr>
<td>English 1510-20</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Food Science 1010</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Home Economics 1510</td>
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<td>4</td>
</tr>
<tr>
<td>Home Economics 1520</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Mathematics 1540</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Nutrition 1230</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Psychology 2500</td>
<td>1</td>
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</tr>
<tr>
<td>Sociology 1510</td>
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</tr>
</tbody>
</table>

Application and selection by a faculty committee required to enter sophomore year.

### Sophomore

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economics 2110-20 or 30</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>*Enth 2510 or 2520</td>
<td>1</td>
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</tr>
<tr>
<td>2530 or 2540</td>
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<tr>
<td>Journalism 2210</td>
<td>1</td>
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<tr>
<td>Nutrition 3310-20-30-39</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>Physical education activity elective</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Speech 2311</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Zoology 2920-30</td>
<td>1</td>
<td>4</td>
</tr>
</tbody>
</table>

Electives ............................................. | 4     | 8      |

**TOTAL: 188 hours**

### Senior

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>CFS 3420 or 4210</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>CFS 4280 or 4810</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Food Science 3020</td>
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<tr>
<td>Food Systems Administration 4130</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Library and Information Science 4750</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Nutrition 4010</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Nutrition 4030</td>
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<td>3</td>
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<tr>
<td>Nutrition 4030-4450</td>
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<tr>
<td>Nutrition 4230</td>
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</tr>
<tr>
<td>Nutrition 4330</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

Electives ............................................. | 5     | 15     |

**TOTAL: 188 hours**

*Or English 2560 or 2570 or 2590.

### Option 4. Coordinated Undergraduate Program in Dietetics (ADA)

The Coordinated Undergraduate Program in Dietetics is a generalist program, training entry-level dietitians in administrative and clinical dietetics, and is accredited by the American Dietetic Association (ADA). The program incorporates the equivalent of a fifth year dietetic internship into a four-year academic curriculum. The curriculum includes a two-year preprofessional sequence that meets general education requirements and prerequisites for professional courses, and a professional phase in the junior and senior years. The junior year provides an introduction to dietetics, basic knowledge in food science, nutrition, and food systems administration, and research techniques. The senior or fourth year consists of advanced work in dietetics. During the professional phase, academic courses are coordinated with planned experiences in selected hospitals and community facilities. The assignment of students to each clinical site is made by the program director.

### Admission and Progression Policies

A student may be admitted to the program at any stage provided all requirements or equivalents of the program up to that time, as well as University of Tennessee and College of Home Economics standards, have been satisfactorily met. Preprofessional courses may be taken at any University of Tennessee, Knoxville, or any accredited junior or senior college or community college. The program has been planned to permit transfer students to apply prior to the beginning of the junior year. Applications should be made to the program director by April 1. Criteria for selection include (1) evidence that the student will successfully complete the two-year preprofessional phase, (2) an overall GPA of 2.2 or higher, (3) personal interview, and (4) recommendations from faculty of selected preprofessional courses. The number of qualified students accepted into the Coordinated Undergraduate Program in Dietetics is contingent on the number of clinical sites available. Criteria for admission may be maintained throughout the preprofessional phase. Exception to criteria may be made by petition to the program director. Criteria for progression in the preprofessional phase junior and senior years will include (1) satisfactory completion of each required professional course as scheduled with a minimum grade of C, (2) periodic evaluation of competency level by academic and clinical faculty, (3) periodic evaluation of professional competency by peers, and (4) participation in voluntary professional activities. The maximum credit hours carried per quarter should not exceed 18 hours without special permission from the program director. Exceptions to the above may be made by petition to the program director.

Upon satisfactory completion of the program, students receive the Bachelor of Science Degree in Home Economics, and are eligible for membership in the American Dietetic Association and to apply for the registration examination to qualify as a Registered Dietitian (R.D.).

A student unable to enter or to complete the Coordinated Undergraduate Program in Dietetics (Option 4) may select Food Science (Option 1), Nutrition Science (Option 2), or Community Nutrition (Option 3) to fulfill the academic requirements for a dietetic internship or traineeship. Upon completion of the academic requirements and the dietetic internship or traineeship, students would be eligible for membership in the American Dietetic Association and to apply for the registration examination to qualify as a Registered Dietitian (R.D.).

### Freshman

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
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<tbody>
<tr>
<td>Chemistry 1510-20-30</td>
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<tr>
<td>English 1510-20</td>
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<tr>
<td>Mathematics 1540</td>
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<tr>
<td>Nutrition 1230</td>
<td>1</td>
<td>3</td>
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<tr>
<td>Psychology 2500</td>
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</tr>
<tr>
<td>Sociology 1510</td>
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</table>

Application and selection by a faculty committee required to enter sophomore year.

### Sophomore

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
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<tbody>
<tr>
<td>Economics 2510</td>
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<tr>
<td>Nutrition 3000, 3330-40</td>
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<tr>
<td>English 2510 or 2520 or 2530 or 2540</td>
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</tr>
<tr>
<td>Food Science 2510</td>
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<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Psychology 2500</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Speech 2311</td>
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<tr>
<td>Zoology 2920-30</td>
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Electives ............................................. | 4     | 8      |

**TOTAL: 7-8**

### Junior

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
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<tbody>
<tr>
<td>Food Science 3020-21, 3510, 4010</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Nutrition 3410-11, 3560, 4220-29</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>Food Systems Administration 3110, 3920, 4150</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>Home Economics 3810</td>
<td>4</td>
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<tr>
<td>Psychology 4460 or Economics 3420</td>
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</tr>
</tbody>
</table>

Electives ............................................. | 13    | 13     |
### Professional Curriculum in Vocational Home Economics Education

The curriculum in vocational home economics education is planned in cooperation with the College of Education. Successful completion of the requirements of this curriculum results in recommendation for certification to teach vocational home economics in secondary schools in Tennessee. Total requirements for admission to teacher education, to student teaching and for recommendation for certification are listed on page 105. The State Board for Vocational Education and the United States Office of Education approve programs for vocational education. Only students who have a major in the vocational home economics education curriculum meet the certification requirements; students who have a major in other curricula in the College of Home Economics do not meet certification requirements.

All freshmen, sophomore, and junior required courses must be completed before a student engages in student teaching. Home Economics Education 4240 should be scheduled within one of the two quarters immediately preceding the quarter in which student teaching is scheduled. This curriculum will prepare students for graduate study in home economics education; however, it is not a requirement for graduate study in home economics education.

| Freshman Hours Credit | Chemistry 1110-20-30 or 1110-20-30 | 12
| | English 1510-20 | 8
| | Home Economics 1510 | 8
| | Psychology 2500 | 8
| | Text. & Clo. 1160 | 8
| | Text. & Clo. 1165 | 8
| | Text. & Clo. 2110 | 8
| | Sociology 1510 | 8
| | Electives | 8

| Sophomore Hours Credit | Accounting 2110 | 3
| | Economics 2110 | 3
| | Literature elective | 3
| | Home Economics 2510 | 3
| | Anthropology 2510 | 3
| | Text. and Clo. 3420 | 3
| | Zoology 2320-30 or biology elective | 3
| | Text. & Clo. 3510 | 3
| | Humanities electives | 3
| | Electives | 3

| Junior Hours Credit | Psychology 3120 or Sociology 3130 | 4
| | Crafts, Interior Design & Housing 3130 | 4
| | Speech 2311 | 3
| | Marketing 3110-20 and a marketing elective | 3
| | Journalism 2210 | 3
| | Home Economics 2510 | 3
| | Text. & Clo. 4110 | 3
| | Text. & Clo. 4230 | 3
| | Text. & Clo. 4620 | 3
| | Text. & Clo. 3480 | 3
| | Text. & Clo. 4010 | 3
| | Electives | 11

| Senior Hours Credit | CFS 3420 | 3
| | CFS 4380 | 3
| | Choose 6 hours from: crafts, interior design, | 6
| | and housing; nutrition; child and family studies | 6
| | Text. & Clo. 4630, 4640. | 15
| | Electives | 15

TOTAL: 189 hours

Eight-hour sequence from foreign language or philosophy or history or art history or music.
Spring quarter only.
Twenty hours of electives must be upper-division level.
Approved upper-division courses may be substituted.
Fall quarter only.
A minimum grade point average of 2.2 is required to enroll in these courses.

### OPTION 2. TEXTILE TECHNOLOGY

This curriculum is appropriate for persons wishing to prepare for positions as research technicians and for graduate study leading to college teaching and research in textiles.

| Freshman Hours Credit | Chemistry 1110-20-30 or 1110-20-30 | 12
| | English 1510-20 | 8
| | Home Economics 1510 | 4
| | Psychology 2500 | 4
| | Home Economics 1520 | 4
| | Text. & Clo. 1160 | 2
| | Text. & Clo. 1165 | 2
| | Text. & Clo. 2110 | 2
| | Electives | 10

| Sophomore Hours Credit | Chemistry 3211-19 or Nutrition 3310 | 4
| | English 2510 or 2520 or 2530 or 2540 (choose two) | 8
| | Home Economics 2510 | 4
| | Mathematics 1540-50-60 or 1840-50-60 | 12
| | Sociology 1510 | 4
| | Text. & Clo. 3420. | 3
| | Zoology 2920-30 | 8
| | Electives | 8

| Junior Hours Credit | Economics 2110, 2130. | 6
| | Humanities electives | 8
| | Journalism 2210 | 3
| | Physics 2210-20 or 1210-20 | 8
| | Statistics 2100 or 3450 | 3
| | Home Economics 3510 | 4
| | Electives | 15

| Senior Hours Credit | CFS 4380 | 3
| | CID 4240, 3130 | 6
| | Text. & Clo. 3440, 3450, 3480, 3520 (choose three) | 9
| | Text. & Clo. 4220 | 3
| | Text. & Clo. 4010, 4120, 4140, 4210 | 12
| | Electives | 14

TOTAL: 191 hours

*Or English 2560 or 2570 or 2560.
*At least 30 hours must be upper-division courses.
Eight-hour sequence from foreign language or philosophy or history or art history or music.

### Professional Curriculum in Textiles and Clothing

**OPTION 1. MERCHANDISING**

This curriculum is appropriate for students wishing to prepare for positions in merchandising of apparel and/or fabrics, fashion writing, and in public relations with pattern companies and manufacturers of textile products.

| Freshman Hours Credit | Anthropology 4250 | 3
| | Food Systems Administration 4410, 4420 | 3
| | Nutrition 4240-41, 4030-31 | 11
| | Food Science 4000 | 3
| | TOTAL: 190 hours

| Sophomore Hours Credit | Accounting 2110 | 3
| | Economics 2110 | 3
| | Literature elective | 3
| | Home Economics 2510 | 4
| | Anthropology 2510 | 4
| | Text. and Clo. 3420 | 3
| | Zoology 2920-30 or biology elective | 3
| | Text. & Clo. 3510 | 3
| | Humanities electives | 3
| | Electives | 3

| Junior Hours Credit | Accounting 2110 | 3
| | Economics 2110 | 3
| | Literature elective | 3
| | Home Economics 2510 | 4
| | Anthropology 2510 | 4
| | Text. and Clo. 3420 | 3
| | Zoology 2920-30 or biology elective | 3
| | Text. & Clo. 3510 | 3
| | Humanities electives | 3
| | Electives | 3

| Senior Hours Credit | Accounting 2110 | 3
| | Economics 2110 | 3
| | Literature elective | 3
| | Home Economics 2510 | 4
| | Anthropology 2510 | 4
| | Text. and Clo. 3420 | 3
| | Zoology 2920-30 or biology elective | 3
| | Text. & Clo. 3510 | 3
| | Humanities electives | 3
| | Electives | 3

| Junior Hours Credit | Anthropology 4250 | 3
| | Food Systems Administration 4410, 4420 | 3
| | Nutrition 4240-41, 4030-31 | 11
| | Food Science 4000 | 3
| | TOTAL: 190 hours

*All science electives (12-hour sequence) from one of the following areas: Biology 1210-20-30, Chemistry 1510-20-30, or Physics 1410-20-30.
*Food Science 2510 requires Chemistry 1530.
Information regarding graduate assistantships, fellowships, and general requirements for admission to graduate study may be obtained from the department head in the area of the student's major interest or the Dean of the College of Home Economics for the interdisciplinary doctoral option.

An application for admission and two official transcripts should be submitted directly to the Graduate School. In addition, application is made to the Dean of the College of Home Economics. Those students whose major is in child and family studies, the interdisciplinary doctoral option, or home economics education are required to take the Graduate Record Examination.

For a complete description of the Graduate Program in the various areas of home economics, see the Graduate Catalog, including the list of available major and minor areas.

Department of Instruction

Child and Family Studies (245)

Professors:
J. L. Kuipers (Head), Ph.D. Michigan State; C. Beasley (Emeritus), Ed.D. Columbia; M. L. Bishop (Emeritus), Ph.D. Cornell; P. L. Hightower, Ph.D. Iowa; E. L. Speer (Emeritus), M.A. Columbia.

Associate Professors:

Assistant Professors:

1120 Management and Its Contribution to Family Living (3) Determination of goals; evaluation of resources; application of management principles to problems.

1500 Introduction to Early Education (3) Analysis of principles and operation of early education programs for children ages 0-8. Field trips required. (Same as Educational Curriculum and Instruction 1500.)

2110 Human Socialization (3) Human development with emphasis on socialization process from infancy through adolescence in family, school, and peer group settings. 3 hrs. Additional lab (2 hrs) for majors.

2120 Male-Female Relations (3) Examination of issues and development of communication skills and roles involved in relating to opposite sex. (Not open to majors.)

2410 Human Sexuality (3) Dimensions of human sexuality as examined through cultural, social, and psychological influences.

3110 Program Planning (4) Philosophies of pre-school education. Analysis of program and teacher-child interaction. Observation-measurement laboratory. Prereq: 3210 or equivalent. 3 hrs and 1 lab.

3120 Aesthetic Experiences (3) Examination of subject matter areas—quantity and logic, art, music, literature, science. Prereq: 3110.

3125 Day Care Programming for Infants and Preschool Children (3) Planning for children from early infancy through 6 years in day care environments. Prereq: 3210 or equivalent.

3210 Child Development I (3) Comprehensive view of the child from birth to age 2. Analysis of interpersonal relationships among various aspects of development: physical, cognitive, emotional and social. Prereq: 2110 or Home Economics 1510 or 1520 or 1530. 3 hrs. 1 hr observation per week.

3220 Child Development II (3) Growth and development of the child from 6 to 12 years of age with emphasis on influence of family and community. Special attention given to nutrition, social and cultural settings. Prereq: 2110, 4 hrs psychology or equivalent. 3 hrs. 1 hr observation per week.

3420 Family Economics (3) Management of family groups of young children under the supervision of a head teacher. Prereq: 3110 or 4 hrs psychology or 4 hrs sociology.


4111 Student Teaching of Preschool Children (3) Increasing responsibility for planning and guiding groups of young children under the supervision of a head teacher includes 2-3 hrs weekly seminar. Prereq: 1500, 3110, 3120, 3125, coreq: 4111.

4210 Family Finance (3) Analysis of alternative ways of meeting financial problems encountered during cycle of family life.

4220 Conserving Time and Energy in the Home (3) Application of management principles to home-making activities; evaluation of equipment, work centers, and work procedures in terms of time and energy demands. Adaptations for the handicapped.

4230 Development in Infancy (3) Development during prenatal period and first fifteen months of life. Interaction between infant and his environment. Review of research relating to child-rearing practices and prediction of later behavior. Prereq: 2110 and Zoology 2300 or equivalent.

4260 Adult Development and Aging (3) Adult life in our society. Adjustment to internal and environmental changes through middle and aged years. Prereq: 2110 or HE 1510 or equivalent background in adult development or consent of instructor.

4350 Advanced Child Development (3) Survey of selected theories relevant to child development with emphasis on research literature and research methodology. Prereq: 4 hrs psychology and 6 hrs child development or equivalent.

4420 Learning Experiences with Parents (3) Dynamics of parent-teacher interaction. Emphasis on a variety of techniques for developing communication and working relationships between parents and teachers through experiences in a variety of settings. Prereq: 3610 or 4110 or equivalent.

4430 Family Relationships (3) Interpersonal relationships among family members and societal roles. Prereq: 3510 or 3515.
3330 Metal Design III (4) Advanced experiences in metalwork, emphasizing relationship of design to process and imaginative use of art elements in metal design. Prereq: 3320 or equivalent. 1 hr and 2 labs.

3410 Weaving I (4) Creative design in elementary weaving techniques on a variety of looms; basic weaves and threads. Interpreting and creating designs using natural and artificial materials; assembling a loom, threading and tie-up of a loom; methods of finishing. Study of weaving of past and present. Prereq: 1410 or equivalent. 1 hr and 2 labs.

3420 Weaving II (4) Same as 3410 except design, technique, and materials are explored in rug weaving. 1 hr and 2 labs.

3430 Weaving III (4) Advanced weaving techniques with exploration of pattern, color and texture using various warps, fillers and weaves. Further study of weaving, past and present. Prereq: 3410 or 3420 or equivalent. 1 hr and 2 labs.

3440 Demonstration Techniques in Household Equipment (3) Planning and presenting equipment design emphasizing performance, maintenance and cost; developing and using visual- aids. Prereq: Speech 2311. 1 hr and 2 labs.

3510 Textile Design (4) Fundamental principles of textile design, i.e., the range of processes and materials. Emphasis on silkscreen and blockprint methods. Prereq: 1410 or equivalent.

3520 Textile Design (4) Study of resist processes in textile design, fold/dye, batik, and resin resist methods; resins, resins, resins, resins, resins, resins. Study of the field is discussed, as well as examples from the past. Prereq: 1410 or equivalent.

3530 Fabric Structures (4) Design and construction of fabric structures through use of non-weaving processes: looping, interlooping, coiling, interlocking, interlinking, interfacing, and twining. Investigation of tools, materials and non-weaving processes utilized in development of fabric structures. Study of various historical and traditional aspects of these processes in relation to their potential in designing contemporary fabric forms. Prereq: 1410 or equivalent. May be repeated. Maximum credit 12 hrs.

3610 Wood Design (4) Basic skills and appreciation for design developed through wood carving and the making of small household objects and toys. Prereq: 1410 or equivalent. 1 hr and 2 labs.

3620 Wood Design (4) Continuation of 3610. 1 hr and 2 labs.

3710 Enameling I (4) Exploring possibilities and limitations of vitreous enamels. Designing and creating enamelled metalwork and jewelry using a variety of materials and techniques. Contemporary and past enameling. Prereq: 1410 or equivalent. 1 hr and 2 labs.

3720 Enameling II (4) Advanced techniques; exploration of design, color and texture. Further study of art of enamelist, past and present. Prereq: 3710 or equivalent. 1 hr and 2 labs.

4100 Home Wiring and Lighting Requirements (3) Service of electricity in modern homes; evaluation of lights; designing wiring plans in terms of family desires and need for equipment. 1 hr and 2 labs.

4130 Contemporary Design (3) Furnishings and interiors; economics, technological and sociological influences on development of design; changing living conditions; interrelation of architecture and furnishings. Significant designers and their work.

4140 Exhibition Design (4) Display of craft and interior design problems in relation to materials, props, and special exhibition area. Emphasis on knowledge and application of design principles as they relate to promotion, design construction, display and evaluation for two and three dimensional objects. Design and interior design exhibit culminates quarter. Prereq: 1410 or equivalent.

4155 Interior Space Planning I (6) Analysis, planning and designing of office environments; includes contract specifications. Prereq: 3256 or equivalent.

4156 Interior Space Planning II (6) Studio problems involving large scale non-residential interior spaces such as conference rooms, convention facili-
ties, stores, institutions, etc. Prereq: 4155 or consent of instructor.

4260 Professional Practice (15) Supervised field experience in establishments engaged in practice of interior design. Prereq: Junior standing, interior design majors, 3260, and consent of department.

4300 Apprenticeship/Field Experience (4-15) Supervised field or apprenticeship experience for craft majors desiring professional training with a professional organization, program or designer/craftsperson; subject to departmental approval. Prereq: Senior standing and consent of faculty.

4310 Crafts in America (3) Craft movement; factors that contribute to growth and development. Educational, social, economic, recreational and therapeutic values of crafts. Place of crafts person in society as producer, teacher, designer for industry.

4320 Family Housing Problems (3) Housing requirements of families. Reading and judging house plans; effect of space planning on housing problems; housing regulations and restrictions; site selection and neighborhood development; financing procedures. Prereq: 6 hrs from Economics 2110-20-30.

4330 Care and Repair of Household Equipment (3) Care of equipment to give maximum service in relation to operating cost and service cost; understanding of common repair problems. Prereq: 2430. 1 hr and 2 labs.

4410 Craft Media (4) Possibilities and limitations of variety of craft media; understanding educational and social values of craft work. Designing and executing craft problems using inexpensive materials and tools. 3 labs.

4420 Leather Design (4) Relationship to design function. Creating leather objects of original design. Prereq: 1410 or equivalent. 1 hr and 2 labs.

4430 Plastics (4) Possibilities and limitations of various plastics; methods of fabrication; relation of design to function, processes, types of material and use of tools. Prereq: 1410 or equivalent. 1 hr and 2 labs.

4510 Ceramics I (4) Possibilities and limitations of clay; techniques of wedging, shaping and making pottery forms using coil, slab and throwing techniques; decorating by slip, underglaze, sgraf-fito, incising and embossing; preparation of slip, glazes; setting and firing kilns. Prereq: 1410 or equivalent. 1 hr and 2 labs.

4520 Ceramics II (4) Further study in designing, building, decorating, preparing glazes and firing. Role of the potter, past and present. Prereq: 4510 or equivalent. 1 hr and 2 labs.

4530 Ceramics III (4) Advanced design and relation to function, materials, tools and techniques. Further study of history of pottery and contributions of contemporary ceramist to art, architecture and interior design. 1 hr and 2 labs.

4610 Studio Problems in Interior Design (3) Problems for seniors with special ability and interest in interior design. May be repeated to a maximum of 9 hrs. Prereq: Senior standing and consent of department.

4620 Studio Problems in Leather Design (4) Problems for seniors and juniors with special ability and interest in leather design. May be repeated to a maximum of 12 hrs. Prereq: 4 hrs of leather design or consent of department.

4630 Studio Problems in Metal Design (4) Problems for seniors and juniors with special ability and interest in metal design. May be repeated to a maximum of 12 hrs. Prereq: 12 hrs of metal design or equivalent and consent of department.

4640 Studio Problems in Weaving (4) Problems for seniors and juniors with special ability and interest in weaving. May be repeated to a maximum of 12 hrs. Prereq: 12 hrs of weaving or equivalent and consent of department.

4650 Studio Problems in Textile Design (4) Problems for juniors and seniors with special ability and interest in textile design. May be repeated to a maximum of 12 hrs. Prereq: 8 hrs of textile design or equivalent and consent of department.

4655 Studio Problems in Fabric Structures (4) Advanced problems in fabric structures for juniors and seniors with special ability and interest in fabric structures. Emphasis on in-depth research and creative problem solving in one or several areas of fabric structures. May be repeated. Maximum credit 12 hrs. Prereq: 12 hrs of fabric structures (or equivalent) and consent of department head.

4660 Studio Problems in Wood Design (4) Problems for juniors and seniors with special ability and interest in wood design. May be repeated to a maximum of 12 hrs. Prereq: 8 hrs of wood design or equivalent and consent of department.

4670 Studio Problems in Enameling (4) Problems for seniors and juniors with special ability and interest in enameling. May be repeated to a maximum of 12 hrs. Prereq: 8 hrs of enameling or equivalent and consent of department.

4680 Studio Problems in Plastics (4) Problems for juniors and seniors with special ability and interest in plastics. May be repeated to a maximum of 12 hrs. Prereq: 4 hrs of plastics or equivalent and consent of department.

4690 Studio Problems in Ceramics (4) Problems for seniors and juniors with special ability and interest in ceramics. May be repeated to a maximum of 12 hrs. Prereq: 12 hrs of ceramics or equivalent and consent of department.

4710 Contemporary Developments (1-4) Student or staff initiated course for study of special topic(s) pertinent to the field; topics selected to be determined by students and instructor with departmental approval. Elective credit only. May be repeated with consent of department. Maximum credit 12 hrs. Prereq: Consent of instructor.

4910 Crafts - (4) Prerequisites: 1410 and 1410. 1 hr and 2 labs.

4940 Honors: Crafts (4) Prerequisites: 1410 and 1410. 1 hr and 2 labs.

4950 Honors: Interior Design (3) Prerequisites: 1410 and 1410. 1 hr and 2 labs.

4960 Honors: Housing (3) Prerequisites: 1410 and 1410. 1 hr and 2 labs.

4980 Honors: Furniture Appreciation (3) Prerequisites: 1410 and 1410. 1 hr.

5100 Interior Design (3) Prerequisites: 1410 and 1410. 1 hr and 2 labs.

5330 Craft Design (3) Prerequisites: 1410 and 1410. 1 hr and 2 labs.

5341-51-61 Metal Design II, III, IV, V, VI, VII, VIII, IX, X, XI, XII
3721 Enameling (1-4) Content same as 3720. May be repeated for credit.
3411 Crafts in America (1-4) Content same as 3410. May be repeated for credit.
4411 Craft Media (1-4) Content same as 4410. May be repeated for credit.
4421 Leather Design (1-4) Content same as 4420. May be repeated for credit.
4431 Plastics (1-4) Content same as 4430. May be repeated for credit.
4511-21-31 Ceramics (1-4, 1-4, 1-4) Content same as 4511-31. May be repeated for credit.
4621 Studio Problems in Leather Design (1-4) Content same as 4620. May be repeated for credit.
4631 Studio Problems in Metal Design (1-4) Content same as 4630. May be repeated for credit.
4641 Studio Problems in Weaving (1-4) Content same as 4640. May be repeated for credit.
4651 Studio Problems in Textile Design (1-4) Content same as 4650. May be repeated for credit.
4661 Studio Problems in Wood Design (1-4) Content same as 4660. May be repeated for credit.
4671 Studio Problems in Enameling (1-4) Content same as 4670. May be repeated for credit.
4661 Studio Problems in Ceramics (1-4) Content same as 4660. May be repeated for credit.

