553 Philosophical Topics in Literature and the Arts (3) Aesthetics, criticism, art and society. May be repeated. Maximum 9 hrs.
575 Topics in Metaphysics and Epistemology (3) May be repeated. Maximum 9 hrs.
577 Topics in Philosophy of Mind (3) Relation of mental to physical and of role of words in discourse for mental activities, thinking and feeling. May be repeated. Maximum 9 hrs.
585 Special Topics (3) May be repeated. Maximum 9 hrs.
587 Advanced Clinical Medical Ethics (3) Critical concepts in medical ethics, relationship of theory to practice, and professional roles and responsibilities for health care ethics consultant. Open only to Ph.D. students concentrating in medical ethics. Prereq: Consent of Medical Ethics Committee.
588 Ph.D. Clinical Practicum (9) Series of clinical rotations at one or more local health care institutions. Open only to Ph.D. students concentrating in medical ethics. Prereq: 587 and consent of Medical Ethics Committee. May be repeated. Maximum 9 hrs.
590 Topics in Social and Political Philosophy (3) Philosophical problems concerning social and political life: family, state, freedom, justice; major theoretical responses: anarcho-capitalism, social contract, Marxism. May be repeated. Maximum 9 hrs.
591 Foreign Study (1-15) See College of Arts and Sciences.
592 Off-Campus Study (1-15) See College of Arts and Sciences.
593 Independent Study (1-15) See College of Arts and Sciences.
600 Doctoral Research and Dissertation (3-15) P/NP only. E
620 Topics in Ancient or Medieval Philosophy (3) May be repeated. Maximum 9 hrs.
622 Topics in Modern Philosophy (3) May be repeated. Maximum 9 hrs.
624 Topics in Contemporary Philosophy (3) May be repeated. Maximum 9 hrs.
640 Topics in Ethics or Value Theory (3) May be repeated. Maximum 9 hrs.
645 Topics in Applied Ethics (3) Prereq: Consent of Medical Ethics Committee. May be repeated. Maximum 9 hrs.
675 Topics in Metaphysics and Epistemology (3) May be repeated. Maximum 9 hrs.

**Physics and Astronomy**

*(College of Arts and Sciences)*

**MAJOR**

**DEGREES**

**Physics** ................. M.S., Ph.D.

William M. Bugg, Head

Professors:

Barnes, F. E., Ph.D. ................. California
Bingham, C. R., Ph.D. ............... Tennessee
Blau, W. E., Ph.D. ................. Michigan State
Breazeale, M. A. (Emeritus), Ph.D. .......... Michigan State
Breinig, M., Ph.D. ................. Oregon
Bugg, W. M., Ph.D. ................. Tennessee
Burgdoerfer, J. (Distinguished Prof.), Ph.D. .......... Frite Universitat Berlin
Callcott, T. A., Ph.D. ............... Purdue
Childers, R. W., Ph.D. ............... Vanderbilt
Christophorou, L. G., Ph.D. .......... Manchester

Condo, G. T., Ph.D. ................. Illinois
Cramer, H. W. (UTSI), Ph.D. ............. Yale
Deeds, W. E. (Emeritus), Ph.D. ........ Ohio State
Eguiluz, A. G., Ph.D. ................. Brown
Elston, S. B., Ph.D. ................. Massachusetts
Fox, K., Ph.D. ................. Michigan
Gailer, N. M. (Emeritus), Ph.D. ........ Ohio State
Georgiou, S., Ph.D. ................. Manchester
Guldin, M. W., Ph.D. ................. Rutgers
Harriss, E. G. (Emeritus), Ph.D. ........ Tennessee
Hart, E. L. (Liaison), Ph.D. ........... Cornell
Jacobson, H. C., Ph.D. ............... Yale
King, D. T. (Emeritus), Ph.D. ........... Bristol
Lewis, J. W. L. (UTSI), Ph.D. .......... Mississippi
Macko, J. (Distinguished Scientist), Ph.D. .......... Rensselaer
Mahan, G. D. (Distinguished Scientist), Ph.D. .......... California
Mason, A. A. (UTSI), Ph.D. .......... Tennessee
McGregor, W. K. (UTSI), Ph.D. ........ Tennessee
Nazariewicz, W., Ph.D. ............... Warsaw
Obenshain, F. E., Jr., Ph.D. .......... Pittsburgh
Painter, L. Ph., Ph.D. ............... Tennessee
Pegg, D. J., Ph.D. ................. New Hampshire
Plummer, E. W. (Emeritus), Ph.D. .......... Cornell
Quinn, J. J. (Willis Lincoln Chair of Excellence), Ph.D. .......... Maryland
Riedinger, L. L., Ph.D. ............... Vanderbilt
Selkin, I. A. (Distinguished Prof.), Ph.D. .......... Chicago
Shih, C. C., Ph.D. ................. Cornell
Sorensen, S. P., Ph.D. ............... Copenhagen
Strayer, M. R., Ph.D. ............... MIT
Thompson, J. R., Ph.D. ............... Duke
Thomson, J. O. (Emeritus), Ph.D. .......... Illinois
Ward, B. L., Ph.D. ................. Princeton
Wheeler, G. (Emeritus), Ph.D. ........... Yale
White, J. W. (Emeritus), Ph.D. .......... North Carolina

Associate Professors:

Farrell, T. L., Ph.D. ............... Clemson
Muehlhauser, J. W. (UTSI), Ph.D. .......... Tennessee
Shieh, S. Y., Ph.D. ................. Maryland

Assistant Professors:

Canright, G., Ph.D. ............... Tennessee
Daun, S. J., Ph.D. ................. Queens
Harmatz, R., Ph.D. ............... Ohio State
Levin, J. C., Ph.D. ................. Oregon
Menzel, R. (UTSI), Ph.D. ........ Tennessee
Parigger, C., (UTSI), Ph.D. ........ New Zealand
Phillips, W. (UTSI), Ph.D. ........ Tennessee
Rossow, F., Ph.D. ................. Cornell
Sanders, A. J., Ph.D. ............... Tuffs
Siopsis, G., Ph.D. ................. Cal Tech
Waiter, H. H., Ph.D. ............... Groningen (Netherlands)

Research Professors:

Chatterjee, L., Ph.D. ............... Jadavpur
Kamyshkov, I., Ph.D. ............... ITEP (Russia)
Thonnard, N., Ph.D. ............... Kentucky
Zhang, J. Y., Ph.D. ................. Lanzhou

Research Associate Professors:

McCorde, D. L., Ph.D. ............... Tennessee
Pinnaduwage, L. A., Ph.D. ............ Pittsburgh

Research Assistant Professors:

Datskos, P. E., Ph.D. ............... Tennessee

Davis, L. (UTSI), Ph.D. ............... Auckland
Efremenko, Y. Y., Ph.D. ............... ITEP (Russia)
Mezzacappa, A., Ph.D. ............... Texas
Yost, S. A., Ph.D. ................. Princeton

Instructors:

Fairman, R. C., B.A. ............... Earlham
Riedinger, T., M.S. ............... Vanderbilt

Graduate programs leading to the Master of Science and the Doctor of Philosophy are offered in a number of concentration areas: atomic and low temperature physics, biophysics, chemical physics, elementary particle physics, health physics, heavy ion atomic physics, molecular spectroscopy, nuclear physics, plasma physics, condensed matter physics, theoretical physics, and ultrasonics. Departmental graduate programs leading to the M.S. and Ph.D. are also available at The University of Tennessee Space Institute, Tullahoma, where opportunities for study and research are available in quantum optics and laser physics, atomic and molecular spectroscopy, fluid physics, and theoretical physics. For additional information, contact the department head.

ADMISSION REQUIREMENTS

A student who enrolls in The Graduate School with the intention of attaining an advanced degree in Physics will have completed an undergraduate major in Physics or its equivalent. Physics 511-12, 521-22, 531-32, 541-42, and 411-12 constitute a minimum of 30 semester hours prerequisite to graduate study. A student who intends to present Physics as a graduate minor will have completed an undergraduate minor in Physics or its equivalent. Physics 511 and 531-32 constitute the minimum coursework prerequisite to a minor in Physics.

All first-year graduate students are required, for advising purposes only, to take a qualifying examination in undergraduate physics during the fall semester registration period.

THE MASTER'S PROGRAM

**Thesis Option**

This program is designed primarily for students intending to go into industrial or governmental laboratories as physicists. The course requirements include 24 semester hours of physics courses, of which at least 12 semester hours are taken from Physics 511-12, 521-22, 531-32, 541-42, or 571-72. Each candidate must present an acceptable thesis, 6 hours of 500, and pass an oral examination on course material and thesis.

**Non-Thesis Option**

This program is designed primarily for students intending to teach in colleges or universities on the elementary or intermediate level, or for students specifically intending to work toward a Ph.D. Students seeking the non-thesis option must apply to the department's graduate committee for permission to enroll under this program. The requirements are the satisfactory completion of 30 hours of coursework composed of 18 semester hours from Physics 511-12, 521-22, 531-32, 541-42, and 571-72; 6 semester hours in a minor field; and 6 semester hours from other courses numbered above 400 (preferably of advanced laboratory
nature. At least 20 hours must be taken at the 500 level or above. In addition, the candidate must pass a written examination administered by his/her committee.

THE DOCTORAL PROGRAM

All students are expected to take Physics 521-22, 531-32, 541-42, 551, 561, 571-72, and 611. Physics 601-02 are normally required of students specializing in atomic physics; Physics 521-22 of students in nuclear physics; Physics 628-27 of students in elementary particle physics; Physics 663-64 of students in plasma physics; Physics 661-62 of students in health physics; Physics 671-72 of students in solid state physics; and Physics 681-82 of students specializing in molecular spectroscopy. Students specializing in chemical physics may substitute Chemistry 572 for Physics 551 and should complete at least 6 semester hours chosen from Chemistry 580, 570.

The courses Physics 531-32, 571-72, 521-22, 541-42, 561 constitute the core curriculum. They are the usual basis for the departmental comprehensive examination which is normally taken by a well-prepared student after two years of graduate study.

A reading knowledge of one foreign language is required for the Ph.D. program. There exists a significant body of literature required. German 332 or French 302 with a grade of A or B may be substituted for the corresponding language examination.

The dissertation topic will be chosen with reference to one of the fields in which research facilities can be made available either at The University of Tennessee laboratories in Knoxville; The University of Tennessee Space Institute at Tullahoma, Tennessee; the Oak Ridge National Laboratory, Oak Ridge, Tennessee; or at other research facilities used by the University faculty.

Astronomy

GRADUATE COURSES

411 Astrophysics (3) Development of analytical physical models of galactic structure of universe, stellar and interstellar matter, and planetary systems. Topical and interdisciplinary, consideration of quasars, pulsars, black holes and current developments in field. Acceptable for major credit in physics. Prereq: Physics 225 and consent of instructor.

490 Special Topics in Astronomy (1-3) Topics of current interest in astronomy and astrophysics. Acceptable for graduate credit in physics with consent of department. May be repeated with consent of department. Maximum 9 hrs.

Physics

GRADUATE COURSES


421 Modern Optics (4) Transmission of light in uniform, isotropic media; reflection and transmission at interfaces; mathematical models of wave motion and interference effects. Rudiments of Fourier optics and holography. Prereq: 431, or Fundamentals of Physics: Wave Motion, Optics, and Modern Physics, or Honors: Mechanics and Heat, and consent of instructor. 3 hrs and 3 labs.


521 Quantum Mechanics (3,3) Fundamental principles of quantum mechanics, free particle, harmonic oscillator, hydrogen atom, angular momentum, electron spin, particles in electric and magnetic fields, perturbation theory, molecular spectroscopy, quantum chemistry. Prereq: 521-22 or 531-32. For continuation of study, 521-22 is recommended. 3 hrs and 3 labs.

531 Classical Mechanics (3) Classical particle dynamics, Lagrange's and Hamilton's equations, moving coordinate systems, normal coordinates, rigid body motions.
610 Quantum Optics (3) Quantum theory of emission and absorption of radiation; frequency-dependent susceptibility; coherence theory; field quantization and coherent photon states; interaction of radiation with atoms; quantum optics, counting and higher-order coherence; atomic scattering phenomena. Prereq: 561.

611 Advanced Quantum Mechanics & Field Theory (3) Second quantization, quantization of electromagnetic field, emission, absorption, and scattering of light, bremsstrahlung, pair creation and annihilation, quantum field theory methods in condensed matter physics, and quantum optics. Topics vary according to instructor. Prereq: 522 and 542 or equivalent. Prereq or coreq: 561 or consent of instructor.

612 Advanced Topics in Quantum Field Theory (3) Renormalization, Lamb shift, anomalous magnetic moments, gauge theories, electroweak theory, quantum chromodynamics, grand unified theories, and advanced topics in laser physics and quantum optics. Topics vary according to interest of students, instructor and present state of physics. Prereq: 561 or 611 or consent of instructor.

621-22 Nuclear Structure (3,3) General properties of nucleus; two-body scattering problems; saturation and symmetry properties of nuclear forces; theory of light nuclei; nuclear spectroscopy; special nuclear models; theory of nuclear reactions; theory of beta-decay. Prereq: 571-72.

625-27 Elementary Particle Physics (3,3) 626--Survey in elementary particle physics covering experimental methods, conservation laws, invariance principles, and models of interactions. 627--Advanced topics: quark models, electroweak interactions and unification of elementary forces. Prereq: 522.

641 Advanced Topics in Classical Theory (3) To meet special needs of students. Advanced dynamics and hydrodynamics, electromagnetic theory, statistical mechanics, or theory of nonequilibrium processes. Prereq: 532, 542, 551. May be repeated with consent of department. Maximum 9 hrs.

642 Advanced Topics in Quantum Theory (3) To meet special needs of students. Angular-momentum theory, beta-ray theory, theory of atomic spectra, molecular structure and valence theory, theory of radiation, electric and magnetic phenomena, high energy processes, scattering and collision processes, or theory of fields. Prereq: 522. May be repeated with consent of department. Maximum 9 hrs.

643 Computational Physics (3) Developing computer algorithms for solving representative problems in various fields of physics, celestial dynamics in astrophysics, boundary value problems in electromagnetism, atomic and nuclear structures, band structure on solid state physics, transport problems in statistical mechanics. Monte Carlo simulation of liquids, fitting and interpolation of data, correlation analysis, or optimization strategy. Prereq: 522, 531, 542, and 572.

651-62 Collision Interactions (3,3) Interaction of electromagnetic radiation and charged particles with atoms and molecules or free particles, scattering, ionization, transport and conservation, relativistic excitation, radiation, and stopping power. Prereq: 522.

653 Advanced Plasma Physics (3) (Same as Electrical Engineering 663.)


681-82 Molecular Spectroscopy (3,3) Spectroscopic methods of determining molecular properties, theoretical and experimental aspects of intra- and inter-molecular energy and charge transfer, group theoretical methods and selection rules in gases and condensed phases, normal coordinates and potential functions, vibration-rotation interaction theory, intensities, frequencies and line shapes of molecular transitions. Prereq: 532 and 542 or consent of instructor.

The State of Physics.

Planning

(College of Architecture and Planning)

MAJOR: Planning

DEGREE: M.S.P.

David A. Patterson, Acting Director

Professors:
Johnson, David A., Ph.D. ......... Cornell
Kenny, Kenneth B. (Emeritus), Ph.D. ......... North Carolina
Prochaska, J. M. (Emeritus), M.U.P. .... Michigan
Shouse, Walter L. (Emeritus), M.C.P. .... Harvard
Spencer, James A. ( Liaison), M.C.P. .... Ohio State

Associate Professors:
Bowen, George E., M.A. .... George Washington
Patterson, David, Ph.D. .... Indiana

Assistant Professors:
Anderson, Anne, M.P.A. .... Missouri (Kansas City)
Muchane, Mur, M.S.P. .... Tennessee
Zanetta, Maria C., Ph.D. .... Ohio State

Lecturer:
Brown, Nancy, M.S.P. .... Tennessee
Cole, Patrice, M.S.P. .... Tennessee
Raeise, Kristin, M.S.P. .... Tennessee
Richardson, Keith, B.Arch. .... Tennessee

The Graduate School of Planning offers a program of studies leading to the professional degree of Master of Science in Planning. The degree is the normal route for entry into professional positions in urban and regional planning or related positions. Graduates are candidates for positions in regional, city, county, and metropolitan planning agencies; in local, state, and federal agencies concerned with physical, economic, and administrative planning; in private business and organizations dealing with development problems; and in private consulting.

The Master of Science in Planning program is accredited by the Planning Accreditation Board, a joint undertaking of the American Institute of Certified Planners and the Association of Collegiate Schools of Planning.

THE MASTER’S PROGRAM

Admission Requirements
Applicants are to submit an application for admission to The Graduate School, and two letters of reference from faculty familiar with their prior academic work and a statement describing personal career objectives directly to the School of Planning. If the applicant has prior work experience in planning, a reference letter should also be provided by the work supervisor. Graduate Record Examination scores are requested of all applicants whose undergraduate GPA is below 3.0. Other applicants are encouraged to submit them. Students who have not taken an appropriate undergraduate statistics course will be required to take one as part of their graduate program.

Degree Requirements
The M.S.P. requires completion of at least 48 hours of graduate credit, at least 30 of which must be in planning. The following courses are the core curriculum required of all students: 510, 511, 512, 515, 520, 521, 530, 531, 532, 540 and 570.

Students should plan to enter the program in the fall term to take core courses in the proper sequence.

Each student is required to develop an area of concentrated competence beyond the core curriculum. After selecting the area of concentration, usually by the end of the second semester, the student takes a minimum number of courses or hours from a prescribed set of courses in the subject area. Further enhancement of the concentration is gained by focusing the thesis or major paper on the subject.

Concentration courses are drawn from the planning curriculum and from other departments in the University. Concentrations are available in land use planning, environmental planning, real estate development planning, and transportation planning.

Students have the latitude to propose an alternate specialization consisting of at least 9 hours of coursework, subject to approval of a faculty committee.

Each student is required to demonstrate competence in individual research. This may be done in one of two ways:

Thesis Option—Complete a thesis for 6 hours credit;

Non-Thesis Option—Complete a major study with acceptable documentation. To be eligible for the major study option, the student must have completed at least 12 hours of graduate coursework in planning with at least a 3.5 cumulative grade-point average. The student meeting these criteria may present a proposal to his/her committee for a major study that will include at least 6 hours of subsequent coursework. The proposal shall justify the selection of the topic, describe the approach to the study, and describe the nature of the final product. The topic will normally be expected to reinforce or complement the student's concentration.

Student academic progress is monitored by the faculty. A student failing to meet an acceptable grade-point average may be placed on probation or dismissed from the program.

ACADEMIC COMMON MARKET

An agreement among southern states for sharing graduate programs allows legal residents of some states to enroll in certain programs at UT Knoxville on an in-state tuition basis. The M.S.P. program is available to residents of the states of Arkansas, Kentucky, Mississippi or West Virginia. Additional information may be obtained from the Admissions Specialist in the Office of Graduate Admissions and Records.

GRADUATE COURSES

401 The City in the U.S. (3) Development and character of U.S. cities. Contemporary issues and selected case studies. (Same as Urban Studies 401.)

402 Survey of Planning (3) History of city development and of planning; U.S. experience in urban and other levels of planning. State of the art, process, comprehen-
Plant and Soil Science

(College of Agricultural Sciences and Natural Resources)

MAJOR

Plant and Soil Science .......... M.S., Ph.D.

Fred L. Allen, Head
Non-Thesis Option
A student desiring the non-thesis option should declare this intention at the beginning of the first semester of graduate studies, and must declare it before the beginning of the second semester. In lieu of thesis, students are required to complete 3 hours of 593 for satisfactory participation in a single research program for a period of 12 weeks and the writing of an original, creative and well-written report, both to be conducted by the major professor and approved by the advisory committee. In addition to 3 hours of 593, a maximum of 12 hours of coursework is required, of which at least 20 must be taken in courses numbered 501 or above, for a total of 33 hours.

The student’s advisory committee may require additional coursework if the student’s progress or background indicates such need. Each student is required to take 1 hour of 501 and 2 hours of 503.

The student’s advisory committee consists of the major professor, who acts as chairperson of the committee, and a minimum of two other faculty members. The advisory committee approves the student’s coursework and the report on participation in a research program for 593. Students are required to take a written comprehensive examination integrating the coursework.

THE DOCTORAL PROGRAM
A minimum of 72 hours beyond the Bachelor’s degree, exclusive of credit for Thesis 500, is required. Of this number, 24 hours must be Doctoral Research and Dissertation 600. A minimum of 28 hours must be completed in courses numbered above 500 exclusive of doctoral research and dissertation, of which 6 must be in courses numbered above 600. A minimum of 9 hours of graduate course work taken during the doctoral program must be outside the department in one or more cognate areas.

The student and the major professor identify a doctoral committee composed of at least four faculty members holding the rank of assistant professor or above. Three of whom, including the chair, must be approved by the Graduate Council to direct doctoral research. At least one member must be from outside the department.

The committee must approve all coursework applied toward the degree, certify the student’s mastery of the major field and any cognate areas, direct the research, and recommend the dissertation for approval and acceptance by the Graduate School.

GRADUATE COURSES

411 Soil Microbiology (3) Soil microbial populations and role in soil ecosystem, microbial transformation of inorganic and organic compounds, decomposition of residues, dynamics of soil organic matter. Prereq: Intro- duction to Soil Science and Introduction to Organic and Biochemistry or Organic Chemistry or consent of instructor. 2 hrs and 1 lab. F.A

412 Soil Genesis and Classification (3) Soil genesis and formation, observing and describing morphology of agricultural and forest soils, classification, 3 weekend field trips. Prereq: Introduction to Plant and Soil Science or consent of instructor. 2 hrs and 1 lab. F

413 Soil Chemistry (3) Principles concerning structure and chemical properties of soil materials, redoxionaltion as related to exchange, chemical equilibria, soil acidity, oxidation-reduction, weathering, nutrient availability and waste disposal. Prereq: 401 or consent of instructor. F

414 Soil, Land, Use, and the Environment (3) Soil as environmental component and soil properties affecting land use. Soil as resource in development planning: consideration of nonagrowing aspects of site selection for land use, soil survey and resource data in land use, recognition and prevention of soil pollution. Prereq: 210 or consent of instructor. Sp

415 Soil Hydrology (3) Physical relationships among solid, liquid, and gaseous phases of soil system. Relations of soil properties to processes governing transport of water, and chemicals in soil. Prereq: Introduction to Soil Science. 2 hrs and 1 lab. F.


420 Bioclimatology (3) Solar energy budget, Interactions between global, regional and local climates and biomes; climatic paradigm: evaporation of macro- and microclimates; microclimates and their modification; automated weather station data collection and analyses; biological responses to climatic stresses; climate variability and change and their effects on biological systems. Prereq: 1 yr physical or biological science, junior standing. F.A

421 Agricultural Pesticides (3) Regulation of pesticide development, manufacture, transportation, marketing and use. Structure, use, mode of action, degradation and environmental impact of pesticides used in agriculture, forestry and related areas. Prereq: 1 yr biological science and 1 semester chemistry. 2 hrs and 1 lab. Sp.

422 Postharvest Biology and Technology (3) Principles, methods, and techniques related to maintenance of quality of horticultural commodities. Preharvest handling and processing, postharvest handling, quality evaluation and biological and physiological mechanisms related to maturation, ripening, and senescence. Graduate credit requires significant research participation in regular class assignments. Two Saturday field trips. Prereq: 1 yr biological science. 2 hrs and 1 lab.

423 Principles of Plant Breeding (3) Genetic principles and techniques used in crop improvement. Prereq: Biology 520 or equivalent. 2 hrs and 1 lab. Sp.

471 Statistics for Biological Research (3) Application of statistics to interpretation of biological research. Nota- tion, descriptive statistics, probability, distributions, con- fidence intervals, t and chi-square tests, analysis of variance, mean separation procedures, linear regression and correlation. Prereq: Mathematics 121 or equiva- lent. F

500 Thesis (1-15) P/NP only. E

501 Seminar Preparation (1) Application of speaking, writing, and organizational skills in preparation and present- ation of scientific material to both scientific and general audiences. Preparation of abstracts for scientific presentations. Required of all entering graduate students during their first year of graduate study. F.Sp

502 Registration for Use of Facilities (3-15) Required for all graduate students. Enrolled the semester when student uses University facilities and/or faculty time before degree is completed. May not be used toward degree requirements. May be repeated. S/N only. E

503 Seminar (1) Presentations and discussion of current scientific material. May be repeated. Maximum 3 hrs. F.Sp


512 Pedology (3) Physical and chemical weathering processes, factors of soil formation, soil forming proc- esses. Prereq: 412 or consent of instructor. 2 hrs and 1 lab. F.A

514 Advanced Soil Physics (3) Theory and mathemati- cal modeling of flow and solute transport in saturated-unsaturated soils: geostatistical analysis of soil heterogene- ousness, statistical properties and transport processes, anisotropy, hysteresis. Analytical, and numerical solu- tion of flow and transport equations for unsaturated zone. Prereq: Calculus III, 415, or consent of instructor. F.A

530 Integrated Pest Management (3) (Same as Entomology and Plant Pathology 530.)

532 Advanced Crop Ecology (3) General and specific relations among environmental factors, crop organisms, and agricultural systems; quantification of macro- and microclimatic influences on crop growth; world climates, crop distribution and productivity, human cultures, and their interaction. Prereq: 471 or equivalent; 431 or equiva- lent, or Agricultural Climatology or equivalent. 2 hrs and 1 lab.

551 Advanced Plant Genetics (3) Discovery of genet- ics: controlling elements, induced mutations, genome organization, polyplody, tetrasomic inheritance, extra- chromosomal inheritance, apomixis, incompatibility sys- tems, and genetic engineering of higher plants. Prereq: Biology 220. F.A.


