THE MASTER'S PROGRAM

A graduate program leading to the Master of Science is available to graduates of recognized undergraduate curricula in engineering and physics. Each applicant will be advised as to the necessary prerequisite courses before he/she enters the program. The student must complete 24 semester hours of coursework approved by the student's advisory committee that includes the following:

1. A major consisting of a minimum of 12 semester hours of graduate courses in nuclear engineering. This must include at least one of the following sequences: 511, 512; 551, 552; 561, 562; 571, 572.
2. A minor of 6 semester hours of elective courses in mathematics, statistics or computer science.
3. Six semester hours in either nuclear engineering or a related field.

The M.S. candidate must also demonstrate research or design capability. This requirement may be satisfied by a thesis project or an engineering practice project as described below.

**Thesis** - The student performs independent research on a topic approved by the graduate committee. He/she submits a thesis on this research. The student then must pass an oral examination on the thesis and all graduate coursework. The student must enroll for six semester hours of NE 500 (Thesis).

**Engineering Practice** - The student performs independent research on two to four separate topics approved by his/her graduate committee. Each project is similar to a thesis project but smaller in scope. He/She submits a report, in thesis format, on each project. The student must then pass an oral examination on his/her engineering practice reports and all graduate coursework. The student must enroll for six semester hours of NE 598 (Nuclear Engineering Practice).

THE DOCTORAL PROGRAM

Students in the field of nuclear engineering desiring to study for the Doctor of Philosophy must have a Bachelor of Science or Master of Science from a related university, with a major in engineering or physics. All candidates will be required to demonstrate general competence in a comprehensive examination in the areas of engineering science, mathematics, physics, and nuclear engineering.

Specific course requirements for the Ph.D. in Nuclear Engineering include:

1. A minimum of 48 semester hours beyond the Bachelor's degree, exclusive of credit for the M.S. thesis or Nuclear Engineering Practice.
2. A minimum of 24 semester hours in doctoral research, NE 600.
3. A minimum of 30 semester hours in nuclear engineering numbered 500 or above (or the equivalent), with at least 9 semester hours of 600-level courses. These are exclusive of thesis or dissertation credit.
4. A minimum of 12 semester hours in mathematics, computer science, or statistics courses beyond nuclear engineering undergraduate requirements numbered 400 or above.
5. A minimum of 6 semester hours in courses numbered 500 or above from a department other than nuclear engineering. The choice depends on the student's overall program and should expand his/her knowledge in a given field.

A reading knowledge of one foreign language may be specified by the student's doctoral committee.

The comprehensive examination is prepared by the nuclear engineering faculty and consists of 12 hours of written examinations. All past examinations are filed in the library, and students are encouraged to review them. Students are invited to take the comprehensive examination after completing approximately 30 semester hours of coursework. A student who fails the written part of the examination must take and pass the examination the next time it is offered to remain in the Ph.D. program. Registration for NE 600 is not permitted until the written examination is passed. The comprehensive examination is completed with a successful oral defense of the dissertation proposal. A candidate must successfully defend, in an oral examination, all work presented for the degree—all coursework and the dissertation.

GRADUATE CREDIT FOR UNDERGRADUATE COURSES

400-level courses in nuclear engineering may be used for graduate credit. However, students must recognize that at least two-thirds of the minimum required hours (30) in a master's degree program must be taken in courses numbered 500 or above.

**GRADUATE COURSES**

403 Nuclear and Radiological Engineering Laboratory I (3) Cross section measurements, diffusion properties of materials, and identification of alpha and beta spectrometry, radiation fields and dosimetry. Prereq: Nuclear and Radiological Engineering Laboratory I.

404 Nuclear Fuel Cycle (3) Mining, milling, fabrication, in-core management, reprocessing, waste disposal, regulatory and radiation health issues and requirements. Prereq: 470 or equivalent.

405 Reactor Dynamics, Control and Safety (3) Reactor models, transient analysis, safety analysis, control systems and safety systems. Prereq: 470.

406 Radiation Shielding (3) Types of radiation sources, fundamentals of gamma ray and neutron attenuation, biological effects, approximate methods of shield design, discrete ordinates, and Monte Carlo. Prereq: Physics 232.

421 Introduction to Nuclear Criticality Safety (3) Fundamentals of nuclear criticality safety; criticality accidents, safety standards, overview of experiments, computational methods, and applications. Prereq: Intro. to Nuclear Engineering.


432 Radiation Risk Analysis (3) Radiation risk estimates, international and internal radiation, dose-response models, dose rate effects, prediction of radiation risks, radiation safety standards.

463 Introduction to Fusion Energy (3) (Same as Electrical Engineering 463.)

464 Introduction to Fusion Energy II (3) (Same as Electrical Engineering 464.)

470 Nuclear Reactor Theory I (3) Fundamentals of reactor physics relative to cross sections, kinetics of elastic scattering, reactor kinetics, reactor systems and nuclear data. Analytical and numerical methods applicable to general criticality problems, eigenvalue searches, reactor spectrum, and multigroup diffusion equations. Prereq: Introduction to Nuclear Engineering.

471 Nuclear Reactor Theory II (3) Thermal spectrum computational methods: heterogeneous effects in fast and thermal spectra; considerations in reactor core design; equations that relate thermal and neutronic variables; power distribution calculations and reactivity control methods. Prereq: 470.

474 Special Topics in Nuclear Engineering (3) Problems related to recent developments and practice. Prereq: Senior standing and consent of instructor. May be repeated. Maximum 6 hrs.

480 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/CNC only.

511-12 Transport Processes in Nuclear Engineering (3,3) Rheology of Newtonian and non-Newtonian fluids; integral and system conservation equations for single and multi-component fluids; in-depth development of differential conservation equations for mass, energy, and momentum; exact and approximate solutions of equations of motion; boundary layer analysis; numerical analysis of fluid flow and heat transfer.

521 Nuclear Systems Dynamics and Control (3) Introduction to state variable methods for system dynamics and control analysis and application of these methods to nuclear plant dynamics, simulation and control problems.


541 Reactor Fuel Management (3) Topics relative to core fuel management. Applicable topics in reactor physics, fuel depletion, isotope inventories, reactivity control and numerical methods. Prereq: 401.

543 Selected Topics in Nuclear Criticality Safety (3) Criticality safety computational and experimental methods for environment, fabrication, storage, reprocessing, and transport applications; overview of safety practices and regulatory requirements. Prereq: 421 or consent of instructor.


552 Radiological Assessment and Dosimetry (3) Transport of radionuclides in environment, food chain pathways, internal dosimetry and personnel dosimetry. Prereq: 551 or consent of instructor.

553 Radiation Risk Analysis (3) Methods for radiation risk prediction, survival analysis, parameter estimation, real data analysis, extrapolation techniques. Prereq: 552 or consent of instructor.

554 Radiation Risk Analysis Laboratory (3) Measurement, method analysis and data analysis. Prereq: 553 or consent of instructor.


572 Nuclear System Design (3) Design and analysis of a nuclear system, interference with non-nuclear aspects of system design: system reliability and economics; class project. Prereq: 571 or consent of instructor.

576 Expert Systems in Engineering (3) Application of expert systems in engineering. Logic and reasoning, developing expert systems, programming, advanced topics. Prereq: 575 or consent of instructor. (Same as Mechanical and Aerospace Engineering and Engineering Science 576.)

577 Neural Networks in Engineering (3) Neural network design for use in intelligent systems. Rationale for the neural computing, structures of neural computing systems, programming. Prereq: Consent of instructor. (Same as Mechanical and Aerospace Engineering and Engineering Science 577.)

578 Fuzzy Systems in Engineering (3) Fuzzy numbers, fuzzy environment, uncertainty and randomness, approximate reasoning, fuzzy models and structures, decision process in fuzzy environment, fuzzy logic, fuzzy expert systems and other engineering applications. (Same as Engineering Science 578.)

581 Reactor Shielding (3) Application of analytical numerical solutions of Boltzmann transport equation to shield design problems. Spherical harmonics, moments method, discrete ordinates, adjoint calculations, coupled analysis, and fast reactor shield design. Prereq: 406 or equivalent.