3211 Creative Design (1-4) Content same as 2210. May be repeated for credit.
3311 Metal Design (1-4) Content same as 3310. May be repeated for credit.
3321 Metal Design (1-4) Content same as 3320. May be repeated for credit.
3331 Metal Design (1-4) Content same as 3330. May be repeated for credit.
3411 Weaving (1-4) Content same as 3410. May be repeated for credit.
3421 Weaving (1-4) Content same as 3420. May be repeated for credit.
3431 Weaving (1-4) Content same as 3430. May be repeated for credit.
3511 Textile Design (1-4) Content same as 3510. May be repeated for credit.
3521 Textile Design (1-4) Content same as 3520. May be repeated for credit.
3611 Wood Design (1-4) Content same as 3610. May be repeated for credit.
3621 Wood Design (1-4) Content same as 3620. May be repeated for credit.
3711 Enameling (1-4) Content same as 3710. May be repeated for credit.

Food Science (386)

1010 Food Principles (3) Principles of food selection, preparation and service. 2 hrs and 1 lab.
2000 Cultural and Scientific Aspects of Foods and Nutrition (2) Cultural and scientific aspects of foods and nutrition as applied to the individual and community. Must be taken concurrently with Nutrition 2000. Prereq: 12 hrs of natural science.
2510 Nature of Food (3) Classification on basis of composition, type of systems, structure, and consistency, source, food components and their interrelationships. Prereq: 1010, Chemistry 1530 or equivalent. 2 hrs and 1 lab.
3020 Food and the Consumer (3) Economic considerations in food management, including food legislation, quality, consumer acceptability, and convenience. Prereq: 3 hrs economics. 2 hrs and 1 lab.
3021 Clinical Experience in Dietetics (1) Planned experiences for application of economic principles of food selection and consumer acceptability in selected community facilities. Coreq: 3020. Open only to students in the Coordinated Undergraduate Program in Dietetics.
3510 Nature of Food II (3) Food composition in relation to response of foods to heat, microwave, enzymatic and other physical and chemical treatments. Prereq: 2510, Nutrition 3310 or Nutrition 3000. 2 hrs and 1 lab.
4000 Origin of Food and Foodways (3) Food origin and development of individual and group foodways. Prereq: 3 hrs social science or humanities.
4010 Introductory Experimental Food Science (3) Physical and sensory evaluation in experimentation with fats, high protein foods, and batters and dough systems. Prereq: 3510. 2 hrs and 1 lab.
4020 Experimental Food Science (3) Individual experimentation and its relation to research literature. Prereq: 4010, Nutrition 3320 recommended. 1 hr and 2 labs.
4040 Food in Contemporary Society (3) Consumer's options, responsibility and potential influence with respect to food supply.
4530 Field Experience (3-15) Planned educational experience in selected food industry laboratories. Prereq: Consent of instructor. Hrs and credit arranged.
4710 Contemporary Developments (1-3) Student or staff initiated course for study of special topic(s) pertinent to the field; topics selected to be determined by students and instructor with departmental approval. Elective credit only. Prereq: Consent of instructor. Must be repeated with departmental approval for credit up to 9 hrs.
4800 Current Topics (1-3) Assigned reading and group discussion of research literature. Hrs and credit arranged. Prereq: 4010, or consent of instructor.
4878 Honors: Food Science (1-3) Special problems for juniors and seniors showing special ability and interest in food science. May be repeated for credit and credit arranged.

GRADUATE
5000 Thesis
5002 Non-Thesis Graduation Completion (3-15)
5140 Foods and Nutrition: Physiological Principles (3)
5510 Food Texture (3)
5520 Food Sensory Testing Methods (3)
5530 Advanced Experimental Food Science (3)
5550 Food Behavior of the Individual (3)
Nutrition (726)

1230 Elementary Nutrition (3) Principles and applications to everyday living.

2000 Cultural and Scientific Aspects of Foods and Nutrition (3) Scientific and cultural aspects of foods and nutrition as applied to the individual and the community. Must be taken concurrently with Food Science 2000. Prereq: 12 hrs of natural science.

2710 Family Health Promotion (4) Management of family health throughout the life cycle with emphasis on family health status, health promotion and maintenance, health care delivery system, and prevention of illness. (Same as Nursing 2710.)

3000 Nutrition Science (3) Basic nutrients as chemical entities. Prereq: Chemistry 1510-20-30 or equivalent.

3020 Nutrition (3) Fundamentals of nutrition which pertain to man. Not open to graduate students or undergraduate majors in nutrition or food science. Prereq: Chemistry 1510-20-30 or equivalent; Zoology 2929-30 or equivalent.

3050 Basic Nutrition (3) Relationship of basic nutrition to human well being. Prereq: Chemistry 1510-20-30 or equivalent and Zoology 2929-30 or equivalent.

3110 Organic Chemistry (4) Emphasis on subjects leading to 3320-3330. Textiles and Clothing 3520. Prereq: General chemistry. 3 hrs and 1 lab. Not for graduate credit to nutrition majors.

3320 Food Analysis (4) Elementary quantitative analysis; typical food analyses. Prereq: 3310 or equivalent. 3 hrs and 1 lab. Not for graduate credit to nutrition majors.

3330 Physiological Chemistry (3) Metabolism of carbohydrates, lipids, and proteins. Role of vitamins and minerals in metabolism. Not for graduate credit for food science, nutrition, and food systems administration majors.

3339 Physiological Chemistry Laboratory (1) Prereq: 3320; coreq: 3330, 1 lab. Not for graduate credit to nutrition majors.

3340 Clinical Analyses (2) Laboratory and lecture. Principles, application and interpretation of chemical analyses of physiological materials. Prereq: 3000 or equivalent; coreq: 3330. Not for graduate credit for food science, nutrition, or food systems administration majors.

3410 Science of Nutrition (5) Basic principles of nutrition; significance of recommended dietary allowances and application. Prereq: 3330-39; Zoology 2920-30; Food Science 2510; 4 hrs and 1 lab.

3411 Clinical Experience in Dietetics (1) Planned experiences for application of principles of normal nutrition in selected health care and community facilities. Coreq: 3410. Open only to students in the Coordinated Undergraduate Program in Dietetics.

3610 Nutrition and the Environment (3) External conditions and influences affecting human nutrition, such as drugs, both social and therapeutic; alterations in air, soil and water; chemical additives.

3710 Individual and Family Health Problems (4) Influence of long-term and socio-cultural illnesses on individual and family living throughout the life cycle. (Same as Nursing 3710.)

3920 Seminar in Dietetics (1) Introduction to dietetics and to career opportunities; role of dietician in health delivery systems. Concurrent with FSA 3920. Prereq: Junior standing.

4010 Reproductive and Developmental Nutrition (3) Nutritional requirements for expectant mothers, infants, and preschool children. Prereq: 6 hrs of nutrition. 2 hrs and 1 lab.

4020 Nutrition for Children, Adolescents and Adults (3) Application of basic principles and research findings to good nutrition for children, adolescents and adults. Prereq: 6 hrs of nutrition. 2 hrs and 1 lab.

4030 Community Nutrition (3) Nutrition problems and services in the community. Supervised field experiences are integral part of course. Prereq: 6 hrs of nutrition.

4031 Clinical Experience in Dietetics (3) Supervised field experience in the community. Prereq: 4231; coreq: 4030.

4050 Nutrition throughout the Life Cycle (4) Application of nutrition principles throughout the life cycle with emphasis on communication of nutrition information. Prereq: 3920 or consent of instructor.

4110 Introduction to Nutrition Research (3) Discussion of principles and laboratory experience. Prereq: 6 hrs of nutrition. 2 hrs and 1 lab.

4230 Nutrition in Disease (4) Nutrition problems in diseases influenced by diet. Prereq: 3410. 2 hrs and 1 lab.

4231 Clinical Experience in Dietetics (1) Planned clinical experiences applying principles of nutrition in disease. Coreq: 4230.

4240 Nutrition in Disease II (3) Interdisciplinary lectures and discussions on the metabolic processes of normal and diseased organs and/or tissues and the dietary or behavior modifications required. Prereq: 4230. Designed for senior students in the Coordinated Undergraduate Program in Dietetics.

4241 Clinical Experience in Dietetics (2) Advanced educational experiences applying principles of nutrition in disease in selected health care facilities. Coreq: 4240. Open only to students in the Coordinated Undergraduate Program in Dietetics.

4330 Readings in Nutrition (3) Reports and discussions of current literature. Prereq: 3410.

4430 Diet and Drug Therapy (3) Effect of drug therapy on absorption and utilization of nutrients, and effect of diet on absorption, utilization and toxicity of drugs. Prereq: 3410 or consent of instructor. 3 hrs.

4440 Clinical Experience in Dietetics (4) Experience in providing coordinated and continuing nutritional care in health delivery systems. Prereq: 4031. Open only to students in Coordinated Undergraduate Program in Dietetics.

4450 Field Experience in Nutrition (1-6) Planned educational experiences based on individual needs and interests of students.

4710 Contemporary Developments (1-3) Student or staff initiated course for study of special topic(s) pertinent to the field; topics selected to be determined by students and instructors with departmental approval. Elective credit only. Prereq: Consent of instructor. May be repeated with departmental approval for credit up to 9 hrs.

4978-BB-88 Honors: Nutrition (1-4) Problems for juniors and seniors with special ability and interest in nutrition. Prereq: Consent of department head. Hrs arranged.

GRADUATE

5000 Thesis

5002 Non-Thesis Graduation Completion (3-15)

5110-20 Advanced Physiological Chemistry (4,3)

5140 Foods and Nutrition: Physicochemical Principles (5)

5210 Advanced Nutrition (3)

5230 Experimental Methods in Nutrition (3)

5240-50 Research Techniques (3, 3)

5310-20 Community Nutrition (3, 3, 3)

5340 Field Study in Community Nutrition (1-12)

5350 Mental Retardation or Other Developmental Disorders of Childhood (3)

5410-20 Human Nutrition (3, 3)

5430 Physiological Bases for Diets in Disease (3)

5440 Maternal and Child Nutrition (3)

5450 Survey Methods in Human Nutrition (3)

5460 World Food Supply and Human Nutrition (3)

5470 Nutrition and Aging (3)

5610 Nutrition in Mental Retardation and Developmental Disorders (1-12)

5700 Current Programs and Trends in Nutrition (1-3)

5800 Problems in Nutrition (1-3)

5950-60 Seminar (1, 1)

6000 Doctoral Research and Dissertation

6110 Proteins and Amino Acids (3)

6120 Mineral Metabolism (3)

6130 Lipid Metabolism (3)

6140 Vitamin Metabolism (3)

6210 Advanced Topics in Nutrition (1-3)

6900 Seminar (1-3)

Food Systems Administration (388)

2910 Seminar in Food and Lodging Administration (2) Overview of field of food and lodging and professional curriculum. Contacts with industry through field trips and guest speakers. Students must pay for their own food trip expenses.

3000 Dimensions of Tourism (3) Economic and cultural impact of tourism on society. Examination of forces influencing the domestic and international tourist industry.

3110 Quantity Food Procurement, Production and Service (5) Application of principles necessary for determining needs, purchasing, storing, producing and serving foods in volume. Prereq: Food Science 1010 or 2510, Economics 2130 or consent of instructor. 3 hrs and 2 labs.

3220 Externship in Food and Lodging Administration (5) Planned educational experience in selected food and lodging operations. Prereq: 2910, 3110.

3320 Food Service Administration (2-3) Effective and efficient use of management resources in food service systems. Two credits to include lectures only. Three credits to include quantity food laboratory. Prereq: 3110 or consent of instructor. Not open to majors in food systems administration.
5230 Food Systems Evaluation (3)
5240 Financial Management of Food Systems (3)
5310 Administration of Food Service Delivery Systems (3)
5500 Clinical Training in Health Care Agencies (3)
5700 Current Programs and Trends in Food Systems Administration (1-3)
5800 Problems in Food Systems Administration (1-3)
5850 Field Experience (3-9)
5900 Seminar in Food Systems Administration (1-3)
6110 Advanced Topics in Institution Administration (3)
6210 Manpower Planning and Training for the Food Service Industry (3)
6310-20 Quantitative Methods to Control Resources in Food Service Systems (3, 3)
6900 Seminar (1-3)

Home Economics (481)

Professors:
L.M. Otdal (Dean), Ph.D. Wisconsin, D.Sc. Rhode Island; G.E. Goertz (Associate Dean), Ph.D. Kansas State.

Associate Professor:
M.N. Perry (Dean for Graduate Studies), Ph.D. Tennessee.

Assistant Professor:
V.S. Aragnoost (Assistant Dean), M.S. Tennessee.

1010 Home Economics as a Profession (1) Scope of the profession of home economics; educational and professional preparation; personal qualities required and satisfaction to be gained from various careers within the profession. S/NC.

1510 Family Systems: Human Development (4) Definition, description and utilization of basic systems concepts as applied to development of individual and family; emphasis on professional development and contribution.

1520 Family Systems: Aesthetic Environment (4) Examination of near and far environment from an aesthetic perspective for quality of life of individuals and families.


3110 Methods of Community Services Development (3) Organization, educational responsibility, objectives, methods and evaluation of community service programs. Prereq: Psychology 2500 or equivalent.

3510 Family Systems: Consumer Resources (4) Appraisal and application of effective management of resources with implications for role of professional in the interactions of individuals and families with society. Prereq: 3 hrs of economics, junior standing.

4000 Senior Seminar (2-15) Personal application of interrelated knowledge and professional competencies through experience in community service training to serve society in a professional capacity; gaining experience benefit to those professional career; scope of current research and career opportunities in home economics; comprehension of professional ethics required of a home economist. May be repeated. Maximum credit 15 hrs. Prereq: Junior or senior standing. Consent of department head required for credit beyond 2 hrs. S/NC.

4110 Community Service Programs with Adults (3) Procedures and techniques in working with adults; individual, group and mass methods. Taken as an off-campus course of field training together with 4120. Prereq: 3110 and consent of instructor.

4120 Community Services Programs with Youth (3) Procedures and techniques in working with youth. Taken as an off-campus course of field training together with 4110. Prereq: 3110 and consent of instructor.

4130 Methods and Procedures for Community Services Work (3) Individual, group, mass and indirect methods in community services work. Prereq: 3110. 2 hrs and 1 lab.

4710 Contemporary Developments (1-3) Recent advances in specified areas of home economics, their implications for home economics and related professions. Prereq: Consent of instructor. Hrs arranged. May be repeated with departmental approval for credit up to 9 hrs.

4910 International Study Tour (6) See page 159. Prereq: Consent of instructor.

4978 Honors: Community Services Programs (3) Problems for juniors and seniors with special interest in community services programs. May be repeated. Maximum credit 9 hrs. Prereq: Consent of department.

GRADUATE
5000 Practicum (1-12)
5100 International Studies (1-15)
5210 History and Philosophy of Home Economics (3)
5220 Development of Community Services Programs (3)
5230 Evaluation of Community Services Programs (3)
5600 Home Economics in the Community (3)
5700 Current Programs and Trends in Human Resource Development (1-3)
5800 Problems in Community Services (1-3)
5900 Seminar in Human Resource Development (1-3)
6000 Doctoral Research and Dissertation
6110-20 Theoretical Issues in Human Resource Development (3, 3)
6210 Professional Issues in Human Resource Development (3)
6310 Advanced Topics (3)
6500 Methodological Issues in Home Economics (3)
6900 Seminar (1-3)

Home Economics Education (490)

Professors:
N.P. Logan (Head), Ed.D. Tennessee; I. Brown (Emeritus), Ph.D. Ohio State.

Associate Professors:
J.H. McNair, Ph.D. Florida State; S.W. Miller, Ph.D. Ohio State.

The Department of Home Economics Education is included as an instructional unit in the Department of Vocational Technical Education in the College of Education (see page 123 for course offerings).

Professional subject matter courses are offered by the departments of the College of Home Economics for those preparing for secondary school teaching programs. The vocational home economics education curriculum is designed to
provide the requirements for certification in vocational home economics. The curriculum is listed on page 164.

**Textiles and Clothing (971)**

Professor: A.J. Treese (Head), Ph.D. Ohio State.

Associate Professors: I.M. Ford, Ph.D. Pennsylvania State; B.C. Goswami, Ph.D. Manchester (Great Britain); C.J. Noel, Ph.D. Notre Dame; T.L. Vigo, Ph.D. Tulane.

Assistant Professors: R.P. Dowlen, M.S. Tennessee; M.F. Miller, Ph.D. Pennsylvania State.

Instructor: A.L. Bullock, B.S. Mississippi College.

1160 Costume Analysis (2) Analysis and application of design principles related to different figure types and activities. 1 hr and 1 lab.

1165 Clothing (1) Fundamentals of pattern alteration, fitting and construction with emphasis on design quality and construction compatibility. Prereq: 1160. 1 hr and 2 labs.

2110 Fashion (3) How fashion world works, from designer to consumer; fashion trends and cycles.

3330 Textiles (3) Textile products—study of consumer selection, preference and satisfaction with emphasis on performance. For non-majors only.

3410 Cultural and Functional Aspects of Textiles and Clothing (3) Cultural, socio-psychological, functional and technological developments in textiles and clothing. Prereq: 3 hrs of each of the following: child development and family relationships, economics; 4 hrs sociology or anthropology or psychology.

3420 Textiles I (3) Consumer-oriented study of textiles, emphasizing fibers, fabric constructions and finishes in relation to use, serviceability and care of apparel and household fabrics. Prereq: 12 hrs chemistry or physics or biology or botany. 2 hrs and 1 lab.

3440 Clothing II—Advanced Construction (3) Comprehensive study and investigation of fabric designs and processes utilizing basic principles including fitting, elementary flat pattern, quick tailoring methods and couture finishing techniques. Prereq: 1150. 1 hr and 2 labs.

3450 Consumer Issues: Clothing for Contemporary Families (3) Problems of clothing consumption encountered during various stages of family life cycle. Prereq: Junior standing.

3460 Design Analysis (3) Interpretation of dress design terminating in finished garments developed through media of flat pattern.

3470 Tailoring (4) Evaluation and use of tailoring methods as applied in selection, fitting and completion of tailored wool garments. Prereq: 3440. 3 labs.

3480 Historic Costume (3) Development of costume from ancient to modern times with consideration of historic, social, and economic settings.

3510 Fashion Merchandising: Planning and Control (3) Analysis of fashion merchandising practices and problems focusing on application of decision mechanisms. Prereq or coreq: 2110 and Accounting 2110.

4010 Textiles II (3) Recent textile developments with emphasis on man-made fibers, new construction techniques and finishes. Opportunity for individual investigation. Prereq: 3420.

4110 Fashion Buying (3) Analysis of buying practices, procedures, activities, techniques and underlying concepts fundamental to fashion merchandising. Prereq: 3510.


4130 Research Experiences (3-15) Individual juniors and seniors showing special abilities may be assigned to ongoing research within department or work in research and development laboratory or quality control department of fiber, chemical or textile company. Prereq: Recommendation of department head and research adviser, 4010, 4140, and 3 hrs. of statistics. May be repeated. Maximum 15 hrs credit.

4140 Introduction to Textile Testing Methods (3) Methods and equipment used in physical testing as approved by recognized textile groups. Prereq: 3420. 1 hr and 2 labs.

4210 Elementary Textile Microscopy (3) Microscopic techniques as applied to study of textile fibers and fabrics. Prereq: 4010. 1 hr and 2 labs.

4220 Textile Fiber Chemistry (4) Chemistry of textile fibers with emphasis on structure, preparation and reactions. Implications relating to dyeing and finishing of fabrics. Prereq: One quarter of organic chemistry. 3 hrs and 1 lab.

4230 Theory and Interpretation of Fashion Design (3) Analysis and application of historical, sociological, cultural and environmental sources of costume design interpretation with emphasis on original contemporary design. Prereq: or coreq: 1150, 3410, and 3480. 2 hrs and 1 lab.

4240 Design Analysis II (3) Interpretation of dress design terminating in finished garments developed through the media of draping.

4510 Teaching Materials (3) Investigation, preparation and evaluation of teaching materials. For students planning to teach or do home demonstration work. Prereq: 3440, senior standing. 1 hr and 2 labs.

4620 Introduction to Field Experience in Merchandising (1) Interviews with store personnel, presentation and planning for field experience. Prereq: Economics 2110-30, junior standing, concentration in merchandising option, approval of program coordinator. Open only to students who intend to enroll in 4630-40. May not be repeated.

4630 Field Experience in Merchandising (9) Off-campus, supervised experience in a cooperative program with business establishments which merchandise textiles and/or apparel. Prereq: 4620, senior standing, major in merchandising, and a minimum grade point average of 2.2; coreq: 4640. Offered fall quarter only.

4640 Methods in Field Experience (3) Investigation of training systems and store organization and evaluation of job experience. Prereq: 4620, senior standing, major in merchandising, and a minimum grade point average of 2.2; coreq: 4630. Offered fall quarter only.


4710 Contemporary Developments (1-3) Student or staff initiated course for study of special topic(s) pertinent to the field; topics selected to be determined by students and instructor with departmental approval. Elective credit only. Prereq: Consent of instructor. May be repeated with departmental approval for credit up to 9 hrs.

4978-88-98 Honors: Textiles and Clothing (3, 3, 3) Individual problems for juniors and seniors showing special ability and interest in textiles and clothing. Admission only upon recommendation of head of department. Hrs arranged.

GRADUATE

5000 Thesis

5002 Non-Thesis Graduation Completion (3-15)

5110 Textile Testing and Methods of Research in Textiles (3)
College of Law

Kenneth L. Penegar, Dean
Mary Jo Hoover, Assistant Dean
Curtis L. Wells, Assistant Dean

The University of Tennessee College of Law commenced operation in 1890 and has continuously sought to provide high quality legal education in a university community. While the principal objective of the Law College is to prepare students for the private practice of law, its total mission is more broadly conceived. The College of Law exposes students to the legal issues of our society enabling them to develop analytical skills in respect to decisional law and statutes, the ability to communicate effectively to others their knowledge of the law, an awareness of the historical growth of the law, a knowledgeable appreciation of the interrelationship of law and society, and the ability to use law as an implement of societal control and development. Students are thus equipped to serve their community not only as advocates and counselors, but as policy makers and active, responsible citizens.

The coordinated program of the College of Law has three dimensions. Teaching and learning, research into and appraisal of our legal systems and institutions, and service to the community. Each plays a significant role in the College of Law as a modern law center.

The teaching and learning element of legal education at the College of Law involves a cooperative classroom interaction between faculty and students in the analytical study of a host of questions and problems found in today’s legal profession. These involve decisional law, statutory interpretation, administrative regulation, techniques of trial and appellate advocacy, and the roles and responsibilities of the lawyer in advising and representing clients. While proper consideration is given to the problems of Tennessee law, the course of study is conducted with a view toward providing an awareness and understanding of the regional and national perspective so as to prepare our students for service in any state.

The College of Law is also directly involved in providing service to the community of which it is a part. A major element of public service is centered in the Legal Clinic where students, under the guidance of skilled and experienced licensed practitioners, provide legal services to indigent persons of Knox County. Additionally, through research, consultation, and other services to legal institutions and groups within the state, the College of Law seeks to participate in the development and improvement of the society in which its students may eventually practice law. The Public Law Research and Service Program and the Continuing Legal Education Program are primary examples of this function.

In combination, the direction and objectives of the Law College lead to the development not of a narrow technician, but of a student of the law with the perspective, breadth and understanding necessary for the accomplishment of the many tasks assigned by society to the legal profession.

The College of Law Building

Since 1950 the College of Law has occupied a building especially designed for teaching, study, and research in the law. In the spring of 1971 the Law College occupied the new wing begun in the fall of 1969. The new addition has doubled the available facilities. The library, the classrooms, and the offices are air-conditioned. Adequate classrooms, courtrooms, seminar rooms, a private office for each full-time faculty member, the well-equipped offices of the Legal Clinic, and a spacious, well-lighted Law Library are contained in this modern building. Stack space for more than 200,000 volumes will permit the repository of one of the largest law book collections in the South.

Legal Clinic

The University of Tennessee Legal Clinic was established in 1947. Though the Clinic provides legal assistance to indigent persons, it is designed primarily as a teaching device to facilitate theory and practice. It introduces the student under faculty supervision to the law in practice through personal contact with clients and their problems. The Legal Clinic functions as a large law office gaining experience in interviewing clients, writing legal letters, investigating and evaluating facts, preparing memoranda of law, preparing cases for trial or adjustment, and briefing cases. Classroom work supplements the handling of actual cases. The student is thus trained in the technique of law practice and the management of a law office. The ethical responsibilities of lawyers and their function as public servants are stressed. Under present rules of the Tennessee Supreme Court, Clinic students, under the direct supervision of the Legal Clinic staff, are certified to practice before all the courts of Tennessee.

The Law Library

The Law Library contains the official state reports of all states, the complete National Reporter system which covers all states and the federal courts, the Annotated Reports, standard sets of miscellaneous reports, the reports of the Canadian cases and of English cases from the yearbooks to date. In addition to these, there are adequate encyclopedias, digests and dictionaries, standard textbooks, law reviews, and current looseleaf services, totaling together more than 100,000 cataloged volumes. The Library is under the supervision of a law librarian who is trained in law and library science. The physical facilities, the collection of books, and the library staff combine to make the Law Library of The University of Tennessee one of the best in the South. Law students also have the use of the collection of the University Main Library, which is located across the street from the Law Library, the Undergraduate Library a few blocks away and other branch libraries.
Degree of Doctor of Jurisprudence

The degree of Doctor of Jurisprudence will be conferred upon candidates who complete, with the required average, nine quarters of study and who have 126 quarter hours of credit, including all required courses. The required average is 2.0 and that average must be maintained on the work of all nine quarters and also in the last three quarters. Averages are computed on weighted grades. Grades are on a numerical basis from 0.0 to 4.0. A grade of 0.5 or below is a failure.