571 Design and Analysis of Biological Research (3) (Same as Animal Science 571.)

593 Special Problems in Plant and Soil Science (1-3) May be repeated. Maximum 6 hrs. E

600 Doctoral Research and Dissertation (3-15) P/NP only. E

601 Special Topics in Soil Science (1-3) Thermodynamics of soil solutions, clay structure and surface chemistry, soil mineralogy, plant mineral nutrition, soil microbiology, water movement and use by plants, soil structure, soil thermal properties, interaction in the soil- plant environment. May be repeated. Maximum 6 hrs. E

603 Special Topics in Crop Physiology and Ecology (1-3) Principles of plant growth and development, plant environment, stimulus transduction, regulatory mechanisms and responses to stress, physiology of crop growth and reproduction, interactions of physiology and genetics, crop growth, productivity, and application of quantitative methods in crop physiology and ecology research. May be repeated. Maximum 6 hrs. E

605 Special Topics in Plant Breeding and Genetics (1-3) Genotype by environment interactions, estimation of quantitative parameters, mutations, chromosome dy- namics, polyplody, genetic engineering, interspecific hybridization, linkage, screening methods, genome or- ganization. May be repeated. Maximum 6 hrs. E

613 Advanced Soil Chemistry (3) Thermodynamics of soil solutions and surface chemistry of soils; soluble complex formation, mineral solubility, electrochemical equilibria, geochemical modeling, ion exchange equilibria, surface properties and adsorption, sorption phe- nomena, and surface complexation modeling. Prereq: 413 or equivalent and Chemistry 473 or consent of instructor. Sp.A

631 Advanced Crop Physiology (3) Relationship of physiological processes and efficiency of crop production, theory and application of quantitative methods in crop physiology and ecology research. May be repeated. Maximum 6 hrs. E

633 Plant Growth Control and Herbicide Action (3) Principles of uptake, translocation, mode of action and use of herbicides and plant growth regulators. Action of herbicides and plant growth regulators on plant morphology, metabolic systems and enzymatic activities. Practical aspects and current com- merical uses of plant growth regulators. Prereq: Botany 521 and 522 or equivalent. F.A

634 Plant Growth Control and Herbicide Action (3) Principles of uptake, translocation, mode of action and use of herbicides and plant growth regulators. Action of herbicides and plant growth regulators on plant morphology, metabolic systems and enzymatic activities. Practical aspects and current com- merical uses of plant growth regulators. Prereq: Botany 521 and 522 or equivalent. F.A

Plant and Soil Science 155
Political Science
(College of Arts and Sciences)

MAJORS DEGREES

Political Science.......................... M.A., Ph.D.
Public Administration .................... M.P.A., J.D.-M.P.A.

Patricia Freeland, Acting Head

Professors:
Carlisle, D. H. (Emeritus),
Ph.D. ........................................ North Carolina
Cunningham, Robert B., Ph.D. .......... Indiana
Fitzgerald, Michael R., Ph.D. .......... Oklahoma
Gant, Michael M., Ph.D. ................... Michigan State
Gorman, Robert A., Ph.D. ................ New York
Lyons, William, Ph.D. ..................... Oklahoma
Peters, John, Ph.D. ......................... Illinois
Plass, Hyram, Ph.D. ....................... Utah
Robinson, Neil E. (Emeritus),
Ph.D. .......................................... Syracuse
Scheb, John M., II, Ph.D. ................. Florida
Smith, T. Alexander, Ph.D. .......... Ohio State
Stephens, Otis H. (Distinguished Prof.),
Ph.D. ......................................... Johns Hopkins
Ungs, Thomas D., Ph.D. ................. Iowa
Welborn, David M., Ph.D. ............... Texas

Associate Professors:
Evans, Gill C., Ph.D. .............. Columbia
Foize, David H. (Liaison), Ph.D. ...... Tennessee
Freeland, Patricia K. (Liaison),
Ph.D. ....................................... Wisconsin (Milwaukee)
Houston, David J., Ph.D. .......... SUNY (Binghamton)
Petterson, Robert L., Ph.D. ............ Yale

Assistant Professors:
Bereljikian, Jeffrey D., Ph.D. .......... Oregon
Nowness, Anthony J., Ph.D. .... Kansas
Richardson, Lilliard, Ph.D. ............. Texas
Salinger-McBride, Jan,
Ph.D............................... California (Santa Barbara)
Zhong, Yang, Ph.D. .................... Kentucky

The Department of Political Science offers the M.A., M.P.A., and Ph.D. The department also offers a dual program with the College of Law. Inquiries concerning all programs should be directed to the departmental office.

ADMISSION REQUIREMENTS

Three departmental recommendation forms must be submitted to The Graduate School, at least two of which must be completed by instructors at the institution most recently attended. In addition, scores on the general portion of the Graduate Record Examination must be submitted.

THE MASTER OF ARTS PROGRAM

A Bachelor's degree or its equivalent is required for admission. Normally an average of 3.0 is also required together with an average of 3.2 in the last two years of political science or social science. In addition, a composite score of at least 1100 on the verbal and quantitative parts of the GRE is normally required.

Students pursuing the Master of Arts degree may follow one of two options:

- Thesis Option: (36 hours) Coursework, preparation of a thesis, and an oral examination on coursework and thesis, is required. At least 12 of these hours must be in political science, with 6 in the field of methodology (Political Science 510 and either 511 or 512). Six hours may be earned through thesis credit.

- Non-Thesis Option: (36 hours) Coursework, plus a written comprehensive examination on all coursework is required. At least 12 of these hours must be in political science, with 6 in the field of methodology (Political Science 510 and either 511 or 512), and 3 hours in the 400-level research seminar in the student's first field of interest.

THE MASTER OF PUBLIC ADMINISTRATION PROGRAM

The M.P.A. program is intended to prepare students for public service careers by acquainting them with management principles, analytical tools, and the ethical dilemmas they will face as public administrators. It consists of a total of 39 semester hours, including a core program, an elective specialization and a recommended internship.

Applicants for admission to the program must have a Bachelor's degree or its equivalent. Normally, an overall average of 3.0 and an average of 3.2 in the last two years of political science or social science courses is required. In addition, a composite score of at least 1200 on the verbal and quantitative parts of the GRE is normally required.

Students must demonstrate proficiency in the use of personal computers prior to the completion of 9 credit hours in the M.P.A. program. Students may fulfill this requirement by successful completion of a short course(s) offered by the UT Computing Center. The Coordinator of the M.P.A. program will provide a list of acceptable courses. Exceptions to this requirement will be considered on an individual basis.

The M.P.A. is a non-thesis program. Specific requirements include the following:

1. Core - 21 hours.
   b. Analytical skills (6 hours): 512 Quantitative Political Analysis; 514 Research and Methodology in Public Administration.
   c. Management skills (6 hours): 560 Public Budgeting; and either 562 Public Management or 564 Human Resources Management in Public Administration.
2. Specialization - 9 hours.
   A specialization is designed by the student in consultation with the coordinator of the M.P.A. program. Possible specializations include general government, public health, budgeting and finance, planning, natural resources, program evaluation, criminal justice, public relations, personnel, and others.
3. Recommended internship with a public agency - 6 hours.
   Internships are arranged in consultation with the coordinator of the M.P.A. program.
4. A written final examination, which may be followed by an oral examination, is required.

DUAL J.D.-M.P.A. PROGRAM

The College of Law and the Department of Political Science in the College of Arts and Sciences offer a coordinated dual degree program leading to the conferral of both the Doctor of Jurisprudence and Master of Public Administration degrees. In this program, a student may earn the M.P.A. and J.D. degrees in about four years rather than the five years that otherwise would be required. Students pursuing the dual degree program should plan to be enrolled in coursework or an internship for one summer term in addition to taking normal course loads for four academic years.

Admission

Applicants for the J.D.-M.P.A. program must make separate application to, and be independently accepted by, the College of Law for the J.D. degree and the Department of Political Science The Graduate School for the M.P.A. degree. Applicants must also be accepted by the Dual Degree Committee. All applicants must submit a Law School Admission Test (LSAT) score. An applicant's LSAT score may be substituted for the Graduate Record Examination (GRE) score, which is normally required for admission to the M.P.A. program. Application may be made prior to or after matriculation in either the J.D. or the M.P.A. program; however, application to the dual program must be made prior to entry into the last 29 semester hours required for the J.D. degree and prior to entry into the last 15 hours required for the M.P.A. degree.

Curriculum

A dual degree candidate must satisfy the requirements for both the J.D. and the M.P.A. degrees, as well as the requirements for the dual program. The College of Law will award a maximum of 9 semester hours of credit toward the J.D. degree for successful completion of approved graduate degree courses (500 or 600 level). The M.P.A. program will award a maximum of 9 semester hours of credit toward the M.P.A. degree for successful completion of approved courses offered in the College of Law. All courses for which such credit is awarded must be approved by the J.D.-M.P.A. coordinators in the College of Law and the Department of Political Science. All candidates for the dual degree must successfully complete Administrative Law (Law 821) and are encouraged to take Local Government (Law 824). An internship is strongly recommended for students in the dual degree program, as it is for all M.P.A. candidates, but an internship is not required.

During the first two years in the dual program, students will spend one academic year completing the required first year of the College of Law curriculum and one academic year taking courses solely in the M.P.A. program. During those first two years, students may not take courses in the opposite area, without the approval of the J.D.-M.P.A. coordinators in both academic units. In the third and fourth years,
students are strongly encouraged to take both law and political science courses each semester.

Dual degree students who withdraw from the program before completion of the requirements for both degrees will not receive credit toward either the J.D. or the M.P.A. degree for courses taken in the other program except as such courses qualify for credit without regard to the dual program.

Awarding of Grades
For grade recording purposes in the College of Law and the Department of Political Science, grades awarded in courses in the other unit will be converted to either Satisfactory or No Credit and will not be computed in determining a student's GPA or class standing. The College of Law will award a grade of Satisfactory for an approved M.P.A. course in which the student earns a grade of B or higher and a grade of No Credit for any lower grade. The Political Science Department will award a grade of Satisfactory for an approved law course in which the student earns a grade of 2.3 or higher and a grade of No Credit for any lower grade. The official academic record of the student maintained by the Registrar of the University shall show the actual grade assigned by the instructor without conversion.

THE DOCTORAL PROGRAM
The Ph.D. program prepares students for careers in college teaching, as well as careers in other occupations related to service in the public or private sectors. Applicants for admission to the program should normally have completed a master's degree in political science or a related field with a 3.5 GPA and have earned a composite score of at least 1100 on the verbal and quantitative parts of the Graduate Record Examination.

Doctoral students admitted to the program must complete 69 hours beyond the bachelor's degree, including 24 hours beyond the master's degree, graded A-F, must successfully pass written and oral comprehensive examinations in three broad subfields of political science, and must pass a final oral examination on the dissertation. Doctoral students must satisfy a research tool requirement. Usually, students meet this requirement by completing 12 hours of coursework numbered above 500 in empirical theory and research methodology. However, if a student's advisor and program committee certify that competency in a foreign language is a more appropriate research tool, a foreign language can be used instead.

In addition to the total hours required for the degree, the following requirements must also be met:
1. At least 69 hours must be in political science courses.
2. At least 54 hours in political science must be in courses numbered above 500.
3. Completion of Political Science 510, 511, and 512.
4. Completion of at least three courses or seminars at UT in each of the three broad subfields in which the student takes examinations.
5. Completion of at least one course or seminar in each of six broad subfields available for graduate instruction in the department.
6. At least 6 hours must be earned in political science courses numbered above 500.
7. A total of 24 hours must be earned by writing the dissertation.

MINOR IN ENVIRONMENTAL POLICY
The department participates in a program designed to give master's level graduate students an opportunity to develop an interdisciplinary specialization in environmental policy. See Economics for program description.

GRADUATE COURSES
430 United States Constitutional Law: Sources of Power and Restraint (3) Analysis of judicial review, constitutional powers of President and Congress, federalism, sources of regulatory authority, and constitutional protection of political and economic rights.
431 U.S. Constitutional Law: Civil Rights and Liberties (3) Analysis of current issues in civil rights and liberties including: first amendment freedoms, equal protection, privacy rights and rights of accused.
442 Administrative Law (3) Legal dimensions of administrative power and procedures, and constitutional controls over administrators.
452 Black African Politics (3) Recent evolution and current political environment of Black African nations. (Same as Afro-American Studies 452.)
454 Government and Politics of China and Japan (3) Examination of the political setting, structure and political processes in China and Japan.
455 Latin American Government and Politics II (3) Selected topics on Latin America political dynamics, considering leading theoretical explanations. (Same as Latin American Studies 455.)
459 Government and Politics of the Soviet Union (3) Origins and development of Soviet political system, and study of selected policy areas.
461 Policy Making in Democracies (3) Comparative approach to theory and process of making public policies.
463 Contemporary Middle East Politics (3) Governments and movements in Middle East, their characteristics, bases, and interrelationships.
470 International Law (3) Nature and development of international law and compliance. Function of international law in international conflict.
475 Ancient and Medieval Political Thought (3) Survey of major western political thinkers from antiquity to Marsilio of Padua.
476 Modern Political Thought (3) Survey of major western political thinker from Machiavelli to Marx.
500 Thesis (1-15) P/NP only. E
502 Registration for Use of Facilities (3-15) Required for the student not otherwise registered during any semester when student uses University facilities and/or faculty time before degree is completed. May not be used toward degree requirements. May be repeated. S/NC only. E
510 Scope and Methods in Political Science (3) Procedures of analysis in political science.
511 Research Design (3) Methods for planning and executing research, from case studies to experimental designs: development of research questions and hypotheses; measurement issues; and validity of inferences.
512 Quantitative Political Analysis (3) Methods and techniques in quantitative analysis: univariate and bivariate statistics.
513 Quantitative Political Analysis (3) Methods and techniques in quantitative political analysis: multivariate model building.
514 Research and Methodology in Political Administration (3) Basic assumptions and techniques of research in public administration; measurement; analysis; and reporting of data.
520 Political Theory (3) Survey of major ideas, thinkers and works of Western political theory.
522 American Political Thought (3) Systematic examination of the normative and empirical theories of leading American political thinkers and the colonial period to the present.
530 American Government and Politics (3) Survey of political philosophy, approaches to research and analysis, critical examination of major works of research in various subfields. May be repeated with consent of department. Maximum 9 hrs.
532 Presidency (3) Systematic examination of structures, functions and powers of the American presidency as they developed from the founding to the present.
533 Congress (3) Formal, empirical and historical approaches to models of the institutional workings of Congress and the behavior of legislators.
535 Mass Political Behavior (3) Theoretical and empirical analyses of political opinion, political socialization, political attitudes and behavior, especially voting behavior.
537 Political Parties and Interest Groups (3) Theoretical and empirical examination of the structure, functions and operations of political parties and interest groups.
539 State and Local Government and Politics (3) Theoretical and empirical analysis of government, politics, policy making and public administration at the state and local levels.
540 Public Law (3) Selective examination of published research and current approaches in fields of constitutional law, judicial process, and judicial behavior. May be repeated with consent of department. Maximum 9 hrs.
546 Law and the Administrative Process (3) Constitutional position decisional processes, regulation and management, limitations on governmental action; questions of structure, role and administrative choice. May be repeated with consent of department. Maximum 9 hrs.
548 Public Policy Process (3) Theoretical, formal and empirical analysis of the roles, functions and decision making processes of public policymakers, including legislative, executive and judicial actors.
550 Public Administration (3) Overview of public administration theory and practice.
552 Organization Theory (3) Appraisal of major theories of organization and their applicability to public sector.
553 Management of Information Systems (3) Theory, design, development, implementation and evaluation of information systems in public organizations. Database systems, computer applications related to effective management information technology.
556 Policy Analysis (3) Strategies and techniques for identification and analysis of public problems and policy solutions. May be repeated with consent of department. Maximum 9 hrs.
558 The Politics of Administration (3) Examination of public administration in context of American political system, policy making and political roles of public administrators and agencies. May be repeated with consent of department. Maximum 9 hrs.
560 Public Budgeting and Finance (3) Technical and political aspects of planning, preparing and adopting government budgets. Management implications of revenue collection, debt management, treasury function, accounting, internal auditing, purchasing risk management, post-auditing.
562 Public Management (3) Interpersonal and leadership skills, techniques and methods for planning, decision making and implementation of management strategies in public sector. May be repeated with consent of department. Maximum 9 hrs.
564 Human Resource Management in Public Organizations (3) Intensive analysis of contemporary issues, challenges, methods and techniques related to effective management of human resources in public sector.
566 Ethics, Values, and Morality in Public Administration (3) Moral-ethical-value dilemmas confronting administrators in American political system.
569 Internship in Public Administration (3-9) Open to students participating in approved internship programs. May be repeated with consent of department. Maximum 9 hrs. S/N only.
Polymer Engineering

See Materials Science and Engineering

Psychoeducational Studies

(College of Education)

MAJORS DEGREES
Education Ph.D.
Educational Psychology M.S., Ed.D.
Educational Psychology and Guidance Ed.S.

K. Greenberg, Leader

Professors:
Bollon, Jerry J. (Emeritus), Ed.D. ........... UC Berkeley
Cameron, Walter A., Ph.D. .................... Ohio State
Dickinson, Donald J., Ed.D. ........ ....... Oklahoma State
George, Thomas W., Ed.D. .............. Tennessee
Greenberg, Katherine H., Ph.D. .......... George Peabody
Kasworm, Carol, Ed.D. ..................... Georgia
McCallum, R. S., Ph.D. ...................... Georgia
Peters, John M., Ed.D. ....................... NC State
Williams, R. L. (Liaison), Ph.D. ....... George Peabody

Associate Professors:
Brockett, Ralph G., Ph.D. ............... Syracuse
Kendall, Luther M., Ed.D. .............. Tennessee

Assistant Professor:
Whitaker, Dianne, Ph.D. .......... Washington

The Psychoeducational Studies unit offers graduate programs leading to the following: Master of Science with a minor in Educational Psychology, concentrations in adult education, educational psychology, and individual and collaborative learning; Educational Specialist with a minor in Educational Psychology and Guidance, concentrations in educational psychology and school psychology; and Doctor of Education with a major in Educational Psychology, concentrations in adult education, educational psychology, and collaborative learning. The unit also participates in the college-wide Ph.D. program with a major in Education. See Education under Fields of Instruction for full description of all degree requirements.

The mission of the Psychoeducational Studies unit is to provide national leadership in creating learning environments that foster psychological health, address authentic educational needs, and promote life-long learning. The unit will seek opportunities in a diversity of contexts for learners to apply data-based problem solving, engage in reflective and evaluative thinking, and implement the structures and processes necessary for effective collaboration.

The school psychology program is accredited by the American Psychological Association and the National Association for School Psychology. This program also has the approval of the National Council for Accreditation of Teacher Education. The program in Educational Psychology has been recognized as a "Designated Program" by the American Association of State Psychology Boards and the Council for the National Register of Health Service Providers in Psychology.

ADMISSION REQUIREMENTS

Admission requirements include up-to-date scores from the GRE, the unit's admissions application form and letters of recommendation. For the doctoral programs a writing sample is also required. The application deadline for admission to the doctoral and Ed.S. programs is February 1, and to the M.S. program is February 1 and November 1. For information about the various programs of study and admissions, write to the Graduate Center in the College of Education.

GRADUATE COURSES

432 The Disadvantaged Student: Psychoeducational Perspectives (3) Theory and research regarding ecolo
gy, psychosocial behavior and appropriate interventions. Sp
460 Self-Management in the Helping Professions (3) Applications of self-management strategies to career, social emotional, and health domains for both helping professionals and their clientele. Prereq: Introductory course in psychology or consent of instructor. S/N or letter grade. Sp, Su
500 Thesis (1-15) P/NP only. E
502 Registration for Use of Facilities (3-15) Required for the student not otherwise registered during any
504 Special Topics (1-3) Instructor-initiated course of study, at the convenience of the instructor. S/NC or letter grade. E
506 Internship in Adult Education (3) Practical field experiences in selected settings under supervision of practitioner and departmental representative. Prereq: Consent of instructor. May be repeated. Maximum 6 hrs. E
510 Psychological Theories of Human Development Applied to Education (3) Theory and research on emotional, social, and intellectual development over lifespan with applications to educational and therapeutic settings. F
511 Cognitive Development: Implications for Education (3) Applications of theory and research related to higher mental problem-solving. Prereq: 510 or consent of instructor. F
513 Reflective Practice in Education and Psychology (3) Concepts, theories, and processes of reflective practice applied to educational settings.
514 Individual Study in Adult Education (3) Prereq: Consent of supervising instructor. Approval form must be completed in office of unit head. May be repeated. Maximum 6 hrs. E
515 Educational Applications of Behavioral Theories of Learning (3) Behavioral theories and research, conditioning, observational learning, and psychological learning as systems apply to student motivation, discipline and learning. S
516 Educational Applications of Cognitive Learning Theories (3) Cognitive theory and research, social learning, attribution and information processing as systems apply to education. Prereq: 515 or consent of instructor. F
518 Educational Specialist Research and Thesis (3) May be repeated. P/NP only. E

In addition to the students who are pursuing the degree in the College of Education, students may take courses in Psychology for credit toward the completion of their degree program. This includes the following courses:

510 Psychological Theories of Human Development
511 Cognitive Development: Implications for Education
513 Reflective Practice in Education and Psychology
514 Individual Study in Adult Education
515 Educational Applications of Behavioral Theories of Learning
516 Educational Applications of Cognitive Learning Theories
518 Educational Specialist Research and Thesis

These courses are always available at the convenience of the student, and are offered through the College of Education. Students interested in these courses should contact the College of Education for further information.
hours of 500- or 600-level foundation courses. Students must earn a grade of B or better in all courses that are to count toward the 30-hour total. Students must also propose, conduct and successfully defend an original piece of research in the form of a master’s thesis.

THE DOCTORAL PROGRAM

A student with a B.A. or B.S. may apply to the Department of Psychology for admission to the doctoral program with a concentration in experimental psychology or clinical psychology. The doctoral program with a concentration in ethology or physiology is offered through the Life Sciences program. Doctoral study in industrial and organizational psychology is offered through the Intergovernment program in Industrial and Organizational Psychology, to which application is made through the Department of Management.

Experimental Psychology

The Ph.D. program in Psychology with a concentration in experimental psychology is designed to allow students to select from a variety of specializations oriented toward careers in research, teaching, and application of psychology in academic, institutional, or industrial settings. The program is flexible, individualized, and emphasizes a professional apprenticeship model of training. A full description of the program is given in the Handbook for Students in Experimental Psychology, available from the department. The basic requirements are:

1. Twelve semester hours of statistics and research (504-05 or Statistics 531-32 or equivalent) and 6 additional hours in research methods or design.
2. Fifteen semester hours in experimental psychology (565 or equivalent and 4 courses from the following: 510, 511 or 512, 513, 534, 546 and 547, 550, 560, and 570 or 571).
3. Six semester hours of research practice (509).
4. Psychology 528 - preparation for college teaching.
5. Two 600-level graduate seminars.
6. Six semester hours of graduate level courses outside the Psychology Department.
7. Predissertation research project involving the collection of original data or the original analysis of existing data, reported in publishable form and accepted by the student’s advisory committee.
8. An integrative review or theoretical paper, accepted by the student’s advisory committee.
9. Comprehensive examination, determined and evaluated by the student’s doctoral committee.
10. Twenty-four hours of dissertation research (600).
11. An original piece of research in the form of a doctoral dissertation, proposed, conducted, and defended.

Clinical Psychology

This program is designed to lay the groundwork for a career as a clinical psychologist capable of working in both academic and applied settings. The program emphasizes the theoretical foundations of psychology as well as supervised experience oriented toward the development of practical skills. The program embodies a model of clinical psychology in which practice and research are integrated.

Clinical program students must obtain a score of at least 630 on the GRE in psychology by the end of the first year and complete a predoctoral research project by the end of the second year.

After forming the doctoral committee, students must then pass a comprehensive examination administered and evaluated by the committee. This examination is comprised of two papers, one addressing a topic of the student’s choice, and the second addressing an understanding of one individual’s personality and cognitive functions. All doctoral students must complete a minimum of 78 hours of graduate level courses, including courses required by their program; at least 6 hours in courses outside of psychology; and at least 24 hours of dissertation research (Psychology 600). Finally, students must complete an acceptable doctoral dissertation and conduct a satisfactory oral defense of the dissertation. Requirements are as follows:

1. Apprenticeship with one faculty member during the first year, two days each week.
2. Predissertation research project completed before forming a doctoral supervisory committee, reported in written form acceptable to two members of the faculty or, if reviewed and accepted for publication or external presentation, by one member of the faculty.
3. Supervised clinical placement two days (16 hours) each week during the second year, and the following option during the third and fourth years:
   a. continued two day clinical placement in the third and fourth years.
   b. teaching assistantship in the department in either the third or fourth year and two day clinical placement in the other year.
4. Satisfactory completion of listed courses (or equivalents) in the following sixteen categories:
   a. Foundations of Psychology: Biological, Behavior and Experience: Humanistic.
   b. Interviewing and Observation (558) and Laboratory (559).
   c. Research Practice (509) (4 hrs.).
   d. Life-Span Development (512) or Developmental Psychology (511).
   e. Personality: Theory and Research I and II (570-71).
   f. History and Systems of Psychology (565).
   g. Research Questions and Designs (550).
   h. Psychological Assessment I and II (594-95) and Laboratory (596).
   i. Empirical Methods in Psychology (504) and Research Design (505).
   j. Social Psychology (550).
   k. Field Practice in Clinical Psychology (695) (4 hrs.).
   I. Dynamics of Psychopathology (573).
   m. Psychometrics (555) or Applied Psychological Measurement (557).
   n. Ethical, Legal and Professional Issues in Psychology (635).
   o. Psychodynamic Psychotherapy I and II (670-71) and Laboratory (673) (4 hrs.).
   p. Doctoral Research and Dissertation (600) (24 hrs.).
5. Satisfactory completion of a one-year clinical internship at a site approved by the program.
6. Students who choose a teaching assistantship in the third or fourth year must have satisfactorily completed 528 College Teaching in Psychology.
7. Satisfactory completion of at least 3 additional graduate-level courses in non-clinical topics in psychology.
8. Satisfactory completion of a one-year clinical internship at a site approved by the program.