582 Monte Carlo (3) Analysis of radiation transport problems in radiation shielding by Monte Carlo method. Description of MCNP code. Random sampling, evaluation of integrals, analog particle transport, techniques of variance reduction, forward and adjoint modes of analysis, importance function biasing, splitting and weight window survival biasing and contribution theory. Prereq: 581.

585 Process System Reliability and Safety (3) Qualitative and quantitative techniques for assessing and improving process systems reliability and safety. Fault tree analysis and associated dependent failure analysis. (Same as Chemical Engineering 585.)

597 Special Topics in Nuclear Engineering (3) Lectures and recitation on recent advances in nuclear engineering. Prereq: Consent of instructor. May be repeated with consent of department.

598 Nuclear Engineering Practice (3-9) Experience in solving and reporting on engineering problems. Prereq: Approval of department. May be repeated. Enrollment limited to alternative plan students. S/NC only.

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

611-12 Selected Topics in Reactor Theory (3,3) Transport theory, control rod theory, stochastics methods. Selected topics from literature. Prereq: 572.

621 Selected Topics in Radiation Protection (3) Prereq: 551, 552. May be repeated with consent of department.

653 Theory of Information Processing (3) Modern system theoretical methods for evaluating system performance from dynamic measurements. Prereq: 552 or equivalent.

671 Advanced Topics in Applied Artificial Intelligence (3) Recent advances in engineering applications of artificial intelligence. Prereq: 577. (Same as Mechanical and Aerospace Engineering and Engineering Science 671.)

697 Special Topics in Nuclear Engineering (3) Investigation of new developments. Prereq: Consent of instructor.

Nursing

(College of Nursing)

MAJOR

Nursing ........................................... M.S.N., Ph.D.

Joan L. Creasia, Dean

Sandra Thomas, Director of Ph.D. Program

Martha Alligood, Director of MSN Program

Professors:

Alligood, Martha R., Ph.D. .................. New York
Creasia, Joan L., Ph.D. ...................... Maryland
Droppelman, Patricia G., Ph.D. .......... Tennessee
Farr, Glen, Pharm. D. ....................... Tennessee
Groser, Maureen, M.L ..................... Brown
Mozingo, Johnie N., Ph.D. ............... Utah
Pierce, Jean O., Ph.D. ...................... Walden
Seavor, Carol, Ed.D. ....................... Massachusetts
Thomas, Sandra P., Ph.D. ................. Tennessee

Associate Professors:

Bowen, Sheila, Ph.D. ....................... Tennessee
Davis, Mitzi, Ph.D. ......................... Tennessee
Dyer, Theresa, Ed.D. ..................... Tennessee
Fenske, Mildred M., Ph.D. .............. Vanderbilt
McGuire, Sandra, Ed.D. ................. Tennessee
Modrin-McCarthy, Mary Anne, Ph.D. .. Maryland
Smith, Helen, Ph.D. ...................... South Carolina
Wallace, Debra C., Ph.D. ................. South Carolina

Assistant Professors:

Brown, Allie J., M.S.N. ............. Alabama (Birmingham)
Brown, Mary Lynn, Ph.D. .............. Tennessee
Conlon, Kathleen P., M.S.N. ...... SUNY (Buffalo)
Evans, Ginger W., M.S.N. .............. Tennessee
Fox, Marie X., M.S.N. .............. Tennessee
Helton, Sally M., Ph.D. ............. Texas Women's
Kollar, Mary, Ph.D. ......................... Tennessee
Nalle, Maureen, M.S.N. ............... Tennessee
Pierce, Margaret, M.S.N. .............. Tennessee
Pullen, Lisa, Ph.D. ....................... Mississippi State

THE MASTER'S PROGRAM

The College of Nursing offers the Master of Science in Nursing degree with concentrations in adult health nursing, family nurse practitioner, mental health nursing, nursing administration, and nursing of women and children. The program is accredited by the National League for Nursing Accrediting Commission and is unconditionally approved by the Tennessee Board of Nursing.

The purpose of the Master's program in nursing is to prepare leaders, managers, and practitioners who facilitate clients' achievement of optimal health in the dynamic health care system. The program prepares advanced practice nurses for a career in adult health nursing, nursing of women and children, and mental health nursing as well as role preparation as nurse practitioners, clinical nurse specialists or nursing administrators. Advanced practice nursing involves the delivery of care, management of resources, interdisciplinary collaboration, and application of technology, information systems, knowledge, and critical thinking.

Admission Requirements

1. Meet requirements for admission to The Graduate School.
2. Achieve a score of 500 or above on the verbal and on the quantitative portions of the Graduate Record Examination.
3. Achieve a TOEFL score of 550 or above if native language is not English.
4. Hold a Bachelor's degree in Nursing (BSN) from a National League for Nursing accredited program.
   a. Hold or be eligible for licensure to practice nursing in Tennessee.
   b. Have an undergraduate GPA of 3.0 or higher on a 4-point scale, or a GPA of 3.3 for courses in the undergraduate major.
   c. Have completed a health assessment and physiology course within the past five years.
   d. Hold a bachelor's degree in a discipline other than nursing (master's entry student or RN) from an accredited college or university.
      a. Have a cumulative undergraduate GPA of at least 3.0 on a 4-point scale.
      b. Have successfully completed the following prerequisite courses: chemistry (8 hrs); microbiology (including lab); anatomy and physiology (6-8 hrs); nutrition (covering lifespan in health and illness); behavioral sciences (12 hrs in sociology, anthropology, growth and development, and at least one general psychology course); undergraduate research course or equivalent prior to enrollment in graduate research course.
5. New students normally are admitted to the program only at the beginning of fall semester. However, under special circumstances and on a space available basis, a B.S.N. graduate may be admitted at the beginning of spring or summer terms in a temporary non-degree status. Applications from full-time BSN and master's entry students for fall admission must be received by February 1. Part-time and post-master's applications must be received by October 1.

Special Requirements

1. Each student must hold personal professional liability insurance.
2. Registered nurses must be licensed to practice nursing in Tennessee.
Electives (3 credits) -- waived for those who choose the non-thesis option must register for 580 Nursing Project or 582 Supervised Research.

Program Requirements

All students must complete a minimum of 36 semester hours distributed as follows:

Core (12 credits)
- 503-04 Advanced Clinical Reasoning I, II 6
- 510 Theoretical Foundations of Nursing 3
- 520 Advanced Practice Nursing and Health Delivery Systems 3

Research (9-12 credits)
- 501 Nursing Research: Methods, Design & Analysis 3
- 500 Thesis 6
- OR 580 Nursing Project 3
- OR 582 Supervised Research 3

Concentration (12-17 credits) -- choose one
- 530-31 Adult Health Nursing I, II 12
- 540-41-42 Family Nurse Practitioner I, II, III 17
- 550-51 Nursing of Women and Children I, II 16
- 550-61 Mental Health Nursing I, II 12
- 550-91 Nursing Administration I, II 12

Elective (3 credits) -- waived for those who choose the thesis option except the family nurse practitioner concentration who take 505 and 515 and for nursing of women and children concentration who are required to take 505 and recommended to take 515.

Students who enter the program as non-RNs must complete the following undergraduate nursing courses in addition to meeting the requirements listed above:

- 301 Clinical Pharmacology 3
- 302 Introduction to Professional Nursing 5
- 304 Nursing Assessment and Health Promotion 4
- 306 Health Deviation Concepts I 4
- 316 Health Deviation Concepts II 4
- 330 Nursing of Adults 6
- 414 Community Mental Health Nursing 6
- 415 Family/Community Health Nursing 6
- 431 Nursing of Children 4

Registered nurses whose bachelor's degrees are not in nursing must have completed courses in chemistry, nutrition, microbiology, anatomy, and physiology plus 12 hours of behavioral science courses. They must also complete 305, 392, 405, 450, and 430 and complete or successfully challenge the following:

- 301 Clinical Pharmacology 3
- 304 Nursing Assessment and Health Promotion 4
- 306 Health Deviation Concepts I 4
- 306 Health Deviation Concepts II 4
- 330 Nursing of Adults 6
- 411 Family Health Nursing 6
- 411 Psychosocial Long Term Nursing 6
- 431 Nursing of Children 4

A total of 16-18 credits can be obtained by successful completion of the NLN Nursing Mobility Profile Examination. See undergraduate catalog for other challenge options. RNs in the process of completing a BSN at UT with the intent of enrolling in the MSN program may follow the same plan with the addition of 313.