Eligible law students may receive credit towards the J.D. degree for acceptable performance in up to three (3) courses taken in other departments at The University of Tennessee. Course selection and registration are subject to guidelines approved by the law faculty which includes the requirement that any such course be acceptable for credit towards a graduate degree in the department offering the course.

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 this college.

Dual J.D.-M.B.A. Degree Program

The College of Business Administration and the College of Law offer a coordinated dual degree program leading to the conferral of both Doctor of Jurisprudence and the Master of Business Administration degrees. A student pursuing the dual program may save up to two academic quarters (24 quarter hours) of course work which would be required if the two degrees were to be earned separately.

Admissions. Applicants for the J.D.-M.B.A. program must make separate application to, and be competitively and independently accepted by, the College of Law for the J.D. degree and the Graduate School and College of Business Administration for the M.B.A. degree, and by the Dual Degree Committee. Students who have been accepted by both colleges may commence studies in the dual program at the beginning of any quarter subsequent to matriculation in both colleges, provided, however, that dual program studies must be started prior to entry into the last 42 quarter hours required for the J.D. degree and the last 24 hours required for the M.B.A. degree.

Curriculum. A dual degree candidate must satisfy the graduation requirements of each college. Dual degree students withdrawing from the dual degree program before completion of both degrees will not receive credit toward graduation from either college for courses in the other college, except as such courses qualify for credit without regard to the dual degree program. For students continuing in the dual degree program the J.D. and M.B.A. degrees will be awarded upon completion of requirements of the dual degree program.

The College of Law will award credit toward the J.D. degree for acceptable performance in a maximum of 12 quarter hours of approved graduate-level courses offered by the College of Business Administration. Towards the 12 quarter hours must be earned in Accounting 5810 or a more advanced accounting course. If College of Law credit is given for such accounting course, the student may not receive College of Law credit for Legal Accounting (Law College Course No. 8590).

The College of Business Administration will award credit towards the M.B.A. degree for acceptable performance in a maximum of 12 quarter hours of approved courses offered by the College of Law.

Except while completing the first year grades in the College of Law, students are encouraged to maximize the integrative facets of the joint program by taking courses in both colleges each quarter.

Grading of Grades. For grade recording purposes in the College of Law for graduate business courses and in the College of Business Administration for law school courses, grades awarded will be converted to either Satisfactory or No Credit and will not be included in the computation of the student’s grade average or class standing in the college where such grades are so converted. The College of Law maintains a grade of Satisfactory for a graduate business course in which the student has earned a B grade or higher and a No Credit for any lower grade. The College of Business Administration will award a grade of Satisfactory for a College of Law course in which the student has earned a 2.3 grade or higher and a No Credit for any lower grade. Grades in courses of either college may be used on a regular graded basis for any appropriate purpose in the college offering the course. The official academic record of the student maintained by the Registrar of the University will show the actual grade assigned by the instructor without conversion. The student must pass a final written comprehensive examination to receive the M.B.A. degree.

Satisfactory/No Credit Option

1. Course eligibility
   a. Required courses may not be taken on a Satisfactory/No Credit (S/NC) basis except as specifically designated.

2. Satisfactory/No Credit
   a. Election to take courses on a Satisfactory/No Credit basis must be made at the time of registration and cannot be changed thereafter. Students who register for a course Satisfactory/No Credit when they are ineligible to do so will be required to change to regular grading when the error is discovered.
   b. Credit will be given for a course taken on a Satisfactory/No Credit basis only in quarters in which the student completes (receives a grade in) at least 10 hours on a regular grade basis.
   c. Students electing the Satisfactory/No Credit basis must meet all requirements imposed on students taking the course on a regular grade basis, e.g., attendance, term paper, recitation, etc.
   d. Examinations and other work of students electing a Satisfactory/No Credit basis shall not be graded separately or differently from that of the other students.
   e. For purposes of Satisfactory/No Credit grading, Satisfactory shall mean a grade of at least 2.0.
   f. A student electing Satisfactory/No Credit who makes 2.0 or above shall receive credit for the course, but the grade shall be recorded as S and will not be used in determining the grade average.
   g. A student electing Satisfactory/No Credit who makes below 2.0 will receive an NC for the course and neither this grade nor the hours for the course will be used in computing the grade average or hours credit.
   h. A maximum of three courses may be taken on a Satisfactory/No Credit basis.

Maintenance of a Satisfactory Record

No student will be excluded from the College of Law for academic reasons prior to the completion of three quarters of academic study. A full-time student who fails to achieve an overall average of at least 2.0 upon completion (receipt of a grade) of three quarters of academic study shall be excluded. A student who obtained permission to vary the first-year full course load shall be excluded if such student fails to achieve an overall average of at least 2.0 upon completion (receipt of grade) of all required first-year courses, or upon completion of 40 hours, whichever first occurs.

Maximum Course Load Per Quarter

18 hours is the maximum for Law School. If a student does not satisfactorily complete 12 hours in a quarter, then for the remainder of studies the student is restricted to 16 hours per quarter.

Clinical Courses

A student may take no more than a total of three clinical courses for law school credit and normally no more than one clinic course per quarter. Clinical courses are 8600, 8605, 8620, 8625, 8630, and 8632-34.

Admission

Information regarding admission, financial aid, academic policies, extracurricular activities, and student services is available in the College of Law Bulletin. Students interested in the College of Law should obtain a copy of the Bulletin from the Office of the Assistant Dean, The University of Tennessee, College of Law, 1505 West Cumberland Avenue, Knoxville, Tennessee 37916. Completed application should be received before March 15 of the year of expected admission.
Faculty

Professors:

Associate Professors:

Assistant Professors:

Instructor:
M.J. Hoover, J.D. Brooklyn Law School.

Instructors in Law and Staff Attorneys in the Legal Clinic:

* Distinguished professor.

Program of Instruction

The following program is designed to give the student an adequate preparation for the practice of law. From twelve to fifteen hours of classroom work a week are required of all full-time students. The required courses will be taken as early in the law course as possible or as scheduled by the law faculty. See statement of course availability at end of section.

REQUIRED COURSES


8020 Contracts I (5) The basic agreement process and legal protection afforded contracts. Problems of offer and acceptance, interpretation, illegality, and the statute of limitations.

8030 Contracts II (4) Continuation of study begun in Contracts I. Concentrating on remedies, conditions, impossibility and frustration, third party beneficiaries, assignment and delegation, and discharge.

8040 Criminal Law (4) Course on substantive aspects of criminal law. General principles applicable to all criminal conduct, then specific analysis of particular crimes. Substantive defenses to crimes, including insanity, intoxication, mistake, necessity, legal duty, self-defense, and duress.

8070 Legal Process (3) Introductory course on judicial process. Brief survey of judicial organization and procedure, legal history, case analysis, significance of precedent, influence of the judge as policy maker, adversary system, and role and responsibilities of the lawyer as advocate. Legislative interpretation.

8110-11-12 Research and Writing I, II, III (2, 2, 2)

This three-quarter sequential offering is designed to provide the student with a progressively more sophisticated involvement in legal research and writing. Fundamentals of legal bibliography with an emphasis upon techniques and research skills will be an integral part. Among other components to be included are preparation of a research letter, drafting of pleadings, contracts and other instruments, the preparation of a memorandum of law, and preparation and presentation of an appellate argument (written and oral). Classes would be divided into small sections, and individual criticism given on all work submitted. Lectures on research writing and advocacy skills will be included. 8110 and 8112 graded S/NC.


8140 Property II (5) The recording system, title assurance, easements, nuisance, lateral support, water rights, zoning, and eminent domain.

8180 Torts I (4) Intended interference with the person, assault and battery, false imprisonment. Negligence and standard of care, proof of negligence. Affirmative duties, immunities, actual causation, and contributory causes.


8300 Constitutional Law I (4) Judicial review, limitations on judicial power, national legislative power, regulation of commerce, power to tax and spend, other sources of national power, state power to regulate and tax, intergovernmental imminences.

8310 Constitutional Law II (4) Freedom of expression, association and religion. Fourteenth Amendment rights of criminally accused, including discrimination as to race, sex, etc., right to trial by jury, and apportionment, concept of state action in matters of civil rights.

Either 8300 or 8310 will satisfy the Constitutional Law requirement. One must be taken for that purpose and the other may be taken as an elective.

8660 Legal Profession (3) Role of the lawyer in society and ethical responsibilities implied in that role. Admission to the Bar, the organized profession, solicitation, advertising, unauthorized practice, conflicts of interest, decision to represent or withdraw as counsel; fiduciary relationship, advocacy and its limitations, fees and disciplinary procedures.


ELECTIVE COURSES

8050 American Legal History (3) Examination of historical development of the law, legal institutions, legal profession, and legal education from colonial times to present. Historical relationship of legal system to society emphasized.

8060 Criminal Process I (3) Due process, equal protection, arrest, search and seizure, wire tapping and electronic eavesdropping, entrapment, right to counsel, self-incrimination, interrogation and confessions, exclusionary rules.

8065 Criminal Process II (3) Bail, prosecutor's discretion, Grand Jury, preliminary hearing. Jurisdiction and venue, joinder and severance, informations, informations, speedy trial, notice and discovery, nature and cause of action, compulsory process, confrontation, trial by jury, adverse publicity, double jeopardy, appeals, habeas corpus.
8180 Interviewing and Counseling (3) Lawyer’s role of fact-finder and conciliator. Designed to increase interpersonal skills by developing heightened sensitivity and understanding of emotional and social and psychological forces. Use of videotape techniques and role playing. Models developed from which students can analyze and evaluate classmate and/or other persons.

8170 Trial Practice (3) Criminal and civil litigation, with primary emphasis on trial problems and preparation. Basic trial strategy, professional responsibilities, fact investigatory procedure, discovery and presentation of evidence, selection and instruction of juries, opening and closing arguments.


8240 Arbitration Seminar (3) Arbitration of labor disputes under the NLRA, collective agreements, legislative developments, nature of process, relationship to collective bargaining, selected arbitration problems on various labor and employment agreements, and the role of lawyers and arbitrators in the process. When course is not offered law students, with law faculty, may enroll in Economics 4300.


8280 Conflict of Laws (5) Jurisdiction, foreign judgments, choice of law, federal and state constitutional limitations, renvoi, and classification.


8345 Criminal Law Seminar (3) Advanced problems in criminal law and administration of justice.

8360 Family Law (4) Survey of laws affecting the formal and informal family relationship. Topics include premarital disputes, antenuptial contracts, custody, divorce and annulment, marriage, legal effects of marriage, support obligations within the family, legal separation, annulment, divorce, alimony, property settlements, children custody, child support, adoption, abortion, and illegitimacy.

8380 Equity (4) Jurisdiction and power of courts of equity. Specific performance; injunctions.

8400 Estate Planning (3) Problems of estate planning both premarital and postmarital. Administering and distributing various types of estates. The law and practice of fiduciary administration, insurance, wills, trusts, probate, and estates. Use of videotape teaching. Research on assigned topics. Drafting of wills, trusts, for hypothetical fact situations. Prereq: 8560 and 8840. In addition, recommended that student have had as many of following courses as possible: Wills, Private Corporations, Taxation Income, Partnerships and Trusts.

8420-40 Evidence & I & II (3, 3) Rules regulating introduction and exclusion of oral, written, and demonstrative evidence, including relevancy, competency, impeachment, hearsay, privilege, judicial notice, presumptions, and burden of proof.

8460 Federal Courts (4) Jurisdiction of federal courts, and conflicts between federal and state judicial systems, including nature of judicial power, federal question, diversity, removal, jurisdictional amount, choice of state or federal law, habeas corpus, abstention, enjoining state proceedings, appellate jurisdiction and joinder of parties and third parties.

8490 Environmental Law (4) Survey course examining basic federal and state statutory schemes for air and water quality, together with other generic legislation such as the federal (plus related state) Environmental Quality Control Act. Selected introduction to role and scope of federal, state, and local agencies in enforcement and proposing new laws and regulations.

8500 Future Interests (4) The law of future interests, including reversions, remainders, possibilities of reverter and rights of entry, executory interests, construction of limitations, and rule against perpetuities.

8510 Government Contracts (3) Principles relating to government procurement, both federal and state, including award, performance, and termination of contracts. Administrative settlement of disputes arising under government contracts. Prereq: 8220, 8250.


8525 International Business Transactions (3) Legal status of persons abroad, acquisition and use of property within a foreign country, corporate law abroad as a corporation, engaging in business within a foreign country, and expropriation or annulment of contracts or concessions. Prereq: 8330, 8580.

8530 International Law I (3) International agreements, organizations, recognition of states, nationality, territory, jurisdiction and immunities.

8533 International Law II (3) International claims, expropriation, force and war.

8535 Jurisprudence (3) A comparative examination of legal theories including natural law, idealism, historical jurisprudence, utilitarianism, analytical jurisprudence, sociological jurisprudence, legal realism, and the policy science approach.

8540-42 Labor Relations Law I, II (3, 3) Evolution of labor relations laws, rights of self-organization; management’s rights and responsibilities; strikes, boycotts and picketing, collective bargaining; public employee labor relations; internal union affairs; individual rights and interests; employer and employee discrimination; federalism and preemption and unions and the antitrust laws. Courses recommended in sequence, but one offering may be elected.

8545 Juvenile Law Seminar (3) After examining the unique history and philosophy of juvenile justice system, course will consider jurisdiction, judicial and extra-judicial functions of juvenile court, and various dispositional alternatives. Students will read judicial opinions and materials from fields of history, sociology and psychology. Knox County Juvenile Court will serve as laboratory for students, and professional staff from the Court will participate in seminar on regular basis.

8550 Labor Relations Law Seminar (3) Study and discussion of selected labor relations law problems.

8555 Negotiations and Dispute Settlement (3) Study of: (1) Negotiations process and its role in labor disputes, with training in art of negotiating and settling disputes in manner which fulfills the needs and requirements of clients and avoids unnecessary litigation; (2) Selective use and further development of institutional methods of dispute settlement, including pretrial procedures, grievance procedures, mediation and other third party intervention.

8560 Law, Language and Ethics (4) An intermediate level jurisprudence-type course. Law is the mind’s attempt to defend, direct and administer human activity. Legal issues underlying formal legal reasoning and statement. Analysis of judicial reasoning and legal concepts through the methods of epistemology.


8580 Law and Current Problems Seminar (2-3) Credit hours determined at the option of instructor. May be repeated for credit.

8590 Legal Accounting (2) A course designed to familiarize law students with accounting principles and techniques, and to enable them to use and understand accounting information.

8600 Civil Advocacy (5) Nature, function, dynamics, and processes of lawyering and learning, with emphasis on development of frameworks and models useful in helping law students evaluate trial roles in legal system. In addition to classroom component, supervised field work experience will be offered to introduce students to such lawyering skills as interviews, negotiations, pleadings, drafting and general trial preparation and practice. Prereq: 8940 and 8420 or 8440.

8605 Advanced Civil Advocacy (5) Students continue and complete complex civil cases. Expanded opportunities for research, presentation, legal writing and public interest litigation. Classroom component deals in more advanced skills and strategies. Prereq: 8940.

8615 Regulated Industries (3) Federal and state governmental regulation of natural monopolies and other "regulated industries" (e.g., transportation, public utilities, broadcasting).

8620 Criminal Advocacy (5) Classroom component devoted to trial skills and strategies. Case loads diversified among crimes with intensive staff supervision. Courtroom experience limited to pretrial hearings and misdemeanor charges in general sessions and city courts. Prereq: 8060 or 8065 and 8420 or 8440.


8630 Specialty Clinic (3) Each component headed by a faculty supervisor and consisting of a specialized problem in conjunction with seminar on core topic. Major litigation and law reform efforts may be involved.

8632-34 Economic Development Clinic (2, 3) Two-quarter course in the basic principles underlying corporate business ventures. Emphasis on non-litigious skills: negotiation, counseling, document drafting, business management, grantsmanship and research representations before administrative agencies. Course extends two quarters and completion of both quarters is required for hours and graded credit. Incomplete (I) will be assigned for 8632 (first two-hr section). Course to be graded numerically (A to F). Grading is based on second section (3 hrs credit). Prereq: 8740 and 8862.

8640 Legal Draftsmanship (2) Independent drafting by students under direct supervision of instructor.

8650 Intellectual Property (3) Protection for intellectual property under federal and state law, patent and trademark secrecy, copyright, the right of public use and international aspects.

8670 Legal Writing (1-4) Legal research and writing of papers on problems of law. Work on Tennessee Law Review may count toward fulfillment of requirements. One hour credit may be given for preparation of brief in National Moot Court Competition. May be repeated for credit. Prereq: Facultty consent.
8800 Legislation (3) Approximately half the course is devoted to traditional case method approach to such problems as interpretation, drafting, and enactment. The remainder of class time is devoted to class project in which class considers a potential area for legislative reform from preliminary legislative investigation to formal drafting, parliamentary debate and voting.

8900 Modern Land Use Law (3) Land use planning, nuisance, zoning, and eminent domain.

8700 Local Government Law I (3) Distribution of power between state and local governmental units. Sound and private efforts in local government operations. Creation of local governmental units and determination of their boundaries. Home Rule.

8705 Local Government Law II (3) Problems presented by fragmentation of local government units. Current solutions to include government as authorized by Tennessee law. Problems in the financing of local services. Current constitutional issues (e.g., school financing and land use control). Influence of federal programs on local government finance and decision making.

8710 Oil and Gas Law (3) Selected materials on nature of interest, conveyancing, royalties, grants and reservations, leases, and taxation.

8720 Advanced Constitutional Law (3) Select problems of state constitutions from perspective of the impact on day-to-day life of citizens. Focus on law of contracts, real property with emphasis on landlord and tenant, family law, juvenile law, criminal law, and individual rights with respect to government. Work required in addition to 3-hr weekly seminar, assignments, and examination. Prerequisite: 8330 and 8310 or consent of instructor.

8730-35 Tennessee Legal System (3,3) Basic legal system of Tennessee from perspective of the impact on day-to-day life of citizens. Focus on law of contracts, real property with emphasis on landlord and tenant, family law, juvenile law, criminal law, and individual rights with respect to government. Work required in addition to 3-hr weekly seminar, assignments, and examination. Prerequisite: 8330 and 8310 or consent of instructor.

8740 Private Corporations I (3) History and nature of the corporation; selection of appropriate form of business enterprise; judicial and legislative regulations governing the corporation; transactional problems; incorporation procedures; defective incorporation; disregard of the corporate entity; rights and obligations of shareholders, directors and officers.

8750 Remedies (4) Study of judicial remedies, including damages, restitution and equitable relief. Major attention will be paid to problems connected with the availability and measurement of damages and restitutionary relief. Some consideration will also be given to availability and scope of equitable remedies, especially specific performance and injunctions, but Remedies is not a substitute for Equity. One objective of the course will be comparative evaluation of remedies available in given situations.

8760 Private Corporations II (3) Corporate finance; rights, duties, and status of shareholders; special problems of close corporations; dividends and purchase by corporation of its own shares; fundamental changes (sale or assignment of mergers, etc.); shareholders’ derivative actions.


8790 Advanced Bibliography and Research Techniques (2) A survey of materials not covered in Research and Writing I. Included will be use of U.S. government documents, preparation of legislative histories for state and federal legislative materials, specialized research tools in areas of taxation, labor law and international law.

8800 Sales (3) Art. 2 (Sales) and Art. 7 (Documents of Title) of the Uniform Commercial Code.

8810 Secured Transactions (3) Brief survey of security and guaranty. Art. 9 (Security Interests in Personal Property) of the Uniform Commercial Code.

8815 Race and Sex Discrimination and the Law (4) Comparison of race and sex discriminatory practices, and judicial, legislative, and administrative efforts to affect education, employment, housing, political participation, and other social and economic activities. Legislative, judicial and administrative materials.

8820 Securities Regulation (3) Advanced problems of governmental regulation of issuance of securities.

8830 Social Legislation and Employee Benefits (3) A study of legal problems arising under such programs as workers’ compensation, wage and hour laws, unemployment compensation, public assistance, Social Security, and Medicare.

8840 Taxation (Estate, Gift and Inheritance) (3) Federal Estate and Gift Tax laws. History and development. Relationship of the two taxes. Procedure and review before boards and courts. Preparation of a traditional trial of factual facts and presentation of research results on assigned topics. Problems involving the law of several states are assigned.

8850 Seminar in Law and Mental Health (3) Composed of equal number of law and medical students. Assigned readings. Pairs of law and medical students to prepare written papers. Jointly taught by professor and psychiatrist.


8862 Taxation (Income) II (3) Taxation of formation, operation and dissolution of the corporation; partnerships; small businesses; trusts; estates.

8865 Taxation (Income) III (3) Corporate reorganizations; methods of corporate distributions; sale of corporate business; other income tax problems of corporations.

8870 Seminar in Business Planning (3) Selected problems on corporate and tax aspects of business planning and transactions.

8890 Seminar in Environmental Protection (3) Through a reading program of selected experts, course will focus on specific problems of litigation in defense of the environment and mobilizing public opinion in defense of the environment. Problems of proving environmental impact of selected projects, interpretation and evaluation of scientific data, use of expert witnesses. Attention will also be given to special environmental concerns of the region, e.g., TVA operations, coal mining, forest management, wildlife preserves.


8910 Administrative Law Seminar (3) In-depth study of principles of administrative law not covered in basic courses, as discretion, choice of adjudication of rule-making to develop administrative policy, consistency in administrative action.


8930 Seminar in Consumer Protection (3) Selected problems in consumer protection.

8935 Law and Medicine Seminar (3) Examination of medical profession’s involvement in judicial process, including: (1) medical malpractice and alternatives to fault-based liability; (2) responsibilities for disposition and care of dead bodies and legal principles relating to management of organ transplantability; (3) expert medical proof and testimony; (4) medical-legal aspects of euthanasia; (5) other more specific matters such as legal aspects of medical profession’s various cases of ethics.


8945 Trial Moot Court I (1) Experience and training in trial of law and equity cases. Third-year students will act as counsel in all aspects of trial practice. Knox County Circuit Court Judges serve as judges of Trial Moot Court. S/NC.

8950 Trial Moot Court II (1) Training in trial of law suit. S/NC.

8955 Seminar in Trade Regulation (3) Study and discussion of selected problems arising under antitrust laws and laws applicable to regulated industries.


8975 Water Law (3) Survey study in water law, including case studies and water law doctrines. Letter grade given to organ transplantation. Same as Environmental Engineering 4810 and Water Resources Development 4810.

8985 Directed Research (1-3) Independent research by a student or students under direct supervision of instructor. Student may take course maximum of once each year in last two years of study.

8990 Land Finance Law (3) Financing devices such as mortgages, deeds of trust and land contracts, problems involved in transfer of interests subject to these devices, and problems incurred in event of default. Consideration also directed to contemporary problems arising in such areas as condemnations, cooperatives, housing subdivisions and shopping centers.

8998 Land Acquisition & Development (3) Alternative business forms will be assigned teams of students who will then prepare and present for seminar discussion all major documents (notes, deeds, prospectus, etc.) necessary to accomplish the acquisition or development of large pieces of raw land. Prerequisite: 8990.

Course Offerings Subject to Change

The necessity of adjustments to accommodate changing conditions may dictate modifications in the course offerings and other features of the program described above. Accordingly, the College of Law reserves the right to make such variation in its program as circumstances may require. Prospective students who are interested in the precise course offerings at a given time or who desire other special information should make inquiry in advance of the course planning these courses and seminars are listed as follows: 8350, 8510, 8520, 8525, 8570, 8705, 8710, 8720, 8780, 8830, 8930, 8955. These may be offered in the summer quarter sessions, and the course offering of added faculty, but this will be done only after satisfying other priorities.
College of Liberal Arts

Robert G. Landen, Dean
Charles O. Jackson, Associate Dean
Boyd L. Daniels, Assistant Dean for
Student Academic Affairs

The arts and sciences encompass the entire range of human knowledge, from the earliest records to the latest laboratory results. All that human beings have observed about themselves, about their societies, and about the natural world around them is of concern to one or another of the arts and sciences.

The curriculum of the College of Liberal Arts reflects this wide-ranging concern with the life of the mind. It emphasizes the breadth of human knowledge, perceived not only in terms of the traditional categories of the humanities and the natural and social sciences but also in broader perspectives which extend across academic fields and reach beyond the boundaries of a college of liberal arts. It also stresses depth of learning, whereby seeking to acquaint the student with the rigors of the intellectual process. Through a study of the liberal arts one thus learns to participate in an intellectual tradition which is independent of particular teachers and which guides one in the choice of subjects for investigation and in the interpretation of those subjects. With time the individual begins to apprehend the great outlines of knowledge, the principles upon which it rests, the scale of its parts, and its lights and shadows.

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

At the heart of a liberal education is an appreciation of and a familiarity with a great triad: language, literature, and the arts; history and society; science and mathematics. These three great well-springs of human thought are sources of the programs of study offered students in the College of Liberal Arts.

Programs of Study

Granting the broad, general goals of a liberal education, students come into the College of Liberal Arts with a wide variety of specific educational and vocational objectives. Recognizing this diversity, the college offers a number of different programs of study leading to the baccalaureate degree, and also several preprofessional curricula which prepare the student for advanced study but do not lead to a degree from this college.

Degrees Offered

(1) BACHELOR OF ARTS

The Bachelor of Arts is the basic liberal arts degree, representing the attainment of a broad knowledge of the arts and sciences as well as a comprehensive understanding of one or more areas of special interest. Four programs leading to this degree are open to the student:

(a) Basic Program—The program appropriate for most B.A. students, it is developed around broad area requirements in the Triad plus intensive study in one or more of the specified departmental or interdepartmental major fields described below.

(b) Individualized Program—Designed for students whose educational goals are best met by a program tailored to their particular needs, it is similar to the Basic Program in broad area requirements but permits the student to develop an individual concentration incorporating work in two or more departments.

(c) College Scholars Program—Intended for a limited number of students who are especially highly qualified and motivated and who have been selected to undertake this honors-level program, the College Scholars Program permits the student maximum freedom to design a curriculum to meet particular interests and goals.