GRADUATE COURSES

409 Group Facilitation (3) Study of theory and techniques through supervised experience in small groups. Prereq: 359 and consent of instructor. May be repeated. Maximum 6 hrs.
415 Psychology of Religion (3) History of psychology of religion, various philosophical and empirical orientations. Psychological function of religion for individuals and society. Prereq: Junior or senior standing.
424 Psychology and the Law (3) Psychological aspects of legal systems. Prereq: 110 or equivalent, upper-division standing and consent of instructor.
430 Health Psychology (3) Survey of psychological factors related to health and illness: stress, personality, and environment. Applications of psychological treatments to physical illnesses. Prereq: 110 or equivalent, 210.
434 Psychology of Gender (3) Biological, psychological, and social factors in gender. Importance of gender roles and stereotypes for behavior and experience. Prereq: 110 or equivalent, 210, 220. (Same as Women’s Studies 434.)
440 Organizational Psychology (3) Social-psychological analysis of organizations, role-theory and systems theory. Prereq: 360.
450 Comparative Animal Behavior (3) Same as Ecology and Evolutionary Biology 450.
459 Comparative Animal Behavior Laboratory (3) Coreq: 450. (Same as Ecology and Evolutionary Biology 459.)
461 Physiological Psychology (3) Nervous system and physiological correlates of behavior. Biological basis of emotion, learning, memory and stress. Prereq: 110 or equivalent, 210, and 1 yr of biology or zoology introductory sequences or equivalents.
469 Laboratory in Physiological Psychology (3) Laboratory studies of nervous system and psychological correlates of behavior. Coreq: 461.
470 Theories of Personality (3) Survey of major theories of human personality and their development. Prereq: 220 and 300 or 330.
475 Adolescent Development (3) Theoretical perspectives and empirical research findings pertinent to adolescent development. Prereq: Child Psychology. 346.
480 Theories of Learning (3) Classical and current approaches to learning and cognition. Prereq: 310.
482 Topics in Psychology (3) Intensive analysis of special topics: Afro-American psychology or evaluation of programs in community. Prereq: Biological Basis of Behavior and Experience; Humanities Psychology and at least 9 hrs in 300-level courses. Recommended prereq: Statistics in Psychology, Methods of
Research in Psychology. May be repeated. Maximum 6 hrs.

489 Supervised Research (1-9) Prereq: Consent of instructor. May be repeated. Maximum 12 hrs in 399, 489, 491, 492, and 493 combined may apply toward undergraduate major.

500 Thesis (1-15) P/NP only. E

502 Registration for Use of Facilities (3-15) Required for the student to register during any semester when units of University facilities and/or faculty time before degree is completed. May not be used toward degree requirements. May be repeated. S/NC only. E


505 Research Design (3) Techniques for planning and conducting research in controlled and natural settings: experiments, quasi-experiments, observational studies, surveys, and program evaluations. Development of questions and hypotheses for study. Design of studies to maximize validity. Prereq: Consent of instructor. Sp

508 Readings and Special Issues in Psychology (1-3) Prereq: Consent of instructor. May be repeated. Maximum 9 hrs. E

509 Research Practicum (1-3) Required of first-year graduate students in psychology. May be repeated. Maximum 9 hrs. S/NC only. E

510 Topics in Psychology (3) Intensive examination of selected issues in psychology. Prereq: Consent of instructor. May be repeated. Maximum 9 hrs.

511 Developmental Psychology (3) Normal processes of human socialization; physical, cognitive, and emotional development from conception through infancy, childhood, and adolescence. Prereq: Consent of instructor. May be repeated. Maximum 6 hrs. F

512 Life-Span Development (3) Theories and research concerning normal human development throughout life, adulthood and old age. Prereq: Consent of instructor.

513 Foundations of Psychology: Biological Factors, Perception, Learning, Thinking, Motivation (4) Intensive survey. Prereq: Consent of instructor.

515 Colloquium in Experimental Psychology (1) Research and practical issues in experimental psychology. Prereq: Consent of instructor. May be repeated. Maximum 4 hrs. S/NC only. F, Sp

516 Colloquium in Ethology (1) Current research and theory. May be repeated. Maximum 9 hrs. (Same as Ecology and Evolutionary Biology 516.) S/NC only. E

517-18 Proseminar in Industrial and Organizational Psychology (3,3) (Same as Management 567, 568.)

520 Interventions for Behavioral Change (3) Principles and techniques for planning, implementing, and evaluating interventions derived from social learning theory. Interventions by people in community: teachers or supervisors. Token economies and strategies for self-control. Prereq: Consent of instructor.

525 Laboratory Techniques and Instrumentation (3) Procedures for laboratory research involving humans and nonhuman animals; techniques for collecting, transforming, storing, and retrieving data using microcomputers. Prereq: Consent of instructor. May be repeated. Maximum 6 hrs.

526 General Vertebrate Neuroanatomy (3) Lecture and laboratory. Structure and functioning of central and peripheral nervous system. Prereq: 461, 469, or equivalent and consent of instructor.

527 Behavioral Neurology (3) Disorders of nervous system, origin, course, diagnosis, treatment, and management. Prereq: Consent of instructor.

528 College Teaching in Psychology (3) Concepts, techniques, and materials for teaching psychology at college and/or university level. Supervised practice. Prereq: Consent of instructor. S/NC only.


545 Advanced Animal Behavior (3) (Same as Ecology and Evolutionary Biology 545.)

546 Ethological Psychology (2) Basic ethology and comparative psychology. Implications for human behavior. Prereq: Consent of instructor.

547 Conceptual Foundations of Evolution and Behavior (3) (Critical evaluation of seminal writings on theory and methodology of evolution of behavior. (Same as Ecology and Evolutionary Biology 547.)

550 Social Psychology (3) Survey of theory and research concerning interpersonal interaction and individual behavior in social context. Prereq: Consent of instructor.

555 Psychometrics (3) Basic concepts: factor analysis, scaling, test theories, probability models and their applications, computerized adaptive testing and other topics. Prereq: Statistics 537-538 or equivalent. May be repeated.

557 Applied Psychological Measurement (3) Issues and techniques in applying psychological measurement in organizational, clinical, and community research. Prereq: Statistics 537-538 or equivalent or consent of instructor. May be repeated. Maximum 6 hrs.

558 Interviewing and Observation (3) Sensitizing students to own feelings and behavior to feel of interviewee, and analysis of language content, style, and body language. Exploration of various important aspects of interviewer's life. Prereq: Admission to doctoral program in clinical psychology or consent of instructor. Coreq: 559.

559 Laboratory in Interviewing and Observation (1) Prereq: Admission to doctoral program in clinical psychology or consent of instructor. Coreq: 556.

560 Psychology of Learning (3) Review of current evidence from research involving human and/or nonhuman animals. Prereq: 400 and consent of instructor. May be repeated. Maximum 6 hrs.

565 History and Systems of Psychology (3) History of philosophy concerning psychology. Major systems of psychology which emerged during 20th century. Prereq: Graduate standing.

570 Personality: Theory and Research (3) Advanced survey of psychodynamic and neo-Freudian approaches to personality; related research. Prereq: Admission to clinical program or consent of instructor. F

571 Personality: Theory and Research II (3) Advanced survey of behavioral and humanistic approaches to personality; related research. Prereq: Admission to clinical program or consent of instructor. Sp

572 Descriptive Psychopathology (2) Diagnostic criteria of the DSM-III. Examples from written case histories and recorded interviews. Prereq: Admission to doctoral program in clinical psychology or consent of instructor. Sp

573 Dynamics of Psychopathology (3) Psychodynamic views of the causes and symptoms of major psychoses, neuroses, and adjustment disorders. Prereq: Admission to doctoral program in clinical psychology or consent of instructor. Sp

574 Atypical Development in Childhood (3) Research on etiologies of atypical patterns of development in infancy and childhood. Prereq: 511 and consent of instructor. May be repeated. Maximum 6 hrs.

575 Psychopharmacology (3) Connections between pharmacology and psychology. Prereq: Consent of instructor.

576 Object Relations (3) European and American conceptions of normal and psychopathological development of object relations. Significance for psychotherapy, psychodynamic analysis, and psychoanalysis. Prereq: Admission to doctoral program in clinical psychology or consent of instructor.

578 Clinical Aspects of Human Sexuality (3) Variation in human sexual behavior. Theories of etiology, treatment, and prevention. Prereq: Consent of instructor.

580 Research Questions and Designs (3) Question asking: process in research and strategies or designs through which answers might be derived. Prereq: Admission to doctoral program in clinical psychology or consent of instructor.

583 Independent, Off-campus, or Foreign Study (1-15) Prereq: Consent of instructor. May be repeated. Maximum 9 hrs. S/NC only.

594 Psychological Assessment I (3) Basic concepts and techniques of adult assessment: intelligence tests and personality tests. Prereq: Admission to doctoral program in clinical psychology or consent of instructor.

595 Psychological Assessment II (3) Basic concepts and techniques of adult assessment, intelligence tests and personality tests. Prereq: Admission to doctoral program in clinical psychology and 594 or consent of instructor. F

596 Laboratory in Psychological Assessment (1) Prereq: Admission to doctoral program in clinical psychology or consent of instructor. Coreq: 595. May be repeated. Maximum 4 hrs. S/NC only. Sp

597 Evaluation of Development in Childhood (3) Structured and projective tests and interview techniques for evaluation of intellectual, personality, and social development in childhood. Prereq: 511 and admission to doctoral program in clinical psychology or consent of instructor. May be repeated. Maximum 12 hrs.

600 Doctoral Research and Dissertation (1-15) P/NP only. E

601 Seminar in Psychology (3) Prereq: Consent of instructor. May be repeated. Maximum 12 hrs.

610 Seminar in Applied Psychology (3) Prereq: Consent of instructor. May be repeated. Maximum 12 hrs.

611 Seminar in Developmental Psychology (3) Prereq: 511 and consent of instructor. May be repeated. Maximum 12 hrs.

613 Seminar in Existential-Phenomenological Psychology (3) Prereq: Consent of instructor. May be repeated. Maximum 12 hrs.


622 Seminar in Comparative and Ethological Psychology (3) Prereq: 546 or consent of instructor. May be repeated. Maximum 12 hrs.

623 Seminar in Methods of Naturalistic Research (3) Prereq: 546 or consent of instructor. May be repeated. Maximum 12 hrs.

625 Seminar in Organizational Psychology (3) (Same as Management 625.)

626 Seminar in Industrial Psychology (3) (Same as Management 626.)

627 Seminar in Applied Industrial Psychology (3) (Same as Management 627.)

635 Ethical, Legal, and Professional Issues in Psychology (3) Research, human services, teaching and public policy. Prereq: Admission to doctoral program in psychology or consent of instructor. (Same as Counseling Education and Counseling Psychology 635 and Psychosocial Studies 635.) S/NC only.

638 Current Topics in Industrial/Organizational Psychology (3) (Same as Management 638.)

670 Psychodynamic Psychotherapy I (3) Theories and principles. Prereq: Admission to doctoral program in clinical psychology or consent of instructor. F

671 Psychodynamic Psychotherapy II (3) Theories and principles. Prereq: Admission to doctoral program in clinical psychology and 670 or consent of instructor. Sp

672 Laboratory in Psychotherapy (2) Prereq: Admission to doctoral program in clinical psychology or consent of instructor. Coreq: 670 or 671. May be repeated. Maximum 6 hrs. S/NC only.

676 Special Topics in Psychotherapy (3) Prereq: Admission to doctoral program in clinical psychology or consent of instructor. May be repeated. Maximum 12 hrs.

681 Seminar in Assessment (3) Prereq: Admission to doctoral program in clinical psychology or consent of instructor. May be repeated. Maximum 12 hrs.

683 Seminar in Behavioral Medicine (3) Current research and theory concerning relationships between...
Rehabilitation, Deafness, and Human Services

(Majors in College of Education)

Graduates are prepared to work with individuals who have disabilities or vocational handicaps. They work in schools, community agencies, and vocational rehabilitation agencies. The unit offers positions for those interested in research, teaching, administration, or service.

**MAJORS**

**DEGREES**

<table>
<thead>
<tr>
<th>Major</th>
<th>Degree</th>
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<tbody>
<tr>
<td>Education</td>
<td>Ph.D.</td>
</tr>
<tr>
<td>Rehabilitation Counseling</td>
<td>M.S.</td>
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<tr>
<td>Special Education</td>
<td>M.S.</td>
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</tbody>
</table>

**Requirements**

- Completion of all required courses
- Fulfillment of degree requirements

**Program Objectives**

- Develop knowledge and skills in the field of rehabilitation, deafness, and human services
- Prepare for professional careers in the field
- Engage in research and scholarship

**Courses Offered**

- 415 Language Development of Hearing Impaired I (3) Language problems of hearing impaired contrasted with scope and sequence of normal language development. Formal linguistic systems used to describe language development problems.
- 416 Language Development of Hearing Impaired II (3) Developmental and remedial systems of teaching hearing to hearing impaired children. Comprehension and production differences, idiomatic and figurative structures.
- 419 Speech Development of Hearing Impaired (4) Theories of speech development, approaches in training perception and production of speech, and aural habilitation. Practicum experiences.
- 423 Communication Processes for the Hearing Impaired (3) Expressive and receptive vocabulary development in sign communication, fingernapping and educational applications of sign language.
- 424 Nature of Hearing Impairments (3) Basic principles of audiology: anatomy and physiology of hearing; nature and causes of hearing loss; methods and instrumentation for assessment of hearing level; interpretation of audiologic services to medical and other rehabilitative disciplines.
- 425 Introduction to the Psychology and Education of the Hearing Impaired (3) Primarily for those planning to teach hearing impaired. Overview of research related to psychology, social adjustment, communication methodology, language development and education of hearing impaired. Survey of literature. Visits to programs.
- 428 Speech and Language Services in the Schools (3) Organization and implementation of speech and language programs in schools. IEP process as it affects assessment, case selection, and programming for students age 4-21. Process for development of materials, group intervention, and classroom consultation.
- 430 Orientation to Rehabilitation (3) History, philosophy, legal and economic bases, current issues, and practices in public and private rehabilitation agencies. Identification, mobilization, and utilization of rehabilitation resources.
- 431 Medical Aspects of Disability (3) Etiology and clinical symptoms related to disabling conditions served by rehabilitation agencies. Assessment, planning, and provision of services to people who have disabilities and vocational handicaps. Identification, evaluation, and utilization of rehabilitation resources.
- 432 Case Load Management in Rehabilitation (3) Techniques and procedures involved in management of caseloads in Federal-State vocational rehabilitation agencies, private rehabilitation companies, and public or private rehabilitation facilities. Analysis of appropriate industrial relations and programs related to rehabilitation programs.
- 433 Rehabilitation Interview (3) Interview as used in assessment and planning with people who have disabilities and vocational handicaps. Skills necessary to communicate with lay and professional persons.
- 434 Psychosocial Aspects of Exceptionalities (3) Psychosocial impact of special education and family involvement in the life of a child with special needs. Interactions of special education and family involvement in the life of a child with special needs. Interactions of special education and family involvement in the life of a child with special needs.
- 435 Vocational Evaluation: Statistical Methods (3) Process and techniques used to determine vocational assets and liabilities of people with disabilities. Functional analysis of biographical and interview data; selection and application of relevant statistical techniques; interpretation of data from scientific studies; application of computer-generated reports.
- 436 Vocational Assessment: Clinical Methods (3) Process and techniques used to determine vocational assets and liabilities of people with disabilities. Functional analysis of biographical and interview data; selection and application of relevant statistical techniques; interpretation of data from scientific studies; application of computer-generated reports.
- 437 Vocational Counseling: Correctional and Placement (3) Determining employment readiness of people with disabilities: Development and utilization of rehabilitation resources.
- 438 Clinical Practice in Communication Disorders in Schools (3) Supervised practice with children with communication disorders. Prerequisite: 433, 434 (80-100 clinical contact hrs.).
- 439 Problem Solving in Rehabilitation (3) Identification, mobilization, and utilization of rehabilitation resources.
- 440 Rehabilitation Interview (3) Interview as used in assessment and planning with people who have disabilities and vocational handicaps.

**Advising**

- Advising is available for students interested in the major.
- Students should meet with their academic advisor regularly.

**Contact Information**

- For more information, contact the Counseling and Placement Center.
- Visit the Rehabilitation, Deafness, and Human Services website for additional resources.
Religious Studies
(College of Arts and Sciences)

Charles H. Reynolds, Head

Professors:
Dungan, David L., Th.D. ................. Harvard
Humphreys, W. Lee, Ph.D. ............... Union
Linge, David E. (Liaison), Ph.D. ....... Vanderbilt
Lusby, F. Stanley (Emeritus), M.Div. .... Colgate Rochester
Norman, Ralph V., Jr., Ph.D. .......... Yale
Reynolds, Charles H., Ph.D. .......... Harvard

Associate Professors:
Fitzgerald, James L., Ph.D. .......... Chicago
Gwynne, Rosalind W., Ph.D. .......... Washington
Hackett, Rosalind J., Ph.D. .......... Aberdeen
Hodges, John O., Ph.D. ............... Chicago
Levering, Mirmar L., Ph.D. .......... Harvard
Schmidt, G. Garde, Ph.D. ............. Pittsburgh

Assistant Professors:
Hulsether, Mark, Ph.D. ............... Minnesota

A master's degree in Philosophy with a concentration in religious studies is available. (Details of this program are described under Philosophy.) Graduate courses in religious studies provide opportunity for students in a variety of disciplines to pursue work in religious studies as a graduate concentration.

GRADUATE COURSES

411 Modern Religious Philosophies (3) Religious implications of major Western thinkers and movements from Nicolas of Cusa to mid-twentieth century German Idealists. (Same as Philosophy 411.)

412 Classical Indian Systems of Philosophy: The Moksha Tradition (3) Investigation of selected writings and philosophical problems of traditions of Nyaya, Yoga, Vedanta, Buddhism, and Jainism. Prereq: 374 or 376 or consent of instructor. (Same as Philosophy 412.)

416 Jesus and Paul Compared (3) Central ideas and concepts of each person compared with equivalent concepts in the other. Advanced study of Gospels and Epistles of Paul, involving extensive independent research.

425 Seminar in Western Religions (3) Selected figures, themes, movements, and problems. Content varies. Prereq: Consent of instructor. May be repeated. Maximum 6 hrs.

430 Seminar in American Religion (3) Selected figures, themes, movements, and problems. Content varies. Prereq: Consent of instructor. May be repeated. Maximum 6 hrs.

435 Seminar in Asian Religion (3) Selected figures, themes, movements, and problems. Content varies. Prereq: Consent of instructor. May be repeated. Maximum 6 hrs.

440 Seminar in Comparative Religion (3) Selected figures, themes, movements, and problems. Content varies. Prereq: Consent of instructor. May be repeated. Maximum 6 hrs.

446 Theoretical Issues in Medical Ethics (3) (Same as Philosophy 446.)

490 Readings and Research in Religious Studies (3) Prereq: Consent of instructor. May be repeated. Maximum 6 hrs.

499 Prospective in Religious Studies (3) For advanced students in religious studies; required for majors. Selected specific topics: nature and function of myth in religion, problem of evil, transcendence, theories of religion, hermeneutics, integrating various disciplines involved in study of religion. Prereq: Consent of instructor. May be repeated. Maximum 6 hrs.

532 Topics in the History of Religions (3) Prereq: Consent of instructor.

533 Topics in Religious Thought (3) Prereq: Consent of instructor.

591 Foreign Study (1-15) See College of Arts and Sciences.

592 Off-Campus Study (1-15) See College of Arts and Sciences.

593 Independent Study (1-15) See College of Arts and Sciences.
course 500 Thesis. In French, 501 is required; in Spanish, 550. A maximum of 6 hours may be taken at the 400 level, the rest at the 500 level, and under certain conditions the student may take 600-level seminars. If the student chooses to have a minor (such as Italian or Portuguese), at least 24 hours (including 6 hours of thesis) must be taken in the major, 6 in the minor.

2. A thesis, with a minimum of 6 semester hours in course 500.

3. A written examination covering the coursework and selected items from a master reading list.

4. A final oral examination covering the thesis.

Non-Thesis Option

1. Completion of at least 30 semester hours, with a maximum of 9 at the 400 level, the rest at the 500 level, including 501 (French) or 550 (Spanish). Under certain conditions, the student may take 600-level seminars. If the student chooses to have a minor (such as Italian or Portuguese), at least 24 hours must be taken in the major, 6 in the minor.

2. Three term papers that have been accepted by the student’s advisory committee.

3. A written examination covering the coursework and selected items from a master reading list.

4. A final oral examination to discuss the papers (French M.A. only).

THE DOCTORAL PROGRAM

The Ph.D. in Modern Foreign Languages is offered jointly by the Department of Germanic and Slavic Languages and the Department of Romance and Asian Languages and requires advanced training in a major language and either a second language or applied linguistics. Students whose language of first concentration is German should consult the section on Germanic and Slavic Languages.

Admission Requirements

Applicants must have completed a B.A. in either French, German or Spanish to be accepted into this program. Both graduates of institutions in the United States and those with undergraduate degrees from institutions outside the United States must have a grade point average of at least 3.0. Consideration will also be given to applicants who do not have an undergraduate degree in one of the three foreign languages but do have the equivalent of an undergraduate major in one of them.

Degree Requirements

Candidates with German as a first concentration must complete a minimum of 63 semester hours of coursework beyond the bachelor’s degree in addition to 24 hours of doctoral research and dissertation. Two tracks are available:

The coursework for Track I must be distributed as follows: at least 39 hours in the first concentration; at least 18 hours in the second concentration; and at least 6 hours in a cognate field.

The coursework for Track II must be distributed in this way: at least 45 hours in the first concentration; at least 18 hours in the second concentration; and at least 6 hours in a cognate field. Because Track II students will have taken 12 graduate hours instead of 18 hours in the second concentration, they will normally not be eligible to teach that field at institutions which follow SACS guidelines for college foreign language teaching.

1. First Concentration: French or Spanish. A minimum of either 39 (Track I) or 45 (Track II) hours of French or Spanish courses beyond the bachelor’s degree, distributed as follows:

   400 level: A maximum of 6 hours of 400-level classes taken for the M.A. may be applied.

   500 level: A minimum of 21 (Track I) or 27 (Track II) hours must be taken. These must include French 512, 516, 504 or Spanish 512 and 550. Thesis hours are excluded. If 512 is used as part of a second concentration in applied linguistics, another course must be substituted in the first concentration.

   600 level: A minimum of 12 hours must be taken, exclusive of dissertation hours.

2. Second Concentration. A minimum of 18 (Track I) or 12 (Track II) hours beyond the bachelor’s degree, taken in the field of applied linguistics or in a second language, either French, German, Italian, Portuguese (Track II only), Russian or Spanish. For Track I, 12 of these must be hours at the 500 level or above. For Track II, 3 of these hours must be at the 500 level or above.

French students choosing applied linguistics must take French 421 or 429, 425, 512; and 9 (Track I) or 3 (Track II) hours of appropriate electives in English or French. Spanish students must take Spanish 421 or 429, 425, 512; and 9 (Track I) or 3 (Track II) hours of appropriate electives in English or Spanish. The student’s graduate advisor must approve the electives chosen.

3. Cognate Field. Six hours in graduate courses numbered 400 and above in a field outside the department of the first concentration but related to the student’s principal area of research. Students choosing applied linguistics as a second concentration are strongly urged to take their cognate work in a second language.

4. Additional requirements: For any language taken as a first or second concentration, a student must demonstrate competence by taking a test. The test will include reading, writing, listening, and speaking, and should be completed by the time the student reaches 40 hours of study beyond the bachelor’s degree. Standardized examinations that may be used for this purpose include applicable portions of either the National Teachers Examination, the MLA Examination for Teachers and Advanced Students, or the proficiency standards of the United States Foreign Service Institute (FSI).

If a student has not chosen a third language as his or her cognate area, basic competence (determined by a reading examination with translation into English administered by the department concerned) in a third language is required. If the student’s first and second languages are Romance languages, the third language should be chosen from another language family.

For students choosing applied linguistics as an area of second concentration, reading competence in a second language is required. Competence will be determined by translation of a text from the foreign language into English, the test to be administered by the department offering the language.

A comprehensive examination on the language and literature of the first and second concentrations must be passed before the student may be admitted to candidacy. The candidate is required to defend his/her dissertation in an oral examination. Central emphasis is put on the doctoral dissertation as a final test of the candidate’s scholarly qualifications.

Graduate Teaching Assistants with a second concentration in another language should have the opportunity and will be strongly encouraged to instruct in the languages of both their first and second concentration, subject to staffing needs.

Doctoral students are strongly encouraged to reside and study abroad and will be assisted in identifying potential sources of financial support (e.g., Fulbright, McClure, Rotary fellowships).

For additional courses, see Germanic and Slavic Languages.

ACADEMIC COMMON MARKET

An agreement among southern states for sharing graduate programs allows legal residents of some states to enroll in certain programs at UT Knoxville on an in-state tuition basis. The Ph.D. program in Modern Foreign Languages is available to residents of the state of Alabama. Additional information may be obtained from the Admissions Specialist in the Office of Graduate Admissions and Records.

Asian Languages

GRADUATE COURSES

431 Readings in Chinese Literature (3) Prereq: Mastery of intermediate-level Chinese or consent of instructor. May be repeated. Maximum 9 hrs.

451 Readings in Japanese Literature (3) Prereq: Mastery of intermediate-level Japanese or consent of instructor. May be repeated. Maximum 9 hrs.

471 Selected Topics in Asian Studies (3) Content varies. May be repeated. Maximum 9 hrs.

French

GRADUATE COURSES


411 French Literature of the 16th Century (3) Highlights of 16-century French literature. Excerpts from Boccaccio and Montaigne; readings of poetry, from written from Lyon and members of Pléiade. Prereq: 300-level literature course.