Final Examination Requirements

All students must successfully complete a final examination as required by The Graduate School. For thesis students, the examination will consist of an oral defense of the thesis as well as other written or oral questions designed to measure student mastery of the entire program of study. For non-thesis students, the written examination will cover the entire program of study and may, at the discretion of the student's committee, be followed by an oral examination.

Special Policies

1. If the clinical performance of any student for any course is found to be unsatisfactory, the student will receive a grade of "F" for the course.
2. If a student achieves a final grade of "D" or "F" for any required undergraduate or graduate nursing course, he or she will not be permitted to repeat the course and will be required to withdraw from the program.
3. If the clinical performance of any student is characterized by unethical, unprofessional or unsafe behavior, or behavior that places the client in jeopardy, the student will be required to withdraw from the program.

THE DOCTORAL PROGRAM

The College of Nursing offers a doctoral program leading to the Doctor of Philosophy degree with a major in Nursing. This is a unified program offered jointly with the University of Tennessee, Memphis, College of Nursing. Students may complete all or part of the program at either site. The dissertation must be completed in its entirety at one site.

The doctoral program prepares nursing scholars capable of integrating research, theory, and practice into their roles as researchers, educators, and/or administrators. Specifically, the graduate of this program should be able to:

1. Analyze, test, refine, extend, and expand the theoretical basis of nursing practice.
2. Conduct nursing research that generates knowledge and advances nursing as a discipline.
3. Provide leadership as nurse researchers, educators, and/or administrators in current and emerging health care settings.
4. Collaborate with members of other disciplines in health-related research of mutual concern.
5. Analyze, develop, and recommend health care policy at various levels.

Admission Requirements

1. Meet requirements for admission to The Graduate School.
2. Hold a master's degree in nursing from a program accredited by the National League for Nursing. Some outstanding applicants who are prepared at the bachelor's level in nursing may be considered. In such cases, graduate level courses in nursing theory, concentration specialty, and/or research will be integrated into the formal program of doctoral degree requirements.
3. Have a minimum cumulative graduate grade-point average of 3.3 on a 4.0 scale for previous college work.
4. Have a combined score of at least 1000 on the verbal and quantitative sections of the Graduate Record Examination.
5. Have successfully completed a basic statistics course and graduate nursing theory and research courses prior to enrollment in nursing doctoral level courses.
6. Have TOEFL scores of at least 550 if native language is not English.
7. Complete Graduate Program Data Form, College of Nursing.
8. Submit Graduate School Rating Forms from three college level instructors and/or nurses and administrators who have supervised applicant's professional work.
9. Submit a sample of scholarly writing (e.g., thesis, published paper).
10. Submit an essay describing personal and professional aspirations.
11. Submit Graduate Application for Admission, academic transcripts, Graduate Record Examination scores, and, if required, TOEFL scores to the Graduate School. Submit three Graduate School Rating Forms, sample of scholarly writing, and Graduate Program Data Form with essay to the Director of the PhD program prior to November 1 of the year prior to fall admission.
12. Schedule a personal interview with the College of Nursing PhD Student Admissions Committee prior to March 15 of the year preceding Fall admission. International applicants may be interviewed by telephone or teleconferencing at the discretion of the admissions committee.

Program Requirements

The following courses are required for all students:

- 620 Directed Research 3
- 601-02 Theory Analysis & Construction I, II 6
- 605-06 Nursing Research Seminar 4
- 607 Qualitative Nursing Research 3
- 608 Quantitative Nursing Research 3
- 609 Research Practice* 4
- 610 Nursing Science Seminar 2
- 611 Advanced Nursing Seminar 2
- 612 Health and Nursing Policy/Planning 3
- 614 Nursing Preceptorship 3
- Statistics 6
- Cognates 6
- Electives 3
- 690 Dissertation 24

TOTAL 72

*Note: A minimum of 1 hour per semester must be taken for 4 semesters.
Possible cognate areas include, but are not limited to, anthropology, child and family studies, psychology, education, management, medical ethics, public health, social work, philosophy, and statistics.

**Doctoral Committee**
Early in the student's program, a nursing faculty advisor will be selected by the student in consultation with the program director. The student's comprehensive examination committee consists of the faculty teaching core courses and one representative from the cognate area. The student then selects the dissertation committee. Five faculty holding the rank of assistant professor or above comprise the committee, three of whom (including the chair) must be approved by the Graduate Council to direct doctoral dissertations. At least two members of the committee must be from an academic unit other than nursing.

**Special Policies**
1. A maximum of 6 graduate hours taken before acceptance into the doctoral program may be applied toward the degree.
2. Minimum grades of B in all nursing doctoral courses and a 3.0 cumulative GPA are required for continuation in the program.

**MINOR IN GERONTOLOGY**
Graduate students in the College of Nursing may pursue a specialized minor in gerontology. This interdepartmental/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 programs at UT Knoxville on an in-state tuition basis. The Ph.D. program in nursing is available to residents of the states of Alabama, Arkansas, or West Virginia. Additional information may be obtained from the Admissions Specialist in the Office of Graduate Admissions and Records.