(d) Pre-Professional Program—The Pre-Professional Program is offered for those who wish to participate in one of the cooperative 3-1 curricula in the health sciences (medicine, dentistry, pharmacy, or medical technology). The student proceeds directly to specialized training in the chosen area after the third year of liberal arts study and offers the first year of professional study in lieu of a major concentration in the College in satisfying the requirements for the B.A. degree.

(2) BACHELOR OF FINE ARTS

The Bachelor of Fine Arts degree represents intensive study preparing students for graduate study and professional positions in art. The degree is offered with a major in studio art. Recommended course combinations for those who desire to concentrate in communication design, drawing, painting, oil, watercolor, printmaking or sculpture are available in the art department office.

(3) BACHELOR OF MUSIC

The program leading to the Bachelor of Music degree prepares students for graduate study and for positions in which a professional degree is required. The degree is offered with a major in music which has concentrations in music theory,
Program Planning
Each student's academic program is highly individualistic, reflecting that person's special interests, goals, and aspirations. Usually it will reveal a growing intellectual sophistication and the development of particular motivations. On occasion, unfortunately, it gives indication of frustration and lack of clear direction. Viewed as a whole it may appear to be a miscellany of unrelated courses which were chosen almost capriciously; or it may be a carefully selected curriculum which the student brought together in a way which represented for that individual the most appropriate and effective way of attaining educational goals.

The importance of program planning can hardly be overestimated. A few students enter the College with firm educational objectives in mind and their programs develop quite readily around these predetermined goals. Many, however, do not reach that stage of certainty until their academic careers are relatively far advanced. For these persons the exploration of possible directions and programs, in consultation with faculty advisers, is an important part of the educational process. It is essential for these students to develop their programs carefully and creatively in order that maximum flexibility in their ultimate decision making may be assured.

A basic decision, of course, is the degree to be sought. If it is one of the three professional degrees (Bachelor of Fine Arts, Bachelor of Music, or Bachelor of Science in Chemistry), the student's program will be somewhat circumscribed, for these degrees are necessarily more prescriptive than the general liberal arts degree. If the student chooses to work for the Bachelor of Arts degree, the three elements which make up the curricula leading to that degree will need to be kept in balance: the broad requirements in the Triad, the major area, and the elective courses which support and supplement the work in the first two categories. Most students find it desirable to lay a broad foundation by taking courses which will satisfy Triad requirements in the first two years, thus reserving most of the final years for in-depth study in the area of concentration. Elective courses may be taken at any time.

Advisers in the Liberal Arts Advising Center (220 Ayres Hall), in the various major departments, in the University Counseling Center, and elsewhere on campus are available to assist students with their program planning. In the final analysis, however, only the student can determine the program which will best satisfy particular needs.

Requirements for Degrees
Bachelor of Arts
As has already been stated, the general liberal arts degree is the Bachelor of Arts, and it is the appropriate objective for most students in the College of Liberal Arts. Requirements for this degree and the several curricular programs which lead to it will now be discussed in detail.

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.

GENERAL REQUIREMENTS
Each student seeking a Bachelor of Arts degree must develop a program which includes the following:
1. A minimum of 180 credit hours;
2. At least 60 credit hours in courses numbered 3000 or above;
3. Appropriate work to satisfy the broad requirements of the Triad, counting no course for more than one Triad area (Basic Program, Individualized Program, and Pre-Professional Program only);
4. A major consisting of at least 36 credit hours in courses numbered 2000 or above as specified by the department or program, and counting no course in this major which has been used for Triad credit. (A course which satisfies a Triad requirement may serve, however, as preparation for a major.) A minimum grade of C must be earned in every course counted as part of a major. Students transferring from other institutions must complete at least 12 credits at The University of Tennessee, Knoxville in each major awarded on this campus.

Note on Multiple Majors:
After the general requirements described above have been satisfied, additional majors may be recorded on the transcript without regard to course overlap among majors or among those additional majors and Triad requirements. Students developing multiple majors must specifically declare this intent at the time they apply for graduation. Once a student has graduated, the establishment of additional majors becomes subject to University second-degree requirements.

I. Basic Program
A. THE TRIAD:
Language, Literature, and the Arts
Science and Mathematics
Language, literature, and the arts play a vital role in shaping human experience and perception. They give expression to human thought and feeling and give form and order to a sense of the world. The written and spoken word, the dramatic motion and gesture of theatre, film, and dance, the sensitivities and structures which address the eye and ear in painting and sculpture, architecture and music—all of these help to define what is human.

It is important that every student of liberal arts become acquainted with these modes of experience within this culture and through exposure to cultures that are foreign, distant, and strange. To know what one is not is essential for knowing what one is.

Although there is no universal formula for determining which disciplines, skills, and enjoyments are of primary or of secondary importance, the written and spoken word has a wider range of reference than any other human skill. A basic competence in writing and reading is thus a minimal condition for knowing how to think about and relate all other activities.

The study of history is an integral part of a liberal education. Because human beings build on the experiences of the past, a clear understanding of the present requires an historical perspective. Such perspective may be developed by a number of courses, including the traditional survey of world civilization and other broad surveys such as Asian history, Latin American history, history of the United States, and Afro-American history. More specialized courses in the history of particular segments of human experience, e.g., philosophy or religion, may also prove valuable.

A liberal education presupposes not only an awareness of the past but also a familiarity with contemporary social institutions, processes, and practices. From a wide variety of offerings in the social sciences the student may choose courses useful in acquiring that familiarity. Only by such knowledge can people of good will hope to maintain humane values in a world where industrialization, urbanization, and other dimensions of technological change challenge traditional patterns of individual and collective behavior.

Study of science and mathematics develops in the student an inquiring attitude toward the natural environment and confidence in the ability to understand scientific explanations of diverse phenomena. These ends may be realized through an understanding of the empirical and the rational in scientific methods of inquiry and an awareness of the limitations of science and technology in solving problems. The student should attain a knowledge of the way in which the development of science and technology has affected beliefs, philosophies, and the development of civilization.

Specific Requirements in the Triad
(1) Language, Literature, and the Arts
(a) Writing Proficiency
Each student is required to demonstrate ability to use the English
language effectively and coherently in one of the following four ways:

(i) By completing nine credits in English writing courses in one of the following series: (1) English 1010, 1020, and three additional credits drawn from 1031, 1032, or 1033. Students who complete 1020 with the grade of A have the additional option to satisfy the remaining three credits in any 2000- or 3000-level writing course offered by the department. (2) English 1018, 1028, 1038. Students who obtain the grade of A or B in 1028 have the additional option, with permission, to satisfy the remaining three credits in any 2000- or 3000-level writing course offered by the department. 

(3) English 1431, 1441, 1451.

(ii) By earning a score of 4 or 5 on the College Board Advanced Placement Test in English; or, with special permission, by earning a score of 3 on that examination and completing one 2000-level course in English at The University of Tennessee, Knoxville, with a grade of B or better.

(iii) By passing (normally after completing one quarter of freshman English at UTK) a proficiency examination in written administration by the Department of English in cooperation with the Committee on Writing Standards.

(iv) By completing 3 hours of freshman English followed by a minimum of 6 hours in courses which require substantial emphasis on writing. The writing-emphasis courses are identified by the Committee on Writing Standards; a list of those approved may be obtained in the office of the Department of English or in the Liberal Arts Advising Center.

Note: Students should normally take English in the first quarter of their registration and continue to take English or a writing-emphasis course in each succeeding quarter until this requirement is met.

(b) Literature, Foreign Language, and the Arts

The student may select any one of the following three options to satisfy this requirement:

(i) 8 hours of literature in a foreign language in the 3000-level or above. Prequelle to this option is intermediate-level competence in the language, demonstrated by diagnostic (non-credit) or proficiency (credit) examination or by completing a 2000-level sequence in that language.

(ii) Intermediate-level competence in a foreign language demonstrated by diagnostic (non-credit) or proficiency examination or by completing a 2000-level sequence (or an approved equivalent) in that language, and a minimum of two courses of literature in English (or preferably in English or in translation) drawn from the list of courses published by the Committee on Language, Literature, and the Arts, available in the Liberal Arts Advising Center. A minimum of two years of high school study will often qualify a student for entry into a 2000-level language sequence.

(iii) 24 hours in an integrated program in literature, culture, and/or the arts, focusing either on (1) a particular nation or area other than the United States, or (2) a comparative study of literary and artistic modes, genres, or movements. Suggested programs are published by the Committee on Language, Literature, and the Arts and are available in the Liberal Arts Advising Center; students may also propose individual programs to the committee for consideration.

Note: In options (i) and (ii), those who take the diagnostic examination will not receive credit toward graduation but will be exempted from the portion of the requirement satisfied by that examination. Those who take the proficiency examination may earn up to 16 hours of credit toward graduation for previous study of the language, in addition to the credit they receive for the courses undertaken in the college. Normally two years of high school language study is regarded as equivalent to one year of college study. Students who have had four years of high school study of the same language should be able to satisfy the requirement for intermediate-level competence in either option by examination and those who have had less than four years of study may be able to satisfy a portion of the requirement in this way, thus reducing the time required to satisfy this requirement. Full credit toward graduation is given for any language study undertaken successfully in the college regardless of the amount of previous study of that language.

Students who have had less than two years of study of the same language in high school are admitted with an entrance deficiency. Satisfactory completion of the final quarter of the first year sequence of college-level foreign language study, normally in the freshman year, is necessary to remove this deficiency.

(2) History and Society

Each student must complete 24 hours of course work in this area including:

(a) One 8-hour sequence from the several survey courses offered by the Department of History or in a comprehensive interdisciplinary sequence having substantial emphasis on history;

(b) 8 hours in courses with emphasis on man and society which are not primarily historical in nature;

(c) The remaining hours may be taken in either categories (a) or (b).

A list of courses which satisfy this requirement is published by the Committee on History and Society and is available in the Liberal Arts Advising Center.

(3) Science and Mathematics

Each student must complete 24 hours of course work in this area, including:

(a) One of the following two options:

(i) An 8-hour sequence in a biological science; or

(ii) An 8-hour sequence in a physical science.

(b) 16 hours drawn from additional courses in the biological and/or physical sciences or from designated courses in:

(iii) the history, philosophy, or social impact of science;

(iv) mathematics and logic.

No more than 16 hours may be applied toward this requirement from any one of the above four categories.

A list of courses which satisfy this requirement is published by the Committee on Science and Mathematics and is available in the Liberal Arts Advising Center.

B. THE MAJOR

In many ways the most important part of each student's program is the major, for it is in this intensive study of one more or less limited field of knowledge that the individual begins to find a niche in the world of intellectual endeavor. The major may be drawn from the offerings of a single department or it may bring together related concerns of two or more departments. In either case the student should work out a program of study which has a definite design and aims at some overall objective. Guidelines are published by each major department or interdepartmental committee to assist the student in ascertaining goals and to provide a framework within which to develop a particular program. Additional assistance in the form of personal counseling is available in the Liberal Arts Advising Center and from designated faculty advisers in each major department or area.

Requirements for the specified majors available to students in the Basic Program vary from a minimum of 36 to a maximum of 56 credit hours in courses numbered 2000 and above, including prerequisites and corequisites (i.e., supporting courses in other departments or areas). Inssofar as is consistent with the objective of a total program balanced reasonably between broad area requirements in the Triad, the major and supporting courses, the student may elect as many courses as desired in any department or area.

*See Phi Beta Kappa requirements in mathematics, page 30.

Majors available in the Basic Program:

Anthropology
Arts
Art History
Audiology
Biological
Botany
Chemistry
Computer Science
Cultural Studies
Economics
English
French
Geography
Geology
German
Greek
History
Human Services

Italian
Latin
Mathematics
Microbiology
Music
Philosophy
Physics
Political Science
Psychology
Religious Studies
Russian
Sociology
Spanish
Speech Pathology
Speak & Theatre
Statistics
Zoology
C. SUPPLEMENTARY ELECTIVE COURSES

At least one-fourth of each student’s curriculum in the Basic Program will be made up of courses selected according to the individual’s interests to supplement and support the work being done in the major and in the Triad. This dimension of the student’s experience in the University represents that freedom within which total education may be rounded out and enriched. Elective courses should be chosen with care so that they will truly enhance the student’s total program and help in the achievement of well thought-out educational objectives.

Some of the choices which the student might make in selecting the elective courses are:

(1) Additional courses in the major field;
(2) A related minor in another department or area or in another college of the University (24 or more credit hours in courses numbered 2000 or above; see Note below);
(3) An area in the arts;
(4) An off-campus quarter. Only the student’s imagination and initiative and the willingness to conceive and develop a totally meaningful academic program limit the choice of supplementary elective courses.

Note: Minors are available in most of the departments and areas in which majors are offered, and also in the following:

- Asian Studies
- Biochemistry
- Black Studies
- Comparative Literature
- Latin American Studies
- Linguistics
- Medieval Studies
- Physical Sciences
- Portuguese
- Women’s Studies

Minors may be developed in other colleges of the University, but they must be approved by petition. Students transferring from other institutions must complete at least 6 of the 24 credit hours required for a minor at UTK.

II. Individualized Program

The Basic Program described above will meet the educational needs of most of the students enrolling in the College of Liberal Arts. Some, however, come with particular strengths in their preparation or with special interests which do not coincide with the departmental or interdepartmental majors specified in the Basic Program. For these students the Individualized Program has been established as a means of attaining a closer correlation between student needs and academic programs.

Students in the Individualized Program will normally satisfy the broad requirements of the Triad, just as those in the Basic Program do, although some latitude is provided for substitutions approved by the student’s adviser and the dean of the college. The point at which the greatest degree of individualization takes place, however, is in the area of concentration. Although the quantitative aspect of the area of concentration is the same as for the major in the Basic Program (i.e., a minimum of 36 hours in courses numbered above 2000), there is no restriction in principle on the choice of courses of which it is comprised. The student may design a program in consultation with an adviser, and submit it for consideration to the Committee on the Individualized Program. The proposed courses of study must have some clear central theme, usually implemented through intensive work in two or three departments; an undirected scattering of courses will not be approved. For further information consult the program director, Dr. Harry Jacobson (Ayres Hall).

III. College Scholars Program

A limited number of freshmen, entering transfer students with less than 60 credit hours, and resident students with less than 90 credit hours are invited each year to enter this distinguished honors curriculum. Selection is based on previous academic record, test scores, recommendations, a written essay, and a personal interview. Only the student’s imagination and initiative and the willingness to conceive and develop a totally meaningful academic program limit the choice of supplementary elective courses.

The College Scholars Program affords the highest degree of freedom to the student in developing a meaningful curriculum. Each program is worked out individually with a special adviser (tutor) who under ordinary circumstances continues to advise the student throughout the college career. Together they determine what kinds of course work and other learning experiences will best fulfill the student’s objectives, while at the same time achieving the kind of liberal education the College believes is important for every student. In the final two years of the program students will be heavily involved in independent study or research resulting in a senior honors thesis or project report.

Further information and applications may be obtained from the program director, Dr. Harry C. Jacobson, 226 Ayres Hall.

IV. Preparation for the Health Professions

Pre-Dental
Pre-Dental Hygiene
Pre-Medical
Pre-Medical Record Administration
Pre-Medical Technology
Pre-Nursing
Pre-Pharmacy
Pre-Physical Therapy
Other Health Professions

Pre-medical programs are available for students who plan a career in one of the health professions. The programs preparing students for the study of medicine, dentistry, and pharmacy include the specified courses required for admission to the respective colleges of The University of Tennessee Center for the Health Sciences at Memphis (UTCCHS), as well as those required for the Bachelor of Arts degree in the College of Liberal Arts at UT, Knoxville. The pre-medical technology program prepares students to undertake professional training during the fourth year of study at The University of Tennessee Center for the Health Sciences at Memphis. Other pre-health professional programs—dental hygiene, medical record administration, nursing, pharmacy, and physical therapy—are offered for those students who are planning to pursue professional training in health professional areas which lead to an undergraduate degree from UTCHS but not to a degree from UTC.

NOTE: The UT Center for the Health Sciences is a state-supported institution and by legislative intent is required to admit all qualified Tennesseans prior to considering non-state applicants. At the present time there are more qualified Tennessee applicants than there are places available; therefore, out-of-state applications are not being considered. The only exception to this policy is the non-resident applicant who is the son or daughter of an alumnus or alumna of the UT Center for the Health Sciences and who has completed all of the undergraduate work at a college in the University of Tennessee system and is otherwise qualified competitively.

Admission to any program at the UT Center for the Health Sciences, the Medical Technology Program at the UT Memorial Research Center and Hospital is at the discretion of that program’s admissions committee. Admission to UTK and completion of a health professional program in the College of Liberal Arts does not assure admission to any professional training program.

Because the competition for admission to these programs is keen, pre-health professional students are encouraged to work towards the completion of a degree program in a major which will enable the individual to adapt to an alternative program in the event admission to the desired program is not achieved. The preparatory courses necessary for professional study can be incorporated into the chosen major program.

Students in a pre-health professional program should consult with a health professional adviser in the Liberal Arts Advising Center (200 Ayres Hall) or the Coordinator of the Health Professions Office (218 Ayres Hall) for more information about the programs outlined below. Bulletins describing the various pre-health professional programs, including a detailed statement of requirements, may be obtained from the Health Professions Office, 218 Ayres Hall.

PRE-DENTAL PROGRAM

The College of Liberal Arts offers both three-year and four-year programs leading to the degree of Bachelor of Arts for students preparing for the study of dentistry. Both programs are based upon the curriculum outlined below. In the three-year program the student must complete at least 135 credit hours while enrolled in the College of Liberal Arts, and

*Students wishing to prepare for professional training at institutions other than The University of Tennessee Center for the Health Sciences may consult the catalogs of those institutions to determine the specific preparation required for admission.
the B.A. degree is granted upon satisfactory completion of the first year of study at the UT Center for the Health Sciences. In the four-year program the degree is granted upon completion of 180 or more credit hours while enrolled in the College, including a major of 36 or more hours in addition to the courses listed below. The requirement for a major is waived for those completing their fourth year at Memphis. Students in either the three- or four-year program must complete the last 45 hours of credit in residence at The University of Tennessee, Knoxville, before entering the UT Center for the Health Sciences.

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

### Freshman

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<thead>
<tr>
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<td>8</td>
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<tr>
<td>Chemistry 1110-20-30</td>
<td>12</td>
<td>8</td>
</tr>
<tr>
<td>Mathematics (1540) 1550-60 or 1840-50</td>
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<td>8</td>
</tr>
<tr>
<td>Triad (Language, Literature &amp; the Arts)</td>
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<td>8</td>
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<tr>
<td>Triad II (History and Society)</td>
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### Sophomore

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<td>8</td>
</tr>
<tr>
<td>Chemistry 3211-21-31 and 3219-29-39</td>
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</tr>
<tr>
<td>Triad I</td>
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<td>Triad II</td>
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### Junior

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<tr>
<td>Speech 2311</td>
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<tr>
<td>Biology and/or zoology</td>
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### Senior

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<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Completion of major program and B.A. requirements</td>
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</table>

Total: 180 hours

### Pre-Dental Hygiene Program

A Bachelor of Science in Dental Hygiene is granted by the UT Center for the Health Sciences upon completion of a program which includes 96 hours of prescribed courses in the College of Liberal Arts and 6 quarters of study at Memphis. Students interested in the pre-dental hygiene program are encouraged to consult with a health professions adviser in the Liberal Arts Advising Center or the Coordinator of the Health Professions Office for more information. Bulletins describing the pre-dental hygiene program and requirements in detail may be obtained from the Health Professions Office, 218 Ayres Hall.

### Pre-Medical Program

The College of Liberal Arts offers both three-year and four-year programs leading to the degree of Bachelor of Arts accepted by students preparing for the study of medicine. Both programs are based upon the program outlined below. In the three-year program the student must complete at least 135 credit hours while enrolled in the College of Liberal Arts, and the B.A. degree is granted upon satisfactory completion of the first year of study at the UT Center for the Health Sciences. In the four-year program the degree is granted upon completion of 180 or more credit hours while enrolled in the College, including a major of 36 or more hours in addition to the courses outlined below. The requirements for a major are waived for those taking their fourth year at Memphis. Students in either the three- or four-year program must complete the last 45 hours of credit in residence at UTK before entering the UT Center for the Health Sciences.

Although the B.A. degree is not required for admission to the College of Medicine, most students accepted into the study of medicine have the baccalaureate degree before admission. Therefore, pre-medical students are encouraged to plan to fulfill all requirements for the degree before enrolling in the College of Medicine.

### Pre-Medical Record Administration Program

Admission to the medical record administration program at the UT Center for the Health Sciences, leading to a Bachelor of Science in Medical Record Administration requires completion of 135 hours of prescribed courses. Classes are admitted in September; applications must be filed by April 15. The selection process usually includes interviews with members of the faculty.

Students interested in the pre-medical record administration program are encouraged to consult with a health professions adviser in the Liberal Arts Advising Center or the Coordinator of the Health Professions Office for more information. Bulletins describing the medical records administration requirements and program in detail may be obtained from the Health Professions Office, 218 Ayres Hall.

### Pre-Medical Technology Programs

The College of Liberal Arts offers two programs leading to the study of medical technology:

1. The Science-Medical Technology Curriculum leading to a Bachelor of Arts degree with a major in medical technology from UT

2. The Pre-Medical Technology Program leading to a degree of Bachelor of Science in medical technology from UTC at Memphis.

### Science-Medical Technology Curriculum

The Science-Medical Technology Curriculum is a three-year program consisting of a minimum of 135 credit hours in the College of Liberal Arts. Students who complete this curriculum satisfactorily may apply for admission to the course of study in medical technology at The University of Tennessee Memorial Research Center and Hospital in Knoxville.

Successful completion of this course, which results in the granting of 50 credit hours, makes the student eligible for a Bachelor of Arts degree with a major in medical technology from UT. In addition, a Certificate of Laboratory Training will be awarded by the UT Memorial Research Center and Hospital. Students will then be eligible for examination by the Board of Registry of the American Society of Clinical Pathologists in order to be certified as registered medical technologists.
Students interested in the pre-nursing program are encouraged to consult with a health professions adviser in the Liberal Arts Advising Center or the Coordinator of the Health Professions Office for more information. Bulletins describing the pre-nursing program in detail may be obtained from the Health Professions Office, 218 Ayres Hall.

Note: A degree program in nursing is also available at The University of Tennessee, Knoxville. Information may be obtained from the Dean of the College of Nursing.

PRE-PHARMACY PROGRAMS

The College of Liberal Arts offers three programs preparing students for the study of pharmacy at the UT Center for the Health Sciences in Memphis. The Bachelor of Science in Pharmacy degree is conferred by UTCCHS upon completion of three years of professional study at Memphis following any of the three programs.

The two-year program prepares students to be admitted to the College of Pharmacy upon completion of 90 hours of a prescribed course of study in the College of Liberal Arts. Further information may be obtained from the Health Professions Office, 218 Ayres Hall.

The three-year and four-year programs, which lead to a Bachelor of Arts degree from The University of Tennessee, Knoxville, as well as to the professional degree in pharmacy from the UT Center for the Health Sciences, are based upon the program outlined below. In the three-year program, the student must complete at least 135 credit hours while enrolled in the College of Liberal Arts, and the B.A. degree is granted upon satisfactory completion of the first year of study at Memphis. In the four-year program the degree is granted upon completion of 180 or more credit hours while enrolled in the College, including a major of 36 or more hours in addition to the courses outlined below. The requirement for a major is waived for those taking their fourth year at Memphis. Students in either the three- or four-year program must complete the last 45 hours of credit in residence at The University of Tennessee, Knoxville, before enrolling in the College of Pharmacy.

PRE-MEDICAL TECHNOLOGY PROGRAM

Students planning to seek admission to the medical technology course of study at the UT Center for the Health Sciences in Memphis must complete 135 credit hours of prescribed courses while enrolled in the College of Liberal Arts. The program at Memphis is 12 months in length and leads to the degree of Bachelor of Science in Medical Technology from UTCCHS. Classes are admitted in January and July and application must be made one year in advance.

Students interested in the medical technology program of study at UTCCHS are encouraged to consult with a health professions adviser in the Liberal Arts Advising Center or the Coordinator of the Health Professions Office for the specific requirements for admission.

Bulletins describing both pre-medical technology programs and requirements in detail may be obtained from the Health Professions Office, 218 Ayres Hall.

PRE-NURSING PROGRAM

The minimum requirement for admission to the College of Nursing at the UT Center for the Health Sciences is 48 hours of prescribed courses in the College of Liberal Arts. The program at Memphis, which leads to the Bachelor of Science in Nursing from UTCCHS, is three years in length.

Registered nurses who wish to work for a degree of Bachelor of Science in Nursing must complete 54 hours of prescribed courses to qualify for admission with advanced standing.
courses and 8 upper-division credit hours in art history must be earned on the Kansas City campus. The Bachelor of Fine Arts degree and its major will be recorded as follows:

Bachelor of Fine Arts
Major: Studio Art

Core Curriculum: The core program is required of all B.F.A. candidates. It is designed to give a broad art background, in both studio and art history, at the earliest possible time. This background, during the freshman and sophomore years, is a foundation upon which the student may build, and an opportunity to become acquainted with the various artistic disciplines. This gives each student the understanding to plan a better program during the remaining two years. Unless otherwise stated, the core program is nonsequential, but should be completed by the end of the first two years. Core courses are as follows:

**Art History:**
- Art 1815.
- Art 2065.
- Art 2715.
   A minimum of 8 hours in other art history courses.

**Studio:**
- Art 1115: Studio Fundamentals: Drawing and the Illusion of Space.
- Art 1125: Studio Fundamentals: Surface, Composition, and Color.
- Art 1135: Studio Fundamentals: Real Space and Volume.
- Art 2105: Introduction to Sculpture.
- Art 2205: Introduction to Painting.
- Art 2405: Introduction to Sculpture.
- Art 2505: Introduction to Communication Design.
- Art 2605: Introduction to Printmaking.
   52 hours

*Prerequisite to 2000-level courses for B.F.A. program.