413 French Literature of the 18th Century (3) Major works of Enlightenment. Prereq: 300-level literature course.


416 Survey of Francophone Literature (3) Examination of French literature outside metropolitan France, particularly Africa and Caribbean. Prereq: 300-level literature course.

420 French Cinema (3) French cinema from earliest days through New Wave directors. Prereq: 300-level literature course. May apply toward major.

421 Phonetics (3) Foundation in science of phonetics. Practical exercises and individual performance, Laboratory training highly recommended. Graduate credit not
allowed for departmental majors. Prereq: Intermediate Compositions or equivalent.

422 Advanced Grammar (3) Improving one's written French by studying basic and more refined structures of French language. Writing creative free-style compositions. Prereq: Intermediate Composition and Conversa-

422-24 Advanced Conversation (1,1) Informal conversation with native speaker on contemporary topics. Stresses in-class contact rather than outside preparation. Prereq: Intermediate Composition and Conversa-

425 Introduction to Descriptive Linguistics (3) Theory and practice of techniques of linguistic analysis in sub-

426 Methods of Historical Linguistics (3) (Same as German 426, Russian 426, Spanish 426 and Linguistics 426.)

429 Romance Linguistics (3) Development of Classical Latin through Vulgar Latin into major Romance lan-

431 Spanish Civilization (3) Majorsocial,political,and economic events, daily life, all forms of art. Prereq: 300-level literature course. May apply toward major.

432 Contemporary French Culture (3) French con-

433 Reading and interpreting works of Marivaux, Voltaire, Diderot, Rousseau, Beaumarchais, and others.

434 Literature of Quebec (3) Survey of literature of Quebec as well as French literature connected with North America. Readings include explorer and missionary works, such as Voyages of Champlain and Journals of Jesuits, and literature of contemporary Quebec. Prereq: 300-level literature course.

435-36 Survey of Spanish Literature (3,3) 435--Spanish literature and culture from Portuguese countries. Topics may vary. Prereq: At least one course at the 300 level or the equivalent. May be repeated. Maximum 6 hrs.

436-37 Topics in the Language & Literature of Portu-

438-39 Advanced Conversation and Composition or consent of instructor.

439 Advanced Conversation and Composition or consent of instructor.

441 Highlights of French Civilization (3) Survey of French civilization from the Gauls to World War II. Histori-

442 Advanced Grammar (3) Improving one's written French by studying basic and more refined structures of French language. Writing creative free-style compositions. Prereq: Intermediate Compositions or equivalent.

443-44 Advanced Conversation (1,1) Informal conversation with native speaker on contemporary topics. Stresses in-class contact rather than outside preparation. Prereq: Intermediate Compositions and Conversations or French for Business.

445 Advanced French for Business (3) Advanced contemporary French language and culture as relates to business transactions. Comparative approach to explore differences and similarities between francophone business culture(s) and those of North America and Japan. Building knowledge of business terminology while being sensitized to possible consequences and dangers of simplistic stereotyping. Prereq: French for Business or consent of instructor.

500 Thesis (1-15) P/NP only. E

501 Techniques in Literary Analysis (3) Required for M.A. program. Intensive course in explicatio de texte, a close stylistic analysis of texts representative of different eras and of different genres.

502 Registration for Use of Facilities (3-15) Required for the student not otherwise registered during any semester when student uses University facilities and/or faculty time before degree is completed. May not be used toward degree requirements. May be repeated. S/N/C only. E

512 Teaching a Foreign Language (3) Practical application of methods for teaching and evaluating basic language skills and foreign language skills, and cultural aspects through seminars, demonstrations, peer teaching, and observation of foreign language classes. Required of all M.A. and Ph.D. students holding Graduate Teaching Assistantships, except those whose previous training or experience warrants their being excused by department.

516 Bibliography and Methods of Research (2) Critical research tools and scholarly contributions in French literature and language. Practical exercises on compiling of scholarly data using computer-based and non-com-

521-22 Old French (3,3) Medieval French language and literature. Introduction to history and development of Old French. Close reading of major texts from medieval genres, hagiography, epic, romance, lyric poetry, drama,

531 French Literature of the 16th Century (3) Literature of first half of 16th century, Rabelais and other prose writers, humanists, and poetry of Marot, Lyonnais group, and young Pléiade poets.

532 French Literature of the 16th Century II (3) Literature of second half of 16th century, mature works of Pléiade writers and such poets, and Aubigny and Sponde; Montaigne; writers of scientific works and modernism; drama.

541 French Literature of the 17th Century (3) French poems and prose works of 17th century. 

542 French Literature of the 17th Century II (3) Classical French theatre of 17th century.

551-52 French Literature of the 18th Century (3) 551- Reading and interpreting works of Diderot, Diderot, Rousseau, Beaumarchais, and others.

556-62 French Literature of the 19th Century (3) Reading and interpreting works of Hugo, Victor Hugo, Stendhal, Balzac, Baudelaire, Flaubert, Zola, Verlaine, and others. Reading and interpreting works of pre-Romantic and post-Romantic literature.

571-72 Trends in Modern French Literature (3) In-depth study of some of most revolutionary, challenging poets, novelists, dramatists of 20th century.

581-82 The French Novel (3,3) French Novel from 17th through 20th centuries.

583 Problems in Stylistics (3) Survey of comparative English-French stylistics. Development and improve-

584 Modern Theory and Criticism (3) Survey of twen-

591 Foreign Study (1-15) See College of Arts and Sciences.

592 Off-Campus Study (1-15) See College of Arts and Sciences.

593 Independent Study (1-15) See College of Arts and Sciences.

593 Independent Study (1-15) See College of Arts and Sciences.

594-95 French Directed Readings (3,3)

600 Doctoral Research and Dissertation (3-15) P/NP only. E

621-22-23 Seminar in French Literature (3,3,3) 621--Mid-17th Century; 622--17th-18th Century; 623--18th-19th Century. May be repeated with consent of department. Maximum 6 hrs each.

632-33 Seminar in French Literature (3,3) 632--19th Century; 633-20th Century. May be repeated with con-

641 Dante and Medieval Culture (3) Introduction to significance of this great Italian writer. Prereq: 212 or consent of instructor.

642 Advanced Grammar (3) Improving one's written French by studying basic and more refined structures of French language. Writing creative free-style compositions. Prereq: Intermediate Compositions or equivalent.

643-34 Topics in Italian Literature and Cinema (3) Italian literature and cinema from 17th century to present focusing on literary works translated into English and adapted into film. Investigation of relationship between literature and cinema and achievement of greater understanding of Italian culture since 1900. Offered in Italian with English subtitles. May be repeated. Maximum 6 hrs. (Same as Cinema Studies 421.)

650 Hispanic Drama (3) Close reading and analysis of representative works by selected dramatists of each period, either Spanish or Spanish-American. Topics vary. Prereq: Aspects of Spanish and Spanish-American Literature or consent of instructor. May be repeated with consent of department. Maximum 6 hrs.

Romance and Asian Languages 165

Portuguese

GRADUATE COURSES

431-32 Topics in the Language & Literature of Portu-

433 Reading and interpreting works of Marivaux, Voltaire, Diderot, Rousseau, Beaumarchais, and others.

434 Literature of Quebec (3) Survey of literature of Quebec as well as French literature connected with North America. Readings include explorer and missionary works, such as Voyages of Champlain and Journals of Jesuits, and literature of contemporary Quebec. Prereq: 300-level literature course.

435-36 Survey of Spanish Literature (3,3) 435--Spanish literature and culture from Portuguese countries. Topics may vary. Prereq: At least one course at the 300 level or the equivalent. May be repeated. Maximum 6 hrs.

436-37 Topics in the Language & Literature of Portu-

439 Advanced Conversation and Composition or consent of instructor.

441 Highlights of French Civilization (3) Survey of French civilization from the Gauls to World War II. Histori-

443-44 Advanced Conversation (1,1) Informal conversation with native speaker on contemporary topics. Stresses in-class contact rather than outside preparation. Prereq: Intermediate Compositions and Conversations or French for Business.

445 Advanced French for Business (3) Advanced contemporary French language and culture as relates to business transactions. Comparative approach to explore differences and similarities between francophone business culture(s) and those of North America and Japan. Building knowledge of business terminology while being sensitized to possible consequences and dangers of simplistic stereotyping. Prereq: French for Business or consent of instructor.

450 Hispanic Drama (3) Close reading and analysis of representative works by selected dramatists of each period, either Spanish or Spanish-American. Topics vary. Prereq: Aspects of Spanish and Spanish-American Literature or consent of instructor. May be repeated with consent of department. Maximum 6 hrs.

500 Thesis (1-15) P/NP only. E

501 Techniques in Literary Analysis (3) Required for M.A. program. Intensive course in explicatio de texte, a close stylistic analysis of texts representative of different eras and of different genres.

502 Registration for Use of Facilities (3-15) Required for the student not otherwise registered during any semester when student uses University facilities and/or faculty time before degree is completed. May not be used toward degree requirements. May be repeated. S/N/C only. E

512 Teaching a Foreign Language (3) Practical application of methods for teaching and evaluating basic language skills and foreign language skills, and cultural aspects through seminars, demonstrations, peer teaching, and observation of foreign language classes. Required of all M.A. and Ph.D. students holding Graduate Teaching Assistantships, except those whose previous training or experience warrants their being excused by department.

516 Bibliography and Methods of Research (2) Critical research tools and scholarly contributions in French literature and language. Practical exercises on compiling of scholarly data using computer-based and non-com-

521-22 Old French (3,3) Medieval French language and literature. Introduction to history and development of Old French. Close reading of major texts from medieval genres, hagiography, epic, romance, lyric poetry, drama,
Admission Requirements

Admission to the master's program is based on the following requirements:

1. A Bachelor's degree from an accredited college or university with appropriate preparation in the social sciences. At least three-fourths of the applicant's undergraduate work should be in the social sciences, humanities, physical sciences, and other Arts and Sciences subjects. Applicants must have at least one course in each of the following: economics, government or political science, human biology, sociology or anthropology, psychology, philosophy or the arts, or literature, or history. Applicants with other academic backgrounds may request consultation to discuss ways that they can meet the requirements.

2. A grade point of 2.7 or higher on a 4.0 scale. Applicants falling below this average may be considered for probationary admission on the basis of supplemental evidence of the ability to perform at a satisfactory level. The University requires a minimum GPA of 2.7 for admission to The Graduate School.

3. Personal qualifications acceptable for entrance into the professional practice of social work.

4. All applicants must submit up-to-date scores from the Graduate Record Examination (general).

Preference is given to applicants with a GPA of 3.0 or above in their undergraduate work with substantial preparation in the social sciences.

Advanced Standing

The University of Tennessee College of Social Work has an advanced standing program. Admission to advanced standing requires: (1) a B.S.W. from an accredited program, (2) an overall undergraduate GPA of 3.0 or greater, and (3) personal qualifications acceptable for entrance into the professional practice of social work. Students admitted into advanced standing are required to complete a minimum of 42 hours of study in either of the college's concentrations - clinical social work practice or management and community practice. These students will follow the curriculum plan and meet all requirements of the concentration during three semesters of study in the program. Specific information about the advanced standing program is available from the college. Application for admission to the advanced standing program is through the regular admission process.

Extended Study

Planned part-time programs are available in all three branches of the college. Admission requirements are the same as for full-time study. Coursework can be completed over a three-year period. One year of the student's period of study must be on a full-time basis.

Financial Aid

Students may apply directly to the University's Financial Aid Office for assistance such as the National Direct Student Loan or the Work-Study Program. Other stipends are administered by the College and awarded on the basis of financial need. Applications for these funds must be made to the Branch of the College the student will attend. A student must first apply for University assistance, since College funds are considered supplementary to those of the University. Additional information about College stipends may be obtained from the College of Social Work.

General Requirements

1. A minimum of 60 semester hours including completion of foundation courses and field practice (30 hours); at least five courses (15 hours) and two semesters of field practice (12 hours) in the clinical concentration, or at least five courses (15 hours) in the management and community practice concentration; and one elective (3 hours).

2. Students may select a thesis or non-thesis option. Students pursuing the thesis option receive six credit hours for successful completion.

3. Successful completion of a comprehensive exam or thesis defense.

4. An overall GPA of 3.0 or better on all graded courses and satisfactory performance in field.

The Professional Foundation Curriculum

The foundation curriculum consists of 30 semester hours in five basic knowledge and skill areas required of all students before entering either of the concentrations. As the initial phase of the educational program, the foundation curriculum contributes to the process of professional identification and presents a comprehensive and broad base of theoretical knowledge, and skills from which to operate in the future as practitioners, supervisors, managers, planners, and program developers. Upon completion of the foundation curriculum (at the end of the second semester), students select a concentration in either clinical social work practice or management and community practice.

Clinical Social Work Practice: The clinical social work practice concentration focuses on students' developing expertise in providing services to individuals, couples, families, and small groups who are experiencing, or who are likely to experience, serious threats to their personal and social well-being. The concentration emphasizes students' developing theoretical and empirical knowledge and practice skills in differential assessment and intervention directed towards the prevention and amelioration of complex personal, interpersonal, and environmental problems; understanding of, and ability to practice ethically and effectively with, socially and culturally diverse populations; and understanding of, and skills in influencing, the organizational context of practice towards the development of new services that may be needed and improvement in the provision of existing services.

Management and Community Practice: The management and community practice concentration focuses on students' developing skills directed toward the management and analysis of complex service delivery needs within organizations and communities; knowledge and skills in the development of service intervention strategies to address such needs; the organization and management skills that enable practitioners to work in a variety of challenging and turbulent environments. The concentration emphasizes theory and skills related to leadership and administration, and permits flexibility in tailoring a program to fit the student's individual interests, capabilities, and career goals.

Field Practice

Field instruction is a critical component of the student's first-and second-year programs. Through cooperation with a wide range of social agencies and human service programs throughout Tennessee, the college is able to provide field placements in a variety of social work practice areas. The faculty works closely with the placement agencies and the field instructors to ensure that students have quality field practice experiences, meeting the objectives of the core curriculum and the concentration.

The college uses a concurrent class and field plan. Students are in field two days per week during the first year and three days per week in the second year.

First-year agency placements are selected to provide practice experiences related to the foundation curriculum content. Within the placement, each student's experiences are planned and designed according to educational objectives.

Second-year placements are selected according to the student's area of concentration, individual career interests, and educational needs. The student actively participates with the field practice coordinator and the educational committee in selection of the second-year placement. The second-year field placement experience focuses on the integration of social work knowledge and values, and emphasizes the acquisition and development of practice skills.

Students are responsible for meeting the requirements of their placement agencies in terms of office hours and workload coverage. This responsibility takes precedence over scheduled University breaks and may result in variations in holidays and office hours for the student.

Transfer Credits

Coursework equivalent to the first year of the master's program, completed in another accredited graduate social work program, is usually accepted toward degree requirements. Applicants must meet the admission requirements of The Graduate School and the College of Social Work. Transfer courses must be approved as equivalent to required and/or elective courses taken for graduate credit and passed with a grade of B or better. An S (earned on an S/N/C system) for the field practicum is also accepted. In addition, transfer courses must be part of an otherwise satisfactory graduate program (B average) and be approved by the dean. This coursework must be completed within the six-year period prior to the receipt of the degree.

A maximum of 6 semester credits from work earned in disciplines other than social work may be transferred as elective credits. The student's academic committee must approve the request and the transfer credit must meet Graduate School requirements.

Proficiency Examination

Students in the master's program may earn a maximum of nine hours by proficiency examination, with the exception of field practice courses. Students interested in proficiency examinations are referred to The Graduate School statement describing the procedure for applying for examination.
THE DOCTORAL PROGRAM

The College of Social Work offers the Doctor of Philosophy with a major in Social Work. The focus of social work education at the doctoral level is to foster the development of an attitude of scientific inquiry, knowledge of the scientific method, ability to extend the knowledge base of social work practice, and effective participation in leadership roles in social work education, research, and practice.

The emphasis of the doctoral program is upon:

- The analysis of direct intervention and social administration and of the interrelationships among each of them and their social policy, organizational, and community contexts.
- Research-based knowledge to inform and guide social work practice, social policy, and social welfare program development.

The program consists of foundation courses, elective courses, and dissertation research. The courses are available only in Knoxville. Students and their committees can develop a plan for completing their research in Nashville and Memphis based on the availability of dissertation resources.

Students have the opportunity to work in the Children's Mental Health Services Research Center, a National Institute of Mental Health research center, as part of their training. The Center is one of only three such centers nationwide and focuses on services to children who have experienced mental health problems associated with abuse, neglect, violence, and a variety of psychosocial problems.

Admission Requirements

The Ph.D. program is designed for students who have completed a master's degree in an accredited school of social work and have post-master's social work/social welfare experience. Applicants who do not meet these requirements, but believe they have equivalent credentials, should contact the Chair of the Ph.D. program for further information regarding admissions criteria.

General Requirements

1. A minimum of 63 hours beyond the master's degree (60 hours of coursework, 3 hours of dissertation research)
2. Completion of 15 credits of advanced electives, at least 12 of which are taken outside the department, and 9 of those 12 related to the dissertation, and c) completion of at least 24 credit hours of dissertation research.
3. Successful completion of qualifying and comprehensive examinations.

Curriculum

The curriculum of the Ph.D. program consists of foundation course work, electives, and dissertation research. The foundation curriculum consists of 21 hours of coursework in the history and philosophy of social work, issues in direct service and administration and planning, areas of practice, and research methodology and statistics. Upon this foundation, students and their academic committees develop a plan of study consisting of course work in Social Work and other departments of the University.

Typically, the foundation curriculum is completed and elective coursework begun during the first year of study, the elective requirement is completed and dissertation research begun in the second year of study, and dissertation research is continued in the third year of study. While it is generally expected that the coursework will be completed on a full-time basis, dissertation research can be completed on a planned part-time basis.

Specific courses required are 601, 602, 612, 613, 540, and Statistics 531 and 532 or any two of four related graduate level statistics courses approved by the Doctoral Program Chair.

Examinations

All doctoral students are required to pass a qualifying examination and a comprehensive examination. The qualifying examination covers the foundation curriculum. The comprehensive examination is administered by members of the doctoral committee and is designed for the student to demonstrate comprehensive knowledge of the major and cognate areas and the dissertation topic. In case of failure of either examination, the student may request a retake. The result of the second examination is final.

Financial Aid

Financial aid is available to qualified students in the form of fellowships, scholarships, and teaching and research assistantships. Graduate assistantships and other forms of assistance are awarded on the basis of merit and interest to applicants who are accepted into the Ph.D. program.

MINOR IN GERONTOLOGY

Graduate students in the College of Social Work may pursue a specialized minor in gerontology. This interdisciplinary minor gives the student an opportunity for combining the knowledge about aging in American society with his/her major concentration. Please refer to Human Ecology for specific requirements.

ACADEMIC COMMON MARKET

An agreement among southern states for sharing graduate programs allows legal residents of some states to enroll in certain graduate programs at UT Knoxville on an in-state tuition basis. The M.S.S.W. and Ph.D. programs in Social Work are available to residents of the state of Arkansas; the Ph.D. to residents of Kentucky, Oklahoma, or West Virginia. Additional information may be obtained from the Admissions Specialist in the Office of Graduate Admissions and Records.

GRADUATE COURSES

NOTE: Graduate students majoring in fields other than social work are admitted to certain social work courses with the approval of the College of Social Work and the student's major professor.

500 Thesis (1-15) P/NP only. E

501 Foundations of Social Work Practice I (3) Survey of history, mission, and identity of profession. Basic theory, values, and methods generic to social work practice at various systems levels. Assessment, planning, communication, intervention, and evaluation skills. Prereq: Admission to College or consent of instructor. F

502 Registration for Use of Facilities (3-15) Required for the student not officially registered during any semester when student uses University facilities and/or faculty time before degree is completed. May not be used toward degree requirements. May be repeated. S/N only. E

503 Foundations of Social Work Practice II (3) Generalist practice with individual, family, and small group systems. Ecological theory to frame understanding of such systems and their adaptation to environments. Various social work roles and interaction strategies pertaining to each client system. Prereq: 501 or consent of instructor. Sp

504 Foundations of Social Work Practice III (3) Basic theory, methods, problems, and strategies in implementing planned change within and among larger social systems: task groups, human service organizations, and community systems. Various practice roles: planner, program developer, supervisor, administrator, advocate and task group leader. Prereq: Completion of first semester of foundation or consent of instructor. Sp

506 Social Work Research (3) Research methodologies with respect to evolution and application to social work theory and practice. History and philosophies of science; problem formulation; research design; ethics; instrument use and construction; data collection; analysis and reporting; and evaluation and utilization of research. Prereq: Admission to college or consent of instructor. Sp

508 Practicum in Social Work Research (3-6) Supervised practice in application of research methods to social work practice. Prereq: 506 and consent of faculty conducting investigation. May be repeated. Maximum 6 hrs. S/NC only. E

509 Graduate Seminar in Public Health (1) Same as Public Health 508, Exercise Science 508, Nutrition 509, and Nursing 509.

514 Human Behavior in the Social Environment I (3) Theories pertaining to individual, family, and group development while emphasizing relationships among biological, social psychological, and cultural systems. Dynamics of behavior in context of social structure, ethnicity, social class, gender roles. Prereq: Admission to College or consent of instructor.

515 Human Behavior and Social Environment II (3) Patterns of adaptive and maladaptive behavior, recognizing theoretical models, and criteria. Interactions among individuals, families, organizations, communities in maladaptive behavior: mental illness and abusive behavior. Prereq: 514 or consent of instructor. Sp

516 Social Welfare Policy and Services (3) Development of contemporary social policy at local, state, national, and international levels. Contribution of social work professionals to formal policy-making processes through which macrosocial change is effected and through which aggregate social welfare services are proposed, authorized, financed, and programmed. Theories of complex organizations and social welfare service delivery settings. Prereq: Admission to college or consent of instructor.

518 Social Work and Oppression (3) Sources, dynamics, and control of oppression in U.S. society as manifested in both social ecological systems and personal experience. Connections among various forms of oppression: race, sex, class, and heterosexism. Forces which perpetuate such conditions. Prereq: Admission to College or consent of instructor.

521 Clinical Social Work Practice with Individuals (3) Theories, knowledge, and skills for clinical practice with individuals from ecological perspective. Therapeutic process and treatment strategies, incorporating content from psychodynamic and cognitive practice models. Specific client problems. Prereq: Completion of foundation or consent of instructor.

523 Clinical Social Work Practice with Families (3) Concepts related to understanding and analyzing family dynamics and interactional patterns from perspective of major family therapy models. Techniques of treatment in terms of application to families with varied systems and individual problems and to families from varied social and cultural backgrounds. Prereq: Completion of foundation or consent of instructor.

525 Clinical Social Work Practice with Groups (3) Theoretical and historical approaches to social work with groups and clinical principles supporting specific types of group work used in clinical practice and associated leadership interventions. Prereq: Completion of foundation or consent of instructor.

526 Research for Assessment of Social Work Treatment (3) History and philosophies, conceptual ap-
proaches, techniques and methods in the practice and use of treatment research as applied to implementation and evaluation of services to clients. Prereq: Completion of foundation or consent of instructor.

530 Seminar in Clinical Social Work (3) Topics in theory and practice of clinical social work with individuals, couples, families and groups. Prereq: Completion of foundation or consent of instructor.

532 Short-Term Treatment (3) Theory and practice of planned short-term treatment, emergency treatment, and crisis intervention. Prereq: Foundation or consent of instructor.

533 Social Work Treatment with Couples (3) Theories regarding contemporary marriage styles, problems are areas in relationships, and application of treatment methods and skills for problem resolution. Prereq: Foundation or consent of instructor.

534 Social Work Treatment with Children and Adolescents (3) Examination of various treatment modalities for assessing and treating children and adolescents. Prereq: Foundation or consent of instructor.

535 School Social Work (3) Place of school as community institution and resource. Methods, processes, and techniques employed in school social work. Prereq: Foundation or consent of instructor.

541 Leadership and Management in Human Services (3) Management practices and leadership skills required in development and management of human services delivery systems. Issues regarding human resource management, resource allocation, strategic planning, and organizational dynamics. Prereq: Completion of foundation or consent of instructor. F

543 Fiscal Management and Resource Development (3) Administrative decision-making related to financial planning and resource allocation in human service organizations. Knowledge and skills in budgeting, allocating, expenditure control, fundraising, grant writing, marketing, and evaluation. Prereq: Foundation or consent of instructor. F

547 Evaluation Research (3) History and philosophies, conceptual approaches, techniques and methods, and issues in practice and utilization of evaluation research as applied to development and evaluation of social work programs and policies. Issues pertaining to the strengths and limitations of various evaluation methods, microcomputer application of data, and measurement of program goals and objectives. Prereq: Completion of foundation or consent of instructor.

550 Seminar in Management and Community Practice (2-3) Topics in theory and practice of management and community practice. Prereq: Foundation or consent of instructor. May be repeated. Maximum 6 hrs. E

551 Seminar in Social Welfare Policy (3) Background, purposes, and current issues surrounding major social welfare and health programs serving disadvantaged children and their families. Social Security Act Title IV, Child Welfare and AFDC; Title V, the Maternal and Child Health Block Grant; Title XIX, Medicaid; Head Start, WIC and other nutrition programs, and Healthy Start. Current issues and controversies; legislative changes. Prereq: Foundation or consent of instructor.

555 Programs and Legislation for Children and Families (3) Background, purposes, and current issues surrounding major social welfare and health programs serving disadvantaged children and their families. Social Security Act Title IV, Child Welfare and AFDC; Title V, the Maternal and Child Health Block Grant; Title XIX, Medicaid; Head Start, WIC and other nutrition programs, and Healthy Start. Current issues and controversies; legislative changes. Prereq: Foundation or consent of instructor.

564 Substance Abuse (3) Survey and analysis of social, cultural, medical and psychological factors underlying alcoholism and drug abuse and addiction; recent research and treatment innovations. Prereq: Foundation or consent of instructor.

566 Social Gerontology (3) Physical, psychological and social aspects of aging. Major social policies and programs. Prereq: Foundation or consent of instructor.