**GRADUATE COURSES**

500 Thesis (1-15) Pr/NP only, E
501 Nursing Research: Methods, Design, and Analysis (3) Basic principles of research process in application to clinical questions; critical evaluation of nursing and health-related research. Prereq or coreq: 510, graduate level statistics. F, Sp
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 or letter grade. E
503 Advanced Clinical Reasoning I (3) Principles of health promotion, education, and innovative strategies for achievement of wellness: health habits, psychological, cultural, and other dimensions of whole person as related to risks for lifestyle diseases. F
504 Advanced Clinical Reasoning II (3) Development of advanced clinical reasoning skills for assessment of current health status and illness: health habits, pathophysiological concepts as dimensions of whole person. Implications for therapeutic nursing interventions. Prereq or coreq: 503. F
505 Advanced Clinical Pharmacology (3) Pharmacological agents utilized to treat common, recurrent health problems: indications, contraindications, side and interactive effects of commonly prescribed drugs. Prereq: 301 or equivalent or consent of instructor. F
510 Theoretical Foundations of Nursing (3) Historical evolution of nursing science; nursing's metaparadigm and selected philosophies, conceptual models and theories as a student research guide critical thinking in analysis, reasoning, and decision making for advanced practice nursing. F, Sp
515 Advanced Pathophysiology for Nursing Practice (3) Advanced physiologic and pathophysiologic concepts, principles and theories applied to deviations of human systems. Sp
530 Adult Health Nursing I (6) Advanced nursing practice for health promotion, restoration, and maintenance of young, middle-aged, and older adults. Theories and research to advanced practice with individual clients in variety of settings. F, Sp. Prereq or coreq: 501, Coreq: 520. Didactic (2) and practicum (4). F
531 Adult Health Nursing II (6) Continuation of 530. Delivery, provision, and management of health care for adult groups and communities. Prereq: 530. Didactic (2) and practicum (4). F
540 Family Nurse Practitioner I (6) Nursing management and primary care for individuals and families in all developmental life stages; role in evaluation and treatment of actual and potential acute health problems; clinical experiences in role of primary care provider. Prereq: 504. Prereq or coreq. 501. Coreq: 520. Didactic (2) and practicum (4). Sp
541 Family Nurse Practitioner II (6) Continuation of 540. Nursing management of chronic health problems of individuals and families in all developmental life stages; role refinement and exploration of major issues of family nurse practitioner; clinical experiences in variety of settings. Prereq: 540. Didactic (2) and practicum (4). F
543 Nurse Practitioner (6) Exploration and application of holistic nursing concepts to nursing management of common and chronic health problems. Role refinement and exploration of major issues in delivery of holistic primary nursing care. Prereq: 504 and consent of instructor on student's intent to pursue certification as family or adult nurse practitioner. Prereq: MSN in clinical concentration, 504 prerequisite, and consent of instructor. 3 hours and 6 labs. Sp
550 Nursing of Women and Children I (8) Advanced practice nursing for women and children; clinical experiences in role of nurse practitioner or clinical specialist in variety of settings. Health promotion and nursing interventions for acute or potential health problems of women, children, and families. Prereq: 504. Prereq or coreq. 501. Coreq: 520. Didactic (3) and practicum (5). Sp
551 Nursing of Women and Children II (8) Continuation of 550. Role refinement of nurse practitioner or clinical specialist in health maintenance and restoration for women, children, and families. Prereq: 504. Prereq or coreq. 501. Coreq. 520. Didactic (3) and practicum (5). Sp
552 Parent Child Nursing Field Work and Seminar (5) Seminar and intensive clinical practicum designed to facilitate further development of specialized knowledge and skills utilized for advanced parent-child nursing practice. Prereq or coreq. 551. 1 hr and 4 labs. Sp
557 Nurse Midwifery Seminar I (1) Exploration of art and science of midwifery, nature and scope of midwifery practice, professional and ethical issues in advanced nursing practice. Prereq or coreq. 501, 510. F
558 Nurse Midwifery Seminar II (1) Exploration of psychological, developmental, and social-cultural theories as related to individual and family patterns of illness and wellness. Role of nurse-midwife in advanced practice promoting optimal wellness within clients and community. Prereq: 501, 510, 570. Coreq. 520. Sp
559 Nurse Midwifery Seminar III (1) Exploration of state of science in nurse midwifery, innovative practice options, and related researchable problems in nurse-midwifery practice. Prereq: 570, 571. Coreq: 500, 580 or 582. F
560 Mental Health Nursing I (6) Theories of advanced nursing interventions for clients experiencing actual and potential mental health problems; advanced practice in nursing in specialty of mental health; clinical practice with clients of various ages in acute care and community settings. Prereq: 504, 520. Didactic (2) and practicum (4). Sp
561 Mental Health Nursing II (Continuation of 560. Advanced practice nursing in community settings for families and groups with actual and potential mental health problems. Prereq: 504, 520. Didactic (2) and practicum (4). F
565 Teaching Practicum (1-6) Individually designed teaching experience in college nursing program or nursing practice setting. Objectives to be developed collaboratively by student and faculty. Prereq or coreq. 504 and consent of instructor. S/N or letter grade. Sp
566 Educational Principles and Strategies (3) Exploration and analyses of selected education, curricular, teaching-learning, measurement, and evaluation principles and theories as applied to instruction of undergraduate nursing students. Prereq or coreq. 501. Didactic (2) and practicum (2). Sp
567 Family Nurse Practitioner I (6) Application of advanced health/physical assessment and diagnostic reasoning to nursing management and primary care of clients of all ages and of individuals and their families with actual and potential acute health problems; clinical experiences in the role of family nurse practitioner in variety of settings. Prereq: 504, 515, Coreq: 520. Didactic (2) and practicum (2). Sp
571 Family Nurse Practitioner II (6) Continuation of 567. Nursing management and primary care of individuals and their families in all developmental life stages; role refinement and exploration of major issues of family nurse practitioner; clinical experiences in variety of settings. Prereq: 571. Didactic (2) and practicum (5). Sp
577 Special Topics (1-3) Topic is determined by faculty and student interest. Prereq: Consent of instructor. May be repeated. Maximum 6 hrs. E
580 Nursing Project (3) Student-initiated scholarly project with faculty supervision. Review and critical evaluation of literature in specified area of advanced practice nursing, culminating in "state of the practice" paper. Prereq: Consent of instructor, first course in concentration. S/U, F
582 Supervised Research (3) Supervised research culminating in scholarly paper. Experiential learning of research process. Participation in on-going faculty research project and completion of specified portion of project under faculty guidance. Prereq: Consent of instructor, 501, 510. May be repeated. Maximum 8 hrs. E
583 Directed Clinical Practice (1-9) Additional opportunities for advanced nursing practice. Objectives to be developed collaboratively by student and faculty. Prereq: Enrollment in completion of graduate level courses in clinical nursing. Maximum 9 hrs. S/N or letter grade. E
590 Nursing Administration I (6) Exploration, analysis, and application of selected organizational, management, and leadership theories and principles to delivery of nursing service. Struktur, goal-setting, conflict resolution, and organizational development with application to mid-level and top-level nursing administration positions. Prereq: 550. 2 hrs and 4 labs. F
591 Nursing Administration II (6) Continuation of 590. Advanced organization and management of the health care environment and systems. Prereq: 590. Coreq: 520. Didactic (2) and practicum (4). Sp
593 Independent Study (1-3) Prereq: Consent of instructor. May be repeated. Maximum 6 hrs. E
Nutrition

(College of Human Ecology)

MAJORS

DEGREES

Human Ecology .................................... Ph.D.

Nutrition ............................................. M.S., M.S.-M.P.H.

Michael B. Zemel, Head

Professors:

Beauchene, Roy E. (Emeritus), Ph.D. ............... Kansas State

Caruth, Betty Ruth, Ph.D. ......... Missouri

Namey, T. C., M.D. ............... Washington (St. Louis)

Sachan, Dilipee S., Ph.D. ............. Illinois

Skinner, Jean D., Ph.D. ............... Oregon State

Smith, John T. (Emeritus), Ph.D. .............. Missouri

Zemel, Michael (Liaison), Ph.D. ............... Wisconsin

Associate Professors:

Bailey, James W., Ph.D. ............... Iowa State

Brooks, M. D. (Memphis), M.S. ......... Alabama

Haughton, B., Ed.D. ............... Columbia

Karlstad, Michael, Ph.D. ............... Loyola

Whelan, Jay, Ph.D. ............... Penn State

Zemel, Paula, Ph.D. ............... Wayne State

Assistant Professors:

Bittie, Joyce (Memphis), Ph.D. .......... Tennessee

Chencherick, Judith (Memphis), M.S. .... Maryland

Moustaid, Naima, Ph.D. .......... Paris

The Master of Science program is available in Nutrition, with a concentration in nutrition science or public health nutrition. A graduate degree combined with a Dietetic Internship (D.I.) beyond the baccalaureate degree qualifies the graduate to apply for the Registration Examination to become a Registered Dietitian (R.D.). Students may request more information from the department about the D.I. program. Students may also select an interdisciplinary minor in gerontology.

ADMISSION REQUIREMENTS

A final file for review includes the Graduate School application file, completed departmental application form, Graduate Record Examination (GRE) scores for the general section, and three Graduate School Rating Forms completed by individuals who can attest to the applicant's potential for graduate education. Forms may be obtained from the Department Office, 229 Jessie Harris Building, University of Tennessee, Knoxville, 37996-1900. Forms may also be obtained from the Department's website at http://nutrition.he.utk.edu.

Admission into the Graduate program in the department is dependent on completion of undergraduate courses that give the necessary background for success in the graduate program. Required undergraduate courses include: general and organic chemistry, physiological chemistry/biochemistry, physiology, statistics, and advanced nutrition. Admission to the Ph.D. program in Human Ecology with a concentration in Nutrition Science requires a master's degree. Applicants to all programs with related experience may be given preference.

THE MASTER'S PROGRAM

Students may choose a thesis or non-thesis option in Nutrition. Attendance at Nutrition 540 is required every semester.

Thesis Option: The program consists of a minimum of 33 hours with at least 16 hours of coursework in the department. NTR 511, 512, 540, 541 and 3 hours of graduate level statistics are required. Students in public health nutrition must take 511, 512, 513, 514, 515, 541 and the minor in public health. Six hours of Thesis 500, and 6 hours outside the department are required. A minimum of 24 hours at the 500 and 600 level is required.

A written comprehensive examination is required for completion of the program.

DUAL M.S.-M.P.H. PROGRAM

The College of Human Ecology offers a coordinated dual program leading to the conferment of both the Master of Science with a major in Nutrition (public health nutrition concentration) and the Master of Public Health. The dual program allows students to complete both degrees in less time than if they were required to earn both degrees independently.

The program is designed to meet the needs of students who are interested in the benefits of majors in both nutrition and public health. Therefore, it accommodates the interests of students who: 1) plan a career in public health nutrition and want to acquire the knowledge and skills of the nutritionist and public health professional; 2) plan a career in nutrition and want to acquire the knowledge and skills and the perspective of the public health professional; or 3) plan a career in public health and want to acquire the knowledge, skills and perspective of the nutritionist.