General Curriculum: In addition to the core program, B.F.A. candidates must fulfill the following general requirements:

A. **Triad Courses**
   - **I. Language, Literature and the Arts**
     A minimum of 8 hours in English composition.
   - **II. History and Society**
     A minimum of 8 hours.
   - **III. Science and Mathematics**
     A minimum of 8 hours.
   
   24 hours

B. **Philosophy**
   - 3910.

C. **Non-Art electives**
   - A minimum of 20 hours. Students entering with a high school language deficiency must take a minimum of 8 hours of foreign language.
   - 20

D. **Art electives** (within the department)
   - A minimum of 40 hours.

E. **Unspecified electives**
   - 40

180 hours

**COLLEGE ARTISTS PROGRAM**
A program of 180 hours is to be determined by the student and approved by the Department of Art honors committee. This program allows the gifted student greater opportunity for establishing a unique education in studio art, which may include independent study, off-campus study, and foreign study in addition to formal class work. Participation and graduation in the College Artists Program will be noted on the student's transcript.

Students may apply for the program upon completion of 45 credit hours, but will normally be considered after the completion of 90 hours. Admittance to the College Artists Program is based on four criteria: 1) an overall grade-point average of at least 3.0, 2) a portfolio of work, 3) the proposed course of study, and 4) a personal interview. A minimum grade-point average of 3.25, at least 12 hours per quarter, and evidence of continuing motivation and interest must be maintained to remain in the program. Each College Artist will normally enroll in one or more general or departmental honors courses each quarter, and must participate in an honors exhibition prior to graduation.

**STUDIO HONORS COURSES**
Courses are designed for the exceptional student. Honors courses may be taken in any of the areas of studio instruction, and admittance is based on the following criteria:

A. **Grade-point average of 3.2 in studio art courses.**
B. **Portfolio of class and/or outside work**
C. **Recommendation of the studio faculty, and the approval of the instructor**
Continued participation is subject to periodic review by the faculty. Students qualified for honors courses will enroll in course numbers which most closely parallel their present level, i.e., sophomores in 2008, juniors in 2008, seniors in 4008. Each course number may be repeated for a maximum of 24 hours.

**Bachelor of Music**
The Department of Music offers the degree of Bachelor of Music with concentrations in music theory, composition, music history and literature, piano literature, and applied music (voice—piano—organ—strings—woodwind, brass and percussion instruments—multiple woodwind instruments). The study is designed to prepare students for graduate study or for positions in music for which a professional degree is required.

Students who plan to work for this degree are assigned an adviser in the Department of Music at the time they enter the program. Continuation in the program at the 3000 level requires the achievement of an average of 2.5 or better in all music courses taken. The minimum requirement for the degree is 180 credit hours, including the specified courses outlined below.

**MUSIC THEORY**

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<td>English 1510-20</td>
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<tr>
<td>Music 1118-28-38</td>
<td>12</td>
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</tr>
<tr>
<td>Music 1113-23-33</td>
<td>3</td>
<td>8</td>
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<td>Music 1340</td>
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<td>Applied music</td>
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<tr>
<td>Ensemble</td>
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**Sophomore**

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<td>Music 2123-33-33</td>
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<td>Music 2310-20-30</td>
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**Junior**

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<td>Ensemble</td>
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<td>8</td>
</tr>
<tr>
<td>Liberal arts electives</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td>Electives</td>
<td>12</td>
<td>8</td>
</tr>
<tr>
<td>Music 2000</td>
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**Senior**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Music 4100</td>
<td>3</td>
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<tr>
<td>Music 4111</td>
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<tr>
<td>Music 4112 or 4115</td>
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<tr>
<td>Music 4121 or 4141</td>
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<td>8</td>
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<tr>
<td>Music 4131</td>
<td>3</td>
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<tr>
<td>Applied music</td>
<td>3</td>
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<tr>
<td>Ensemble</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
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<tr>
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<td>8</td>
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<tr>
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**COMPOSITION**

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<thead>
<tr>
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<tbody>
<tr>
<td>English 1510-20</td>
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<tr>
<td>Music 1118-28-38</td>
<td>12</td>
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<tr>
<td>Music 1113-23-33</td>
<td>3</td>
<td>8</td>
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<tr>
<td>Music 1340</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td>Applied music</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td>Ensemble</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td>Liberal arts electives</td>
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<td>8</td>
</tr>
<tr>
<td>Electives</td>
<td>12</td>
<td>8</td>
</tr>
<tr>
<td>Music 2000</td>
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**Sophomore**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Music 2118-28-38</td>
<td>12</td>
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<tr>
<td>Music 2123-33-33</td>
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<tr>
<td>Music 2310-20-30</td>
<td>9</td>
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<tr>
<td>Music 2599</td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td>Applied music</td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td>Ensemble</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td>Liberal arts electives</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td>Electives</td>
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<td>8</td>
</tr>
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<td>Music 2000</td>
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**Junior**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Music 2340</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td>Music 3111-21-31</td>
<td>9</td>
<td>8</td>
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<tr>
<td>Music 3113-23</td>
<td>6</td>
<td>8</td>
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<tr>
<td>Music 3113-23</td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td>Applied music</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td>Music 3599</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td>Ensemble</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td>Electives</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td>Music 3199</td>
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<td>8</td>
</tr>
<tr>
<td>Music 2000</td>
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**Senior**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Music 4111</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td>Applied music</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td>Music 4111</td>
<td>3</td>
<td>8</td>
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<tr>
<td>Music 4599</td>
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<tr>
<td>Ensemble</td>
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</tr>
<tr>
<td>Liberal arts electives</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td>Electives</td>
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<td>8</td>
</tr>
<tr>
<td>Music history/literature (3000-level and above)</td>
<td>6</td>
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<tr>
<td>Music 2000</td>
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</tr>
</tbody>
</table>

**TOTAL: 180 hours**
MUSIC HISTOR Y AND LITERATURE  Hours Credit
Freshman  English 1510-20  8
Music 1111-21-31  9
Music 1113-23-33  3
Music 1340  3
Applied music  6
Ensemble  3
Musicology  4
English 1810  4
Foreign language (French or German)  8
Music 2000  0
Sophomore  Music 2111-21-31  9
Music 2113-23-33  6
Music 2310-20-30  9
Applied music  6
Ensemble  3
Art 1815-25  8
Foreign language (French or German)  8
Music 2000  0
Junior  Music 2340  3
Music 3112  3
Music 3113-23  6
Music 4260  3
Music history/literature  3
(3000-level or above)  12
Ensemble  3
Music 2000  3
Musicology (3000-level or above)  8
Applied music  3
Philosophy  3
Electives  6
Senior  Music 4230  3
Music 4200  3
Music 4200  3
Ensemble  3
Comparative literature or religious studies  3
Electives  12
Music history/literature or theory  6
Electives (3000-level or above)  6
Music 2000  0
Applied music  2
Music history/literature (3000-level or above)  12
TOTAL: 180 hours
PIANO LITERATURE  Freshman  English 1510-20  8
Music 1111-21-31  9
Music 1113-23-33  3
Music 1340  3
Principal applied study  3
Music 3699  3
Liberal arts electives  8
Music 2000  0
Sophomore  Music 2111-21-31  9
Music 2113-23-33  6
Music 2310-20-30  9
Principal applied study  9
Music 3699  3
Liberal arts electives  8
Music 2000  0
Junior  Music 2340  3
Music 3699  3
Senior recital  0
Liberal arts electives  12
Electives  3
Music 2000  0
TOTAL: 180 hours
VOICE  Freshman  English 1510-20  8
Music 1111-21-31  9
Music 1113-23-33  3
Music 1340  3
Principal applied study  3
Music 3699  3
Senior recital  0
Liberal arts electives  12
Electives  15
Music 2000  0
TOTAL: 180 hours
ORGAN AND CHURCH MUSIC  Freshman  English 1510-20  8
Music 1111-21-31  9
Music 1113-23-33  3
Music 1340  3
Principal applied study (Organ)  3
Ensemble  3
Liberal arts electives  12
Music 2000  0
Sophomore  Music 2111-21-31  9
Music 2113-23-33  6
Music 2310-20-30  9
Principal applied study  9
Music 1040-50-60  3
Ensemble  3
Theatre 2111  4
Liberal arts elective  4
Music 2000  0
Junior  Music 2340  3
Music 3113-23  6
Principal applied study  12
Ensemble  3
Senior recital  0
Foreign language (French, Italian, German)  8
Musical Theatre 2111  4
Electives  9
Music 2000  0
TOTAL: 180 hours
SPORTS  Freshman  English 1510-20  8
Music 1111-21-31  9
Music 1113-23-33  3
Music 1340  3
Principal applied study  3
Ensemble  3
Senior recital  0
Foreign language (French, Italian, German)  8
Liberal arts electives  12
Music 2000  0
Sophomore  Music 2111-21-31  9
Music 2113-23-33  6
Music 2310-20-30  9
Principal applied study  9
Music 1040-50-60  3
Ensemble  3
Theatre 2111  4
Liberal arts elective  4
Music 2000  0
Junior  Music 2340  3
Music 3113-23  6
Principal applied study  12
Ensemble  3
Senior recital  0
Foreign language (French, Italian, German)  8
Musical Theatre 2111  4
Electives  9
Music 2000  0
Junior recital  0
TOTAL: 180 hours
## Curriculum Requirements

### Freshman
- **Chemistry 1110-20-30 or** 1118-26-38 .......................... 12
- **Mathematics 1840-50-60 or** 1848-55-68 .......................... 12
- **Language, Literature, Art Triad** writing, 4112-29-39 .......................... 3
- **Language, Literature, Art Triad (literature, foreign language II)** writing, 4121-29-39 .......................... 3
- **History and Society Triad** writing, 4129-29-39 .......................... 3

### Sophomore
- **Chemistry 3211-21-31 or** 3511-21-31 (latter recommended) .......................... 9
- **Chemistry 3219-29-39 or** 3219, 3529-39 (latter recommended) .......................... 3
- **Mathematics 2840-50-60 or** 2848-55-68 .......................... 12
- **Physics 2510, 2310-20** writing, 4132-29-39 .......................... 3
- **Language, Literature, Art Triad (literature, foreign language II)** writing, 4139-29-39 .......................... 3
- **History and Society Triad** writing, 4147-29-39 .......................... 3

### Junior
- **Chemistry 2140-49** writing, 4151-29-39 .......................... 4
- **Chemistry 3410-20-30** writing, 4157-29-39 .......................... 4
- **Chemistry 4210-20, 4219-20** writing, 4163-29-39 .......................... 4
- **Computer Science 3150** writing, 4169-29-39 .......................... 3
- **Language, Literature, Art Triad (literature, foreign language II)** writing, 4175-29-39 .......................... 3
- **History and Society Triad** writing, 4181-29-39 .......................... 3

### Senior
- **Chemistry 4110** writing, 4187-29-39 .......................... 3
- **Chemistry 4119** writing, 4193-29-39 .......................... 3
- **Chemistry 4610-20 or 4610-20 and one quarter of 4710-20-30** writing, 4199-29-39 .......................... 4
- **Chemistry 4220** writing, 4205-29-39 .......................... 3
- **Chemistry electives** writing, 4211-29-39 .......................... 6
- **Electives** writing, 4217-29-39 .......................... 27

*Foreign language option is recommended in the order German, Russian, or French 1510-20.*

*German 2503-40 or 2510-20 or Russian 2510-20 or French 2510-20 are recommended.*

*To be chosen from the following: Chemistry 4430, 4550, 4680, 4710-20-30, Biochemistry 4110-20, 4230.*

*At least 8 hours of these electives must be in a science other than chemistry; the rest may be in any area. Of the 8 hours of science other than chemistry, the following courses are recommended: Physics 3710-20-30, 4210-20-30, 4110-20-30, 4540, 4550-60; Computer Science 4110-20-30, Geology 4610; Met. Engr. 4510-20; Zoology 3000; Botany 3210.*

### Preparation for Other Professions

### Law
- Students who plan to study law should consult the statement regarding admission to the College of Law (page 173) and discuss their programs with advisers in the Liberal Arts Advising Center.
Library Science

Certain courses in the Graduate School of Library and Information Science are open to students in the College of Liberal Arts interested in beginning positions in a library or in preparation for future graduate study in professional librarianship. For further information, see page 50 or consult the Director of the Graduate School of Library and Information Science.

Planning

Students who wish to consider a career in city and regional planning or a related field will find a brief description of the program of the Graduate School of Planning on page 51. Students are accepted into planning from a broad variety of undergraduate backgrounds. Detailed information on the planning profession, admission requirements and the program of study may be obtained from the Graduate School of Planning.

Public Administration

Students majoring in political science who wish to prepare for an administrative career in the public service may select courses to fit that objective. The concentration appearing below is suggested for students with public service career interests. The degree to be awarded is a Bachelor of Arts with a major in political science, augmented by supportive work in related disciplines.

<table>
<thead>
<tr>
<th>Freshman</th>
<th>Hours/Credit</th>
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<tbody>
<tr>
<td>Political Science 2510-20, 2530 (choose 8 hours)</td>
<td>8</td>
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<tr>
<td>Economics 2110-20-30</td>
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<tbody>
<tr>
<td>Political Science 3565-66</td>
<td>8</td>
</tr>
<tr>
<td>Political Science 3545-46 or 3801-02-03-04</td>
<td>8</td>
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<tr>
<td>Economics 3340</td>
<td>3</td>
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<tr>
<td>Accounting 2110-20-30</td>
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<tr>
<th>Junior</th>
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<tbody>
<tr>
<td>Political Science 4610-20</td>
<td>7</td>
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<tr>
<td>Political Science 4410</td>
<td>4</td>
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<tr>
<td>Economics 3410</td>
<td>3</td>
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<tr>
<td>Accounting 3510</td>
<td>3</td>
</tr>
<tr>
<td>Finance 4350-60</td>
<td>6</td>
</tr>
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</table>

In addition, sufficient electives in political science must be taken to meet the number of hours required for a major in political science.

Further information may be obtained in the Department of Political Science.

Teaching

Students in the College of Liberal Arts who wish to be certified for secondary school teaching must satisfy state certification requirements as well as all degree requirements of the College of Liberal Arts, and must be recommended for certification by the College of Education. The College of Education is approved by the National Council for Accreditation of Teacher Education (NCATE); recommendation for certification by the College, therefore, in effect certifies the student in thirty states.

Application for admission to the Teacher Education Program should be made during the second or third quarter of the sophomore year in the office of the Dean of the College of Education, 212 Claxton Education Building. Criteria for admission are: (1) a 2.2 cumulative grade-point average; (2) satisfactory ratings in speech and hearing as determined by tests administered by the Speech and Hearing Center; (3) recommendation of the student's advisor.

One quarter during the senior year must be reserved for student teaching (Education C&I 4710-20). Application for student teaching must be filed not later than January 1 of the year preceding the academic year in which the student teaching will be undertaken. Those planning to teach student during the 1979-80 academic year must apply by January 1, 1979.

Curricula for students seeking teacher certification should include the following:

1) English 1510-20 or 1510-28
2) 16 hours, representing at least 3 fields, including:
   (a) 4 hours of 2000-level English
   (b) 12 hours of the student's choice from anthropology, art, English literature, Library and Information Science 3510-20-30, foreign language (beyond the elementary level), history (upper division), music, philosophy, or religious studies
3) Language, Literature, and the Arts: 0-24 hours, the number of hours and choice of courses depending upon the options selected and the choices made in (2) above
4) History and Society:
   (a) One of the 8-hour historical sequences in category (a) of the Triad list
   (b) Psychology 2500 or 2518
   (c) 4 hours from anthropology, economics, geography, human services, political science or sociology courses on the Triad list
   (d) 6-8 additional hours of the student's choice from courses on the Triad list, the number of hours depending upon choices made in (2) above
5) Science and Mathematics:
   (a) One of the 8-hour natural science sequences in categories 1 or 2 of the Triad list
   (b) 4 additional hours of natural science courses in categories 1 and 2
   (c) 4 hours of mathematics courses in category 4
   (d) 8 additional hours of the student's choice from courses on the Triad list
6) Speech 2311
7) 9 hours in health and physical education, including at least 3 hours of school health, public health, or nutrition and 2 hours of physical education
8) Professional Education courses:
   (a) Education C&I 3010-20-30
   (b) Educational Psychology 3810
   (c) 6 hours of appropriate methods courses
   (d) Education C&I 3521-22-23
*(a) Education C&I 4710-20 (student teaching)
(i) 6 hours of electives from the College of Education
9) Additional courses necessary to complete liberal arts major(s)
10) Additional courses required for certification in teaching subject area(s) (Consult Certification Clerk, 212 Claxton Education Building)
11) Electives to reach total of 180 hours, including at least 60 upper-division hours, required for graduation.

NOTE: The same course may be applied both to certification requirements and to Triad or major requirements of the College of Liberal Arts.

*Admission to the Teacher Education Program is prerequisite for Education C&I 3010, 3030, and 4710-20.

Theology

Students planning to study theology should follow one of the Bachelor of Arts curricula. Any liberal arts major is acceptable for admission to most theological schools; strong preparation in literature, philosophy, history, religious studies, and social science is desirable. Students may wish to consult with faculty members in the Department of Religious Studies in planning their programs.

General Information

Admission to the College

For information regarding admission to the College of Liberal Arts, see page 16.

Course Load

The average course load in the college for any quarter is 14-16 credit hours. The University defines full-time undergraduate students as those who register for a minimum of 12 hours. The maximum number of hours which may be taken by liberal arts students is 17, exclusive of elective work in ensemble music and physical education. Exceptions to this rule will require approval by the Assistant Dean for Student Academic Affairs (218 Ayres Hall).

The 17 credit limit was one of three means chosen to implement a 1972 decision by the college faculty to reduce the average number of courses carried by students. A second means has been introduced: four-credit courses into the curriculum on a broader scale than ever before. Using such courses the credits achieved by students each quarter would remain substantially the same as in quarters prior to this innovation but would
be generated with fewer courses. A final means has been to decrease the total number of hours required for the degree. The goal of the load reduction is to provide on campus for a deeper, more thorough learning experience in the courses which are taken.

Lower Division—Upper Division
Courses numbered at the 1000 and 2000 levels are considered lower division and are normally taken by students in the freshman and sophomore years. Courses numbered 3000 and above are upper division and are designed for students at the junior and senior levels.

Satisfactory/No Credit Courses
A few courses in the College are offered only on a Satisfactory/No Credit (S/NC) basis. Students may elect to take others on this basis, except in areas where the option is specifically prohibited. Such courses, if successfully completed, will count as hours for graduation although neither S nor NC will be calculated in the student's grade point average. Satisfactory is defined as C or better work on the traditional grading scale and No Credit is defined as less than C. The following regulations apply:

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

2. The maximum number of S/NC elective hours which may be counted toward graduation is 30, exclusive of courses offered only S/NC, physical education courses and/or satisfactory hours earned by examination, military training, etc.

3. A student who desires to take a course S/NC should indicate that intention at the time of registration. A change from S/NC grading to regular grading or regular grading to S/NC will not be permitted beyond the add deadline in each quarter.

4. A transfer student who has more than 30 S/NC or equivalent hours earned prior to admission to The University of Tennessee, Knoxville, may count all of these hours toward graduation but may not elect additional S/NC hours.

5. A transfer student with S/NC or equivalent credit earned prior to admission to The University of Tennessee, Knoxville, in a course which satisfies a Triad requirement may count it for that purpose. In the case of a course which satisfies a major or minor requirement, statement (1) applies.

The option of taking courses on a S/NC basis is provided to encourage the able student to venture beyond the limits of those courses in which the student does well and, motivated by intellectual curiosity, to explore subject matter in which performance may be somewhat less outstanding than work in preferred subject fields.

Note: Students planning to seek admission to graduate or professional schools (e.g., health sciences) should discuss with their advisers possible limitations on exercise of the S/NC option before registering for courses on this basis.

Off-Campus Study
Recognizing that learning is not restricted to formal classroom situations, the College provides for students to earn credit toward graduation for approved off-campus study. Such study may be undertaken only with prior approval of the faculty member and the department concerned. It may include certain kinds of work experiences, community involvement, working in political campaigns, etc. Credit per quarter will vary from 1-16 hours. Up to 24 hours of credit earned in this way may be applied toward a degree in the College of Liberal Arts, although individual departments may limit the number of hours which may be applied toward a specific major.

Independent Study
Certain educational goals may best be met through independent study done by an individual under the direction of a faculty member. Students who wish to do such independent work should obtain the approval of the faculty members and the departments concerned prior to embarking upon their study. Credit per quarter will vary from 1-16 hours. Up to 24 hours of credit earned in this way may be applied toward a degree in the College of Liberal Arts, although individual departments may limit the number of hours which may be applied toward a specific major.

Study Abroad and Foreign Study Courses
Several opportunities for study abroad are available to students in the College of Liberal Arts. One avenue is through group programs arranged and supervised by departments of the college on a full- or semester term basis. A second is through group programs conducted abroad by other academic institutions to which UTK students with approval may enroll for credit. Assistance in identification of and registration in such programs may be obtained through the Overseas Study Information Service located in the University's Division of International Education. A third opportunity is through individualized programs under the foreign study number 4101. The nature of this work as well as grades should be negotiated by students prior to departure with the appropriate liberal arts departments. Credit will be awarded only after completion of all agreed upon requirements. Up to 16 hours in any one department. Up to 24 hours of such credit, exclusive of that earned in group programs offered by departments, could apply toward a degree in the College of Liberal Arts. However, in the above forms, however, limit the hours of credit which can be applied toward a given major.

Liberal Arts Advising Center
Academic advising for students of the college is offered by the Liberal Arts Advising Center, 220 Ayres Hall, as well as through the several major departments. The Advising Center is staffed on a regularly scheduled basis by members of the college faculty, each of whom has been trained for this specialized work. Students in their first quarter of residence are assigned to the Advising Center, where they may relate themselves to a particular advisor of their choice or consult the person on duty at the time they need assistance. Most students continue in this relationship to the Advising Center until they have determined their major, normally by the beginning of the junior year, at which time they may be transferred for advising to a faculty member in the major department.

Student Academic Affairs Office
Academic assistance for students is also provided through the Student Academic Affairs Office, 218 Ayres Hall. This office serves primarily those students not assigned to the Liberal Arts Advising Center, helping them meet a variety of academic needs relating to the development of their academic programs, satisfying graduation requirements, etc. For those who are planning careers in the health sciences it provides a liaison with the Center for the Health Sciences. Each quarter the Student Academic Affairs Office issues the Liberal Arts Quarterly Bulletin in order to keep students informed about changes in the College curriculum as well as matters relating to registration, courses, and requirements.

Office of Black Studies
The Office of Black Studies, 812 Volunteer Blvd., cooperates with the various departments and colleges of the University with respect to the development of curricular changes and innovations which incorporate the Black experience into academic and extracurricular programs of the institution, supplies information on financial assistance for Black students, and is the focal point for the coordination and development of an improved and expanded Black Studies Program at the University.

Black Cultural Center
The Black Cultural Center represents one effort by the University to promote greater awareness of the nature of the Black experience and the contribution of Black America to the national past. The Center seeks to fulfill this role through a variety of programs and occasions. Typical of its cross-campus work is sponsorship of Black History Week, and the Black Arts Festival. Within the Center itself exhibits related to the Afro-American past, small group lectures, group study sessions, and a tutorial program aimed especially at minority students are a few of the ongoing activities.
The Center is located at 812 Volunteer Blvd. All members of the University community are invited to visit this location and utilize the opportunities provided by the Center to learn about the Black experience. For further information contact the director.

Bureau of Public Administration

The University has established in the College of Liberal Arts a Bureau of Public Administration, for the purpose of promoting sound governmental administration through research, publication, and consultation. Offices and staff are maintained in both Knoxville and Nashville. The head of the Department of Political Science serves as director of the Bureau of Public Administration.

Psychological Clinic

The Psychological Clinic is an outpatient psychodiagnostics and treatment center established by the University within the Department of Psychology. It provides advanced graduate training for students in clinical psychology and also serves as a training facility for graduate students in the School of Social Work. Referrals for treatment come from many sources, including self-referrals and referrals by relatives and friends and by various social and mental health agencies. Treatment services are available to anyone regardless of residence, sex, age, race, or citizenship.

University Theatres

The Department of Speech and Theatre offers a full schedule of dramatic presentations in three different theatres. The Clarence Brown Theatre has outstanding facilities for prosenium and open staging and for film productions, and, in a separate Studio Theatre, for laboratory productions. Carousel Theatre is designed for arena staging, and can be converted for open-air performances in the summer. Hunter Hill Theatre, located in the foothills of the Great Smoky Mountains near Gatlinburg, is an outdoor theatre in which performances are offered during the summer months.

Instructional Facilities

The College of Liberal Arts carries out its varied teaching and research activities in more than two dozen principal buildings in two areas of the campus, as well as in a number of converted residences which provide office, studio, or residential space. The oldest of the two clusters of buildings is on "The Hill," and includes Ayres Hall (psychology and mathematics), Austin Peay (psychology), Hesler (biological sciences), Physics (physics and astronomy), Geology-Geography (geology and geography), and Dabney and Buehler (chemistry). West of "The Hill" is a recently built group of buildings for the humanities, social sciences, and fine arts: McClung Tower and the Humanities-Social Sciences classroom building (classics, English, foreign languages, history, human services, philosophy, political science, religious studies, sociology, and speech and theatre), the Music Building (music), and the Hearing and Speech Center (audiology and speech pathology). In this area also are the McClung Museum and the Clarence Brown and Carousel Theatres, as well as the Undergraduate Library. Anthropology is housed in South Stadium, and art utilizes several small buildings for its studios.

College Offices

The College Administrative Office is in 226 Ayres Hall and houses the office of the Dean/Associate Dean as well as the office of Curriculum and Special Programs. The Student Academic Affairs Office is in 218 Ayres Hall. The Liberal Arts Advising Center is in 220 Ayres Hall.

Departments of Instruction

American Studies

See Cultural Studies.

Ancient Mediterranean Civilizations

See Cultural Studies.

Anthropology (122)

Professors:
W.M. Bass (Head), Ph.D. Pennsylvania; C.H. Faulkner, Ph.D. Indiana; A.K. Gute, Ph.D. Michigan; P.W. Parmalee, Ph.D. Texas A&M.