580 Field Practice (3) Instruction and supervision in social work practice. Prereq or coreq: 501. S/N C only.

581 Field Practice (3) Instruction and supervision in social work practice. Prereq or coreq: 580. S/N C only.

582 Field Practice (6) Instruction and supervision in clinical social work practice and management and community practice. Prereq: Completion of foundation. S/N C only.

583 Field Practice (6) Instruction and supervision in clinical social work practice and management and community practice. Prereq: 582. S/N C only.

584 Field Practice (2-6) Instruction and supervision in social work practice. Prereq or coreq: 512. May be repeated. S/N C only. E

585 Seminar in Gerontology (1) (Same as Human Ecology 585, Counselor Education and Counseling Psychology 585, Exercise Science 586, Nursing 585, Public Health 585, Psychosocial Studies 585, and Sociology 585.)

593 Independent Study (1-6) Individualized study. Prereq: select, design, and complete examination of special issue or problem. Prereq: Consent of instructor. May be repeated. Maximum 6 hrs. F, Sp

600 Doctoral Research and Dissertation (3-15) Prereq: only.

601 Research for Social Work Practice (3) Epistemological and methodological considerations for both quantitative and qualitative research for social work practice.

602 Research for Social Work Practice II (3) Epistemological and methodological considerations for both quantitative and qualitative research for social work practice.

604 Research in Social Service Settings (3) Advanced research, under faculty supervision, of practice issues in community agencies. Prereq: First year required. Ph.D courses or consent of instructor. May be repeated. Maximum 9 hrs. F, Sp

608 Evaluative Research for Social Work Practice Programs and Policy (3) Techniques and strategies for evaluation research for social policies and for evaluating programs and outcomes of social work practice.


640 History of American Social Work (3) Social, cultural, economic, political, and philosophical contexts for development of social work profession, development of education for profession, and modern welfare system.

641 Community Organization (3) Community organization.

643 Field Practice (3) Field practice in social work.

644 Field Practice (3) Field practice in social work.

645 Field Practice (3) Field practice in social work.


665. The political economy concentration includes 505, 551, 653, and 655. The energy, environment, and resource policy concentration includes 504, 540, 541, 643, 644, and 645.


665 Political Economy (3) The political economy concentration includes 504, 540, 541, 643, 644, and 645. Both the master's and the doctoral program allow for the construction of individualized programs of study. Detailed information may be obtained from the Director of Graduate Studies in Sociology. All incoming students will be advised by the Director of Graduate Studies. New students are admitted in fall semester only and applications must be received by the Graduate Admissions and Records Office by February 1.

ADMISSION REQUIREMENTS

1. Acceptable scores on the general Graduate Record Examination (verbal, quantitative, and analytical) are required. GRE scores in the subject area (Sociology) are requested but not required.

2. Three letters of recommendation (forms may be obtained from the department).

3. Completion of the appropriate previous degree (baccalaureate, preferably with a major in one of the social sciences, for the M.A. program; master's degree in one of the social sciences for the doctoral program).

THE MASTER'S PROGRAM

Thesis Option

A minimum of 30 hours beyond the baccalaureate degree, including 24 hours of coursework and 6 hours of Thesis 500, is required. Students must complete Sociology 521, 531, Statistics 531, and one foundation
course (504, 505, or 560). At or near the end of all coursework, the student must take an oral examination on course material and thesis. The examination will be administered by the student's committee.

Non-Thesis Option
A minimum of 30 hours of coursework is required, including Sociology 521, 531, Statistics 531, and one of the following: 504, 505, or 560. Sociology 534, 622, and Statistics 532 are recommended. Sociology courses at the 400 level may be taken with the approval of the student's committee. A student's plan of study should follow one of the following approaches: Plan 1, 6 hours in one of the department's concentrations and 6 hours in a second area, including areas outside the department, subject to the approval of the student's committee; Plan 2, 12 hours in a special area of study approved by the student's committee and the department's Graduate Program Committee. Students are encouraged to prepare a paper synthesizing their knowledge of the concentration(s). Students who incorporate supervised field experience in their programs are encouraged to prepare a report based on their experiences that demonstrates their understanding of research, theory, and report writing. All students must take final written and oral examinations that include questions on their general coursework in theory and methods and on their special areas of study. Subject to approval by the student's committee, up to 12 hours may be taken in courses outside the department for either program.

THE DOCTORAL PROGRAM

Coursework
Twenty-four hours of coursework beyond the master's degree are required (exclusive of S/NC credits). Twelve hours of course credit in Sociology at the 600 level are required. Students who enter the program without the courses required for the M.A. degree (521, 531, Statistics 531) or their equivalents must take them as remedial work which does not apply to their programs. Students must complete Sociology 622; 534, 563, 633; or 636; and Statistics 532 or another advanced course in statistics. Completion of 9 hours in each of two concentrations is encouraged. A student who cannot achieve his/her educational goals within the department's concentrations may construct an individual course of study subject to the approval of the student's doctoral committee and the Graduate Program Committee. Sociology courses at the 400 level may not be taken without the consent of the student's advisor and the Graduate Program Committee. Six hours may be taken in related fields without petitioning the Graduate Program Committee for approval. The student's program may include a minor or cognate field.

Comprehensive Examinations
Written examinations in four areas are required (sociological theory, research methodology, and two substantive areas). Doctoral students are eligible to take the theory and methodology examinations whenever offered. Substantive examinations may be taken upon completion of theory and methodology examinations. Detailed information on examinations and examination options (generalist, specialist, and collateralist) may be obtained from the department.

Dissertation and Final Examination
A dissertation based on original research must be completed (24 hours). The candidate must pass an oral defense of the dissertation, including the theory and methodology related to the research, in accordance with deadlines specified by The Graduate School.

MINOR IN ENVIRONMENTAL POLICY
The department participates in a program designed to give master's level graduate students an opportunity to develop an interdisciplinary specialization in environmental policy. See Economics for program description.

MINOR IN GERONTOLOGY
Graduate students in the Department of Sociology may pursue a specialized minor in gerontology. This interdisciplinary minor gives the student an opportunity for combining the knowledge about aging American society with his/her major concentration. Please refer to the Resources Office for specific requirements.

ACADEMIC COMMON MARKET
An agreement among southern states for sharing graduate programs allows legal residents of some states to enroll in certain programs at UT Knoxville on an in-state tuition basis. The M.A. program in Sociology is available to residents of the state of Virginia (concentration in criminology only); the Ph.D. to residents of West Virginia. Additional information may be obtained from the Admissions Specialist in the Office of Graduate Admissions and Records.

GRADUATE COURSES

405 Sociology of Sport (3) Social meaning, organization, and process of sport. Prereq: 291 or consent of instructor.
414 Sociology of Health Care (3) Organization of health care facilities, staff-patient relationships, demographic characteristics, and prevalence of disease.
415 Sociology of Aging (3) How roles and statuses change with age in relation to major social institutions; impact that rapidly increasing number of older people has on society, effect of society on older people.
448 The Modern World System (3) Critical examination of capitalist world-system as social system, its coherence, boundaries, regions, member groups, cleavages, and patterns of conflict. Analysis of the dynamics of capital, with special emphasis on changes in structure; trends in fertility, mortality, population growth, migration, distribution, and composition; population policy.
464 Urban Ecology (3) Relation of human to urban environment: conservation and use of appropriate technology. (Same as Urban Studies 464.)
471 Sociolinguistics (3) (Same as English 471 and Linguistics 471.)
480 Diffusion of Agricultural Technology (3) (Same as Rural Sociology 480.)
500 Thesis (1-15) S/NP only. E
502 Registration for Use of Facilities (3-15) Required for the student not otherwise registered during any semester when student uses University facilities and/or faculty time before degree is completed. May not be used toward degree requirements. May be repeated. S/NP only. E
504 Sociological Foundations of Political Economy (3) Survey of contemporary sociological theories of political economy, sources of political and economic power and conflict.
505 Foundations of Criminology (3) Critical overview of contemporary developments in criminology, theories of crime causation and theories of responses to crime. Prereq: 350 or equivalent.
507 Foundations of Social Psychology (3) Current and classical theoretical perspectives in social psychology.
510 Teaching Sociology (3) Art and craft of teaching sociology from curricular considerations through teaching techniques. May be repeated. Maximum 6 hrs.
521 Sociological Theory I (3) Overview of sociological theory in its historical and philosophical development.
531 Research Methods in Sociology (3) Research design, measurement, sampling, qualitative and quantitative data collection techniques, data, reduction, and analysis.
534 Advanced Sociological Analysis (3) Underlying assumptions and logical procedures used by sociologists in formulating explanations; foundations of sociological research strategies and techniques.
540 Occupations (3) Occupations in relation to individuals and society, technology, economic stratification, and social organizations.
541 Collective Behavior, Social Movements, Social Change (3) Basic theory and research on conditions of social unrest in human collectivities and efforts of collectives to change existing society.
542 Sociological Aspects of Sport (3) (Same as Sport Studies 542.)
543 Sociology of Development (3) Sociological theories and studies of development: modernization, colonialism, dependency; comparative impact of various development approaches on selected aspects of social structure and change.
551 Delinquency and the Social Structure (3) How delinquency is affected by changes in social structure and conditions. Changing demographic and institutional influences, and changing views about responsibility and punishment.
560 Environmental Sociology (3) Systematic treatment of current research in environmental sociology. Social impact analysis and conflicts over environmental issues.
563 Demographic Techniques (3) Standard rates and measures of demographic variables, life table analysis, increment-decrement models, and survey techniques of population analysis.
580 Advanced Rural Sociology (3) (Same as Rural Sociology 580.)
591 Foreign Study (1-15) See College of Arts and Sciences.
592 Off-Campus Study (1-15) See College of Arts and Sciences.
Special Programs

GRADUATE COURSES

510 Humanities Perspectives in the Arts and Sciences (2) Seminar on nature of inquiry in humanities. Emphasis on nature and special forms of human experience and their interpretation through study of formative texts and critical figures.

520 Natural Science Perspectives in the Arts and Sciences (2) Seminar on nature of inquiry in physical and biological sciences drawing on history of science, critical figures in shaping of scientific thought, and methodology for observation and experimentation in natural sciences.

530 Social Science Perspectives in the Arts and Sciences (2) Seminar on nature of inquiry in social sciences. Emphasis on methodology for observation and research in study of human beings, their social environments and their behavior.

Speech Communication

(College of Arts and Sciences)

John Haas, Head

Professors:
Julian, Faye D. (Liaison), Ph.D. Tennessee
Laster, Lorayne W., Ed.D. Tennessee
Yeomans, G. Allan (Emeritus), Ph.D.

Associate Professors:
Ambrosetti, M. L., Ph.D. Ohio
Buckley, J. E., Ph.D. Northwestern
Cook, N. C., M.A. Alabama
Glenn, Robert W., Ph.D. Northwestern
Haas, John W., Ph.D. Kentucky

Assistant Professors:
Ambler, R. S., Ph.D. Ohio State
Arnold, Christina L., Ph.D. Florida

Graduate courses in Speech Communication provide opportunities for students in a variety of disciplines to investigate how oral language can effect changes in the knowledge, the understanding, the ideas, the attitudes, or the behavior of other human beings.

GRADUATE COURSES

420 Communication and Conflict (3) Communication as significant factor in development, management, and resolution of conflict at interpersonal, small group, organizational or societal levels.

425 Interpersonal Health Communication (3) Interpersonal communication in health care settings: provider-client interactions, social support groups, stigma and disease, and contemporary models explaining use of health-related information.

440 Organizational Communication (3) Organizational setting and variables of communication process that affect quality of human interaction both within and outside organizations.

465 Studies in Rhetorical History and Criticism (3) May be repeated. Maximum 6 hrs.

466 Rhetoric of the Woman's Rights Movement to 1930 (3) Historical and critical study of public address in campaign for women's rights in United States from 1830's through 1920's. (Same as Women's Studies 466.)

475 Rhetoric of the Contemporary Feminist Movement (3) Historical and critical study of rhetoric in campaign for women's rights in United States from 1940's to present. (Same as Women's Studies 476.)

480 Ensemble Interpretation (3) Study and presentation of literary texts through group performance.

570 Legal and Ethical Issues of Communication (3) Communication rights and responsibilities. Prereq: Consent of instructor.

590 Directed Reading and Research (3) May be repeated. Maximum 6 hrs.

591 Foreign Study (1-15) See College of Arts and Sciences.

592 Off-Campus Study (1-15) See College of Arts and Sciences.

593 Independent Study (1-15) See College of Arts and Sciences.

Sport and Physical Activity

(College of Education)

MAJORS

Human Performance and Sport Studies............................................... M.S.

D. Kelley, Leader

Professors:
Lay, Nancy E. (Emeritus), Ph.D. ....... Florida State
Watson, Helen B. (Emeritus), Ph.D. ....... Michigan

Associate Professor:
Jones, Ralph E., Ph.D. ....... Toledo
Kelley, Dennis R., Ph.D. ....... Georgia State

Assistant Professors:
Boroviak, Patricia C., M.S. ....... Tennessee
McCutchon, M. G., Ed.D. ....... North Carolina (Greensboro)

The Sport and Physical Activity unit offers a master's degree with a major in Human Performance and Sport Studies, concentration in sport administration/management (an interdisciplinary concentration with Health, Leisure and Safety Sciences). See Education under Fields of Instruction for full description of degree requirements.

Elevee courses are offered in dance. These courses are appropriate for students interested in management of dance studios, teaching dance, or dance performance.

Specific questions about the program should be directed to the unit leader.

ADMISSION REQUIREMENTS

Applicants are required to complete the unit application which will be sent to all persons upon their initial inquiry about the program. Preference will be given to students with an overall undergraduate GPA of 3.0 or higher. Students with a GPA between 2.7 and 2.99 are encouraged to submit GRE scores.

The following retention policy applies to all graduate students seeking a degree in this unit:

Spanish

See Romance and Asian Languages
1. Graduate students are required to maintain an overall 3.0 GPA.
2. Any student who falls below this standard will be advised in writing by the unit leader of the need to discuss the matter with his/her advisor.
3. If a student's overall GPA remains below 3.0 for a second semester, the student will have his/her degree status revoked.

GRADUATE ASSISTANTSHIPS
A limited number of graduate assistantships are available for qualified women and men who are graduates of accredited colleges or universities. These assistantships are open to students in the master's program. Students interested in these opportunities should file their applications before February 1. Letters should be addressed to Graduate Assistantships Coordinator, Sport and Physical Activity unit, The University of Tennessee, Knoxville, TN 37996-2700.

Sport Management

GRADUATE COURSES
416 Managing Leisure/Sport and Related Facilities (3) (Same as Recreation and Leisure Studies 415.)
500 Thesis (1-15) P/NP only. E
501 Special Project (3) Culminating experience for non-theory major. Research study suitable for publication, or practicum requiring special written work. Prereq: 532.
502 Registration for Use of Facilities (3-15) Required for the student not otherwise registered during any semester when student uses University facilities and/or faculty time before degree is completed. May not be used toward degree requirements. May be repeated. S/NC only. E
511 Administration/Supervision in Sport (3) Development of knowledge and analytical skills desirable for managers/administrators in sport business/organization: organizational, administrative, and supervisory strategies related to sport in profit and non-profit settings.
512 Application of Legal Concepts to Sport Settings (3) Application of contract law, breach of contract, and monetary damages within sport settings: risk assessment and development of effective risk management strategies: development of contracts in sports; and analysis of cases involving discrimination based upon gender, race, age and as protection of rights at amateur and professional levels of sport.
532 Research Techniques in Sport (3) Evaluate, compare, and contrast research techniques in sport with consideration for and experiences in appropriate review, design, and analysis procedures, and proposal development.
535 Ethics in Sport Administration (3) Development of ethical and legal knowledge: rights and responsibilities of managers in administration of sport business/organization. Social issues and ethics in sport administration.
541 Management and Operation of Recreation and Sport Related Facilities (3) (Same as Recreation and Leisure Studies 541.)
544 Theories of Leadership and Leader Behavior in Sport (3) Integration of various theoretical approaches to leadership styles in sport administration with cultural contexts, research, and field experiences.
553 Case Studies in Sport Administration (3) Current issues and problems in sport administration at all levels of amateur and professional sport.
554 Readings in Sport Administration (3) Survey of pertinent literature in refereed and applied journals and texts.

Statistics

MAJORS
Statistics................................................. M.S.
Business Administration........................MBA
William C. Parr, Head

Professors:
Bozdogan, Hamparsum, Ph.D. .......... Illinois Institute of Technology
Guess, Frank M., Ph.D. .................... Florida State University
McLean, Robert A. (Emeritus), Ph.D. .... Purdue University
Mee, Robert W. (Emeritus), Ph.D. ....... Iowa State University
Parr, William C., Ph.D. ................. Southern Methodist University
Phibot, John W., Ph.D. ................. VPI
Sanders, Richard D., Ph.D. .......... Texas Tech University
Sylvestre, David L., Ph.D. ............... VPI
Thigpen, Charles C. (Emeritus), Ph.D. .... VPI

Associate Professors:
Arnold, A. T., Business Administration;
Caldwell, R., Public Relations;犯罪学, John, Business Administration; Glisson, Charles, Social Work; Gross, Louis, Social Work; Haddix, Donald, Arts and Sciences; Ladd, R.T., Business Administration; Lounsbury, John, Arts and Sciences; Lyons, William, Arts and Sciences; McMullin, Dan, Agricultural Sciences and Natural Resources; Miller, Mark, Community Studies; O'Neal, John, Social Work; Ploch, Donald, Arts and Sciences; Rajput, Balram, Arts and Sciences; Richardson, J., Lillard, Arts and Sciences; Rosinski, Jan, Arts and Sciences; Saxton, Arnold, Agricultural Sciences and Natural Resources; Singletary, Michael, Communications; Smith, Julius, Arts and Sciences; Wagner, Carl, Arts and Sciences.

Additional Intercollegiate Program Faculty:
Bunting, Dewey, Arts and Sciences; Chattejee, Arun, Engineering; Dessart, Don, Education; Fitzpatrick, Ben, Arts and Sciences; Fribourg, Henry, Agricultural Sciences and Natural Resources; Gant, Michael, Arts and Sciences; Glisson, Charles, Social Work; Gross, Louis, Arts and Sciences; Haddix, Schuyler, Education; Ladd, R.T., Business Administration; Lounsbury, John, Arts and Sciences; Lyons, William, Arts and Sciences; McMullin, Dan, Agricultural Sciences and Natural Resources; Miller, Mark, Community Studies; O'Neal, John, Social Work; Ploch, Donald, Arts and Sciences; Rajput, Balram, Arts and Sciences; Richardson, J., Lillard, Arts and Sciences; Rosinski, Jan, Arts and Sciences; Saxton, Arnold, Agricultural Sciences and Natural Resources; Singletary, Michael, Communications; Smith, Julius, Arts and Sciences; Wagner, Carl, Arts and Sciences.

Dance

GRADUATE COURSES
480 Dance Through the 19th Century (3) Dance of various societies and culture from pre-history through 19th century.
490 Dance in the 20th Century (3) History and philosophy of dance.
495 Dance Pedagogy (3) Principles and methods of teaching dance with practical application in mini-teaching experience. Prereq: Upperclass or graduate standing and consent of instructor.

Statistics

MAJORS
Statistics................................................. M.S.
Business Administration........................MBA
William C. Parr, Head

Professors:
Bozdogan, Hamparsum, Ph.D. .......... Illinois Institute of Technology
Guess, Frank M., Ph.D. .................... Florida State University
McLean, Robert A. (Emeritus), Ph.D. .... Purdue University
Mee, Robert W. (Emeritus), Ph.D. ....... Iowa State University
Parr, William C., Ph.D. ................. Southern Methodist University
Phibot, John W., Ph.D. ................. VPI
Sanders, Richard D., Ph.D. .......... Texas Tech University
Sylvestre, David L., Ph.D. ............... VPI
Thigpen, Charles C. (Emeritus), Ph.D. .... VPI

Associate Professors:
Arnold, A. T., Business Administration; Caldwell, R., Public Relations;犯罪学, John, Business Administration; Glisson, Charles, Social Work; Gross, Louis, Social Work; Haddix, Donald, Arts and Sciences; Ladd, R.T., Business Administration; Lounsbury, John, Arts and Sciences; Lyons, William, Arts and Sciences; McMullin, Dan, Agricultural Sciences and Natural Resources; Miller, Mark, Community Studies; O'Neal, John, Social Work; Ploch, Donald, Arts and Sciences; Rajput, Balram, Arts and Sciences; Richardson, J., Lillard, Arts and Sciences; Rosinski, Jan, Arts and Sciences; Saxton, Arnold, Agricultural Sciences and Natural Resources; Singletary, Michael, Communications; Smith, Julius, Arts and Sciences; Wagner, Carl, Arts and Sciences.

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Bunting, Dewey, Arts and Sciences; Chattejee, Arun, Engineering; Dessart, Don, Education; Fitzpatrick, Ben, Arts and Sciences; Fribourg, Henry, Agricultural Sciences and Natural Resources; Gant, Michael, Arts and Sciences; Glisson, Charles, Social Work; Gross, Louis, Arts and Sciences; Haddix, Schuyler, Education; Ladd, R.T., Business Administration; Lounsbury, John, Arts and Sciences; Lyons, William, Arts and Sciences; McMullin, Dan, Agricultural Sciences and Natural Resources; Miller, Mark, Community Studies; O'Neal, John, Social Work; Ploch, Donald, Arts and Sciences; Rajput, Balram, Arts and Sciences; Richardson, J., Lillard, Arts and Sciences; Rosinski, Jan, Arts and Sciences; Saxton, Arnold, Agricultural Sciences and Natural Resources; Singletary, Michael, Communications; Smith, Julius, Arts and Sciences; Wagner, Carl, Arts and Sciences.
Statistics

Curriculum

A minimum of 33 credit hours must be completed for the master's degree. Required of all students are 6 hours in statistical methods, 6 hours in statistical theory, 1 hour in statistical computing, and 3 hours in either supervised consulting or internship. Students must complete a minimum of 21 hours in approved statistics courses, exclusive of consulting, internship, independent study, or thesis.

Thesis or Independent Study

The thesis option for the master's degree requires the student to complete 6 hours for the thesis. Alternatively, the non-thesis option requires a minimum of 3 hours for an independent study project.

Comprehensive Examination

Students must pass a two-part written comprehensive examination covering 1) theory and 2) methods. Upon failing either part of the examination, the student may retake it. The result of the second examination is final. For students writing a thesis, this examination must be passed before the thesis is defended.

INTERCOLLEGIATE GRADUATE STATISTICS PROGRAM

The intercollegiate graduate Statistics Program (IGSP) is a formal University of Tennessee academic program established to enable students to earn either a minor or an M.S. in Statistics simultaneously with a master's or doctoral degree in another department. Approved coursework taken to meet doctoral requirements in the student's home department may also be credited toward the M.S. in Statistics. Similarly, approved coursework in statistics taken to meet the requirements for a master's or doctoral degree in another department may also count toward the minor in Statistics. The program is open to graduate students in all departments which have an approved minor and/or M.S. joint major curriculum offered through the program. The program is administered by an Executive Committee, consisting of college representatives from all colleges with approved programs, with advisory input from the program faculty.

Degree Program

The IGSP Courses

Master's in home department, minor in Statistics

Doctorate in home department, minor in Statistics

Doctorate in home department, M.S. in Statistics

*The M.S. in Statistics requires 33 hours.

Course options consist of courses in statistics, offered either by the Department of Statistics or by other departments, which have been reviewed and approved by the IGSP Executive Committee. Students taking an M.S. in Statistics must pass the two-part comprehensive examination covering statistical theory and methods. Students taking a minor in Statistics in conjunction with a doctorate in another field must pass a written comprehensive examination in Statistics, constructed and evaluated by the student's Examination Committee. No formal comprehensive examination is required of students earning a Statistics minor along with a master's in another field beyond questions which the home department includes as part of the comprehensive examination for the master's degree.

General Admissions and Degree Requirements

1. The student's home department must have an approved program of courses with the Executive Committee. That program will specify the sequences of statistics courses, chosen from the IGSP approved list, that are considered appropriate by the home department. Students who wish to participate in this program should contact their college representative or the Chair of IGSP in the Department of Statistics.

2. The student's graduate committee must include a faculty member of the Department of Statistics at the rank of Assistant Professor or above.

3. The student's Admission to Candidacy form must contain all courses required for the chosen degree program set off in a group and labeled "Statistics Courses Required for the Minor or M.S. in Statistics." Should the student not decide to apply for admission to the program until after completion of some of the courses, the student's major professor should file a program change with the cooperating departments and assist the student in obtaining a Department of Statistics faculty member to serve on the student's graduate committee.

Successful completion of the Statistics M.S. or minor is recognized by appropriate documentation on the student's transcript. Students who do not complete the requirements of the minor or M.S. will still receive academic credit for the statistics courses they have successfully completed.

BUSINESS ADMINISTRATION CONCENTRATION

For complete listing of MBA program requirements, see Business Administration. MBA Concentration: Statistics.

Minimum course requirements are 571, 566, 572 with prereq or corc of 561. Ph.D. Concentration: Statistics

This degree provides students with a broad knowledge of the field of statistics, the ability to apply statistics in practical situations to problems of business and industry and the ability to develop new statistical methods; all of which takes place while students are exposed to coursework in the basic functional areas of business.

Minimum course requirements are: 673, 666, 691, and 592.

ACADEMIC STANDARDS

A graduate student in the College of Business Administration whose grade-point average falls below 3.0 will be placed on probation. A student on probation will be dropped from the program unless his/her cumulative graduate grade-point average is 3.0 or higher at the end of the probationary period. The probationary period is defined as the next semester's coursework as established by the degree program for full-time students and the next two semesters' coursework as established by the degree program for part-time students.

GRADUATE COURSES

411 Introduction to Statistical Computing

Use of computer operating system commands and packaged programs for statistical analysis and file management. Not available for credit for statistics majors. Prereq: 201 or 251.