Admission Requirements

Applicants for the M.S.-M.P.H. program must make separate applications to and be competitively and independently accepted by the Department of Nutrition for the M.S., Department of Health and Safety Sciences for the M.P.H., and the Public Health Academic Program committees. Students who have been accepted by both departments may apply for approval to pursue the dual program anytime prior to, or after matriculation in either or both departments. Such approval will be granted, provided that dual program studies are started prior to entry into the fourth semester of the M.S. and M.P.H. programs.

Curriculum

A dual degree candidate must satisfy the requirements for both the M.S. (public health nutrition concentration) and the M.P.H., degrees, as well as the requirements for the dual program. All candidates for the dual degree must successfully complete Health and Society (PH 555), two credits of Seminar in Public Health (PH 559), and a minimum of 60 credits. The Department of Nutrition will award a maximum of 9 semester hours of credit toward the M.S. degree for successful completion of approved graduate level courses offered in the Department of Health and Safety Sciences. The Department of Health, Leisure and Safety Sciences will award a maximum of 11 semester hours of credit toward the M.P.H. degree for successful completion of approved courses offered in the Department of Nutrition. All courses for which such cross-credit is awarded must be approved by the Public Health Academic Program Committee and the student's graduate committee. A single block of field experience (or public health internship) is required of all students and the analytical field paper incorporates public health nutrition and the student's public health concentration.

Dual degree students who withdraw from the program before completion of the requirements for both degrees will not receive credit towards the M.S. or M.P.H. degree for courses taken.
taken in the other program, except as such courses qualify for credit without regard to the dual program.

Approved Dual Credit
M.S. courses to be counted toward the M.P.H. program must include 10 semester-hours of Field Study in Community Nutrition (NTR 515) and 1 semester hour of Graduate Seminar in Public Health (NTR 509). M.P.H. courses to be counted toward the M.S. include Public Health Administration (PH 520), Biostatistics (PH 530), and Epidemiology (PH 540).

THE PH.D. CONCENTRATION

The nutrition science concentration enables students to study the science of nutrition from the cellular level to the application of nutritional principles by people in a changing environment. The doctoral program emphasizes human nutrition, nutritional epidemiology, experimental nutrition, and intermediary metabolism. Cognate areas may include anthropology, biochemistry, chemistry, communications, education, food technology, human development, physiology, public health, sociology, statistics, and/or toxicology.

Minimum requirements include:
1. Sixteen hours in nutrition including 4 hours at the 600 level (exclusive of dissertation);
2. NTR 511, 512, 541, and 2 hours from either 542-544;
3. Four hours of NTR 540, attendance required every semester;
4. Six hours of statistics;
5. Six hours in a cognate area;
6. Nine hours at the 600 level;
7. Students without college teaching experience are required to take the fall semester teaching seminar for GTAs and NTR 548 comprising a faculty-supervised problem in college teaching.

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 Nutrition is available to residents of Arkansas. Additional information may be obtained from the Admissions Specialist in the College of Graduate Admissions and Records, For the Ph.D., see Human Ecology.

Nutrition

GRADUATE COURSES

414 Nutrient-Drug Interactions (2) Nutrient effects on efficacy and toxicity of drugs; drug effects on absorption and metabolism of nutrients. Prereq: Fundamentals of Nutrition or equivalent. Sp,A

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

506 Culture, Food, and Nutrition (3) Food-related behavior of individuals and groups in United States, socio-cultural, economic, and technological influences. Nutrition and food surveys, public policy. Prereq: Nutrition for Educators or Advanced Nutrition or consent of instructor. F,A

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

511 Advanced Physiological Chemistry (4) Bioenergetics, free radicals, and related functions. Prereq: Consent of instructor. F

512 Human Nutrition (3) Advanced study in nutrients, bioenergetics, food science, and related fields. Prereq: Consent of instructor. F

513 Community Nutrition I (3) Orientations to community, assessment of nutritional programs, needs, and resources; functional roles of public health nutritionist. Prereq: Consent of instructor. F

514 Community Nutrition II (3) Planning, implementation, and evaluation of public health nutrition programs. Prereq: Consent of instructor. F

515 Field Study in Community Nutrition (1-12) Personal involvement in community nutrition programs. Location of in-depth study to be selected in consultation with instructor. Prereq: Consent of instructor. Sp

516 Maternal and Child Nutrition (3) Nutrition principles related to growth and development during pregnancy, infancy, and childhood to age 5, high risk conditions. Prereq: Consent of instructor. F

517 Childhood and Adolescent Nutrition (3) Application of nutrition principles to school age children, effects of diseases on growth and development; nutrition assessment and counseling. Prereq: Consent of instructor. F

518 Nutrition and Aging (3) Nutritional problems of elderly; requirements, dietary needs, effects of nutrition on biological aging. Prereq: Consent of instructor. F

520 Nutritional Ecology (2) Examination of issues in natural, political, physical, and social environments that impact availability of food and nutrients in U.S. food supply. F,A

521 Physiological Basis for Diet and Disease (2) Altered nutrient needs as result of metabolic changes that occur in selected disease states. Prereq: Consent of instructor. F

522 Nutrition Counseling (2) Individual nutrition habits and disorders, evaluation strategies for effectiveness of counseling process. Prereq: Consent of instructor. F


541 Research Methods (1) Basic principles of planning, conducting, and interpreting nutrition and foodservice systems administration research. Prereq: Consent of instructor. F

542 Advanced Experimental Nutrition (2) Application of research principles to individual project using experimental animals. Prereq: Consent of instructor. F

544 Nutrition and Hospitality Survey Methods (2) Application of survey research methods to nutrition and hospitality projects: assessment of food consumption, nutrition intake, nutritional status, sociocultural-economic parameters, food production and service, and human resource management issues. Prereq: Consent of instructor. F

547 Field Experience (3-9) Experience in food-related industry or agency under supervision of faculty member. Prereq: Consent of instructor. E

548 Directed Study in Nutrition (1-3) Advanced study in nutrition. Prereq: Consent of instructor. Maximum 6 hrs. E

549 Special Topics (1-3) Recent advances in nutrition or food systems administration. Prereq: Consent of instructor. May be repeated. Maximum 6 hrs. E

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

602 Advanced Topics in Nutrition Science (1-3) Comprehensive individual study and group discussion of topics related to current problems in nutrition. Prereq: Consent of instructor. May be repeated. F

603 Current Trends in Food and Sociocultural Change (2) Critical evaluation of research. Prereq: Consent of instructor. F,A

Ornamental Horticulture and Landscape Design

Degree (College of Agricultural Sciences and Natural Resources)

MAJOR DEGREE

Ornamental Horticulture and Landscape Design............................................. M.S.

Mary L. Albrecht, Head

Professors:
Albrecht, M. L., Ph.D. ........................................ Ohio State
Callahan, L. M., Ph.D. ....................................... Rutgers
Crate, G. D., Ph.D. ............................................ Ohio State
Graham, E. T., Em. Ph.D. ................................ Penn State
Gresshoff, P. M. ............................................. University of California

Associate Professors:
Auge, R. M., Liaison, Ph.D. ................................ Washington State
Day, J. W., Ph.D. ............................................. Mississippi State
Rogers, S. M., M.L.A. ....................................... Georgia
Starman, T. W., Ph.D. ...................................... Texas A&M
Witte, W. T., Liaison, Ph.D. ................................ Maryland

Assistant Professor:
Hamilton, S. L., Ed.D. ..................................... Tennessee
Menendez, G. L., M.S. ...................................... Tennessee

The Department of Ornamental Horticulture and Landscape Design offers the Master of Science degree with concentrations in floricultural science and technology, nursery science and technology, turfgrass science and technology. Various interests may be emphasized in any of these commodity areas, including micropropagation, innovative production and maintenance systems, computer-aided management systems, and the molecular biology, genetics, histology and stress physiology of ornamentals.

For admission, the student must have a B.S. in ornamental horticulture, horticulture, plant science, or a related agricultural or basic science discipline. Undergraduate transcripts must be evaluated by the department for prerequisite requirements, if any. Graduate research assistantships are available on a competitive basis. Further information, contact the department head.