Associate Professors:
I. Harrison, Ph.D. Syracuse; R.L. Jantz, Ph.D. Kansas.

Assistant Professors:

Research Assistant Professor:

UNDERGRADUATE

A major in anthropology shall consist of 39 hours, 12 of which are to be in the introductory 2000-level courses. Of the remaining 27 hours, 4480 and six hours of 3000 level or above courses are required in each of these subfields: (a) Cultural; (b) Physical; and (c) Archaeology.

(a) Cultural: 3410, 3440, 3450, 3510, 3530, 3540, 3710, 3800, 4200, 4210, 4240, 4250, 4259, 4400, 4410, 4420, 4430, 4440, 4500, 4510, 4540, 4570, 4590, 4740.

(b) Physical: 3070, 3900, 3920, 3930, 4930, 4950, 4960, 4970.

(c) Archaeology: 3610, 3620, 3630, 3640, 3660, 4400, 4500, 4600, 4610, 4640, 4650.

A minor in anthroplogy consists of 27 hours including the 2510, 2520, 2530 introductory courses.

2510 Human Origins (4) Non-technical survey of man's primate background, fossil primates, fossil man, and living races of mankind.

2520 Prehistoric Archaeology (4) Survey of prehistoric culture with specific emphasis on method and theory in archaeology: prehistory of western Europe and Africa; archaeology in Americas.

2530 Human Culture (4) Introduction to ethnology: survey of nature of culture and society and similarities and differences in man's mateial culture, social, economic, and political organizations, his ideology, art, and language.

2540 Introduction of Linguistic Anthropology (4) Basic linguistic concepts. Aspects of language studied by anthropologists and sociolinguists.

3070 Genetics and Society (3) (Same as Botany 3070.)

3410 Principles of Cultural Anthropology (3) Basic concepts and objectives in study of culture. Range of cultural phenomena and approaches to its study. 2530 recommended.

3440 Religion of Primitive Peoples (3) Religions of non-literate peoples. Place of religion in their social and cultural systems. 2530 recommended. (Same as Religious Studies 3440.)

3450 Community Studies in Complex Culture (3) Review of cross-cultural comparative urban and village communities and methodology used in community studies. 2530 recommended.

3490 African Religions (4) (Same as Religious Studies 3490 and Black Studies 3490.)

3510 Peoples and Cultures of Mainland Asia (3) Ethnic and cultural survey of indigenous cultures of mainland Asia. Cultural diversity and human ecology in a real perspective. 2530 recommended.

3530 Peoples and Cultures of Africa (3) Ethnographic survey of aboriginal cultures of sub-Saharan Africa. Cultural diversity and human ecology in a real perspective. 2530 recommended.

3540 North American Indians (3) Ethnographic survey of cultures of Arctic, Southwest, Plains and Eastern areas. Emphasis on cultural differences of peoples occupying these areas during pre-colonial period. 2530 recommended.

3555 Cherokee Ethno History (3) Survey of socio-political aspects of internal affairs and external relationships from first European contact to present. Emphasis on 18th and 19th centuries.


3580 Peoples and Cultures of Mesoamerica (3) Ethnographic survey of aboriginal peoples and post-conquest changes in Indian cultures. Emphasis upon analysis of small rural communities using modern village studies as source material. Recommended prerequisite: 2520.

3610 Archaeology of United States and Canada (3) Survey of prehistoric peoples north of Mexico from initial occupation to European contact. 2530 recommended.
Arabic
See Romance Languages.

Art (140)

Professors:

Associate Professors:

Assistant Professors:

Instructors:

Art has two aspects: history of art and practice of art. Knowledge of the practice of art is required of all art majors; knowledge of art history is required of studio majors.

The department reserves the right to acquisition of student studio work.

UNDERGRADUATE

B.A. Major: Art History—Consists of 36 hours in art history courses numbered 2000 and above. Courses numbered 2000 and above in the following areas may also be included in the 36 hours: Greek and Roman art and archaeology, aesthetics, history and theory of architecture (School of Architecture), and up to eight hours in studio courses in the Department of Art. Undergraduate work in art history is enhanced by a knowledge of at least one foreign language. Graduate work normally requires a reading knowledge of at least two foreign languages.

B.A. Major: Art (Concentration in Studio)—Art 1115-25-35 and Art 2715, and eight additional hours of art history are prerequisite to a major of 36 hours of courses numbered 2000 and above, including a minimum of 21 hours in upper-division courses.

Minor: none offered.

For information regarding the Bachelor of Fine Arts degree, see page 182.

1115-25-35 Studio Fundamentals (4, 4, 4) 1115—Drawing and the illusion of space; 1125—Surface composition and color; 1135—Real space and volume. For art, architecture, related arts and art education majors. Others with consent of instructor only.

1815-25 World Art (4, 4) A survey: 1815—prehistory to 1400; 1825—1400 to present.

2008 Honors: Art (4) Intensified study for the exceptional student. May be repeated for a maximum of 24 credit hrs.

2105 Introduction to Drawing (4) Prereq: 1115.

2115 Drawing I (4) Prereq: 2105. May be repeated for a maximum of 8 credit hrs.


2205 Introduction to Painting (4) Oil, acrylic and watercolor. Prereq: 1115-25-35 for art majors.

2215 Painting II (4) Oil and acrylic. Prereq: 2205. May be repeated for a maximum of 8 credit hrs.

2216 Watercolor II (4) Prereq: 2205. May be repeated for a maximum of 8 credit hrs.

2405 Introduction to Sculpture (4) Prereq: 1115-25-35 for art majors.

2415 Sculpture II (4) Prereq: 2405. May be repeated for a maximum of 8 credit hrs.


2516 Advertising Design (4) Fundamentals of lettering and layout for newspaper, magazine television, outdoor advertising. Non-art majors only.

2545-45 Photo-Graphatics (4, 4, 4) Introduction art of photography.

2605 Introduction to Printmaking (4) Relief, lithography, intaglio, and screen printing. Prereq: 2115-25-35 for art majors.

2615 Intaglio II (4) May be repeated for a maximum of 8 credit hrs.

2616 Lithography II (4) May be repeated for a maximum of 8 credit hrs.

2617 Screen Printing II (4) May be repeated for a maximum of 8 credit hrs.

2715 Survey of Contemporary Art (4) 1945 to present.

2725 Black Art (4) Black artists in society. Emphasis on contemporary art forms.

2935 Film Design (4) Introductory theory and practice of film making. Emphasis on graphic elements through use of motion picture camera. May not receive credit for both 2116 and 2935.

3008 Honors: Intermediate Art (4) Intensified study for the exceptional student. May be repeated for a maximum of 24 credit hrs.

3115 Drawing III (4) May be repeated for a maximum of 12 hrs. Prereq: 2115.

3215 Painting III (4) May be repeated for a maximum of 12 hrs. Prereq: Consent of instructor.

3315 Watercolor III (4) May be repeated for a maximum of 12 hrs credit. Prereq: Consent of instructor.

3415 Sculpture III (4) May be repeated for a maximum of 12 hrs.

3515 Visual Communications I (4) Graphic design: theory and techniques of problem solving for printed material. Prereq: 2525.

3516 Typography (4) Theories and techniques of typography and printing as a fine art medium. May be repeated for a maximum of 12 hrs.

3517 Airbrush (4) Techniques and creative applications. May be repeated once for credit. For art majors only.

3525 Visual Communications II (4) Advanced pictorial perception, concepts, methods, and techniques for designer. Prereq: 2525.


3615 Intaglio III (4) May be repeated for a maximum of 12 hrs.

3616 Lithography III (4) May be repeated for a maximum of 12 hrs.
3617 Advanced Screen Printing (4) May be re-
peated for a maximum of 12 hrs.
3704 History of Medieval Art (4) Early Christian, 
Byzantine, Romanesque, Gothic. Changing 
iimagey of Christ, God, Mary. Production and illu-
mination of manuscripts. Construction of basilicas, 
symbolism of domes, towers. Mosaic, fresco, 
glass, sculpture.
3705 Northern European Painting: 1350-1600 (4) 
Painting and graphic making of the low countries. 
France, Germany, and England. Includes interna-
tional style manuscripts, Van Eyck, Bosch, Durer, 
Holbein, and Bruegel.
3715 Early Italian Renaissance Art: 1300-1500 (4) 
Painting, sculpture, and architecture. Includes 
Giotto, Masaccio, Donatello, Brunelleschi, Alberti, 
Botticelli, and Leonardo.
3716 Art in Southern Europe and New World in Six-
tenenth Century (4) Italy, Spain and Latin America, 
1475-1600. Emphasis on Leonardo, Michelangelo, 
Raphael, Pontormo, Bellini, Giorgione, Titian, 
Tintoretto, Veronese, and artistic relations between 
Iberia and Latin America.
3725 Art of Southern Europe and New World in 
Seventeenth and Eighteenth Centuries (4) Empha-
sis on El Greco, Caravaggio, Zurbaran, Velazquez, 
Bernini, Tiepolo, Goya. Artistic relations between 
Iberia and Latin America, and the urban develop-
ment of Rome.
3726 Art of Northern Europe in Seventeenth 
and Eighteenth Centuries (4) Emphasis on Rembrandt, 
Vermeer, Hals, Rubens, Poussin, Callot, Georges 
de la Tour, Watteau, David, urban development of 
Paris and London, and pilgrimage churches of 
southern Germany.
3735 History of Nineteenth-Century Painting 
in Europe and America (4) Emphasis on France: 
Realism, Rococo, Romanticism, Friedrich, Constable, 
Turner, Corot and Barbizon landscapist, Hudson 
River Group, Pre-Raphaelite Brotherhood, 
Manet, Courbet, Impressionism, Eakins, Homer, 
Seurat through Cezanne.
3736 History of Twentieth-Century Painting in 
Europe and America (4) Fauvism, Die Brucke, 
Cubism, Der Blaue Reiter, Futurism, Dada and 
Surrealism, geometric abstraction, social com-
mentary painting. Abstract Expressionism in the 
U.S.A. and paralleled in Europe; Pop, Op, Minimal, 
and Concept Art.
3745 History of Modern Architecture in Europe and 
America (4) Survey of nineteenth-century styles, 
Sullivan and skyscraper. Twentieth century: 
International, Bauhaus, Gropius, Van de 
Roh, Le Corbusier, and Wright. Aalto to Kahn, 
Tange and Metabolism, Archigram, Soleri, and 
Venturi.
3746 History of Modern Sculpture in Europe and 
America (4) From 1900 to 1900: Neoclassicism to 
Rodin. From 1900 to present: emphasis on Cubism, 
Constructivism, Expressionism, Assem-
blage, Pop, Primary Forms, Environments, and 
Earthworks.
3755-56-57 Studies in Art History (4, 4, 4) Concen-
tration in selected areas. Prereq: 12 hrs of art his-
2ory or consent of instructor.
3765 History of North American Art (4) Survey of 
landmarks in painting, architecture, sculpture, 
and design from prehistory to 1900.
3766 History of Twentieth-Century American Art 
(4) Analysis of developments in architecture, 
painting, sculpture, and design from 1900.
3775 Art of Indian Asia (4) History of Indian art with 
consideration of art of Central Asia and Southeast 
Asia.
3776 Chinese Art (4)
3777 Japanese Art (4)
3811 Introduction to Museology (3) Concepts, 
practices and historical development of museums 
of art, archaeology, anthropology and science. 
(Same as Anthropology 3811.)
3835 Film Design (4) Theory and practice of film 
making. Prereq: 2935.
3945 Cinematography (4) Familiarization with 
photographic processes and basic production 
techniques; artistic potential of film, aesthetic 
problems and challenges of the medium. May 
be repeated for a maximum of 12 hrs.
4008 Honors: Advanced Art (4) Intensified study 
for the exceptional student. May be repeated for 
a maximum of 24 credit hrs.
4015 Individual Problems (4) May be repeated for 
a maximum of 12 hrs credit. Prereq: Consent of 
instructor.
4101 Foreign Study (1-16) See page 187.
4102 Off-Campus Study (1-16) See page 187.
4103 Independent Study (1-16) See page 187.
4115 Drawing IV (4) May be repeated for a maxi-
mum of 12 hrs. Prereq: 12 hrs of 3115.
4215 Painting IV (4) May be repeated for a maxi-
mum of 12 hrs. Prereq: Consent of instructor.
4315 Watercolor IV (4) May be repeated for a maxi-
mum of 12 hrs. Prereq: Consent of instructor.
4415 Sculpture IV (4) May be repeated for a maxi-
mum of 12 hrs.
4515 Visual Communications IV (4) Corporate 
design: introduction. Prereq: 3535.
4525 Visual Communications IV (4) Corporate 
design: advanced concepts. Prereq: 4515.
4535 Visual Communications VI (4) Visual and writ-
ten presentation of major graphic problem. Prepa-
ration of portfolio. Prereq: 4525.
4545 Visual Communications Seminar (2) Political, 
social, economic, and moral problems of cont-
emporary designer. Prereq: 4515.
4615 Intaglio IV (4) May be repeated for a maxi-
mum of 12 hrs.
4616 Lithography IV (4) May be repeated for a maxi-
mum of 12 hrs.
4617 Advanced Screen Printing (4) May be re-
petided for a maximum of 12 hrs.
4655-56-57 Reading and Research in Art History 
(2, 2, 2) Individual problems. Prereq: 16 hrs of art 
history, including an upper-division course in the 
area to be researched, junior or senior standing 
and consent of instructor.
4875-76-77 Studies in Oriental Art History (4, 4, 4) 
Concentration in selected areas.
GRADUATE
There are two advanced degrees available in this department: Master of Arts and Master of Fine Arts. In addition to meeting requirements of the Graduate 
School, applicant must have an undergraduate major in art or outstanding proficiency. Examples of work will be 
required. For additional information regarding these programs, write to the head of the department.
5000 Thesis
5002 Non-Thesis Graduation Completion (3-15)
5011-21-31 Exhibition in Lieu of Thesis (3, 3, 3)
5101 Foreign Study (1-12)
5102 Off-Campus Study (1-12)
5103 Independent Study (1-12)
5110-20-30-40-50-60 Drawing and Composition 
(3, 3, 3, 3, 3, 3)
5210-20-30-40-50-60 Oil Painting (3, 3, 3, 3, 3, 3)
5310-20-30 Watercolor Painting (3, 3, 3)
5340-50-60 Watercolor (3, 3, 3)
5410-20-30-40-50-60 Sculpture (3, 3, 3, 3, 3, 3)
5510-20-30-40-50-60 Communication Design (3, 3, 
3, 3, 3)
5610-20-30 Intaglio (3, 3, 3)
5611-21-31 Lithography (3, 3, 3)
5612-22-32 Screen Printing (3, 3, 3)
5770 Seminar in Art History (3)
5855-56-57 Reading and Research in Art History 
(2, 2, 2)
5900 Seminar in Art Criticism (3)
Asian Studies
See Cultural Studies.
Astronomy
See Physics and Astronomy.
Audiology and Speech Pathology (160)
Professors: H.L. Luper (Head), Ph.D., Ohio State; S. Adler, Ph.D., Ohio State; C.W. Asp., Ph.D., Ohio State; 
D.M. Liposcomb, Ph.D., Washburn; H.A. Peterson, Ph.D., Illinois; B. Silverstein, Ph.D., Purdue.
Associate Professors: S.B. Burchfield, Ph.D., Michigan State; P.J. Carney, Ph.D., Iowa; C.G. Maisel, M.Ed. 
Texas; T.V. Nabelek, Ph.D., Czech Technical (Prague).
Assistant Professor: T.O. Davidson, M.A., Tennessee.
Instructors: J.S. Berry, M.S., Tennessee; J. Dickerman, M.A., Illinois; S.C. Goss, M.A. Wayne State; K. Hinkle, 
M.A., Tennessee; M. Nabors, M.A., Tennessee; R. Roettiger, M.A., Tennessee; A.K. Sampson, M.A., 
Tennessee; T.R. Singletary, M.S., Colorado State.
UNDERGRADUATE
General Information. One of mankind's most significant developments has been the acquisition of organized systems of communication. Basic to most human language systems has been dyadic oral-
ural communication. The Department of Audiology and Speech Pathology offers course work in the scientific study or oral-
ural communication with special attention to variations considered normal or different. Many of the courses offered in the department cover information that should be valuable to students planning to enter any social service discipline.
Suggested electives for non-departmental majors include: 3010, 3040, 3050, 3070, 3710, 4720, and 4750.
Majors. The two majors (audiology and speech pathology) within the department are 
preprofessional; that is, they are preparatory to graduate work and to professional certification in some aspect of communicative disorders. The Master's degree is required for most professional 
certificates and employment positions. Within the broad coverage of audiology, it is possible for a student to specialize to a 
limited extent by choosing elective courses which emphasize traditional
diagnostic audiology or aural habilitation-rehabilitation. Students in speech pathology may specialize to a limited extent by choosing elective courses which emphasize speech disorders, language disorders, or cultural language differences. Students desiring school certification in speech and hearing or education of the deaf should consult the Department of Special Education and Rehabilitation for specific requirements. A major in audiology consists of Audiology and Speech Pathology 3010, 3050, 3200, 3310, 3710, 4040, 4450, 4720, 4930 plus not less than 10 or more than 22 credit hours from the following: 3065, 4320, 4460, 4470 and 4610.

Additional recommended courses for audiology majors are: Audiology and Speech Pathology 4560, 4610, 4750 and Psychology 2500, 2520, 2540 and 3150. A major in speech pathology consists of Audiology and Speech Pathology 3010, 3050, 3065, 3200, 3310, 4040, 4320, 4330, 4450, 4720, plus not less than 9 nor more than 15 hours from the following: 3065, 4320, 4340, 4450, 4610, 4930, 4940.

Additional recommended courses for speech pathology majors are: Audiology and Speech Pathology 4520, 4450, 4460, 4470, 4470, Anthropology 2530 or 3410, Psychology 2500, 2520, 2530, 2540, 3150, Special Education 4030, 4341, 4342, 4110, 4120, 4130, 4610, and Child and Family Studies 4810.

1261 English Pronunciation for Foreign Students (3) (Same as English 1261.)
3010 Basic Acoustics in Speech and Hearing (4) Fundamental aspects of acoustics in speech and hearing including physics of sound.
3040 Introduction to Speech Pathology and Audiology (3) Nature, etiology, and incidence of speech, hearing, and language disorders. Cannot be used to satisfy requirements of major in audiology or speech pathology.
3050 Speech Science I: Phonetics (4) Basic phonetics including recognition and production of spoken English sounds with analysis of their formant characteristics and characteristics of speech and speech perception. Prereq: 3010.
3065 Speech Science II (4) Anatomy and physiology of speech production mechanism. Prereq: 3050.
3200 Speech and Language Development (4) Speech and language development in the normal child including development of distinctive features and implications of this process on diagnosis of speech and language development. Prereq: Psychology 3550 or Education 2430.
3310 Articulation Disorders (4) Etiology, diagnosis, and treatment of articulatory defects. Prereq: 3050. (Same as Special Education 3310.)
3710 Audiology I (4) Fundamental aspects of normal hearing including anatomy and physiology of ear and basic audiometric principles. Prereq: 3010. (Same as Special Education 3710.)
4040 Appraisal of Speech and Language Disorders (4) Diagnostic procedures for children and adults with speech and language problems including observation and practice with diagnostic tests. Prereq: 3050. (Same as Special Education 4040.)
4070 Free Association (4) Oral and written free association as process for diagnosing and treating communication disorders. Includes didactic self analysis.
4101 Foreign Study (1-16) See page 187.
4102 Off-Campus Study (1-16) See page 187.
4103 Independent Study (1-16) See page 187.
4190 Speech Development of the Hearing Impaired (3) Prereq: 3050. (Same as Special Education 4190.)
4200 Practicum in Speech Development of the Hearing Impaired (3) (Same as Special Education 4200.)
4210 Language Development of the Hearing Impaired (3) (Same as Special Education 4210.)
4220 Language Development of the Hearing Impaired (3) (Same as Special Education 4220.)
4250 Introduction to the Education and Psychology of the Deaf (3) (Same as Special Education 4250.)
4310 Stuttering (4) Nature and treatment. Review and integration of various theories. (Same as Special Education 4310.)
*4320 Clinical Practice in Speech Pathology (1-6) Prereq: 3040, 3050, 3310, 4040, and consent of instructor. S/NC. (Same as Special Education 4320.)
4330 Clinical Practice in Speech Pathology (1-6) Prereq: 3040, 3050, 3310, 4040, and consent of instructor. S/NC. (Same as Special Education 4330.)
4340 Clinical Practice in Speech Pathology (1-6) Prereq: 3040, 3050, 3310, 4040, and consent of instructor. May be repeated for credit. S/NC. (Same as Special Education 4340.)
4400 Voice Disorders (4) Etiology, diagnosis, and treatment of voice and related vocal functions. Prereq: 3065. (Same as Special Education 4400.)
*4450 Clinical Practice in Audiology (1-6) Prereq: 4720, 4930, or 4940. S/NC. (Same as Special Education 4450.)
4460 Clinical Practice in Audiology (1-6) Prereq: 4720, 4930, or 4940. S/NC. (Same as Special Education 4460.)
4470 Clinical Practice in Audiology (1-6) Prereq: 4720, 4930, or 4940. May be repeated for credit. S/NC. (Same as Special Education 4470.)
4520 Speech Pathology (3) Independent study of special problems in speech pathology. Prereq: Consent of instructor.
4550 Problems in Speech Pathology (3) Prereq: Consent of instructor.
4560 Problems in Audiology (1-6) Prereq: May be repeated to maximum of 6 hrs credit. Prereq: Consent of instructor.
4650 Speech and Language of the Culturally Different Child (3) Discussion of speech and language differences of children of various minority groups, of different ethnic and class membership and from different geographic regions; their causes, and their effects upon educational programs.
4700 Audiology for Educators of the Deaf (4) Fundamental aspects of hearing, including physics of sound, anatomy and physiology of the ear, etiology and rehabilitation of hearing loss and basic audiometric techniques. May not be used to satisfy requirements of major in audiology and speech pathology. (Same as Special Education 4700.)
4719 Audiology Laboratory (1) Prereq: Consent of instructor. Undergraduate credit only. (Same as Special Education 4719.)
4720 Audiology II (4) Etiology and rehabilitation of hearing loss including pediatric and geriatric aspects, medical treatment and diagnostic audiom- etry. Prereq: 3710. (Same as Special Education 4720.)
4750 Noise in the Environment (3) Discussion of extent to which noise problem exists, introduction to methods of noise measurement, basic techniques in sound and vibration abatement, acoustical factors, and physiological concomitants in noise stimulation. Knowledge of acoustics is advisable.
4930 Aural Rehabilitation: Speechreading and Auditory Training (4) Speechreading as a receptive language process and development of maximum use of residual hearing in acoustically handicapped. (Same as Special Education 4930.)
4939 Laboratory in Aural Rehabilitation (1) (Same as Special Education 4939.)
4940 Advanced Aural Rehabilitation (4) Prereq: 4930 or consent of instructor. (Same as Special Education 4940.)
GRADUATE
5000 Thesis
5002 Non-Thesis Graduation Completion (3-15)
5040 Advanced Clinical Practice in Audiology (1-6)
5045 Practicum in Hearing Aid Orientation and Communication Counseling (1-6)
5050 Practicum in Aural Habilitation (1-6)
5051 Practicum in Aural Rehabilitation (1-6)
5060 Anatomy and Physiology of Speech (3)
5070 Anatomy and Physiology of Hearing (3)
5071 Physiological Acoustics (3)
5100 Comparative Anatomy of Peripheral Auditory Structures (3)
5110 Introduction to Research in Speech and Hearing (3)
5117 Instrumentation in Audiology and Speech Pathology (2)
5119 Laboratory in Instrumentation in Audiology and Speech Pathology (1)
5200 Seminar on Stuttering (3)
5201 Aphasia (3)
5320-30-40 Advanced Clinical Practice in Speech Disorders (1-6, 1-6, 1-6)
5350-60-70 Advanced Clinical Practice in Speech Diagnosis (1-6, 1-6, 1-6)
5380 Cerebral Palsy (3)
5390 Cleft Palate (3)
5440 Hearing Aid Evaluation (3)
UNDERGRADUATE

No major is offered, although course work in biochemistry is applicable to majors in biology, and chemistry.

For the Bachelor of Arts degree with a minor in biochemistry, the following courses are required: Chemistry 2140-49, 3211-21-31, 3219-29-39, and Biochemistry 4110-20 and 4119. Additional credits from Biochemistry 4210-20-30 and/or 4500 and/or 5010 are desirable.

4110-20 Cellular and Comparative Biochemistry (4, 4) Electrolyte behavior; chemistry and structure of proteins; enzyme behavior and biological function; catabolism and energy capture; synthetic metabolism; nucleic acid function, protein synthesis and biochemical genetics; regulation of biological processes. Must be taken in sequence. Prereq: Chemistry 3211-21-31, 3219-29-39, and one course from Biology 1210-20-30 or Botany 1110-20. Three lectures and discussion.

4119 Cellular and Comparative Biochemistry Laboratory (2) Basic biochemical procedures of general application in biochemistry and molecular biology. Prereq: 1 quarter of analytical chemistry. Prereq or coreq: 4110.

4210-20 Introduction to Physical Biochemistry (3, 3) 4210—Introduction to thermodynamics; phase stability and configurational changes; chemical potential; osmotic pressure; activity and the Debye-Hückel model; electrochemistry; membrane permeability. 4220—Elements of statistical mechanics, diffusion, collision theory, chemical kinetics and transition state theory; higher order kinetics; specialized kinetics of enzymatic processes; some bio-polymer considerations. Prereq: Mathematics 1640-50-60, Chemistry 3211-21-31 and 3219-29-39, and an introductory course in biology.

4230 Introduction to Physical Biochemistry (3) Physical characterization of macromolecules; polarized light, absorption and fluorescence, sedimentation and transport hydrodynamics, electro-phoresis, light scattering, and structural x-ray crystallography of proteins and nucleic acids. Prereq: 4220 or Chemistry 3430, or equivalent.