461 Applied Regression Analysis

Linear regression and correlation, multiple regression, polynomial regression, selection of variables, use of dummy variables, analysis of residuals. Logistic regression and its applications. Use of standard computer packages. Major writing requirement. Prereq: Probability and Statistics for Scientists and Engineers II and Introduction to Statistical Software or graduate standing and consent of instructor.

462 Analysis of Variance and Experimental Design

Analysis of variance techniques for single and multivariate models, past-hoc procedures. Design considerations for completely randomized, hierarchical and split-plot experiments, balanced incomplete block and designs, response surface methodology. Major writing requirement. Prereq: Probability and Statistics for Scientists and Engineers II and Introduction to Statistical Software or graduate standing and consent of instructor.

471 Random Processes and Probability Models

Functions of random variables, multivariate distributions, conditional expectations, waiting time distributions, random processes, Markov chains, queuing theory. Prereq: 251, F.

500 Thesis (1-15)

5/NP only. E

502 Registration for Use of Facilities

Required for the student not otherwise registered during any semester when student uses University facilities and/or faculty time before degree is completed. May not be used toward degree requirements. May be repeated. S/NC only. E

511 Statistical Thinking for Decision Making


531 Survey of Statistical Methods I

Univariate and bivariate data collection and organization; statistical estimation and hypothesis testing; analysis of relations for categorical and numerical data, including Chi-square tests and simple linear and multiple regression. Use of computer facilities required. Credit not given for both 531 and 537. Prereq: 1 yr. college mathematics. E

532 Survey of Statistical Methods II

Multiple linear regression, including the use of dummy variables; single and multiple factor analysis of variance and covariance; issues in experimental design and analysis. Use of computing facilities required. Prereq: 531, E.

537 Statistics for Research

Principles and application of statistical methodology, integrated with considerable use of major statistical computing system. Probability and probability distributions, forming and testing hypotheses using parametric and nonparametric inference methods. Matrix-based simple linear regression and correlation. Credit not given for both 531 and 537. Pre- req: 1 yr undergraduate mathematics and 1 undergraduate statistics course. Sp

538 Statistics for Research II

General linear model as applied to multiple regression and analysis of variance; multivariate, and factor analysis. Use of special statistical packages for data entry and file management and statistical analysis. Use of UTCC computing facilities required. Coreq: 531 or 537, E.

561 Introduction to Computing for Data Management and Analysis

1 UTK computing environment for beginning statistics graduate students. Use of operating systems commands, system monitors, utility programs and SPSS to use and control data and Unix, file management. Not available for credit for statistics majors. Prereq: 537 or 531, F.

563 Introduction to Mathematical Statistics

Basic probability models and theory of distributions of random variables. Prereq: Mathematics 241.
564 Theory of Statistical Inference (3) Introductory theory underlying common statistical procedures of hypothesis testing and estimation. Prereq: 563.

566 Statistical Techniques in Industrial Processes (3) Applications of control charts and other statistical techniques in industrial setting. Attributes and variables control charts, process capability analysis, aspects of sampling, statistical tolerancing, estimation of variance components, principles of measurement, special industrial applications. Prereq: 571 or equivalent.


572 Applied Linear Models (3) Simple and multiple linear regression using matrix algebra and general linear model; polynomial regression, weighted least squares regression, variable selection techniques, multicollinearity, regression diagnostics; general linear model approach to analysis of data from designed experiments. Use of standard computer packages. Prereq: 571 and matrix algebra.

573 Design of Experiments (3) One-way ANOVA, multiple range tests, equal and unequal variances, transformations; factorial experiments, completely randomized designs, split-plot designs, fractional factorial designs, fractional factors, sequential designs. Prereq: 571.

575 Applied Time Series (3) Fundamental concepts of time series analysis: Box-Jenkins approach, stationary and nonstationary models, forecasting model identification, seasonal models, transfer function models, and spectral theory. Prereq: 538 or 572 or consent of instructor.

577 Statistical Inference (3) Classical and Bayesian statistical inference, sampling survey theory, nonparametric tests, goodness of fit, analysis of variance, contingency table analysis. Prereq: 571.

585 Principles of Statistical Process Management (3-1) Statistical and other techniques applied to management of organizational processes. Prereq: Consent of department head.

587 Graduate Seminar (1-3) Directed readings and active participation in colloquium program of Department of Statistics and of student's minor program. Prereq: Consent of statistics department director of graduate studies. May be repeated. Maximum 2 hrs. S/N only.

592 Internship (1-6) Supervised off-campus experience in application of statistical principles and methods in business, industry, or government. Written and oral report. Prereq: 572 or consent of graduate statistician and consent of statistics department director of graduate studies. May be repeated. Maximum 6 hrs. S/N only.

593 Independent Study (1-6) Supervised experience for non-campus researchers planning, managing, and analyzing projects or studies. Written report and/or detailed diary. Prereq: 572 or 538. May be repeated. Maximum 6 hrs.

594 Statistical Computing Practicum (1-6) Supervised experience in regular seminars or on-campus research projects, managing data, and performing analyses or designs to statistical problems. Discussion of activities in regular seminars or on-campus courses. Final written reports required for course credit. Prereq: 572 or consent of instructor. S/N only.


673 Advanced Topics in Design of Experiments and Linear Models (1-3) Experimentation for product and process improvement: response surface methodology and robust design methods; mixture experiments; optimal design topics; distribution theory and inference for linear models. Prereq: 573 or consent of instructor.

675 Categorical Data Analysis (3) Log-linear analysis of multidimensional contingency tables, Logistic regression, Theory, applications, and use of statistical software. Prereq: 1 yr graduate-level statistics, regression analysis and analysis of variance and familiarity with UNIX; or consent of instructor.

676 Statistical Modeling (3) Modern techniques of statistical modeling: predictive, likelihood, Bayesian, and information-based model selection and evaluation paradigms. Application of techniques in various types of models for both continuous and discrete data modeling problems, Interactive computational tools. Prereq: 564 and 572 or S/N only, or consent of instructor.

679 Multivariate Statistical Techniques in Industrial Processes (3) Multivariate techniques: Hotelling's T-sq. Multiple regression, discriminant analysis and classification, seasonal models, transfer function models, and time series analysis and analysis of variance and correlation. Prereq: 571 or S/N only, or consent of instructor.

681 Special Topics in Probability (1-3) Presentation of specialized topics in probability and stochastic processes. May be repeated. Maximum 6 hrs.

683 Special Topics in Statistics (1-3) Presentation of specialized topics in statistics. May be repeated. Maximum 6 hrs.

691 Graduate Seminar in Applied Statistics (3) Reading and discussion of statistical literature and discussion of new statistical techniques and recent developments in statistics, with emphasis on statistics and applications with special problems in engineering, psychology, sociology, etc. Prereq: Consent of instructor. S/N or letter grade.

Textiles, Retailing, and Interior Design

(College of Human Ecology)

MAJORS

DEGREES

Interior Design: M.S. Textiles, Retailing and Consumer Sciences: M.S. Human Ecology: Ph.D.

Nancy B. Fair, Head

Professors:


Associate Professors:

Brosee, Randall R. (Liaison), Ph.D. Florida State Dyer, C. L. (Liaison), Ph.D. North Carolina Fair, Nancy B., Ph.D. NC State Fairhurst, Ann E., Ph.D. Oklahoma State Raben, Josette, Ph.D. Tennessee

Assistant Professors:

Bhat, Gajan, Ph.D. Georgia Tech Gupta, Millond, Ph.D. Missouri Kupritz, Virginia, Ph.D. VPI Lee, Jinkook, Ph.D. Ohio State Reardon, James, Ph.D. North Texas

Research Assistant Professors:

Dover, Molly, Ph.D. Kansas State Hassenboehler, Charles, Ph.D. Tennessee Khan, Anamad, Ph.D. Tennessee Kwon-Chen, Ph.D. Tennessee Malkani, Sanjiv, Ph.D. Tennessee Tsai, Peter, Ph.D. Tennessee

The Department of Textiles, Retailing, and Interior Design offers master's degrees with majors in Interior Design and in Textiles, Retailing, and Consumer Sciences. The program in Textiles, Retailing, and Consumer Sciences offers concentrations in textile science and in retail and consumer sciences. An interdepartmental/interdisciplinary minor in interior design gives the graduate student an opportunity for combining the knowledge and experience about aging in American society with his/her own major concentration.

The master's program in Interior Design provides a balance between creative and theoretical foundations of the field; emphasis is placed on the dissemination of knowledge. The goal of the graduate program in interior design is to provide the student with scholarly and professional experiences through seminars, studio work, and research. Interdisciplinary thrusts increase the depth of understanding of the field of interior design essential to function as educators or as independent professionals. Areas of emphasis within interior design include: historic preservation/adaptive use and environmental behavior.

The programs in Textiles, Retailing and Consumer Sciences prepare students for careers in industry, business, public and private agencies, and educational institutions. Master's level work enables students to conduct research in retail management and merchandising and in the consumer areas related to retail decision making. Students in textile science are expected to have a solid foundation in mathematics, as well as a formal background in a physical science or engineering.

Interested students should contact the department head for more information.

ADMISSION REQUIREMENTS

A complete file for review includes the Graduate School application file, Department of Textiles, Retailing, and Interior Design application, Graduate Record Examination (GRE) scores for the general section, and three Graduate School Rating Forms completed by individuals who can attest to the potential for graduate education. Forms may be obtained from the Dean's Office, College of Human Ecology.
In addition to specified entrance requirements stipulated by The Graduate School, admission to the particular programs in the department is based on the following requirements:

**Interior Design**
Admission to the master's degree program with a major in Interior Design requires: 1) a background in interior design, 2) a cumulative GPA of 3.0 or above (on a 4.0 scale), and 3) a portfolio of undergraduate studio work (and professional work, if applicable) submitted to the department. The portfolio may include slides or original work. It is recommended that deficiencies in preparation, as identified in the admission process, be removed prior to full admission to the graduate program.

**Textiles, Retailing and Consumer Sciences**
Admission to the master's degree program with a major in Textiles, Retailing and Consumer Sciences is dependent on completion of undergraduate courses that give the necessary background for success in the graduate program. For the concentration in Retail and Consumer Sciences, students should have an adequate background in retailing and/or consumer sciences supported by coursework in economics, marketing, mathematics, and statistics. For the concentration in textile science, students should have a basic technical background in textile science or materials science supported by mathematics through differential equations, organic chemistry, and general physics.

 Superior students deficient in one or more of the above requirements, may be admitted at the discretion of the department's graduate faculty.

**THE MASTER'S PROGRAMS**

**Interior Design**
The M.S. in Interior Design requires the completion of 36 hours of graduate credit. The requirements for the degree include the following: in the major, 18 hours (including 510, 550, 562, 590) of the first two semesters in the program; a cognate area, 6 hours; research methods, 3 hours; statistics, 3 hours; a comprehensive design/research project with acceptable documentation, a publishable paper with outside review, or a thesis, 6 hours; a comprehensive examination by the student's committee on the project/research conducted.

Based on interest and prior background, each student has a choice of the areas of emphasis within the interior design program beyond the core curriculum. Emphases may include historic preservation and/or adaptive use of environment-behavior, or any acceptable combination (e.g., an adaptive use project with an emphasis on behavioral aspects). Areas within the environment-behavior emphasis considered appropriate are proxemics, environments for the elderly or children, or professional design.

Each student is required to demonstrate competence in individual research either through the thesis or non-thesis option (a comprehensive design/research project).

**Thesis Option:** Complete a thesis for 6 hours credit. An oral examination will occur upon completion of the program.

**Non-Thesis Option:** Complete a comprehensive design project with acceptable documentation or publishable paper. To be eligible, the student must have completed 12 hours of graduate credit in interior design with at least a 3.0 GPA. Having met this criteria, the student must present a proposal to the supervisory committee that will include 6 hours of subsequent coursework. This proposal must outline the nature of the project and/or paper and explain the methodological approach. A comprehensive oral and written examination, administered by the committee, will occur upon the completion of the program.

**Textiles, Retailing and Consumer Sciences**
The major in Textiles, Retailing and Consumer Sciences has concentrations in Retail and Consumer Sciences and in Textile Science. Requirements are listed below.

- A comprehensive oral examination, administered by the thesis committee, will be given upon completion of the thesis research. A non-thesis option is not available.

**Retail and Consumer Sciences**
Major (Required courses: 510, 511, 550, 562, 590

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>Cognate Area</td>
<td>6</td>
</tr>
<tr>
<td>Statistics</td>
<td>3</td>
</tr>
<tr>
<td>Thesis</td>
<td>6</td>
</tr>
<tr>
<td>TOTAL</td>
<td>34</td>
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</table>

**Textile Science**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>RCS 552</td>
<td>3</td>
</tr>
<tr>
<td>Research Methods</td>
<td>3</td>
</tr>
<tr>
<td>TS 590</td>
<td>1</td>
</tr>
<tr>
<td>Textile Science courses</td>
<td>12</td>
</tr>
<tr>
<td>Cognate Area</td>
<td>6</td>
</tr>
<tr>
<td>Statistics</td>
<td>3</td>
</tr>
<tr>
<td>Thesis</td>
<td>6</td>
</tr>
<tr>
<td>TOTAL</td>
<td>34</td>
</tr>
</tbody>
</table>

*Must include RCS 562 or equivalent; or 3 hours of laboratory techniques in materials analysis and characterization.*

**THE PH.D. CONCENTRATIONS**

**Consumer Environments**
Students enrolled in the Ph.D. program with a concentration in consumer environments are provided with a foundation in management and retail and consumer sciences or in understanding the consumer in the designed environment and management of facilities. From this base, students focus on retail and consumer sciences or on areas of specialization including historic preservation and adaptive use, human environment interaction and facilities management to further theory and application in advanced study and research. See the consumer environments concentration under Human Ecology.

**Textile Science**

Students enrolled in the Ph.D. program in Human Ecology with a concentration in textile science take one common course which provides a foundation for the integration of textiles and apparel in the context of the near environment. A required departmental research seminar exposes students to research being conducted in all areas of study in the department.

1. College Professional Seminar, HE 610 (3 hours);
2. RCS 552 (3 hours);
3. Research Methods which must include 6 hours of laboratory techniques in materials analysis and characterization;

4. TS 590 (2 hours). Attendance at seminar is required for all full-time students;
5. Six hours in statistics at the 500-600 level;
6. Eighteen hours in textile science courses;
7. Nine hours in a cognate area;
8. Eighteen hours of other courses which may include up to 6 hours of dissertation; and

Note: Students must take a minimum of 9 hours at the 600-level in the College of Human Ecology, exclusive of dissertation. Transfer students with a master's degree from another institution are required to complete at least 42 hours (including dissertation hours) from UTK.

**ACADEMIC STANDARDS**

1. Evaluation of student progress will normally occur prior to enrollment for thesis hours (or the non-thesis option) and during the second semester of the full-time enrollment in the program. The review of the student will be undertaken by the faculty with consideration given to factors such as: GPA (minimum 3.0), portfolio evaluation, and demonstrated research capability.

2. If progress or performance is deemed insufficient, the faculty may recommend probation with specific goals set for a specified time or termination.

**ACADEMIC COMMON MARKET**

An agreement among southern states for sharing graduate programs allows legal residents of some states to enroll in certain programs at UT Knoxville on an in-state tuition basis. The M.S. program in Interior Design is available to residents of the states of Louisiana, Mississippi, or Virginia. The M.S. program in Textiles, Retailing and Consumer Sciences is available to residents of the state of Mississippi. Additional information may be obtained from the Admissions Specialist in the Office of Graduate Admissions and Records. For the Ph.D., see Human Ecology.

**Interior Design**

**GRADUATE COURSES**

400 Proxemics (3) Space and behavior within cultural context. Application to design and design process. Theoretical foundations and concepts from environment and behavior. Simulation techniques and methods for identifying behavioral design requirements. Prereq: Human Environment Systems and Micro Computer for Interior Design or consent of instructor, F

450 Advanced Interior Design II (5) Comprehensive studio problems of advanced complexity; integration and expansion of experiences utilizing systematic design methodologies. Prereq: Advanced Interior Design or consent of instructor. 2 hrs and 3 labs, Sp

470 History of Contemporary Interior Architecture (2) Interior architecture, furniture, design philosophies, nineteenth-century works for twentieth-century development. Europe and America. Design as influenced by movements in fine arts, technological advances, cultural context. Prereq: History of Interior Architecture or consent of instructor, Sp

475 History of American Interior Architecture (3) Major styles of interior architecture, decoration, and decorative arts within cultural context, colonial era through nineteenth century. European influences. Prereq: 370 or consent of instructor, Sp

500 Thesis (1-15) P/NP only. E

502 Registration for Use of Facilities (3-15) Required for the student not otherwise registered during any semester when student uses University facilities and/or
faculty time before degree is completed. May not be used toward degree requirements. May be repeated. S/NC only. E

510 Needs Assessment and Design Programming (3) Systematic methodology and multidisciplinary research methods as part of design problem solving experience. Appropriate for evaluating various environments: commercial, corporate, hospitality and retail. Seminar. May be repeated. Maximum 6 hrs. Prereq: Admission to graduate program. F

520 Integrative Interior Design Studio (3) Identification, integration and synthesis of multidisciplinary data input. Advanced programming techniques and design evaluation. Lecture and studio. Prereq: 510, 554, or consent of instructor. Sp

531 Research Methods in Historic Preservation (3) Methodology for historic preservation problems in interior design. Prereq: Architecture 403 or consent of instructor. Sp

564 Environmental Factors in Interior Design (3) Human factors and associated research techniques and design methodologies related to interior architectural environments. Design requirements from anatomy, physiology, anthropology and social and behavioral sciences. Prereq: 6 hrs behavioral science and 6 hrs natural science, or consent of instructor. Sp

573 Applied Research Strategies in Interior Design (3) Synthesis of research methods, statistics, and design research issues within framework of creating viable research proposal.

575 Environment and Aging (3) Seminar on design of physical environment and relationship to aging process. Concepts and theories from design, and social and behavioral sciences. Prereq: 6 hrs social behavioral science or consent of instructor. Sp

580 Directed Study in Interior Design (1-3) Independent advanced research in selected areas from field of interior design. Prereq: Consent of instructor. May be repeated. Maximum 9 hrs. E

581 Directed Study in Historic Preservation (1-3) Independent advanced research in historic preservation relevant for interior design. Prereq: Consent of instructor. May be repeated. Maximum 9 hrs. E

584 Directed Study in Environmental Design (1-3) Independent advanced research in environmental design analysis. Prereq: 574 or consent of instructor. May be repeated. Maximum 9 hrs. E

590 Research Seminar (1-2) S/NC only. E

600 Dissertation (3-15) P/NP only. E

620 Advanced Special Topics in Interior Design (3) Selected topics of major interest: history of interior design, advances in historic preservation, environment and behavior. Topics vary. Prereq: 510, 552, 562, 564. May be repeated. Maximum 9 hrs.

630 Advanced Directed Study in Interior Design (3) Individual study in aspect of interior design culminating in scholarly paper. May be repeated. Maximum 6 hrs.

502 Registration for Use of Facilities (3-15) Required for the student not otherwise registered during any semester when student uses University facilities and/or faculty time before degree is completed. May not be used toward degree requirements. May be repeated. S/NC only. E

510 Retail Strategy and Decision Making (3) Strategy, strategic management and systematic process in retail sector. Analytical decision-making skills in retailing. Retail industry structure. International differences in retail systems. Prereq: Retail Management or equivalent.


540 Socio-Psychological Aspects of Apparel (3) Apparel and human behavior in social situations. Prereq: 6 hrs or equivalent from sociology and psychology.

550 Consumer Economics and Market Choices (3) Economic framework for analyzing consumer behavior and consumer choice within market system. Theory of consumer preferences and decision making; consumption and demand models for individuals and households. International consumer economics, issues and policies. Prereq: Textile and Apparel Economics, Mathematics 503 or equivalent. F, A

552 Economics of Textile Complex (3) Economics consideration of U.S. textile complex. Quantitative approaches to industry structure, production, marketing, distribution and institutions within both global and domestic settings. Current and future international issues and implications. Prereq: Calculus III or equivalent; micro economics. F, A

562 Research Methods (3) Fundamentals of science method, advancement of science, methodology and method of research. Issues and concepts of basic and applied research. Prereq: Statistics 531 or equivalent. Sp

590 Research Seminar (1) Research topics in retail and consumer sciences. May be repeated. S/NC only. F, Sp

593 Directed Study (1-3) Independent problems in retailing and consumer sciences. Prereq: 9 hrs retailing and consumer sciences graduate coursework. May be repeated. Maximum 9 hrs.

595 Special Topics in Retail and Consumer Sciences (1-3) Lecture, group discussion on specialized topics: retail industry structure, international retailing, consumer affairs, entrepreneurship, small business management, issues in retail management, issues in retail strategy, quality perception by consumers, product and service value, retailing and special populations, special research methods. Prereq: 9 hrs graduate coursework. May be repeated. Maximum 9 hrs.

600 Dissertation (3-15) P/NP only. E


615 Retail and Consumer Sciences Literature and Thought (3) Evaluation of retail and consumer sciences literature with emphasis upon research literature, development of scholarly thought, and identification of potential areas of further study. Prereq: 562. Marketing 501, Economics 501. F, A

616 Research Methods, Models and Measurement in Retail and Consumer Sciences (3) Quantitative methods and analytical concepts in research process. Mathematical and statistical analysis and concepts of sciences phenomena, utilizing models, model building and measurement constructs. Prereq: 562. Statistics 538. Sp, A

641 Retail Consumer Behavior (3) Theories and concepts of behavior from social science in relation to ultimate consumer's behavior. Prereq: 6 hrs of sociology and/or psychology or consent of instructor.

651 The Consumer and Public Policy (3) Public policy issues within consumer environments. Analysis of past and present policies within economic, social, legal and business frameworks. Implications of consumer issues and policy alternatives. Literature and research focus. Prereq: 550 or consent of instructor.

655 Advanced Topics in Retail and Consumer Sciences (3) Lecture, group discussion, individual research on advanced topics and research areas of current significance to retail and consumer sciences. Prereq: 9 graduate hours in consumer sciences. May be repeated. Maximum 9 hrs.

502 Registration for Use of Facilities (3-15) Required for the student not otherwise registered during any semester when student uses University facilities and/or faculty time before degree is completed. May not be used toward degree requirements. May be repeated. S/NC only. E

510 Fiber Science (3) Physical properties, mechanical properties and microstructure of polymeric fibers; relation to end-use properties. Prereq: Organic Chemistry and Thermal Physics or equivalent.

520 Optical Microscopy (4) Basic compound and polarizing microscopy for imaging. Optical property measurements, and structure elucidation. Other methods of optical microscopy. Prereq: Fundamentals of Physics; Wave Motion, Optics and Modern Physics or equivalent. 3 hrs and 2 labs.

521 Nonwovens Science and Technology I (3) Nonwoven fabric technology; different web forming processes; and relationships among the chemical, morphological and mechanical properties of fibers and orientation in webs to final performance properties of bonded structure. Prereq: Organic chemistry or consent of instructor.

524 Advanced Textile Dyeing and Finishing (4) Chemistry, processing and fastness of chemical finishes and various classes of dyes on different fibers. Prereq: 510 or consent of instructor. 2 hrs and 4 labs. Sp

526 Nonwovens Science and Technology II (3) Interactions between mechanics of production and mechanical properties of nonwoven fabrics; characterization of fiber morphology and web structure; chemistry of nonwoven binders and finishes; and engineering of specific fabric properties. Prereq: 521 or equivalent.


580 Research Seminar (1) Research topics in textile science. May be repeated. S/NC only. F, Sp

593 Directed Study (1-3) Independent problems in textile science. Prereq: 9 hrs textiles graduate coursework. May be repeated. Maximum 9 hrs.

595 Advanced Topics in Textile Science (1-3) Lecture, group discussion, individual research on specialized topics. Prereq: 9 hrs textiles graduate coursework or consent of instructor. May be repeated. Maximum 9 hrs.

600 Dissertation (3-15) P/NP only. E

625 Physical Chemistry of Fibers (3) Physical chemistry of fibers and fiber forming polymers; surface chemistry and thermal properties. Prereq: 510.

626 Physics of Fiber Structures (3) Morphology of polymeric structures; thermal and processing history on mechanical, electrical and chemical properties of fibers. Prereq: 510.


695 Advanced Topics in Textile Science (3) Lecture, group discussion, individual research on advanced topics and research areas of current significance: future direction, professional issues, theoretical approaches. Prereq: Doctoral student and 9 hrs textiles graduate coursework. May be repeated. Maximum 9 hrs.

Theatre
(College of Arts and Sciences)

MAJOR

DEGREE

Theatre .................................................... M.F.A.

Tom Cooke, Head

Professors:

Cooke, Tom, Ph.D. ................................ Florida State

Cothran, R. M.
Custer, M., M.F.A. ........................................ Wisconsin
Field, R.C., M.A. ........................................ Miami (Ohio)
Mashburn, Robert R., Ph.D. ................. Florida State
Soper, Paul L. (Emeritus), Ph.D. .......... Cornell

Associate Professor:
Craven, E. H. ............................................ Southern Methodist
Croskey, R. J., M.F.S. ............................. Catholic
DeCuir, L. J. (Liaison), M.F.A. ................ Tulane
Gould, B. K., M.F.A. ................................. Cornell

Assistant Professors:
Oliva, J. L., Ph.D. ........................................ Northwestern
Weber, T., M.F.A. ........................................ Alabama

The Department of Theatre offers the Master of Fine Arts degree with a major in Theatre, concentrations in acting, scene design, costume design, lighting design and theatre technology. Not all areas of concentration accept applicants every year.

Applicants must have completed undergraduate degree approximately equivalent in requirements to those specified for degrees conferred by The University of Tennessee, Knoxville.

The Graduate record Examination, three letters of recommendation and interviews with appropriate faculty are required of all applicants. Applicants for admission to the M.F.A. design/technical theatre programs must submit samples of their work. Auditions are required of M.F.A. degree acting applicants.