THE MASTER'S PROGRAM

Thesis Option

1. A thesis is required. A master's committee of no fewer than 3 faculty members will be selected. Prior to research for the thesis, a proposal must be approved by the master's
committee. Registration for 6 hours of Thesis 500 is required.
2. In addition to the thesis requirement, a minimum of 24 hours of graduate credit is required. Not more than 10 hours of the minimum 30 hours can be below the 500 level. The academic program must be approved by the master's committee which may require additional coursework if the student's progress or background indicates such need.
3. All students are required to include 2 hours of Seminar 590 in their program and are expected to attend this course and participate in discussions each semester enrolled.
4. Twelve hours of coursework in the major must be at the graduate level, exclusive of Thesis 500. Six of these hours may be satisfied by Botany 412, 521, 522, Plant and Soil Science 471, or Animal Science 571.
5. An oral examination covering the thesis and coursework is required.

Non-Thesis Option
1. A master's committee of no fewer than 3 faculty members will be selected.
2. Thirty-four hours of graduate coursework are required of which 22 hours must be at the 500 level or above.
3. All students are required to include 2 hours of Seminar 590 in their program and are expected to attend this course and participate in discussions each semester enrolled.
4. Twelve hours of coursework in the major must be at the graduate level. Six of these hours may be satisfied by Botany 412, 521, 522, Plant and Soil Science 471, or Animal Science 571.
5. Final comprehensive written and oral examinations shall be taken upon completion of no fewer than 32 hours of approved graduate work.

GRADUATE COURSES
410 Nursery Management and Production (3) Modern management methods as applied to retail and wholesale nurseries and landscape contracting firms. Methods of producing indoor, outdoor, and field-grown woody ornamental plants. Prereq: 220, 330, and Plant and Soil Science 210, or consent of instructor. 2 hrs and 1 lab. Sp
440 Advanced Turfgrass Management (4) Principles and scientific basis of turfgrass culture: adaptation, ecology, physiology, and soil and water relations, plant nutrition, climate, and environmental influences on grass culture, physiology of clipping and water management; design, construction, and management of golf courses; and physiological influences of pest infestation and control measures. Prereq: 340 or consent of instructor. 3 hrs and 1 lab. Sp
451 Plant Tissue Culture (3) (Same as Botany 451.)
460 Professional Practices in Landscape Construction and Management (2) Professionalism, salesmanship, proposal writing, contract management, and landscape services industry interaction with industry representatives through special presentations. Prereq: 350 or consent of instructor. F
480 Advanced Landscape Design (3) Comprehensive application of landscape design skills to variety of project experiences: landscape planning and analysis, planting design, and materials estimating. Prereq: Fundamentals of Landscape Design, Basic Landscape Construction, and Supplemental Landscape Design Graphics. 2-3 hrs lab. Sp
485 Computer Aided Landscape Design (3) Computer Aided Design (CAD) related to landscape design and construction. Site planning and construction of related landscape plan view and site drawings. Operating system, use of AutoCAD and LANDCAD software. Prereq: Fundamentals of Landscape Design, Microcomputer Applications to Problem Solving or consent of instructor. 2-3 hrs lab. F,Sp
500 Thesis (1-15) P/NP only. E
501 Special Topics in Ornamental Horticulture and Landscape Design (1-3) Topics to be assigned. May be repeated. Maximum 6 hrs. Prereq: Consent of instructor. 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 course is completed. May not be used toward degree requirements. May be repeated. S/NC only. E
507 Professional Development Seminar (1) Same as Agriculture 507, Biosystems Engineering 507, Biosystems Engineering Technology 507, Animal Science 507, and Plant and Soil Science 507. S/NC only. F
509 Scientific Communication (1) Same as Agriculture 509, Animal Science 509, and Plant and Soil Sciences 509. F
511 Plant Diseases (4) (Same as Entomology and Plant Pathology 511.)
521 Flowering Physiology (1) General phenomenology, photoperiodism, thermoperiodism, interactions of environmental, physiological, and nutritional factors, sterility, and regulation. Prereq: Introductory Plant Physiology or equivalent. 3 hrs weekly for 5 weeks. Sp,A
522 Stress Physiology (1) Introduction to abiotic stress physiology: drought, flooding, salinity, heat, pollutants, and other stress variables. Prereq: Introductory Plant Physiology or equivalent. 3 hrs weekly for 5 weeks. Sp,A
523 DNA Analysis (1) Practical experience in isolating Genomic DNA from plants and fungi, amplification of DNA using commercial kits, DNA profiling techniques (DAF, ASP), isolation and purification of amplified products. Lab work includes relationships between organisms. Prereq: 6 hrs biological/botanical sciences, 5 hrs chemistry, consent of instructor. 1 hr and 4 labs weekly for 5 weeks. Sp,A
524 Plant Cell Electrophoresis (1) Practical experience with isolating native and denatured proteins from plants and fungi using gel electrophoresis techniques. PAGE of proteins including total protein and white specific enzymes (isozyme) analyses. Prereq: 8 hrs biological/botanical sciences, 8 hrs chemistry, consent of instructor. 1 hr and 4 labs weekly for 5 weeks. Sp,A
525 Plant Microtechnique (1) Practical and scan- ning electron microscopy for the study of plant and fungal tissues. Prereq: 8 hrs biological/botanical sciences and consent of instructor. 1 hr and 4 labs weekly for 5 weeks. Sp,A
570 Physiology and Development of Ornamental Plants (3) Basic and applied physiology of ornamental plants related to growth and development in production and utilization. Critical review of literature and discussion of plant and fungal growth and development, environmental stress, post-harvest considerations. Prereq: Botany 321 and consent of instructor. Sp,A
590 Seminar (1) Current literature and developments. May be repeated. Maximum 3 hrs. E
593 Problems in Ornamental Horticulture and Landscape Design (1-3) Independent study. Current topic related to technology and science. May be repeated. Maximum 6 hrs. E

Pathology
See College of Veterinary Medicine

Comparative and Experimental Medicine

Philosophy

MAJOR

Philosophy ................. M.A., Ph.D.

DEGREES

Philosophy ................. M.A., Ph.D.

Kathleen Bohstedt, Head

Professors:

Aquila, Richard E., Ph.D. .......... Northwestern
Brenkert, George G., Ph.D. .......... Michigan
Cebik, L. B., Ph.D. .......... Nebraska
Cohen, Sheldon M., Ph.D. .......... Northwestern
Davis, John W. (Emeritus), Ph.D. .......... Emory
Edwards, Rem B. (Emeritus), Ph.D. .......... Emory
Graf, Glenn C., Ph.D. .......... Michigan
Nelson, James L., Ph.D. .......... SUNY (Buffalo)
Postow, Betsy C., Ph.D. .......... Yale
Van de Vate, Dwight, Jr., Ph.D. .......... Yale

Associate Professors:

Bennett, James O., Ph.D. .......... Tulane
Bohstedt, Kathleen Emmett (Liaison), Ph.D. .......... Ohio State
Nolt, John E., Ph.D. .......... Ohio State
Osborne, Martha Lee, Ph.D. .......... Tennessee

Assistant Professor:

Hamlin, H. Phillips, Ph.D. .......... Georgia
Kaplan, Jonathan, Ph.D. .......... Stanford

The Department of Philosophy offers graduate study leading to the Master of Arts and Doctor of Philosophy. The M.A. program includes thesis and non-thesis options and offers a concentration in medical ethics and in religious studies. The Ph.D. program also has a concentration in medical ethics. Detailed information may be obtained from the Director of Graduate Studies in Philosophy.

THE MASTER'S PROGRAM

The department offers both a thesis and a non-thesis option. The course requirements for an M.A. with thesis are 30 hours, including 6 hours in Philosophy 500. Of non-thesis hours, at least two-thirds must be in courses at or above the 500 level. No philosophy course numbered under 400 may be taken for graduate credit. There are no particular courses that M.A. students are required to take. The nature of the student's coursework should be determined in consultation with the student's faculty committee. Students seeking the non-thesis option must also pass a final comprehensive examination, a culminating (capstone) experience is expected. Examples of culminating experiences include presenting a paper at a refereed national or regional philosophy conference, or presenting a paper at a departmental colloquium.