4500 Independent Research in Biochemistry (1-6) Students must submit proposals and obtain approval from the instructor prior to enrolling. Prereq or coreq: 4110-20, 4119.

GRADUATE

The Master's Program

Master's degree requirements are found in the Graduate Catalog. Candidates usually should offer an undergraduate major in either biology or biochemistry.

The Doctoral Program

Requirements for the Doctor's degree are found in the Graduate Catalog. An incoming student must present an undergraduate major in either chemistry or biology.

5000 Thesis

5010 Biochemical Techniques (2)

5110 The Metabolism of Nitrogen Containing Compounds (3)

5120 Membranes, Compartmentation, and the Regulation of Energy Metabolism (3)

5130 Protein Structure and Enzyme Function (3)

5220 Structures and Functions of the Nucleic Acids (3)

5230 Protein Synthesis and Its Role in Metabolic Regulation (3)

5300 Graduate Research Participation (3-9)

5310-20-30 Experimental Techniques (2, 2, 3)

5450 Special Topics (1-3)

5510 Properties of Biomolecules Related to Function (3)

5520 Molecular and Cellular Basis of Metabolic Regulation (3)

5530 Biosynthesis and Regulatory Functions of Informational Molecules (3)

6000 Doctoral Research and Dissertation

6010 Advanced Biochemistry Seminar (1)

6410-20-30 Current Topics in Biochemistry (2, 2, 2)

Biology (190)

Coordinator: K.J. Monty

A major in biology may be met by completing one of the two following concentrations:

A. Concentration in Cell Biology: Consists of Biology 3110-20-30, Chemistry 3211-21-31, 3219-29-39, Biochemistry 4110-20, and 12 hours from approved upper-division courses in biochemistry, botany, microbiology, and zoology. Prerequisites to this concentration are Mathematics 1210-20-30 or Botany 1110-20 or 1118-28 or Zoology 1118-28; Chemistry 1110-20-30. Corequisites are Math 1841-51; a year sequence in physics (except 1410-20-30); and Chemistry 2140-49.

B. Concentration in Organismal and Systems Biology. Consists of Biology 3110, 3120, 3130, Chemistry 3211-21-31, 3219-29-39, and 18 hours from approved upper-division courses in biochemistry, botany, microbiology, and zoology. Prerequisites to this emphasis are Biology 1210-20-30 or Botany 1110-20 or 1118-28 or Zoology 1118-28; Chemistry 1110-20-30. Corequisites are Math 1841-51 or 1550-60 (Math 1841-51 is recommended choice); a year sequence in physics (except 1410-20-30) or Geology 1510-20.

Notes: Students majoring in biology are advised to exercise care in fulfilling the science and mathematics triad requirements. Math 1841-51 (or in some cases 1550-60) and Chemistry 1110-20-30 or equivalent (20 hours altogether) must be completed by biology majors. Students majoring in biology are advised to consider completion of a physical science minor (page 223).

Minor: Consists of Biology 3110-20-30 and 12 hours of upper-division courses chosen from the list below. Biochemistry 4110-20, 4119, 5010; Botany, any 3000- or 4000-level courses; Microbiology, any 3000- or 4000-level courses; Zoology, any 3000- or 4000-level courses. Biochemistry 4110, 5010; Botany, any 3000- or 4000-level courses (except 3050, 3070, 3093); Microbiology 3000-9, 3071-79, 4111-21, 4210-20-30, 4321-29, 4811-19, Zoology 3060, 3060, 3060, 3150, 3230, 4010, 4050, 4110-20-30, 4250, 4280, 4310, 4369, 4380, 4450, 4610-20. (In meeting the upper-division minimum requirement, not more than 8 hours may be credited from any one biological science department, and not more than 4 hours of research courses may be credited.)

Biochemistry 4110-20, 4119, 5010; Botany, any 3000- or 4000-level courses including not more than one from 3050, 3070, 3093; Microbiology, any 3000- or 4000-level courses; Zoology, any 3000- or 4000-level courses except 3010-20-30 and 3090. (In meeting the upper-division minimum requirement, not more than 12 hours may be credited from any one biological science department, and not more than 4 hours of research courses may be credited.)

Bacteriology

See Microbiology.

Biochemistry (188)


Associate Professors: S.W. Hawkins, Ph.D. Chicago; J.G. Joshi, Ph.D. Poona (India).

Assistant Professors: L. Brattsten, Ph.D. Illinois; R.E. Bryant, Ph.D. Illinois; R.H. Feinberg, Ph.D. California (Berkeley); L. Huang, Ph.D. Michigan State.

5450 Sound Measurement and Analysis in Hearing Conservation (3)

5460 Differential Diagnosis of Auditory Disorders (3)

5470 Impedance Measurement in Audiology (3)

5490 Practicum in Hearing Conservation (1-6)

5500 Seminar in Audiology (3)

5503 Seminar in Advanced Audiological Procedures (3)

5505 Special Problems in Audiology (1-6)

5520 Seminar in Speech Pathology (3)

5540 Seminar in Language Pathology (3)

5550 Special Problems in Speech Pathology (1-3)

5560 Independent Study in Speech Pathology (1-3)

5600 Independent Study in Audiology (1-6)

5610 Practicum: Language Pathology in Children (3)

5651 Seminar in Language Differences (3)

5730 Seminar in Medical Audiology (3)

5740 Seminar in Pediatric Audiology (3)

5790 Seminar in Psycholinguistic Concepts in Speech Pathology (3)

5950 The Verbo-tonal System (3)

6000 Doctoral Research and Dissertation

6010 Experimental Psychonics (3)

6020 Psychoacoustics (3)

6060 Applied Anatomy and Physiology of Speech Mechanism (3)

6070 Experimental Techniques in Cochlear Physiology and Neurophysiology (3)

6080 Seminar in Speech Science (3)

6090 Seminar in Hearing Science (3)

6110 Experimental Design in Speech and Hearing (3)

6117 Theories of Hearing (3)

6119 Advanced Instrumentation in Speech and Hearing Science (3)

6500 Advanced Seminar in Audiology (3)

6520 Advanced Seminar in Speech and Language (3)

6560 Directed Research (1-6)

6570 Directed Study in Speech Pathology (1-3)

6580 Directed Study in Audiology (1-3)

6590 Directed Study in Speech Science (1-3)

6600 Directed Study in Hearing Science (1-3)

5310-20-30 Experimental Techniques (2, 2, 3)

5450 Special Topics (1-3)

5510 Properties of Biomolecules Related to Function (3)

5520 Molecular and Cellular Basis of Metabolic Regulation (3)

5530 Biosynthesis and Regulatory Functions of Informational Molecules (3)

6000 Doctoral Research and Dissertation

6010 Advanced Biochemistry Seminar (1)

6410-20-30 Current Topics in Biochemistry (2, 2, 2)
Botany (198)

Professors: R.W. Holton (Head), Ph.D. Michigan; E.E.C. Clebsch, Ph.D. Duke; H.R. DeSeel, Ph.D. Ohio State; W.R. Herron (Vice Chancellor for Academic Affairs), Ph.D. Vanderbilt; L.R. Hesler (Emeritus), Ph.D. Cornell; L.W. Jones, Ph.D. Texas; J.F. McCormick (Director of Ecology Program), Ph.D. Emory; P.H. Norris, Ph.D. Ohio State; J.S. Olson, Ph.D. Chicago; R.H. Petersens, Ph.D. Columbia; A.J. Sharp (Emeritus), Ph.D. Ohio State; P.L. Walne, Ph.D. Texas.

Associate Professors: C.C. Amundsen, Ph.D. Colorado; S.L. Bell, Ph.D. Chicago; M.W. Bierner, Ph.D. Texas; J.D. Caponetti, Ph.D. Harvard; A.M. Evans, Ph.D. Michigan; A.S. Heilman, Ph.D. Ohio State; H.H. Shugart, Ph.D. Georgia.


Instructor: B.D. Durland, M.S. Georgia College.

UNDERGRADUATE

Major: Consists of Biology 3110-20-30; 23 upper-division hours of botany, including 3210 and at least 2 hours from 4710-20-30, plus 4 hours of upper-division courses from a related biological science (zoology, microbiology, inorganic chemistry, agricultural biology, forestry, ornamental horticulture and landscape design, or plant and soil science). Not more than 3 hours from 3050, 3070, 3090 allowed for major credit. Prerequisites to this major are Botany 1110-20-40 or 1118-20 or Biology 1210-20-30 and Chemistry 1110-20-30.

Corequisites are Math 1840-50 or Math (Math 1550-60, Physics 1210-20-30 or Physics 2210-20-30 or Chemistry 3211-21-31, 3219-29-39 or Geology 1510-20 plus 4 additional hours in geology.

Minor: Consists of Biology 3110-20-30 and 15 upper-division hours in botany. Not more than 3 hours from 3050, 3070, 3090 are allowed for minor credit. Prerequisites to this minor are Botany 1110-20, 1140 or 1118-20 or Biology 1210-20-30.

Corequisites are 4 hours of upper-division courses in a related biological science (zoology, microbiology, biochemistry, agricultural biology, forestry or plant and soil science).

1110-20 Fundamentals of Botany (4, 4) Nature and development of plants, including processes, structure, life histories, inheritance, ecology and importance to man. Enrollment in sequence is desirable. Two 1-hr discussions and approximately 3 hrs audio-tutorial laboratory per week. Students may not receive credit for both Biology 1110-20 and Biology 1210-20-30.

1118-28 Honors: Fundamentals of Botany (6, 6) Honors course designed for superior students in beginning botany. Open to freshmen with a score of 20 or better on the mathematics section of the American College Testing Program, and sophomores who have a cumulative grade point average of 3.25 (or 3.5 in the sciences) or who are approved through an interview with a member of botany faculty. Students receiving C or D in 1118 must transfer to 1120. Three 2-hr lecture-lab-discussion periods. Must be taken in sequence. Students may not receive credit for both Biology 1118-28 and Biology 1210-20-30.

*Students with 2 years of high school biology and satisfactory ACT scores may, with the consent of the department, omit the freshman year sequence and enter Biology 3110-20-30 directly (see course listings under biology).

1140 Selected Topics in General Botany (4) Areas will include plant growth, population genetics, environmental interactions and impact of human activities on biological resources. Lectures, laboratory, field trips and individual projects. Two hrs lecture-discussion and 4 hrs laboratory per week. Optional field trips. Prerequisite: Botany 1110-20 or Biology 1210-20-30.

3010-20 Plants in Evolution (4, 4) Monera to angiosperms; emphasis on evolutionary relationships, morphology and development. Not for botany graduate credit. Prerequisite: 6 hrs in biological sciences.

3030 Field Botany (4) Study of plants in natural environments including plant identification, collection, preservation and basic ecological concepts. 4 hrs in biological sciences. Not for botany graduate credit.

3031-2 Field Botany (4, 4) Emphasis on fall and winter flora, respectively. Prerequisite: 3030. Need not be taken in sequence.

3050 Socio-Economic Impact of Plants (3) Significance of domestication and development of human cultures, evolution of cultivated plants, and role of plants in present civilizations. Occasional field trips. Not for botany graduate credit.

3070 Genetics and Society (3) An introduction to genetics, anthropology and evolution with emphasis on their implications for human society. Not for botany graduate credit. (Same as Anthropology 3070.)

3090 Biology and Human Affairs (3) Basic biological principles involved in deterioration and preservation of an environment in which man and his culture may survive. Not for botany graduate credit. (Same as Zoology 3090.)

3130 Introductory Plant Pathology (4) Same as Agricultural Biology 3130.

3210 Introductory Plant Physiology (4) Organismal physiology of plants: water relations, mineral nutrition, merophenesis, elements of metabolic processes, effects of age, light, natural rhythms, temperature and other environmental factors. Lecture and lab. Not for botany graduate credit. Prerequisite: One year general chemistry and one year biological science.

4000 Tutorial in Botany (2) Individual, independent study under guidance of selected staff. By application only. May be repeated with consent of department.

4030 Mechanisms of Plant Speciation (4) Processes of plant speciation emphasizing population genetics, isolation, drift, hybridization, variation in populations, establishment of population barriers and other aspects of plant speciation. Prerequisite: 3010-20 and Biology 3110.

4120 Plant Anatomy (4) Comparative structure of vascular plants. Prerequisite: 1110-20.

4240 Paleobotany (4) (Same as Geology 4240.)

4310 Plant Ecology (4) Interactions between individuals, species communities and their environments. Circulation of energy and matter in ecological systems. Weekly field trips or laboratory periods, and at least two weekend field trips. Prerequisite: 3030 or equivalent.

4410-20-30 Undergraduate Research Participation (2, 2, 3) Interactions in active research projects under supervision of staff members. Prerequisite: Junior or senior standing, minimum grade average 3.0, consent of instructor.

4710-20-30 Senior Seminar (1, 1, 1) At least 2 hrs of 4710-20-30 are required of botany majors. Prerequisite: Senior standing.

GRADUATE

5000 Thesis

5011 Mycology (4)

5012 Morphology and Evolution of Phycocyanines (4)
Chemistry (235)

Professors:
D.A. Shirley (Head), Ph.D., Iowa State; N.S. Bowman, Ph.D., Princeton; C.A. Buehler (Emeritus), Ph.D., Ohio State; W.E. Bull, Ph.D., Illinois; C.J. Collins, Ph.D., Northwestern; J.A. Dean, Ph.D., Michigan; J.F. Eastham, Ph.D., California (Berkeley); W.H. Fletcher, Ph.D., Minnesota; G.C. Kleiner, Ph.D., Texas; D.C. Kleinfield, Ph.D., Princeton; M.H. Lietzke, Ph.D., Wisconsin; G. Mamantov, Ph.D., Louisiana State; A.D. March, Ph.D., (Emeritus); Ph.D., Penn State; G.D. O'Kelley, Ph.D., California (Berkeley); G.K. Schwitzer*, Ph.D., Illinois; G.P. Smith, Ph.D., Virginia; H.A. Smith (Emeritus); Ph.D., Harvard; W.T. Smith (Emeritus), Ph.D., Ohio State; W.A. Van Horn, Ph.D., Johns Hopkins; E.L. Wehrly, Ph.D., Purdue; T.F. Williams, Ph.D., London (England); J.H. Wood (Emeritus), Ph.D., North Carolina.

Associate Professors:
J.E. Bloor, Ph.D., Manchester (England); J.Q. Chambers, Ph.D., Kansas; G.W. Kabalka, Ph.D., Purdue; C.A. Lane, Ph.D., California (Berkeley); W.L. Larsen, Ph.D.; R.M. Magid, Ph.D., Yale; R.M. Pagni, Ph.D., Wisconsin; J.R. Peterson, Ph.D., California (Berkeley).

Assistant Professors:
J.L. Adcock, Ph.D., Texas; F.A. Grimm, Ph.D., Cornell; J.K. Kinzie, Ph.D., Akron; J.D. Kovac, Ph.D., Yale; T. McClellan, Ph.D., Tennessee; F.M. Schell, Ph.D., Indiana; C. Woods, III, Ph.D., North Carolina State.

*Alumni Distinguished Service Professor.

UNDERGRADUATE

For information regarding the Bachelor of Science in Chemistry degree and the cooperative program in chemistry, see page 185.

There are two alternative routes for the student to take in designing a program for a B.A. degree with a major in chemistry. Concentration A is designed to prepare the student for a career as a professional chemist or for entrance into graduate school in such fields as chemistry, biochemistry, geochemistry, etc. This program has similarities to that leading to the degree of Bachelor of Science in Chemistry, (page 185), but with more opportunity for selection of electives outside the department and outside of science. Unlike the Bachelor of Science in Chemistry degree, the B.A. degree using Concentration A is not approved by the Committee on Training of the American Chemical Society.

The prerequisites consist of Chemistry 1110-20-30, Mathematics 1860-50-60 or 1840-60-70. The concentration consists of Chemistry 2140, 2149, 3211-21-31 or 3511-21-31 (latter recommended), 3219-29-39 or 3219, 3529-39 (latter recommended), 3410-20-30, 3429 plus at least 10 hours of additional upper-division work in chemistry. (Up to six hours of biochemistry 4000 level and above or Geology 4610 may be applied to the ten hour requirement.) While not required, Math 2600 is highly recommended as an elective for majors in this concentration.

Concentration B is designed for students who have career objectives in fields other than chemistry, but in fields where chemistry has direct applications, such as medicine, dentistry, pharmacy, law, business and ecology. This concentration, supplemented by appropriate courses from other areas, is suitable for students planning careers in these areas. Concentration B is specifically designed to provide more elective hours which may be employed in fields which are related to chemistry. Concentration B is not appropriate for students intending to become professional chemists.

The prerequisites consist of Chemistry 1110-20-30, Mathematics 1860-50-60 or 1840-60-70. The student is required to take the following natural science options: (a) Physics 2210-20-30 or 2510, 2310-20; (b) Geology 1510-20; (c) Biology 1210-20-30; (d) Biology 3110-20 and Microbiology 3000, 3008; or (e) Botany 1110-20. The concentration consists of Chemistry 2140, 2149, 3211-21-31 or 3511-21-31 (latter recommended), 3219-29-39 or 3219, 3529-39 (latter recommended), 4910-20-30, 4929 plus at least 10 hours of additional upper-division work in chemistry. (Up to six hours of biochemistry 4000 level and above or Geology 4610 may be applied to the ten hour requirement.)

A minor in chemistry shall consist of the successful completion of 24 hours of chemistry courses number 2000 and above including Chemistry 2140-49 (4 hours) and at least one of the following sequences: Chemistry 3211-21-31, 3219-29 (or 3529)-3239 (or 3539) (12 hours) or Chemistry 3410-20-30 (9 hours) or Chemistry 4910-20-30 (9 hours).

Placement in Freshman Sequences:
The sequence which meets all requirements of a year of general chemistry and is a prerequisite for upper-division courses is 1110-20-30. The 1500 and 1600 series have more limited applications. The 1500 series emphasizes organic and biochemistry and may be used as a prerequisite for 2230 and 3810. The 1600 series is for non-science majors and does not provide an adequate background for any further courses in chemistry. It is possible to move from one sequence to another as long as substitution is obtained in advance. For example, a student who finds a need to complete the 1110 series after having completed 1510 may substitute 1510 for 1110 with the approval of the chemistry department and may then take 1120 followed by 1130. However, no single quarter of the 1500 or 1600 sequences may be substituted for 1120 or 1130. Credit may be received for only one of the courses 1110, 1510, or 1610.

In any chemistry course above the freshman level which has Chemistry 1110-20-30 as a prerequisite, 1510-20-30 may be used as a prerequisite with approval of the chemistry department.

Chemistry 1118-28-38 is an honors courses designed for the student who has already made considerable progress in science. Class size may be limited to promote faculty-student interaction. Selection is based on ACT scores, high school chemistry grade, and if necessary, performance on a placement examination to be given during the first class meeting. A student receiving a passing grade below B in 1118 will complete the year's work by...
taking 1120-30. A student receiving a grade of C or D in 1110 will not be eligible for 1138 and must take 1130 to get the full 12 hours credit.

Beginning students who have had high school chemistry and who have had additional exploratory summer institute study, special research projects, home laboratory) are invited to apply during the summer to the head of the department for permission to take a proficiency examination in one or more quarters of freshman chemistry. If a satisfactory grade is made on the examination, credit will be allowed for the quarter (or course) for which the exam was taken.

1110-20-30 General Chemistry (4, 4, 4) General courses of theoretical and descriptive chemistry.

1110-Modern atomic theory, chemical bonding, stoichiometry and quantitative treatment of gas laws. 1120—Quantitative aspects of solution chemistry, kinetics, chemical equilibria, and thermodynamics. 1130—Descriptive chemistry of nonmetallic elements, electrolytes, solutions, and introduction to organic and biochemistry. Must be taken in sequence. 3 hrs and 1 lab.

1118-20-38 Honors: General Chemistry (4, 4, 4) (See explanation above.) 3 hrs and 1 lab.

1410 Chemistry for Nurses (4) Inorganic, organic, and biochemistry. 3 hrs and 1 lab.

1420 Chemistry for Nurses (4) Aromatic compounds and biological chemistry. Prereq: 1410. 3 hrs and 1 lab.

1510-20-30 General Chemistry (4, 4, 4) Introductory course with emphasis on topics relating to living systems: Performance and molecular structure, gas laws, liquid and solid state, solutions, colloids. 1520—Acids and bases, oxidation and reduction, kinetics and equilibria, introduction to organic chemistry, alkanes, unsaturated and aromatic hydrocarbons. 1530—Structure and reactions of various organic functional groups. Introductory biochemistry—amino acids and proteins, carbohydrates, lipids, nucleic acids. Must be taken in sequence. 3 hrs and 1 lab.

1610-20 Chemistry and Society (4, 4) Chemistry for non-science majors emphasizing role of chemistry in dealing with current social concerns. 1610—Basic principles including particle nature of substance, nuclear and chemical changes. 1620—Impact and utilization of chemical principles in modern society. Both sections open to areas of energy, environment, medicine and consumer products. Must be taken in sequence. 3 hrs and 1 lab.

2140 Analytical Chemistry (3) Principles and practices of quantitative measurement with emphasis on systems of analysis. Acid-base equilibria, oxidation-reduction systems, complexometry, titrimetry, elementary spectrophotometry, polarimetric methods, application of titrimetric analysis. Prereq: 1110-20-30; coreq: 2149.

2149 Analytical Chemistry (1) Experiments on topics discussed in 2140. Prereq or coreq: 2140. 1 lab.

2230 Elements of Organic Chemistry (4) Brief treatment of principles of organic chemistry with emphasis on compounds of biological interest. Prereq: One year of general chemistry. Not open to chemistry majors and minors. Coreq cannot be received for both Chemistry 2230 and 3211, toward graduation or otherwise.

3000 Searching the Chemical Literature (2) Use of abstracts, indices, reference, compendium, books, chemical journals and other sources of chemical information. 2 hrs. Open only to upper-division chemistry majors and minors.

3211-21-31 Organic Chemistry (3, 3, 3) Compounds of carbon and their reactions, reaction mechanisms, spectroscopic and other physical properties. Must be taken in sequence. Prereq: 1110-20-30. Corresponding laboratory (3219-29-39) is coreq for students not having credit for the laboratory. 3219-29-39 Organic Chemistry Laboratory (1, 1, 1) Experiments on topics discussed in 3211-21-31. Corresponding lecture (3211-21-31) is coreq for students not having credit for the lecture.


3429-39 Physical Chemistry Laboratory (1, 1) Gases, liquids, chemical equilibria, solutions, phase equilibria, reaction kinetics and electrochemistry. The corresponding courses (3420 and 3430) are coreq. 1 lab.

3511-21-31 Principles of Organic Chemistry (3, 3, 3) Structure and reactivity of aliphatic and aromatic compounds; mechanisms of synthetic utility. Use of spectroscopic and physical techniques to elucidate reaction mechanisms. Recommended for students planning careers in physical or biological sciences. Must be taken in sequence. Prereq: 1110-20-30. Corresponding lecture 3511-21-31 or 3219, 3529-39 is a coreq; latter is recommended.

3529-39 Organic Chemistry Laboratory (1, 1) Experiments on topics discussed in 3521-31. Similar to 3299-39 except designed for students who have not had knowledge of various spectroscopic and chromatographic techniques. Corresponding lecture (3521-31 or 3219-31) is coreq for students not having credit for the lecture.

3810 Radioactivity and Its Applications (3) Radioactive materials in tracer and therapeutic applications. Radioactive decay, detection apparatus and techniques, tracer procedures and safety precautions in agriculture, biology, medicine, nutrition, etc. Not for credit by chemistry or physics majors or minors. Prereq: Math 1550 or equivalent, 1 yr of general chemistry.


4119 Physical Chemistry Laboratory (1) Solutions, phase equilibria, reaction kinetics and spectroscopy. Theory and application of atomic, molecular, and statistical laws of thermodynamics, phase equilibria and solutions, and chemical equilibria. Gases and kinetic theory, chemical kinetics, molecular spectroscopy, and introduction to chemical statistics.

4160-70 Intermediate Physical Chemistry (3, 3) (Designed for entering graduate students who have had one year of physical chemistry.) 4160—The basic laws of thermodynamics, phase equilibria and solutions, and chemical equilibria. 4170—Gases and kinetic theory, chemical kinetics, molecular spectroscopy, and introduction to chemical statistics.

4190 Advanced Analytical Chemistry (3) Chemical separations including chromatography, ion exchange and solvent extraction, spectrophotometric techniques. Prereq: 2140-49.

4219 Advanced Analytical Chemistry Laboratory (1) Experiments on topics discussed in 4210. Coreq: 4220.

4220 Advanced Analytical Chemistry (3) Electroanalytical methods of analysis (including potentiometry, coulometry, polarography, and voltammetry); magnetic resonance methods; mass spectroscopy; x-ray absorption and fluorescence techniques. Prereq: 2140-49; 3420 or 4220 recommended.

4229 Advanced Analytical Chemistry Laboratory (1) Experiments on topics discussed in 4220. Coreq: 4220.

4420 Physical Inorganic Chemistry (3) Theoretical concepts leading to an understanding of inorganic chemistry; quantum theory of the atom, principles of molecular structure, and elementary nuclear chemistry. Prereq: 4200, 4430.

4430 Intermediate Inorganic Chemistry (3) Application of theoretical concepts to inorganic elements, their chemical states, and their reactions. Prereq: 4420.

4510 Organic Qualitative Analysis (3) Identification of functional groups and mixtures. Prereq: 3211-21-31, 3219-29-39 or 3219, 3529-39. 3 labs. (Not open to students who have completed 4610.)


4810-20 Advanced Chemical Experimentation (2, 2) Laboratory courses in application of modern experimental techniques to solution of chemical problems. Synthesis and characterization of organic and inorganic compounds with emphasis on independent study using advanced techniques. Prereq: 3231-39 or 3231-3539, 3430-39, 4220. Students who receive credit for 4810 may not also receive credit for 4510.

4640 Electronics for Chemists (4) Electronics in design and construction of chemical instrumenta tion. 2 hrs and 2 labs. Prereq: Physics 2310.