For detailed information about the graduate program, contact the Director of Graduate Studies, Department of Theatre.

THE MASTER OF FINE ARTS PROGRAM

At least 60 semester hours, 40 of which must be at the 500 level or above, are required for the degree of Master of Fine Arts with a major in Theatre, which is normally to be completed in three consecutive years of full time residence. Theatre 501 is required the first year of residence. Theatre 510 and 512 are also required of all students. Students in the M.F.A. degree program are evaluated annually by juried performance or portfolio submission. Continuation in the program is with the approval of the faculty committee for the M.F.A. degree program. Theatre 599, Projects in Lieu of Thesis, and an oral defense of the project must be completed satisfactorily before the degree is conferred.

In addition to the core requirements listed above, each area of concentration has specific requirements:

Design/Technical Production

Required courses are at least 12 hours of Theatre 580, Design and Technical Production Seminar, and at least 6 hours in the projects courses. Theatre 401, Principles of Design is required in the first year of residence.

Acting

Theatre 500-21-22-23-24-25 Master Class are required, along with one course in directing and two hours each in voice and dance.

REQUIREMENTS FOR SECOND MASTER’S DEGREE

Students admitted to the MFA program who have already earned a master’s or a doctoral degree may apply up to 12 credit hours from the previous graduate program to the MFA degree with approval of the student’s committee, the Dean of the College of Arts and Sciences, and the Dean of The Graduate School.

Any such credits applied from a previous graduate program could be from courses that are directly relevant to the student’s MFA curriculum and must have been earned within the time limit (6 years) established for completion of the MFA degree.

ACADEMIC COMMON MARKET

An agreement among southern states for sharing graduate programs allows legal residents of some states to enroll in certain programs at UT Knoxville on an in-state tuition basis. The M.F.A. program in Theatre is available to residents of the state of Virginia (concentration in costume design only).

Additional information may be obtained from the Admissions Specialist in the Office of Graduate Admissions and Records.

GRADUATE COURSES

401 Principles of Theatrical Design (3) Fundamental principles of design; visual and structural relationships. Projects assigned to develop understanding and perception.

409 Stage Make-up (2) Problems in make-up design and application, character analysis, physiognomy and chiarosuro. Prereq: 100

420 Special Studies in Acting (3) Content varies. Exercises in selected concentrated areas such as styles, techniques, approaches, e.g., Shakespeare, movement, humor. Prereq: Advanced Acting and consent of Instructor. May be repeated. Maximum 9 hrs.

423 Period Movement and Dance (2) Movement styles and dances from Renaissance to 20th century. Prereq: Stage Movement or consent of instructor.

424 Theatre Dance II (2) Advanced dance technique incorporating elements of musical theatre. Prereq: Theatre Dance or consent of instructor. May be repeated. Maximum 6 hrs.

425 Selected Musical Theatre Techniques (2) Study and practice of musical theatre material: dance and vocal work. Prereq: Theatre Dance or consent of instructor. May be repeated. Maximum 4 hrs.

426 Applied Phonetics (3) Development of skills in transcription and reproduction of principal varieties of English Language in North America and Great Britain and selected foreign dialects in North America. Prereq: Consent of instructor.


445 Advanced Costume Construction (3) Advanced studies in construction technique, tailoring, vacuum forming, plastic molding, and cobbling. Prereq: 345 or consent of instructor.

446 Costume Patterning (3) Draping patterns for period costumes. Construction and study of historic patterns 1500-1900. Prereq: 345 or consent of instructor.

450 Advanced Scenery Technology I (3) Study and practice of theatre woodworking; production participation required. Prereq: 250. Graduate credit to theatre M.F.A. students only.

451 Advanced Scenery Technology II (3) Study and practice of metalworking and plastics for theatrical productions; production participation required. Prereq: 250. Graduate credit to theatre M.F.A. students only.

452 Advanced Scenery Technology III (3) Study and practice of stage rigging for theatrical productions; production participation required. Prereq: 250. Graduate credit to theatre M.F.A. students only.

454 Scenery Painting (2) Introduction to materials, techniques, and principles of craft. Gaining skill and understanding through studio experience. Prereq: Consent of instructor.


456 Rendering (3) Techniques in monochrome and full color illustration of space and form. Prereq: Acquaintance with basic mechanical perspective and freehand sketching.

462 Advanced Lighting Design (3) Advanced problems in lighting design and theory, lighting musical theatre, opera, and dance. Prereq: 362 or consent of instructor.

464 Computer Assisted Design for Stage Lighting (3) Advanced techniques in computer-assisted design for stage lighting. Work with CAD and other stage-lighting software for preparation of lighting plots and associated paperwork. Prereq: Introduction to Lighting Design or consent of instructor.

465 Aesthetics of Lighting Design (3) Theory and practice of stage lighting design, relationship between designers and non-practitioners: directors, actors, choral singers, architects, etc.

470-711 Playwriting (3,3) Advanced instruction in writing of plays. Prereq: Consent of instructor.

491 Foreign Study (1-15) See College of Arts and Sciences.

492 Off-Campus Study (1-15) See College of Arts and Sciences.

493 Independent Study (1-15) See College of Arts and Sciences.

501 Introduction to Graduate Research in Theatre (3) Research tools and methods for theatre artist and scholar.

502 Registration for Use of Facilities (3-15) Required for the student not otherwise registered during any semester when student uses University facilities and/or faculty time before degree is completed. May not be used toward degree requirements. May be repeated. S/N C only.

510 Studies in Theatre History (3) Intensive study of selected topics in theatre history. May be repeated. Maximum 9 hrs.

512 Dramatic Literature Analysis (3) Dramaturgical strategies of major playwrights, using a variety of analytical approaches from Aristotelian to Structuralist.

520-21-22-23-24-25 Master Classes in Acting (4,4,4,4,4,4) Master classes in acting techniques, voice, and movement. Theatre M.F.A students only.

536 Projects in Play Directing (3) Practical work in play direction involving various lengths and kinds of scripts. May be repeated. Maximum 9 hrs.

542 The Social History of Costume (3) Study and analysis of costume as related to society’s manners and mores, architecture and furniture.


552 Millinery for the Stage (2) Pattern making and construction techniques for hats from antiquity to present. Prereq: Consent of Instructor.

546 Advanced Costume Patterning (3) Advanced studies in patterning period costume. Development of historic patterns through flat pattern method. Prereq: 446.

547 Painting and Dyeing for the Theatre (2) Fibers, dyes and dye processes; color matching and distressing.

549 Projects in Costume Technology (1-3) Individualized studies in costume technology in theatre production. Prereq: Consent of instructor. May be repeated. Maximum 6 hrs.

spring term of the year in which the student intends to enroll. Biochemistry requirements must have been satisfactorily completed within five years of the time the student wishes to enter the program.

Subject Area Semester Hours
English 6
Humanities and Social Sciences* 18
Physics 8
General Chemistry 8
Organic Chemistry 8
Biochemistry* 4
General Biology 8
Genetics 3
Cellular Biology*** 3
**TOTAL 66

*MAY include, for example, courses in English literature, science, art, philosophy, religion, language, history, economics, anthropology, political science, and geography.

**Exclusive of laboratory.

***It is expected that this requirement will be fulfilled by a course in cellular or molecular biology.

Admission Procedures

Admission of new students is for the fall semester, with first priority given to residents of Tennessee.

The College of Veterinary Medicine utilizes the Veterinary Medical College Application Service (VMCAS) for all applicants. Forms and instructions for making an application for admission may be obtained beginning July 1, 1996 from the Office of the Associate Dean, The University of Tennessee, College of Veterinary Medicine, P.O. Box 1071, Knoxville, TN 37901-1071.

Note: The deadline for receipt of the completed application materials by VMCAS is November 1. NON-TENNESSEE APPLICANTS MUST HAVE A MINIMUM CUMULATIVE GRADE-POINT AVERAGE OF 3.2 ON A 4.0 SCALE.

Applications are accepted only from U.S. citizens or permanent residents of the U.S.

D.V.M. Curriculum

The curriculum of the College of Veterinary Medicine is a nine-semester, four-year program. Each class begins in August and graduates four years later in May. The first three years follow the traditional fall and spring semesters with the summer break following years one and two. The final year of the professional curriculum begins immediately following semester six and is a continuous clinical rotation experience extending over one calendar year.

The first year consists mostly of the preclinical subjects of anatomy, physiology, histology, and microbiology. Also included in this year are clinical subjects of physical diagnosis and anesthesia. Considerable integration of subject matter is incorporated during this year.

The second and third years include the study of diseases, their causes, diagnosis, treatment, and prevention, and courses are team-taught on an organ system basis.

The final year (three semesters) is devoted to intensive education in solving diagnostic problems involving extensive clinical experience in the Veterinary Teaching Hospital. Each student will rotate through a series of clinical blocks.

An innovative feature of this curriculum is the designation of semester six as one in which the individual student may select his or her courses of study. This allows select students who have specific educational goals (such as advanced or dual degree programs) to enroll in all, some, or none of the regularly scheduled courses during that semester. Students enrolled in the D.V.M. program are required to complete at least 18 credit hours in the sixth semester and may elect courses for up to 10 credit hours of graduate courses without enrolling in The Graduate School. These hours will be credited toward the D.V.M. degree. This semester of elective study offers a unique educational alternative for select students in the CVM and is intended to enhance professional growth, concentration in an area of interest and career opportunities.

In addition to education in the science and art of veterinary medicine, students receive instruction in paramedical subjects such as animal behavior, medical communication, professional ethics, jurisprudence, economics, and practice management.

The curriculum requires successful completion of 152 semester credits.

THE GRADUATE PROGRAM

The College also administers a graduate program involving all departments which leads to the Master of Science and the Doctor of Philosophy degrees. Because of the interdisciplinarity of the departmental administration of the College of Veterinary Medicine, the faculty have opportunities in the graduate programs of other instructional units, including Animal Nutrition (nutrition, physiology, genetics and animal management), Microbiology (bacteriology, virology, and immunology), Ecology and Evolutionary Biology (environmental toxicology), Public Health, and Comparative and Experimental Medicine. (Refer to other sections of this catalog for a full description of these programs.) The majority of the graduate students enrolled in the graduate faculty of the College of Veterinary Medicine are involved in the Comparative and Experimental Medicine program. This program provides a wide spectrum of interdisciplinary training that prepares graduates for teaching and/or research careers in the health sciences.

PROFESSIONAL COURSES

811 Bacteriology and Mycology (4) Fundamental aspects of microbiology and cell biology relative to pathogenesis of bacterial and fungal diseases of animals; antimicrobial agents and mechanisms of bacterial resistance. General approaches to diagnosis, treatment and prevention.


821-22 Anatomy I-II (4,4) Gross and applied anatomy: neural structures of normal and diseased animals; dog, cat, horse, cow. Dissection of domestic and laboratory animals, prospec tives, slides, models, and living animals.

823-24 Physiology I-II (4,4) Introduction to concepts and problems in physiology which form basis for clinical applications and for formal training in pharmacology, medicine, physiology, and surgery. Cellular, neural, cardiovascular, renal, respiratory, digestive, endocrine, and reproductive physiology.


Transportation

See Marketing, Logistics and Transportation

Veterinary Medicine

College of Veterinary Medicine

MAJOR DEGREE

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

THE PROFESSIONAL PROGRAM

Admission Requirements

To qualify for admission to the professional program of the College of Veterinary Medicine, a candidate must have completed at least the minimum pre-veterinary course requirements listed below. These may be completed at any accredited college or university that offers courses equivalent to those at The University of Tennessee, Knoxville. Pre-veterinary course requirements must be completed by the end ofº
FACILITIES FOR
RESEARCH AND SERVICE
Facilities for Research and Service

Bureau of Educational Research and Service
(College of Education)

Carol E. Kasworm, Director

Four major types of activities—research, development, educational services, and publications—are channeled through the Bureau of Educational Research and Service (BERS), located in 212 CEB. The research activities relate to the development of research proposals, conducting and/or assisting in research, and assisting others in development of research proposals in the College of Education. Educational services include a wide list of activities such as in-service educational programs, consultant services, and technical assistance and administrative training programs. Official publications of the College of Education are developed through the Bureau. A limited number of graduate student assistantships are available.

Center for Business and Economic Research
(College of Business Administration)

William Fox, Director

In its economic research endeavors, CBER today has the same basic mission determined at its inception 58 years ago at the request of the Tennessee Legislature—to produce and disseminate new information in the field of economic research and in the specific areas of regional economic development and fiscal policy. The mission has also expanded to include influencing decision quality in the public and private sectors and integrating departmental research through cooperative ventures in the international arena. In addition to the annual Economic Report to the Governor, the Survey of Business and the Tennessee Statistical Abstract, the Center publishes research on a wide range of socioeconomic and policy issues, including taxes, banking, telecommunications, environmental concerns, and employment prospects.

While its core mission remains little changed, the scope of the CBER unit has expanded from a largely individualistic fiscal assistance program to a regional economic research, policy analysis, and communications technology arm of the College of Business Administration, with a staff of three senior research faculty and a support staff in research, Information technology and information dissemination, located at 100 Glockey.

Center for Information Studies
(School of Information Sciences)

W. David Penniman, Director

The Center for Information Studies (CIS) was established in June 1989 to be a focal point for research related to information systems and services. The Center, located at 304 Temple Court, has performed research for the federal government, state and local governments, companies, etc. Projects have ranged from strategic planning efforts to information system and service evaluations, to modeling of scientific and technical communication. Staff of the Center have been actively involved in proposal development and project performance with faculty and staff in other centers and departments at the University.

Areas of interest to the Center include information systems design, information organization and retrieval in very large databases, directories and locator tools in a networked environment, design of regional library and information system networks, new technology applications, information system support for educational reform, modeling of information processes, development of measures and methods for evaluating information system performance and effectiveness.

Center of Excellence for Materials Processing

The Center for Materials Processing is one of the "Centers of Excellence" created by the State of Tennessee. It has an inter-disciplinary program designed to bring together individuals with appropriate expertise to solve important materials processing problems. It emphasizes (1) the development of desirable materials properties through the control of composition, molecular structure and microstructure, (2) measurement of process variables, and (3) control of those variables to ensure proper processing. The Center conducts basic research and teaching in materials processing and carries out research to improve existing processing technologies and transfer of research results to private industry. A major aspect of the Center is student participation in industry-sponsored research programs. The Center is located in 102 Estabrook Hall, 974-0816.

Centers and Chairs of Excellence

The Centers of Excellence grew out of Tennessee's Better Schools Program, an initiative to upgrade state-aided education at all levels. State officials and legislators wanted to give a few outstanding academic programs in state-aided universities a special push toward prominence, well beyond regular annual increases for all programs.

In 1984, the General Assembly appropriated and the governor approved $10 million for the first Centers of Excellence throughout the state. The public colleges and universities submitted their proposals for Centers of Excellence to the Tennessee Higher Education Commission, which made the final determinations. Now four of the University's ten Centers of Excellence are sponsored by UT Knoxville or located in Knoxville.
Concurrently, the University has received state funding, which it must match dollar for dollar, for Chairs of Excellence. These Chairs are $1 million endowed professorships in areas of significance to the University and to the individual, foundation, or corporation providing the matching gift money. Chairholders are noted within their respective academic units. The Chairs of Excellence are:

Bernadette E. Schmitt Chair of Excellence in History
Bernard Blasingame Chair of Excellence in Agricultural Policy
Chair of Excellence in Science, Technology and Medical Writing
Clayton Homes Chair of Excellence in Finance
College of Business Administration Chair of Excellence in Policy Studies
Condra Chair of Excellence in Computer Integrated Engineering and Manufacturing
Condra Chair of Excellence in Power Electronics Applications
Goodrich Chair of Excellence in Waste Management and Environmental Engineering
Hodges Chair of Excellence in English
J. Fred Holly Chair of Excellence in Political Economy
Nancy Gore Hunger Chair of Excellence in Environmental Studies
Pilot Chair of Excellence in Management
Racheff Chair of Excellence in Ornamental Horticulture
Racheff Chair of Excellence in Materials Science and Engineering
Shumway Chair of Excellence in Romance Languages
Willis Lincoln Chair of Excellence in Physics

The combination of the Centers of Excellence and Chairs of Excellence adds a dimension to the University of Tennessee that is not easily equaled by other institutions. UT’s reputation as the premier university in the state and as a regional and national leader in research, and public service is enhanced as a result of the infusion of these special funds.

For information concerning the individual centers sponsored by UT, contact:

Center for Livestock Diseases and Human Health
Dr. G. M. H. Shires, Director
College of Veterinary Medicine
UT Knoxville
Knoxville, TN 37996
(423) 974-7262

Center for Materials Processing
Dr. Carl McHargue, Acting Director
UT Knoxville
121 Perkins Hall
Knoxville, TN 37996
(423) 974-7608

Science Alliance
Dr. Thomas A. Callcott, Interim Director
UT Knoxville
101 South College
Knoxville, TN 37996
(423) 974-6765

Waste Management Research and Education Institute
Dr. Gary Saylor, Acting Director
Dr. Jack N. Barkenbus, Director of Operations
UT Conference Center, Suite 311
600 Henley St.
Knoxville, TN 37996-0710
(423) 974-4251

Child Development Laboratories
(College of Human Ecology)
Anne Miller Stott, Staff Director
The Child Development Laboratories, operated by the Child and Family Studies department within the College of Human Ecology since 1927, currently offer child care programs for young children ages six weeks to five years. The Child Development Laboratories serve three purposes: to promote observation, participation, and research activities of the department and other university faculty and students; to prepare undergraduate and graduate child development professionals for working effectively with young children; and to provide a model early childhood education program for children, families and early childhood professionals.

The programs are equipped with a telemetry laboratory that features unique videotaping capabilities in all classrooms, small group research rooms, and observation booths that facilitate teacher training and research. A variety of research projects (such as the development of creativity in children, emergent literacy, children’s socialization, mainstreaming, and peer interactions) involves students and faculty in the college and many departments on campus. Graduate Assistants in the Laboratories participate in teaching, assessment, administrative, supervisory and research activities while working with children and families under the guidance of faculty and staff. The Child Development Laboratories are accredited by the National Academy of Early Childhood Programs, a division of the National Association for the Education of Young Children.

Communications Research Center
(College of Communications)
The Communications Research Center, 426 Communications Bldg., is an adjunct to the communications graduate program. Objectives of the Center are: (1) to conduct original research in mass and public communication; (2) to disseminate research-generated information; and (3) to provide research services to faculty and students, professional communicators, and others interested in improving the quality of human communications.

Computing and Administrative Systems
(Division of Information Infrastructure)
John Jarrard, Director

Faculty Associates:
Art: Prof. Susan Metros; Communications: Dr. M. Mark Miller; Computer Science: Dr. David Straight; Engineering: Dr. Osama Sollman; Forestry: Dr. Boyd L. Deardorff; Human Ecology: Prof. Kurt Weiss; Instructional & Multimedia Technology: Dr. Patricia L. Fisher; Social Work: Dr. David A. Patterson; Statistics: Dr. James L. Schmidhammer; High-performance Computing/ Supercomputing: Dr. William E. Bliss

Computing and Administrative Systems (CAS), which is part of the UT Division of Information Infrastructure, provides computing facilities and services for the university’s teaching, research, public service, and administrative activities. CAS maintains a home page on the World-Wide Web at http://www.cas.utk.edu. CAS offices and principal computing facilities are located on the first two floors of Stokely Management Center (SMC), on the fourth and fifth floors of Dunford Hall, and on the first and P2 floors of Andy Holt Tower. Assistance with any computer-related question, including information about CAS services and facilities, is available by calling the CAS Help Desk at 974-8200.

The Computer Access for Education (CAFE) program provides UT Knoxville students, faculty, and staff members the opportunity for computing experience through an individual CAS computer account. Student accounts for use in coursework are requested by the department through which the course is offered. Faculty and staff members can request a CAS account for research or administration by completing a request for computing services; forms are available from the receptionist at 200 SMC.

Free, non-credit courses on computer topics are taught throughout the year. Topics include Internet access, electronic mail, statistical programs, and word processing available at CAS. Videotapes covering mainframe and microcomputer topics are available for private viewing in Audiovisual Services at Hodges Library; the CAS/Hodges Library Micro Lab has available instructional tapes on microcomputer software. The free, non-credit computer courses are announced in the DII Newsletter, the CAS home page on the World-Wide Web, and in Tennessee This Week.

CAS maintains on-line and printed documents describing the availability and use of system hardware and software. The CAS UNIX Users Guide is available at the UT Book & Supply Store. The monthly DII Newsletter announces changes to systems, equipment, and procedures and contains other items of interest to users.

CAS is an affiliate of the following National Science Foundation Supercomputing centers: Pittsburgh Supercomputing Center, the National Center for Supercomputing Applications at the University of Illinois, and the Cornell National Supercomputer Facility. Consulting services are provided by CAS on those systems.

The UNIX operating system is available from CAS in the form of a Sun 4/690-51 running
SunOS 4.1.3, a 680-52 running Solaris 2.2, and eight Sun SPARCStation 1+ workstations running SunOS 4.1.3. An IBM 9672-R42 operates under VM/ESA with MVS/ESA-JES2 and VM/HPO guests.

CAS provides technical support for departmental workstations on the UT Knoxville campus that include equipment from DEC, HP, IBM, Silicon Graphics, and Sun Microsystems.

CAS maintains more than 150 microcomputers and eight workstations—including several models of Apple Macintosh, IBM, Sun and Zenith—in remote user work areas and microcomputer laboratories. A number of software packages are made available for use on the machines at these locations. CAS also provides access to over some public domain software for microcomputers and is the administrator for a number of site licenses for workstation and microcomputer software.

Software available on the computers at CAS includes most of the commonly used compilers and interpreters, and a large number of programs for statistical, mathematical, engineering, operations research, and graphics applications. CAS is the administrator for a number of site licenses for workstation and microcomputer software. CAS participates in educational programs sponsored by DEC, IBM, Lotus, SGI, and Sun that provide software packages at reduced or no cost to the University of Tennessee.

CAS maintains 15 user work areas on the Knoxville campus, in addition to locations in all residence halls. Several of the areas provide high-speed line printing; some also provide laser printing. Computing services are made available to the other UT campuses through remote links. Many of the terminals and microcomputers in the user work areas are capable of being used for graphics.

A Digital LPS-32 Postscript laser printer is used to produce high-quality printed output. A Xerox DocuTech Production Publishing System, located at UT Graphic Arts Services, includes a 600 dpi laser printer connected to a scanner and network media server. It permits electronic transmission of documents for processing from computers on the CAS network.

**Energy, Environment, and Resources Center**

(Office of Vice Chancellor for Research)

Jack N. Barkerbus, Director

The Energy, Environment, and Resources Center, 600 Henley Street, Suite 311, was created in 1973 to encourage interdisciplinary research directed at solutions to problems related to energy and the environment. The Center involves faculty and students in research and public service projects, manages research and development projects that involve several disciplines, and assists government and industry in specific problems related to energy, environmental, resource, and technology policy issues. The Center has a close working relationship with the Joint Institute for Energy and Environment, and Oak Ridge organizations. Sponsors include federal and state agencies, industry, and foundations.

Current research includes solid, hazardous, and radioactive waste management, information systems, environmental assessment, global environmental problems, and pollution prevention. The Center operates the Waste Management Research and Education Institute, the Center for Clean Products and Clean Technologies, and the Water Resource Research Center. Current grants and contracts are approximately nine million dollars per year.

**English Language Institute**

Dale A. Myers, Director

The English Language Institute (ELI) is a non-credit-language-study program of The University of Tennessee, Knoxville. It is designed to assist students in their pursuit of career goals or educational objectives in the U.S.

The ELI offers intensive courses for the improvement of student skills in the English language. International students, visitors, and professionals have successfully learned English through study in the ELI.

The courses emphasize the development of communicative ability in listening, speaking, reading, and writing. Faculty members are trained in teaching English to speakers of other languages with differing national backgrounds and varying proficiency in English.

Classes also assist students in pronunciation, test-taking strategies, U.S. culture orientation, and university study skills. Additional information may be obtained at 907 Mountcastle St., (423) 974-3404; FAX (423)974-6383.

**Institute of Agriculture**

D. M. (Pete) Gossett, Vice President

The Institute of Agriculture traces its history to 1869 when the University was designated as Tennessee’s Federal Land-Grant Institution. Under terms of the Federal Land-Grant Act, the University was enabled to offer instruction in agriculture and forestry for the first time. Since 1869, agricultural programs at the University have been expanded to include research for the development of new knowledge and extension for dissemination of such knowledge to rural people. Thus the Institute of Agriculture has come to include the work of four main divisions: Agricultural Experiment Station, Agricultural Extension Service, College of Agricultural Sciences and Natural Resources, and College of Veterinary Medicine.

**AGRICULTURAL EXPERIMENT STATION**

Don C. Richardson, Dean

John I. Sewell, Associate Dean

Thomas H. Kliendt, Associate Dean

The Agricultural Experiment Station was established by The University’s Board of Trustees on June 8, 1882, five years before the passage of the Hatch Experiment Station Act by the U.S. Congress. The University was one of the first five institutions in the United States to establish an Agricultural Experiment Station. Since its beginning, the Station has given first attention to investigations of concern to the agriculture of Tennessee.

The objectives of the Tennessee Agricultural Experiment Station are the creation and utilization of new knowledge through research. Fundamental research is directed toward: (a) Understanding the basic science of the processes of plant and animal production through conversion into usable products and services; (b) Understanding the interaction of nature and market forces which affect the production, transfer, processing, and utilization of agricultural commodities and the resulting impact on the economic well-being of the agricultural sector, rural areas, and the State of Tennessee; (c) Understanding the interaction of agricultural production and land uses on natural resources and the environment as they relate to long-term productivity and affect the quality of rural life; (d) Understanding the impact of food and fiber resources and the chemicals used in their production on people’s well-being and the quality of life. Applied research utilizes these understandings to formulate effective production and marketing systems and to foster the development of a physical and economic environment that provides for the needs of rural, farm, and urban citizens.