THE DOCTORAL PROGRAM

Students must hold an M.A. with a major in Philosophy or an equivalent degree when entering the Ph.D. program. Twenty-seven hours of coursework beyond the M.A. is required, of which 6 hours will be in courses numbered above 600. See the Philosophy Department Graduate Student Procedures for specific course requirements.

Students must demonstrate a reading knowledge of one foreign language, normally a living language in which there exists a signifi-
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 311-12, 321, 361, 431-32, 421, 461, and 411-12 constitute the minimum coursework 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 311 and 431-32 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 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.

PHYSICS

GRADUATE COURSES


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.
507 Contemporary Optics (3) Topics in geometrical, physical, Fourier, and nonlinear optical theories and applications, lasers, extensive use of computer calculations and design of practical and sophisticated optical systems.

508 Laser Physics (3) Mode analysis, stable and unstable resonators; rate equations and population inversion, saturation, relaxation oscillations, fluctuations and noise, laser stability; quantum theory of laser, photon coherence; mode-locking, Q-switching and frequency stabilization, spatial laser properties: semiconductor diode and solid-state, excimer, copper vapor and dye lasers.

511-12 Theoretical Physics (3,3) Classical theoretical physics, with limited use of mathematics. Prereq: 312, 432, advanced calculus, differential equations, and vector analysis


532 Advanced Classical Mechanics (3) Canonical transformations, Hamilton's equations, conservative systems, integrability and non-integrability, Liouville's theorem, solution of perturbation theory, computation methods, variational methods, Hamilton-Jacobi theory and action-angle variables, KAM theorems and Hamiltonian chaos, dissipative systems, relativistic kinematics, Minkowski spacetime, relativistic scattering and threshold problems. Prereq: 531.


555 Solid State Physics (3) Elementary solid state physics. Crystal structure, band theory, electron properties, solids, energy bands, semiconductors, phonons, free-electron-gas theory of metals, superconductivity, magnetism, and other forms of broken symmetry. Prereq: 522 or consent of instructor.

561 The Theory of Relativity (3) Geometry of spacetime, relativistic electrodynamics, particle mechanics and continuum mechanics, Einstein's field equations, Schwarzschild solutions, the classical test of general relativity. Prereq: 513 or 542.


574 Group Theory for Physicists (3) Introduction to abstract group theory, discrete and continuous groups, representation theory, Noether's theorem, symmetries and degeneracies, application of group-theoretical methods to atomic physics, solid-state physics, and particle physics. Prereq: 571-72.

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.

594 Special Problems (3) Especially assigned theoretical or experimental problems not covered in other courses. May be repeated, Maximum of 9 hrs. E.

599 Seminars (1-3) A. Mechanics; b. Radiation; c. Heat and Thermodynamics; d. Electricity and Magnetism; e. Modern Physics. May be repeated with consent of department. Maximum 18 hrs. E.

600 Doctoral Research and Dissertation (3-15) F/NP or E.


605 Laser Spectroscopy (3) Applications of lasers to spectroscopy of atomic and molecular systems; absorption, laser-induced fluorescence, and Raman spectroscopy, molecular and atomic coherence, quantum beats, resonance fluorescence, photon echoes, self-induced transparency; saturation and Doppler-free spectroscopy; laser cooling and trapping. Prereq: 521, 541.

606 Nonlinear Optics (3) Nonlinear optical susceptibility, harmonic generation, sum and difference frequencies, mode mixing and difference frequency generation, parametric amplification and oscillation, stimulated Raman scattering; two- and multi-photon processes; four-wave mixing and phase conjugation, transient coherent optical effects and free induction decay, optical breakdown and nonlinear effects in plasmas. Prereq: 522.

610 Quantum Optics (3) Quantum theory of emission and absorption of radiation; frequency-dependent susceptibility; interference and coherence of field quantization; field quantization and coherent photon states; interaction of radiation with atoms; photon statistics, counting and higher-order coherence; atomic scattering phenomena. Prereq: 521.

611 Advanced Quantum Mechanics & Field Theory (3) Second quantization, quantization of electromagnetic field, emission, absorption, and scattering of light, bremsstrahlung, pair production, and annihilation, quantum field theory methods in condensed matter physics, and quantum optics. Topics vary according to interest of students, instructor and present state of physics. Prereq: 561 or 581 or consent of instructor.

612 Advanced Topics in Quantum Field Theory (3) Renormalization, Landau shift, anomalous magnetic moment, 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 and instructor, and present state of physics. Prereq: 561 or 581 or consent of instructor.

613-14 Quantum Field Theory (3,3) Modern formulation of quantum field theory and its applications: second quantization of free and interacting fields; third quantization; elementary processes in QED; perturbative methods; higher order processes and renormalization; path integrals; general quantization of gauge fields; applications in QED and SU(2) x U(1) theory; quantum chromodynamics (QCD); the fate of GUTS (grand unified theories); TOE's (theories of everything, including quantum gravity). Prereq: 522 or consent of instructor.

621-22 Nuclear Structure (3,3) General properties of nuclear matter; two-body and many-body interactions; 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.

626-27 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, quantum field theory, of non-equilibrium 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 resonances, 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 structure, band structure in 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 capture, collective excitations, Kerenkov 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 infra- and inter-molecular energy and charge transfer group theoretical methods and selection rules in gases and condensed phases, normal modes and potential functions, vibration-rotation interaction theory, intensities, frequencies and line shapes of molecular transitions. Prereq: 522 or consent of instructor.

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 path 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 discuss the nature of the final product. The topic will normally be expected to reinforce or complement the student's concentration.

Successful completion of a comprehensive exam is required before graduation. The exam will normally be taken after completion of the core requirements in the second year. Based on the material generally used by the American Institute of Certified Planners (AICP), this requirement provides an additional capstone experience as well as preparation for meeting AICP professional certification requirements.

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

MINOR IN ENVIRONMENTAL POLICY

The department participates in a program designed to give graduate students an opportunity to develop an interdisciplinary specialization in environmental policy. See Economics for program description.

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, 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.)


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

501 Thesis and Major Paper Proposal Writing (1) Preparation

502 Registration for Use of Facilities (3-15) Required for the student not otherwise registered during 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. SNC only, E

510 Fundamentals of Planning (2) History of planning, structure and development of urban areas, operations of contemporary planning, trends and issues.

511 Graphic and Oral Communications in Planning (1)

512 Community Planning Process (1) Planning process, policy process and development process. Field reconnaissance of study community and development of approaches for assessing community.

515 Theory of Planning (2) Analysis of nature and objectives of planning process; role of planner and planning functions in public decision-making. Prereq: 510 or consent of instructor.

520 Planning Research Methods (3) Overview of qualitative and quantitative research methods. Field and survey research, case studies, and program evaluation. Analysis of data and synthesis of information. Prereq: 510 or 515.

521 Information Systems and Networks in Planning (3) Use and impact of computer-based information systems and global networks in planning and public management.

522 Information Systems and Networks in Planning (3) Use and impact of computer-based information systems and global networks in planning and public management.

523 Statistics for Planners (3) Applications of statistical techniques. Intuitive explanations and practical applications. Computer analysis to explore concepts.


526 Library Research for Planning (1) Survey of publication of interest to planners, researchers and research techniques. Use of facilities and collections of library.

530 Policy and Land Use Analysis (4) Basic methods of policy analysis and planning. Concept and framework for land-use planning. Roles of various institutions, governmental, economic and political factors. Cores: 520 or consent of instructor.

531 Urban and Regional Analysis (3) Past, present and possible futures of urban and regional structures and changes. Drawing on contemporary theories, models, and empirical research.

532 Planning Methods (4) Preparation of comprehensive plans for urban areas or regions. Development of basic data and forecasts, formulation of alternative plans and strategies, and development of plan implementation programs. Extensive laboratory experience. Prereq: 510, 512, 520, 530 and 531 consent of instructor.

537 Planning and Transportation (3) Same as Civil Engineering 558.

538 Urban and Site Design (3-6) Principles of design of residential subdivisions and some components of physical community, shopping centers, institutional complexes, central business districts. Problems of reviewing alternative designs. Prereq: 510 or consent of instructor.

539 Cultural Resources Planning (3) Principles of planning, design and implementation of historic buildings, sites and areas as related to comprehensive planning process. National, state, and local government role in preservation, designation of sites and local area. Extensive laboratory experience.