4710 Research in Chemistry (2) Open to senior majoring and conducting research. Written report must be submitted to research director at termination of project. May be repeated. Maximum 6 hrs credit.

4910-20 Biophysical Chemistry (3, 3, 3) Physicochemical principles with applications to biological systems. Must be taken in sequence. Not open to students having 3410-20-30-39 sequences.第一段; first, second and third laws of thermodynamics; equilibrium. 4920—Solution chemistry; electrochemistry; kinetics; nuclear chemistry; 4930—Elementary quantum chemistry; optical and magnetic spectroscopy; light scattering; macromolecular properties. Prereq: 1110-20-30; Math 1540-50 or equivalent.

4929-39 Biophysical Chemistry Laboratory (1, 1) Experiments on topics discussed in 4910-20-30. Must be taken in sequence. Not open to students taking 3410-20-30-39 sequence. 4929 is coreq or prereq for 4929. 4930 is coreq or prereq for 4939. 1 lab.

GRADUATE

Students majoring in chemistry for the M.S. or Ph.D. degree are required to present a prerequisite one year each of general, analytical, organic, and physical chemistry with a satisfactory research. Students must meet these requirements. Prerequisites may be admitted with appropriate deficiencies which must be removed without graduate credit.

For students minoring in chemistry, the prerequisite is one year of chemistry including quantitative analysis.

The Master's Program

Master's degree requirements are found in the Graduate Catalog.

The Doctoral Program

Doctor's degree requirements are found in the Graduate Catalog. The department offers specialization in nine areas for the Ph.D. degree: analytical, energy, environmental, inorganic, organic, physical, theoretical, chemical physics and polymer science.

5000 Thesis

5110-20-30-35 Advanced Organic Chemistry (3, 3, 3)

5129 Advanced Organic Chemistry Laboratory (3)

5140 Introductory Polymer Chemistry (3)

5150 Kinetics of Polymerization (3)
Classics (257)

Professors: H.C. Rutledge (Head), Ph.D. Ohio State; A. Rapp (Emeritus), Ph.D. Illinois.

Associate Professors: M.L. Hendel, M.A. Arkansas; J.E. Shelton, Ph.D. Vanderbilt.

Assistant Professors: G.C. Gesell, Ph.D. North Carolina (Chapel Hill); B.J. Levy, Ph.D. Texas; P.J. Nassen, Ph.D. Ohio State.

Greek

UNDERGRADUATE

A major in Greek consists of 39 hours of language courses numbered above 2000 but including Classics 4220. Nine hours from the following general courses may be substituted for language courses at the discretion of the department: Classics 3210-20, 3310-20, 4010, 4101 may be taken for a maximum of 6 hours.

The Greek minor consists of 24 hours in language courses numbered above 2000 including Classics 4220. Six hours from the following general courses may be substituted: Classics 3210-20, 3310, 3320.

1210-20-30 Beginning Greek (3, 3, 3) Must be taken in sequence.

2610 Xenophon (4)

2620 Homer: Odyssey (4)

2630 Homer: Iliad (4)

2640 Greek New Testament (4) Prereq: 2610 or consent of instructor.

3010 Plato (3)

3020 Herodotus (3)

3030 Euripides (2)

4020 Aeschylus, Sophocles (3)

4030 Lysias (3)

4040 Aristophanes (3)

4050-60-70 Directed Readings in Greek (3, 3, 3)

GRADUATE

Graduate courses in classics include wider reading of Greek or Latin authors in a selected field, more detailed study of one of the great areas of classical literature, and development of background for appreciation of Greek or Roman life and literature.

5000 Thesis

5110-20-30 Greek Epic, Homer (3, 3, 3)

5210-20-30 Greek Drama (3, 3, 3)

Latin

UNDERGRADUATE

A major in Latin consists of 39 hours in language courses numbered above 2000, but including Classics 4220. Nine hours from the following general courses may be substituted for language courses at the discretion of the department: Classics 3210-20-30, 3310, 3320, 3330; 4101 may be taken for a maximum of 6 hours. Greek language courses numbered above 2000 may be substituted for a maximum of 9 hours of Latin courses with consent of department.

The Latin minor consists of 24 hours in language courses numbered above 2000 including Classics 4220. Six hours from the following general courses may be substituted: Classics 3210-20-30, 3310, 3320, 3330.

Placement Examination: Students who transfer to The University of Tennessee from other colleges and students who enter with high school units in Latin should register for the courses in which they would normally be placed on the basis of such credits. During the first week of the quarter a placement test will be given, and students will be advised if a change in registration is indicated by the results.

Proficiency Examinations: Students who have acquired a knowledge of Latin through private study or tutoring should request a proficiency test. A student who earns a grade of B or better in this examination is eligible for credit toward graduation. A student who omits any course in a sequence may receive credit for it by passing the appropriate proficiency examination.

Certification for Teaching Latin in Tennessee. Consult Certification Clerk, Room 212, Claxton Education Building.

1110-20-30 Beginning Latin (3, 3, 3) Must be taken in sequence.

2511-21 Intermediate Latin (4, 4) 2511—Readings from the age of Cicero. 2521—Virgil’s Aeneid. Open to those who have had at least two years of high school Latin, or equivalent.

3140 Ovid (3) Prereq: 3 or 4 years of high school Latin or 2521.

3150 Plautus and Terence (3) Prereq: 3 or 4 years of high school Latin or 2521.

3160 Catullus (2) Prereq: 3 or 4 years of high school Latin or 2521.

3440 Livy (3)

3450 Pliny and Martial (3)

3460 Elegant Poets (3)

4120 Horace, Satires and Epistles (3)

4140 Cicero and Techniques of Latin Prose Composition (4) Recommended for Latin majors and minors, especially those intending to teach or pursue graduate work. Works of Cicero studied as models for prose composition.

4310 Selected Readings from Latin Literature (3)

4320-30 Selected Readings from Latin Literature (3, 3) May be repeated for credit.

4340 Horace, Odes (3)

4350 Tacitus (3)

4360 Lucretius (3)

4370 Readings in Medieval Latin (3)

GRADUATE

5000 Thesis

5310 Seminar in Caesar (3)

5410-20-30 The Latin Epic. Lucretius, Virgil, Lucan (3, 3, 3)

5510-20-30 Roman Comedy. Plautus, Terence (3, 3, 3)

GENERAL COURSES

2710 Greek Etymology (3) Origin and derivation of words. Greek stems most commonly found in English language with special attention to words in scientific and technical vocabularies.
4510 Selected Readings in Latin Literature in Translation (3) Content varies; may be repeated for credit with consent of department.

GRADUATE
5820 Problems in Old World Archaeology (3)

Comparative Literature.
See Cultural Studies.

Computer Science (266)

Professors:
R.T. Gregory (Head), Ph.D. Illinois;
F. Donaldson*, Ph.D. Texas; R.J. Piemmons, Ph.D. Auburn; G.R. Sherman, Ph.D. Purdue.

Associate Professors:
R.M. Alten, Ph.D. Northwestern; C.E. Hughes, Ph.D. Pennsylvania State; S.M. Seikow, Ph.D. Indiana.

Assistant Professors:
T. Feagin*, Ph.D. Texas; W.S. Herns, M.S. VPI; C.P. Huang, Ph.D. SUNY (Buffalo); S.R. Jordan, Ph.D. Wisconsin; M. Mosheit, Ph.D. Ohio State; C.P. Pfleeger, Ph.D. Pennsylvania State; D.W. Straight, Ph.D. Texas; M.G. Thomson, Ph.D. Duke.

*Space Institute

UNDERGRADUATE

Computer science offers an undergraduate major and minor as well as a Master of Science degree (for details, see Graduate Catalog). Information about computer science programs may be obtained from the departmental office, 8 Ayres Hall or from the Liberal Arts Advising Center, 220 Ayres Hall.

Major: Computer Science 1510 is a prerequisite to a major in computer science which consists of 2510, 3155, 3510, 3520, 4510, 4550, and an additional fifteen hours selected from computer science intermediate and advanced courses as listed below. Also required are Math 2840-50-60 (or the honors sequence 2848-56-68) and Statistics 3450.

Minor: A minor in computer science consists of 2510, 3510, 4510, 4550, and an additional 12 hours of computer science upper-division courses.

Introductory and Service Courses

1410 Introduction to Business Oriented Programming (3) Current and potential uses of computers as tools in the business environment with emphasis on learning FORTRAN programming. Not for computer science majors: students may not receive credit for both 1410 and 1510. Intended primarily for students in College of Business Administration. Prereq: Math 1560 or Math 1840.

1510 Introduction to Computer Science (4) Computer as a tool of varied uses in modern world; emphasis on learning FORTRAN. Problem-solving process; organization and characteristics of digital computers. Survey of applica-
tions of computers in various disciplines. Not for credit if 2410 previously taken. Students may not receive credit for both 1410 and 1510. Prereq: Mathematics 1560 or Mathematics 1840.


3010 Computers and Society (3) History of computing and computer systems; capabilities of the computer; applications in artificial intelligence, humanities, social sciences, sciences and engineering; computing in foreign countries; computer assisted instruction, future advances in computing; careers in computing. Prereq: Consent of instructor.

3150 Introduction to Numerical Algorithms and Programming (3) Solution of linear equations, least-squares data fitting, numerical integration, numerical methods for ordinary differential equations. Introduction to programming in FORTRAN. 3150 and 3155 may not both be taken for credit; students with a knowledge of FORTRAN should take 3155. Prereq or coreq: Math 2860. (Same as Math 3150.)

3155 Introduction to Numerical Algorithms (3) Roots of equations, systems of linear equations, least-squares data fitting, numerical integration, numerical methods for ordinary differential equations. 3150 and 3155 may not both be taken for credit. Students with no knowledge of FORTRAN should take 3150. Prereq: 1510 or consent of instructor. Prereq or coreq: Math 2860. (Same as Math 3155.)

3410 Computer Programming—COBOL (3) Computer programming in business oriented language COBOL. Prereq: 1410 or 1510 or 3150 or consent of instructor.


4310 Computation in Statistical Analysis (3) Use of digital computer in standard statistical analyses, such as frequency tabulations, percentiles, and degree of correlation and regression, analyses of variance. Not for credit for computer science majors. Prereq: Statistics 2100 or equivalent. An elementary knowledge of a procedure-oriented language such as FORTRAN is also assumed.

4330 Independent Study in Computer Science (1-3) Special project in area of student’s primary interest. To be directed by computer science faculty, perhaps jointly with student’s faculty adviser. Prereq: Consent of instructor. May be repeated. Maximum 9 credit hrs.

Intermediate and Advanced Courses

3510 Computer Organization and Programming I (3) Problem formulation and advanced programming in FORTRAN; operation and control of digital computers. Prereq: 1510, 2510, or 3150 or consent of instructor.


3570 Programming Languages (4) Comparison and analysis of programming languages and their features. Languages to be discussed will include SNOBOL, LISP, APL, and PASCAL. Prereq: 2510.

3715 Discrete Structures (3) Introduction to discrete structures useful in computer science. Sets, set logic, relations, functions, proof techniques, graph theory, lattices, Boolean algebras. Prereq: 1510 and Math 2660 or equivalents. (Same as Math 3715.)

4035-45 Introduction to Numerical Linear Algebra (3, 3) Floating-point numbers and arithmetic on modern digital computer. Numerical algorithms for solving systems of linear equations; linear least-squares methods and eigenvalue computations. Prereq: 3150 or 3155. (Same as Math 4035-45.)

4225-35 Introduction to Numerical Analysis (3, 3) (Same as Math 4225-35.)

4510 Data Structures and Non-numerical Programming (3) Data structures and algorithms for their manipulation. Arrays and orthogonal lists; stacks, queues, rings, doubly-linked lists, trees, dynamic storage allocation; organization of files, programming languages and compilers. Prereq: 3520. Prereq or coreq: Knowledge of SNOBOL equivalent to that gained in 3570.
4550 Computer Organization and Programming III (3) Computer organization and advanced programming, Machine language and design of computers, introduction of information, microprogramming, software systems, input/output systems, interpreters, macro assemblers. Prereq: 3520 or equivalent.


4620 Operating Systems—Case Studies (3) Alternatives in operating system design, dynamic relocation, paging, segmentation, time sharing, time slicing, protection, concurrency, real-time systems. Examples from different operating systems analyzed as appropriate. Prereq: 4610 or equivalent or consent of instructor.

4660 Compiler Construction (3) Practical experience with the design of compilers, scanning, parsing, semantic processing, code generation and optimization, error detection and correction. Term project will include a complete compiler for a small block-structured language. Prereq: 4510.


4730 Analysis of Non-numerical Algorithms (3) Study of efficient algorithms for searching (e.g., binary search, tree searches, hash coding) and sorting (e.g., heap sort, Shell's sort, quicksort). Algorithms for other non-numerical applications, such as pattern matching, graph path detection, set operations. Precise notions of time and space complexity. Polynomial complete problems. Prereq: 4510.

4750 Interactive Computer Graphics (3) Point plotting, vector generation, interactive graphical techniques, two and three dimensional transformation, perspective depth, hidden line elimination, shading, software and hardware system design. Discussion of use of these techniques in design, problem solving, mapping, architecture, and many other areas. Prereq: Senior standing in computer science, electrical engineering or geography and a knowledge of computer programming, or consent of instructor. (Same as Elec. Engr. 4750 and Geography 4750.)

4820 Introduction to Pattern Recognition (3) (Same as Elec. Eng. 4820.)

4830 Digital Image Processing (3) (Same as Elec. Eng. 4830.)

4850 Small Computer Systems (3) (Same as Elec. Engr. 4850.)

4910 Analysis and Management of Computer Installations (3) Analysis and design of computer systems; implementation, justification, personnel in systems; perspective on systems. Prereq: 3520 or equivalent.

4980-90 Special Topics in Computer Science (1-4, 1-4) Credit determined at time of registration. May be repeated. Maximum of 9 hrs credit with consent of department. Prereq: Recommendation of computer science staff.

GRADUATE

5000 Thesis

5002 Non-Thesis Graduation Completion (3-15)

5010 Computer Assisted Instruction (3)

5050 Computer Modeling and Simulation of Physical Systems (3)

5210 Artificial Intelligence (3)

5250 Medical Computing (3)

5430 Theory of Compilers (3)

5455 Finite Difference Methods for Partial Differential Equations (3)

5465 Mathematical Aspects of the Finite Element Method (3)

5655-65-75 Numerical Mathematics (3, 3, 3)

5670-80 Advanced Operating Systems (3, 3)

5710 Finite Automata Theory (3)

5730 Computability and Computational Complexity (3)

5750 Theory of Formal Languages (3)

5810 Information Organization and Retrieval (3)

5840-50 Pattern Recognition (3)

5910-20-30 Special Topics in Computer Science (1-3, 1-3, 1-3)

5940-50 Advanced Small Computer Systems (3, 3)

5970 Independent Study in Computer Science (1-3)

Cultural Studies

Director: Dr. Charles O. Jackson

Basic Staff:
S.R. Blanshei, Ph.D. History; J.S. Elliott, Ph.D. Russian; D.M. Fiene, Ph.D. Russian; C.O. Jackson, Ph.D. History; S.B. Kurth, Ph.D. Sociology; H.E. Lewald, Ph.D. Spanish; D.H. Littlejohn, B.A. Special Programs; C.J. Mellor, Ph.D. German; M.E. Peek, M.A. History; M.P. Rice, Ph.D. Russian; H.C. Rutledge, Ph.D. Classics; R.B. Scott, Ph.D. Home Economics; Z. Shirakawa, M.A. Special Programs; S.E. Young, Ph.D. Music

The ideal curriculum encourages not only proficiency in a given field of knowledge but also the comprehension of similarity and complementarity between areas of intellectual endeavor. One answer to the need for fusion and integration of knowledge is the interdisciplinary program. The College has joined the resources of several departments to offer a cultural studies major with concentrations in American studies, ancient Mediterranean, Asian studies, Black studies, comparative literature, Latin American studies, linguistics, Medieval studies, and East European studies. Minors are provided in Asian studies, Black studies, comparative literature, Latin American studies, linguistics, Medieval studies, and women's studies.

American Studies (099)

History 2510-20 (or equivalent honors courses) are prerequisite to a concentration in American studies which consists of 36 quarter hours: English 3010-20-30, American Studies 3010 and 4010, and 21 hours of upper-division electives dealing with the American experience. Nine hours of the elective group must be from one of the following disciplines: anthropology, economics, political science, or sociology. A list of acceptable elective courses is published annually by the American Studies Committee.

For further information consult the chairman of the American Studies Committee, Dr. Charles Jackson.

3010 Introduction to American Culture (3) Explores dynamics and nature of contemporary American culture.

4010 Topics in American Culture (3) Content varies. May be repeated once.

Asian Studies (145)

The Asian studies concentration consists of 36 quarter hours: Asian Studies 2510-20 plus 21 additional credits from Asian studies or approved departmental courses. The latter should constitute a coherent program, including a minimum of one course (3 or 4 hours) from each of the following three areas: (a) art, Asian culture, literature, and music; (b) economics, geography, history, and political science; (c) anthropology, philosophy, religious studies, and sociology. Students who prefer to use Asian Studies 2510-20 for Triad or elective credit may, with permission of the program chairperson, substitute eight additional upper-division hours in acceptable courses for that required sequence in the concentration.

The Asian studies minor consists of 24 quarter hours: Asian Studies 2510-20 plus 16 additional credits from Asian studies or approved departmental courses. The latter should include a minimum of one course (3 or 4 hours) from each of the following areas: (a) art, Asian culture, literature, and music; (b) economics, geography, history, and political science; (c) anthropology, philosophy, religious studies, and sociology. Students who prefer to use Asian Studies 2510-20 for Triad or elective credit may, with permission of the program chairperson, substitute eight additional upper-division hours in acceptable courses for that required sequence in the minor.

It is strongly recommended that students planning to attend graduate school take an appropriate Asian language through the intermediate level.

Further information may be obtained from the chairperson of the Asian Studies Committee, Dr. Phoebe Marr.

2510-20 Asian Civilization (4, 4) Introduction to Asian civilization by comparative study of development of religion, social institutions, and high culture in India, China, Japan, and the Islamic world 2510—Rise of classical civilizations. 2520—Traditional cultures and their modern developments.

3310 Indian Culture (4)

3320 Chinese Culture (4)

3330 Japanese Culture (4)

3340 Islamic Culture (4)

4010-20-30 Readings in Asian Literature (4, 4, 4) Prereq: Mastery of intermediate-level of Japanese, Chinese, or Arabic and consent of instructor.

4012 Selected Topics in Asian Studies (4) Content varies. May be repeated. Maximum credit 12 hrs.

Asian Language and Literature

ARABIC (127) (See Romance Languages)

1510-20 Spoken Arabic (4, 4)

2110-20-30 Elementary Modern Standard (3, 3, 3)

3510-20 Intermediate Modern Standard (4, 4)

3610 Islamic Literature in English Translation (4)

4101 Foreign Study (1-16)

5101 Foreign Study (1-12)
5102 Off-Campus Study (1-12)
5103 Independent Study (1-12)

CHINESE
Asian Studies 2531-32 Elementary Chinese (4, 4)
Taped language program. Must be taken in sequence.
Asian Studies 3531-32 Intermediate Chinese (4, 4)
Taped language program. Prereq: 2531-32 or equivalent or consent of instructor. Must be taken in sequence.
Asian Studies 4531-32-33-34 Advanced Chinese (4, 4, 4, 4)
Taped language program. Prereq: 3531-32 or equivalent or consent of instructor. Must be taken in sequence.

HEBREW
Asian Studies 2831-32 Elementary Modern Hebrew (4, 4)
Taped language program. Must be taken in sequence.
Asian Studies 3831-32 Intermediate Modern Hebrew (4, 4)
Taped language program. Prereq: 2831-32 or equivalent or consent of instructor. Must be taken in sequence.

JAPANESE
Asian Studies 2631-32 Elementary Japanese (4, 4)
Must be taken in sequence.
Asian Studies 3631-32 Intermediate Japanese (4, 4)
Prereq: 2631-32 or equivalent or consent of instructor. Must be taken in sequence.
Asian Studies 3650-60 Japanese Literature in English Translation (4, 4)

PERSIAN
Asian Studies 2731-32 Elementary Persian (4, 4)
Taped language program. Must be taken in sequence.
Asian Studies 3731-32 Intermediate Persian (4, 4)
Taped language program. Prereq: 2731-32 or equivalent or consent of instructor. Must be taken in sequence.

Approved Area Courses
(a) Art, Asian Culture, Literature, and Music
Art 3775 Art of Indian Asia (4)
Art 3776 Chinese Art (4)
Art 3777 Japanese Art (4)
Art 4875-76-77 Studies in Oriental Art History (4, 4, 4)
Asian Studies 3310 Indian Culture (4)
Asian Studies 3320 Chinese Culture (4)
Asian Studies 3330 Japanese Culture (4)
Asian Studies 3340 Islamic Culture (4)
Arabic 3610 Islamic Literature in English Translation (4)
Asian Studies 3650-60 Japanese Literature in English Translation (4, 4)
Asian Studies 3660 Modern Japanese Literature in English Translation (4)
Asian Studies 4010-20-30 Readings in Asian Literature (4, 4, 4)
Spanish 4050-60-70 Hispano-Arabic Literature and Culture (3, 3, 3)
Music 4260 Introduction to Ethnomusicology (3)

(b) Economics, Geography, History, and Political Science
Economics 4232 The Political Economy of Asian Development (3)

Geography 3870 Geography of Asia (4)
History 3780-90 History of the Middle East (3, 3)
History 3785 Contemporary Middle East (4)
History 3800 North Africa since 1830 (3)
History 3810-20-30 History of East Asia (3, 3, 3)
History 3810-20 History of the Middle East (3, 3)
History 4792 Historical Writers in Islamic History (3)
History 4811-21 History of Japan (4, 4)
History 4870 Cultural History of China (3)
History 4880 History of Modern China (3)
History 4890 History of Contemporary China (3)

Political Science 3621-22 Politics of Asian States (4, 4)
Political Science 3641 Government and Policies of Middle East and North Africa (4)
Political Science 3795 Contemporary Middle East (4)

(c) Anthropology, Philosophy, Religious Studies, and Sociology
Anthropology 3510 Peoples and Cultures of Mainland Asia (3)
Anthropology 4500 Peoples of China I: Chinese Society before 1839 (3)
Anthropology 4510 Peoples of China II: Chinese Society after 1839 (3)
Anthropology 4570 Peoples of Southeast Asia (3)
Anthropology 4590 Peoples of Japan (3)

Philosophy 3650 Philosophy and Religion in India (4)
Philosophy 3660 Buddhist Philosophy and Religion (4)
Philosophy 3671 Religion and Philosophy in China (4)

Religious Studies 3650 Philosophy and Religion in India (4)
Religious Studies 3660 Buddhist Philosophy and Religion (4)
Religious Studies 3671 Religion and Philosophy in China (4)
Religious Studies 3672 Religion and Society in Japan (4)
Religious Studies 3680 Islam (4)
Religious Studies 3760 Eastern Religions and Western Thought (3)
Religious Studies 3770 Zen Buddhism (3)
Religious Studies 4670 Topics in Eastern Religions (4)
Religious Studies 4960 Tradition, Change and Modernity in Asia (4)
Sociology 3672 Religion and Society in Japan (4)
Sociology 4960 Tradition, Change and Modernity in Asia (4)

Black Studies (195)
The concentration in Black studies and the minor in Black studies offer in-class, independent, and off-campus study to foster knowledge of the Black experience through a traditional academic approach as well as experiential learning. Black Studies 2010-20 are prerequisites to the concentration which consists of 36 hours from the Black Studies curriculum. A minimum of 24 hours must be in upper-division credit. Every student's program must include some individualized work under Black Studies 4102, 4103, and 4310, the nature of which should be negotiated with the program director. A maximum of 8 hours in 4102 and 4103 combined can be applied to a major and a maximum of 4 hours in 4102 and 4103 combined can be applied to a minor. In addition, courses from at least two other departments must be selected.

For further information consult the coordinator of the Black Studies Committee, Mr. Marvin Peek.

1510-20 Elementary Swahili (4, 4) Taped language program. Must be taken in sequence.

2010-20 Introduction to Black Studies (4, 4)

3140-50-60 Directed Readings in Black Studies (1, 1, 1) Designed for students who are interested in close intensive reading in some area of Black studies which is defined by the student and the instructor. Prereq: 2010 (or 2020) and consent of instructor.

3330 Prejudice and Racism in the United States (4)

3340 Sociology of Poverty and Inequality (4)

3490 African Religions (4) Same as Religious Studies and Anthropology 3490.

3550 Religion and Racism in America (4) Same as Religious Studies 3550.

3560 Black Religion in America (4) Same as Religious Studies 3560.

3630-40 The Education of Black People (4, 4) Seeks to trace, analyze, and interpret educational systems established for and by Blacks. Special emphasis will be given to colonial experience and the Washington-DuBois controversy in 1830; 3640 will deal with present urban educational problems of Blacks. Recent proposed remedies and solutions as integration, compensatory programs, decentralization, voucher systems; Black Studies and Freedom Schools will be discussed. Sociology 2010-20, History 1950-60 recommended. Prereq: Consent of instructor.

4101 Foreign Study (1-16) See page 187.

4102 Off-Campus Study (4-8) See page 187.

4103 Independent Study (1-8) See page 187.

4200 Senior Seminar in Pan-Africanism (4) Explores concepts and philosophers of Pan-Africanism and implication of this ideology for various societal institutions.

4300 Resource Materials in Black Studies (4) Introduction to basic references such as bibliographies, indices, and listings of audiovisuals in African American history, African history, and children's literature. Prereq: 2010 or 2020 or consent of instructor.

4310 Research in Black Studies (4) Deals with Black experience and research process.

4500 Current Issues and Topics in Black Studies (3-4) Problems, topics and issues in area of Black studies. Content and credit determined by instructor. May be repeated. Maximum credit 12 hrs.

4810 Afro-American Families (3) Same as Child and Family Studies 4810.


4880 Afro-American Psychology (3) Same as Psychology 4880.