The investigations of the Station follow a systematic method of gaining and applying knowledge efficiently to the biological, physical, and economic phases of producing, processing, and distributing farm and forest products; to the social and economic aspects of rural living; and to consumer health and nutrition. Both farm and urban populations gain from the accomplishments of the Agricultural Experiment Station. Examples of some of these accomplishments are new and improved varieties of crops, new and better methods of controlling crop and livestock pests, more efficient production of crops and pasture through improved fertilization and mechanization, and more efficient feeding and management of livestock.

The program is designed and administered through ten subject matter departments located at Knoxville. A majority of the faculty have teaching responsibilities in addition to their research. To assist in the research program, the Station supports over 100 graduate students. To serve Tennessee’s diverse agriculture, branch stations are operated at Crossville, Grand Junction, Greeneville, Jackson, Knoxville, Lewisburg, Martin, Milan, Oak Ridge (forestry), Springfield, and Spring Hill. Professional and technical staff are in residence at these locations.

**AGRICULTURAL EXTENSION SERVICE**

Billy G. Hicks, Dean

Mildred F. Clarke, Associate Dean

R. Ray Humbard, Assistant Dean

The Agricultural Extension Service was established in 1914. Its purpose is to extend through various educational means agricultural and home economics information to farm families and others in the state who do not have the opportunity to enroll in resident courses of instruction at colleges.

The educational program is carried on through offices in each of the 95 counties of the state. Educational emphasis includes work in four major program areas: agriculture and natural resources, community resource development, home economics, and education of young people through 4-H Clubs. County Extension staff members working directly with local people are supported in various information fields by a specialist staff, members of which are stationed either in Knoxville, Nashville, or Jackson.

The Agricultural Extension Service operates administratively as one of four units of the Institute of Agriculture. For administration, the
state is divided into five districts with supervisors located in their respective districts. District headquarters are maintained in Knoxville, Chattanooga, Cookeville, Nashville, and Jackson.

The Agricultural Extension Service operates as a three-way partnership among county, state, and federal governments. The University of Tennessee represents state and federal government and a County Agricultural Extension Committee represents county government in this partnership.

Learning Research Center
(Office of Vice Chancellor for Research)

W. Lee Humphreys, Director

The Learning Research Center engages in research and facilitates the research of others into all aspects of learning and teaching in higher education. The Center also builds upon this research to support faculty and graduate students in course design and instructional activities.

A significant part of the Center's research activity is coordinated through a weekly research seminar open to all faculty and graduate students. The results of the Center's research are disseminated through a number of presentations, publications and presentations, including the series "Teaching-Learning Issues" which is sent to all faculty at the University and to others in this country. The Center offers a range of support programs for instructors, including individual consultations about teaching, occasional workshops, the GTA Seminar, the GTA Consultation service, the SPEAK testing program for foreign GTAs, a lending library of publications on college teaching and learning, an orientation for new faculty, and a course/teacher evaluation program. Several of the center's publications are designed to enhance instruction, including the GTA Newsletter and the New GTA Handbook.

All of the Center's development activities are designed to improve instruction at UT-K, and individual consultations and evaluation services are confidential.

The Center is located in Suite 5, Hoskins Library.

Libraries, The University of Tennessee, Knoxville

Paula T. Kaufman, Dean
Aubrey H. Mitchell, Associate Dean

Professors:
Bayne, Pauline S., M.S.L.S. ........... North Carolina
Crawford, Mary Frances, M.S.L.S. ........ Kentucky
Felder-Hoehne, Felicia H., M.S.L.S. ...... Atlanta
Grady, Agnes M., M.Ln. ................. Washington
Kaufman, Paula T., M.S. ............... Columbia
Phillips, Linda L., M.LS. ............... Rutgers
Rader, Joe C., M.S.L.S. .................. Tennessee
Webster, Judith D., M.S.L.S. .......... Tennessee

Associate Professors:
Baker, Gayle D., M.L.S. ............... Alabama
Bridges, Anne E., M.L.S. ............. Rhode Island
Brittain, William A., M.S.L.S. ........ Claron
Clement, Russell T., M.L.S. ......... Brigham Young
Courtsis, Martin, M.A.L.S. ............ Wisconsin
Crowther, Karen N.T., M.Ln. ......... Emory
Dixon, Lana, M.S.L.S. .................. Tennessee
Goetsch, Lori, M.L.S. ................. Rosary
Harwood, Richard, M.L.S. ............ North Texas
Kim, Sook-Hyun, M.A.L.S. ............ Indiana
Leach, Sandra S., M.Ln. ............... Emory
Lloyd, James B., Ph.D. ............... Mississippi
Miller, Tamara J., M.S.L.S. ......... Kentucky
Minton, James O., M.S.L.S. .......... Tennessee
Mitchell, Aubrey H., M.S.L.S. ........ Tennessee
Row, Jane S., M.S.L.S. ............... Tennessee
Sammataro, Linda, M.L.S. .......... Southern Connecticut State
Smith, Rita H., M.S.L.S. ............ Illinois
Thompson-Wise, Deborah A., M.Ln. .... South Carolina
Wallace, Alan, M.Ln. ................. Washington

Assistant Professors:
Brown, Melinda F. ................. North Carolina
Ellis, Kathryn D., M.S.L.S. ......... North Carolina
Garrett, Marie A., M.L.S. ......... Vanderbilt
Hammons, James W., M.L.S. ....... Indiana
Johnston, Kay G., M.L.S. ............. Pittsburgh
Keally, Jillian M., M.L.S. ............. Tennessee
Lahmann, Joann M., M.S.L.S. ......... Tennessee
Mack, Thura, M.S.L.S. ............... Tennessee
Martin, Michelle M., M.S.L.S. ...... North Carolina
Ponnappa, Biddanda P., M.S.L.S. ... Tennessee
Prescod, Janette, M.S.L.S. ......... Western Michigan
Shrode, Flora G., M.L.S. .......... Texas
Thomas, Deborah L., M.S.L.S. ....... Georgia
Thomas, Steve, M.S.L.S. .......... Tennessee
Viera, Ann R., M.L.S. ............. California (Berkeley)
Watkins, Norman B., M.S.L.S. ....... Tennessee
Wise, Flossie, M.S.L.S. ............ Tennessee

The University of Tennessee Libraries own* approximately 2 million volumes, more than 4.5 million manuscripts, 2 million microforms, 30,000 audio and video recordings, plus United States and United Nations documents. The UT Knoxville Libraries currently subscribe to more than 1,000 periodicals and other serial titles. The Libraries' membership in the Association of Research Libraries reflects the University's emphasis on graduate instruction and research and the support of large, comprehensive collections of library materials on a permanent basis.

The UT Knoxville Libraries consist of the main library (the John C. Hodges Library), four branches on the Knoxville campus (the Agriculture-Veterinary Medicine Library, the Cartographic Information Center, the Music Library, and the University Archives and Special Collections), and the Social Work Library in Nashville.

The John C. Hodges Main Library (1015 Volunteer Blvd.) is a 3.5 million square-foot facility housing collections in all subject areas. The Hodges Library has approximately 300 graduate student carrels, 200 faculty studies, and comfortable study space for more than 2,000 people.

The Hodges Library's research holdings are augmented by Reference Services and Interlibrary Services. Reference Services provides research assistance and access to commercially available databases. Users may also search a number of CD-ROM databases.

*Data excludes Law Library faculty and statistics.

Maintenance and Reliability Center

(Office of the Vice Chancellor for Research)

The Maintenance and Reliability Center (MRC), located in 212 Pasqua Hall, was created in 1966 to provide an interdisciplinary center for research, development and application of advanced maintenance and reliability engineering. MRC's primary goal is to provide produc-
ity improvements to industry by advances in failure prevention technology. Associated with this effort is the establishment of maintenance and reliability engineering as an interdisciplinary activity with application across a broad spectrum of industrial activities. In addition, MRC stresses the development of management techniques that will provide decision makers with the means to assess the availability, costs and benefits of failure prevention techniques.

MRC is an association consisting of industrial members and the University of Tennessee College of Engineering. Interested and qualified students may affiliate with the MRC program while pursuing a degree in an engineering department. Maintenance engineering courses are available as electives for these students. Research opportunities and graduate assistantships are also available for qualified students.

Center sponsored research projects are focused on life prediction technology, information processing technology, sensors, measurement systems and automation; and maintenance design engineering. Other research focus areas will be developed as the needs of industrial members are identified and matched with areas of university expertise.

Management Development Center

(College of Business Administration)

John E. Riblett, Director

The College of Business Administration's executive/management education efforts are facilitated through the Management Development Center, 708 Stokely Management Center. The mission of the Center is to promote the learning and dissemination of an integrated framework of managerial excellence. The Center defines excellence in terms of competitive world standards of quality, efficiency, and service to the recognized concerns of all constituencies (customers, employees, suppliers, owners, students, and society in general). This mission includes the accepted responsibility for (1) developing close strategic partnerships with a selected set of companies to better facilitate learning and development of the knowledge which is truly externally valued, and (2) acting as a facilitator in driving this knowledge into the credit curriculum of the College.

The Center prides itself on the development of long-term relationships with organizations that provide a living laboratory to test and validate the new knowledge of the Center that is disseminated in a variety of forms. Executive and Management Education Programs are one form of dissemination. A staff of 20 designs, develops, and markets fifty yearly offerings for over 1000 participants.

The Center emphasizes consistent, high-quality programming, small class sizes, outstanding faculty who bring the added value of experience in the private and public sectors to the classroom, a highly interactive style of instruction, and an applied orientation. The focus is on longer term, more developmentally oriented programs of one to four weeks in length such as the four-week University of Tennessee Executive Program and one-week Senior Executive Institute for Productivity Through Quality.

Measurement and Control Engineering Center

(College of Engineering)

Arlene Garrison, Director

The Measurement and Control Engineering Center, 102 Estabrook Hall, is sponsored by the College of Engineering, the Instrumentation and Controls Division of Oak Ridge National Laboratory, and the National Science Foundation. The Center's program combines education, research, and technology transfer. Graduate assistantships are available for qualified students. The research is funded by major U.S. industrial companies and focuses on theoretical and practical developments in measurement and control, concentrating on areas that will significantly improve the productivity, reliability and safety of industrial systems and processes.

Center sponsored research is carried out in the fields of process control, signal and image processing, and sensor development. Research in process control concentrates in the areas of process analysis, process modeling, control system design, and real-time expert systems. Fiber optic sensor systems development is underway for monitoring and control of chemical processes.

Network Services

(Division of Information Infrastructure)

Network Services (NS) provides network connectivity throughout the UTK campus, data communications between the UT campuses and connectivity to the Internet. The UTK network consists of over 6,000 nodes and is growing at 20% per year. Network connectivity is being extended to the dorms and should be widely available in the near future. NS also provides dial-up access to the campus network via a 300 modem dial-up pool. This pool supports PPP that allows users to connect to the Internet as well as file servers on campus. In addition to the analog modem pool, NS provides high-speed, digital connections via ISDN. For further information on Network Services, please consult our web page (www.ns.utk.edu) or call (423) 974-8616.

Nutrition Institute

(College of Human Ecology)

Dileep Sachan, Director

The Nutrition Institute is a system wide, multidisciplinary consortium of faculty who are engaged in clinical and experimental nutrition research, teaching and service. Its expertise and resources are multifaceted including tools and techniques used in cell biology, epidemiology, metabolism and clinical training.

The multidisciplinary nature of nutrition has created a situation where nutrition research and teaching is dispersed among a number of academic units, including the Department of Nutrition in the College of Human Ecology as well as in several departments in the colleges of Agricultural Sciences and Biological Sciences, Arts and Sciences, Medicine, and Veterinary Medicine. The Institute provides a communication link among all efforts in nutrition sciences, coordinates collaborative research programs in nutrition and provides a unified forum for exchange and interactions with the national and international nutrition community. In addition, by creating formal ties among the units within the University that are involved in undergraduate, graduate and professional education in nutrition, teaching resources may be pooled to strengthen nutrition-related instruction in these units.

Oak Ridge Associated Universities

Since 1946, students and faculty of The University of Tennessee have benefited from its membership in Oak Ridge Associated Universities (ORAU), a consortium of colleges and universities and a management and operating contractor for the U.S. Department of Energy (DOE) located in Oak Ridge, Tennessee. ORAU works with its member institutions to help their students and faculty gain access to federal research facilities throughout the country; to keep its members informed about opportunities for fellowship, scholarship, and research appointments; and to organize research alliances among its members.

The Oak Ridge Institute for Science and Education (ORISE), the DOE facility that ORAU manages, undergraduates, graduates, postgraduates, as well as faculty enjoy access to a multitude of opportunities for study and research. Students can participate in programs covering a wide variety of disciplines including business, earth sciences, epidemiology, engineering, physics, pharmacology, ocean sciences, biomedical sciences, nuclear chemistry, and mathematics. Appointment and program length range from one month to four years. Many of these programs are especially designed to increase the numbers of underrepresented minority students pursuing degrees in science- and engineering-related disciplines. A comprehensive listing of these programs and other opportunities, their disciplines, and details on locations and benefits can be found in the Resource Guide which is available by calling the contacts below.

ORAU's Office of Members Service seeks opportunities for collaborative research and development alliances among its members, private industry, and major federal facilities. Current alliances include the Southern Association for High Energy Physics, the Bioelectromagnetics Research Consortium, High Performance Computing, Bioprocessing, Pan American Association for Physics, Materials Science Forum, and international initiatives in support of the New Independent States in Central and Eastern Europe. Other UIGA activities include the sponsorship of conferences and workshops, the Visiting Scholars program, and the Junior Faculty enhancement Awards. A copy of Especially for Members, which details UIGA's programs, is available from the contacts below.

For more information about ORAU and its programs, contact Dr. Michael D. Devine, ORAU Council member at 423-974-3466, or contact Dwayne E. Champion, ORAU Corporate Secretary, at 423-576-3306.
Tennessee 37403.

OFF-CAMPUS GRADUATE CENTERS

KINGSPORT GRADUATE PROGRAM

UT Knoxville offers graduate programs in engineering and Human Resource Development at the Master's level. Students who enroll in these programs must be admitted to The Graduate School of UT Knoxville. Information and application forms may be obtained from the ETSU/UT at Kingsport, 1501 University Boulevard, Kingsport, Tennessee 37660.

OAK RIDGE GRADUATE PROGRAM

UT Knoxville offers graduate programs at Oak Ridge leading to Master's and doctoral degrees in engineering and supporting areas. Courses are given in the evenings with research facilities provided by and used in cooperation with the Oak Ridge Associated Universities (ORAU). Students can earn a Master's degree in Environmental Engineering, Nuclear Engineering (radiological engineering concentration), Industrial Engineering (engineering management concentration), Chemical Engineering, or Electrical Engineering. Additional upper division and graduate courses are offered in mathematics, statistics, safety, physics, human resource development, and other engineering areas.

This program is supported under a subcontract with ORAU with principal support coming from the Lockheed Martin Corporation. UT is one of the sixty-two colleges and universities which sponsor ORAU, a nonprofit education and research management corporation.

Students who enroll in these programs must be admitted to The Graduate School at UT Knoxville. Information and application forms may be obtained from the UT-Oak Ridge Graduate Program, Post Office Box 117, TMSD Lab Road, Oak Ridge, Tennessee 37831-0117.

NAESVILLE GRADUATE PROGRAM

UT Knoxville offers graduate programs leading to the Master of Science with majors in Civil Engineering, Industrial Engineering, and other disciplines, as the need and resources permit.

Students who enroll in these programs must be admitted to The Graduate School of UT Knoxville. Information and application forms may be obtained from the Nashville Engineering Graduate Program, 1720 West End Avenue, Suite 401, Nashville, Tennessee 37203.

CHATTANOOGA GRADUATE PROGRAM

UT Knoxville offers a graduate program in education leading to the Specialist in Education and the Doctor of Education degrees with a major in Leadership Studies in Education. Students who enroll in this program must be admitted to The Graduate School of UT Knoxville. Information and application forms may be obtained from the UTK/UTC Graduate Center, UTC, 120 Race Hall, Chattanooga, Tennessee 37403.

THE UNIVERSITY OF TENNESSEE-OAK RIDGE GRADUATE SCHOOL OF BIOMEDICAL SCIENCES

UT Knoxville offers a program leading to the M.S. and Ph.D. degrees in biomedical sciences. Graduate students have the opportunity to study and do research in conjunction with the Biology Division of the Oak Ridge National Laboratory.

For complete information concerning the program, see Biomedical Sciences under Fields of Instruction.

COLLEGE OF SOCIAL WORK

UT Knoxville offers a fully accredited two year program leading to the Master of Science in Social Work through the College of Social Work, with programs in Knoxville, Nashville, and Memphis.

The UT Knoxville College of Social Work also offers a Doctor of Philosophy with a major in Social Work.

For complete information concerning the programs, see Social Work under Fields of Instruction.

PSYCHOLOGICAL CLINIC

(College of Liberal Arts)

Leonard Handler, Director

The Psychological Clinic supports graduate research and training in clinical psychology. Psychological assessment and psychotherapy are offered on an outpatient basis to the general public as well as to University students and staff.

STATISTICAL CONSULTING CENTER

The goal of the Statistical Consulting Center (SCC) is to help students, faculty and staff enhance the quality of their research by working together to effectively apply statistical methodology. SCC is co-sponsored by the Computing and Administrative Systems (CAS) of the Division of Information Infrastructure and the Department of Statistics.

Services offered are assistance in design of study; management of data, analysis and interpretation of results; aid in choice and creation of the most effective statistical graphics; review of journal article, grant proposal, thesis or dissertation; writing of programs using statistical packages; teaching short courses on how to use statistical software.

There are five full-time Master's level statisticians, two half-time graduate research assistants, and a quarter-time faculty associate with the Department of Statistics. In addition, access is provided to faculty consultants.

A CAS account can provide access to many popular computers and statistics packages. Software is also available for use on personal computers through various site-licensing agreements.

Contact the Computing Help Desk, at 974-8000 and ask to speak to a statistical consultant. Charges for our services are billed through a CAS account project code. Consultants are located at 200 Stokely Management Center.

TEXTILES AND NONWOVEN DEVELOPMENT CENTER

(Larry C. Wadsworth, Director)

The Textiles and Nonwovens Development Center (TANDEC) was officially dedicated in October 1990. TANDEC was made possible through a grant from Exxon Chemical Company.

Nonwoven products loom large in a number of markets and TANDEC looms large in both basic research and nonwoven product development. Nonwoven research programs at UT Knoxville include structure-property-process relationships in meltblown polyolefins, polyesters, nylon, elastomeric polymer, engineering thermoplastics and recycled plastics; mechanism of melt blown web formation; modeling of the melt blowing and spunbonding processes; development of on-line optical measurements for control of the critical properties of melt blown webs; electrical measurement of fiber alignment and bonding in nonwoven webs; thermal bonding and characterization of cotton/synthetic fiber nonwovens; computational analysis of heat transfer behavior in thermal calendaring; study of protective apparel for agricultural, industrial and medical uses; and finishing of nonwovens. In addition to the basic research, technology transfer has been accomplished during the past several years by assisting companies in applied projects, primarily in the melt blowing area.

The primary missions of TANDEC are to conduct nonwoven and textile grant research programs and to develop new product applications. The TANDEC facilities further allow production of nonwovens on a limited basis for participating companies while equipment is not being used for research activities. The nonwovens laboratory hosts numerous guests from industry and academic, and the facilities are planned to meet their needs, while safeguarding research confidentiality.

TRANSPORTATION CENTER

(Stephen H. Richards, Director)

The Transportation Center was created in 1970 to foster and facilitate interdisciplinary research and public service in the field of transportation at The University of Tennessee. It began operating full-time in 1972 and since then has contributed greatly to the overall research program of The University.

The Center, 600 Henley St., Suite 309, is a University-level organization administratively positioned within the Office of the Vice Chancellor for Research at UT Knoxville. The Center's multidisciplinary staff includes over 100 full-time researchers and technicians augmented with numerous faculty and students. The Center is presently organized into four major divisions: Logistics and Systems Analysis; Infrastructure and Environment; Safety and Traffic Operations; and Mobility Services and Frolic.

The Center has three goals. The first is to conduct a program of research in transportation that is recognized for its excellence, comprehensiveness, innovation, productivity, and national leadership. The second is to develop and sustain the technical expertise for high...
quality transportation research by the faculty and students within the various departments and colleges of UT. The third goal is to serve the transportation research, service, and training needs of state and local government, business, and industry in Tennessee, the southeast region, and the nation.

University Evening School

(Office of Vice Chancellor for Academic Affairs)

Dr. John Muldowny, Associate Dean and Director of Summer, Evening and Special Programs

The University Evening School, in conjunction with academic colleges and departments, administers credit programs for those students attending classes on- and off campus in a variety of nontraditional formats. Support services are provided to assist students in their educational pursuits.

ON CAMPUS EVENING PROGRAM

Classes are offered during late afternoon and evening hours for those students who work or have other commitments during the day. The College of Communications offers the M.S. degree program in the evening. The School of Information Sciences offers the M.S. degree program which can be completed by attending evenings and summer session. The College of Arts and Sciences offers the Master's program in Public Administration. Some departments within the Colleges of Agricultural Sciences and Natural Resources, Business Administration, Education, and Engineering offer all courses required for an advanced degree during the evening. For a specific major, consult the appropriate department.

MINI-TERM

The University Evening School offers a Mini-Term during May. Students may enroll in one concentrated credit course during the Mini-Term period.

Courses and instructors listed for the Mini-Term are carefully selected to reflect a broad academic base of individualized offerings suited to an intensive program of study. Courses cover material and information included in regular semester offerings.

OFF CAMPUS PROGRAMS

The Evening School makes arrangements for departments to conduct undergraduate and graduate courses in many locations away from the Knoxville campus. The courses are scheduled in response to requests and the identifiable needs of adult part-time students who live some distance from the UT Knoxville location. All course offerings and instructors are approved by the appropriate academic departments, and the credit awarded is resident credit.

The following graduate programs are available: Doctor of Education and Specialist in Education with a major in Leadership Studies in Education (Chattanooga); Master of Science with a major in Human Resource Development (Statewide).

The Evening School administers an off-campus center at Oak Ridge where courses leading to advanced degrees in science and engineering are offered (see listing under Off-Campus Graduate Centers).

WORKSHOPS

Credit workshops are coordinated through various academic departments of the University and give students the opportunity to participate in short periods of intensive study. Workshops offer flexibility of timing, location, and content. Summer workshops are particularly popular with teachers and school administrators. Although most workshops are held on the UT Knoxville campus, geography is not a limiting factor.

STUDENT SERVICES

A comprehensive program of services including academic advising and financial aid information is provided by the University Evening School for both on and off campus students.

REGISTRATION

Registration by touchtone phone, mail, FAX, or regular phone is offered as a convenience to former Evening School students. Final registration at both on and off campus locations is also available.

For information, contact the UT Evening School, 451 Communications Bldg., University of Tennessee, Knoxville, TN 37996-2341, or telephone (423) 974-5361 or 1-800-876-8657, FAX (423) 974-2027; email: uteveningschool@gateway.cej.uit.edu.

University of Tennessee

Space Institute

T. Dwayne McCay, Vice President

The Space Institute is a graduate education and research institution located on a 365 acre lakeshore campus in Middle Tennessee. UTSI was established in 1964 and has evolved into an internationally recognized institution for graduate study and research in engineering, mathematics, and computer science. The accredited academic programs and educational policies of the Space Institute have their origins in appropriate departments of The University of Tennessee, Knoxville. The more than 40 faculty members of the Institute carry out these accredited academic programs through classroom teaching, informal seminars, active research, and directing the research of their students in an environment of creative work and advanced study. Programs are available to students devoting full-time or part-time effort toward M.S. and Ph.D. degrees, those interested in continuing education for updating and broadening knowledge, and those who wish to pursue post-doctoral research.

Graduate degree programs are available with majors in Aerospace Engineering, Aviation Systems, Chemical Engineering, Computer Science, Electrical Engineering, Engineering Science, Industrial Engineering (engineering management concentration), Mathematics, Mechanical Engineering, Metallurgical Engineering, and Physics. In addition to the fundamental studies characteristic of each discipline, research opportunities are available in many areas including aerodynamics, fluid mechanics, advanced space propulsion, neural networks, energy conversion processes, superconducting materials, thermal sciences, coal combustion, magnetohydrodynamics, plasma physics, space systems, propulsion, computational fluid dynamics, and other aspects of atmospheric and space flight.

The Institute has an established Center of Excellence in Laser Applications and offers graduate studies and research opportunities in laser diagnostics, laser materials interactions, pico-second processes, and coherent and nonlinear optics.

The Institute was established in part to increase the research and engineering resources of Tennessee through education and practice in relevant scientific and technical areas and in part to interface University faculty and student research with the Air Force Arnold Engineering Development Center. The faculty, research activities, and facilities of the Institute, and those available at Arnold Center through appropriate contractual arrangements, provide students an unusual opportunity for significant research in these areas. Students who enroll at UTSI are admitted to The Graduate School, The University of Tennessee, Knoxville. Graduate Research Assistantships are available for qualified students. Further information may be obtained from the Dean for Academic Affairs, The University of Tennessee Space Institute, Tullahoma, Tennessee 37386.

Water Resources Research Center

(Office of Vice Chancellor for Research)

Timothy R. Gangaware, Associate Director

The Water Resources Research Center, 600 Henley Street, Suite 311, is a federally designated institute for sponsoring and coordinating water research for the state. The purposes of the Center are: (1) to assist and support all the academic institutions of the state, public and private, in pursuing water resources research which addresses a wide range of problems of interest to the state, region, and nation; (2) to provide for information dissemination and technology transfer services to state and local government bodies, academic institutions, professional groups, environmental organizations, and others, including the general public, who have an interest in water resources matters; (3) to promote education and training in fields relating to water resources and to encourage the entry of promising students into careers in these fields. The Center maintains a technical library which includes numerous water resources-related databases on CD-ROM.