540 Legal Aspects of Planning (3) Legal basis for planning and guiding community development. Legal tools of planning. Prereq: 510 or consent of instructor.

541 Environment and Management (3) Environmental problems and management. Environmental impact analysis of plan proposals. Course is closely related to 552 Environmental Law. Prereq: 510 or consent of instructor.

542 Planning and Property Development (3) Process of urban planning and development. Functions of public sector real estate development and its relationship to planning. Partnership models in public and private sectors in urban development and redevelopment. Prereq: 510 or consent of instructor.

547 Negotiation (1) Methods, strategies, and skills useful to planners in mediation, negotiation, and dispute resolution concerning urban planning and development.

548 Tourism Planning (3) Planning of tourist and recreational areas and programs within a geographic region. Tourism planning model relationships among tourist attractions, tourist developments and planning of tourist attractions and services. Application of techniques in selected areas.

549 Fiscal Planning and Capital Improvements (3) Fiscal planning and capital improvements programming and budgeting. Techniques for assessing capital needs. Revenue sources and the budgeting process. Prereq: 510 or consent of instructor.

551 State and Regional Planning (3) Theory and practice of planning at state, sub-state, and metropolitan levels.

552 Development Planning in the Third World (3)
Seminor on urban and regional development in the third
world nations: Population growth, settlement patterns,
economic development, and framework of integrated
resource Management. (Same as Ecology and Evolutionary
Biology 552.)

555 Environmental Planning (3) Role of planners and
planning in maintenance of balance between natural and
built environment. (Same as Ecology and Evolutionary
Biology 555.)

560 Strategic Planning & Policy Development (3)
Models of strategic planning and process of policy devel-
opment in applied decision making. Qualitative
approaches, program evaluation and impact assessment.

570 Plan Implementation Process (1) Interactive com-
munity and government dynamics in plan implementa-
tion. Dynamics of change, conflict, resolution and consen-
sus building.

590 Practicum (3) Prereq: Consent of instructor. S/N/C or
letter grade.

591 Special Topics (1-3) Prereq: Consent of instructor.

592 Readings in Planning (1-3) Prereq: Consent of
instructor. May be repeated.

593 Problems in Planning (1-3) Prereq: Consent of
instructor.

635 Environmental Assessment and Sustainable
Development in Third World Countries (3) (Same as
Ecology and Evolutionary Biology 635 and Botany 635.)

THE DOCTORAL PROGRAM

This option requires writing a thesis based
on original research. Six hours of 500 Theses
are required. Prior to conducting research, the
student must develop a detailed written
research plan. In addition to the thesis hours, a
minimum of 24 hours of graduate coursework is
required, of which at least 14 must be taken in
courses numbered 501 and above. 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 1
hour of 503, and to present an exit seminar on
the thesis research.

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 research problem and
coursework and conducts the final oral
examination integrating the thesis and
coursework. A student having started on the
thesis option may transfer to the thesis
option upon approval by a potential major
professor and the Department 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 the 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 minimum of 30 hours of
graduate 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 write a written
comprehensive examination integrating the
coursework.
achieving a satisfactory grade in Political Science 596, Workshops in Computer Applications. Exceptions to this requirement will be considered on an individual basis.

The M.P.A. is a non-thesis program requiring 39 hours. Specific requirements include the following:

1. Core Curriculum (24 hours)
   a. General perspectives (9 hours) - 550 Public Administration; 552 Organization Theory; and any one of the following: 536 State and Local Government; 540 Public Law; 546 Law and the Administrative Process; 548 Public Policy Process; 553 The Politics of Administration; or 566 Ethics, Values, and Morality in Public Administration.
   b. Analytical skills (6 hours) - 512 Quantitative Political Analysis; 514 Research and Methodology in Public Administration.
   c. Management skills (9 hours) - 560 Public Budgeting and Finance; and any two of the following: 562 Public Management; 564 Human Resources Management; 556 Policy Analysis.

2. Specialization (9 hours)
   A specialization is designed by the student in consultation with the coordinator of the M.P.A. degree. 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 (6 hours)
   Internships are arranged in consultation with the coordinator of the M.P.A. degree program.

4. Final Examination
   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 conferred degree of Doctor of Jurisprudence and Master of Public Administration. In this program, a student may earn the M.P.A. and J.D. degrees in about two years. Students pursuing the dual program should plan to be enrolled in coursework in both programs for one academic year 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 and 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, but 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-level courses (500 or 600 level) offered in the Department of Political Science. 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 cross-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 M.P.A.- coordinator in both academic fields. 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 in determining the grade point average. 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 1120 on the verbal and quantitative parts of the Graduate Record Examination.

Doctoral students admitted to the program must complete 84 hours beyond the bachelor's degree, including 24 hours of coursework 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.

In addition, 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 UTK 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 three broad subfields available for graduate instruction in the department.
6. At least 6 hours must be earned in political science courses numbered above 600.
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 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 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.

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 context of international conflict.

475 Ancient and Medieval Political Thought (3) Survey of major western political thinkers from Socrates to Marsilio of Padua.

476 Modern Political Thought (3) Survey of major western political thinkers from Machiavelli to Marx.

500 Thesis (1-15) P/NP only.
502 Registration for Use of Facilities (1-15) 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 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 inference.

512 Quantitative Political Analysis (3) Methods and techniques in quantitative political 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 Public 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 from the colonial period to the present.

530 American Government and Politics (3) Survey of literature, approaches to research, critical examination of major works, and overviews of research in various subfields. May be repeated with consent of department. Maximum 9 hrs.

532 Presidency (3) Systematic examination of the structure, functions, and behavior of the American presidency as they have evolved from the founding to the present.

533 Congress (3) Formal, empirical and theoretical approaches to models of the institutional workings of Congress and the behavior of legislators.

535 Mass Political Behavior (3) Theoretical and empirical analyses of protest, 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 political power of political parties and interest groups.

539 State and Local Government and Politics (3) Theoretical and empirical analysis of government, politics, policymaking and public administration at the state and local levels.

540 Public Law (3) Selective examination of published research and current approaches in subfields 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 process; 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 rules, functions, and evaluation of decision making processes of public policymakers, including legislative, executive and judicial actors.

550 Public Administration (3) Overview of public administration theory and function.

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, and training for management information systems.

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 the 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 budgeting, planning 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 management challenges, methods and techniques related to effective management of human resources in public sector.

566 Ethics, Values, and Morality in Public Administration (3) Analysis of ethical 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.

570 Comparative Government and Politics (3) Selected topics in modern governments. May be repeated with consent of department. Minimum 9 hrs.

572 The Politics of Development (3) Selected topics dealing with political problems of less developed countries. May be repeated with consent of department. Maximum 9 hrs.

574 Area Seminar in Comparative Government and Politics (3) Selected topics in area studies. May be repeated with consent of department. Minimum 9 hrs.

580 International Politics (3) Survey of literature regarding major aspects of international politics. May be repeated with consent of department. Maximum 9 hrs.

583 American Government and Politics (3) Survey of American political institutions and processes. May be repeated with consent of department. Maximum 9 hrs.

586 Ethics, Values, and Morality in Public Administration (3) Analysis of ethical dilemmas confronting administrators in American political system.

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.

594 College Teaching in Political Science (1) Instructi onal effectiveness, techniques, organization, materials for teaching political science at college level. Prereq: Consent of instructor. S/N only.

595 Readings and Special Problems in Political Science (1-3) Prereq: Consent of instructor. May be repeated. Maximum 15 hrs.

596 Workshops in Computer Applications (3) Training in software applications to support research and decision making tasks in public service. Successful completion certifies proficiency of MPA students in use of software applications for personal computer. S/N only.

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

610 Special Topics in Empirical Theory and Methodology (3) Advanced methods and procedures of analysis in political science. May be repeated with consent of department. Minimum 9 hrs.

615 Formal Political Analysis (3) Assumptions, methods and applications of formal political models, including game theory, rational choice theory, and public choice. May be repeated with consent of instructor. Maximum 9 hrs.

628 Topics in Public Policy Theory (3) Selected issues and problems in normative political theory. Specific content determined by instructor. May be repeated with consent of instructor. Maximum 9 hrs.

630 Special Topics in American Government and Politics (3) Advanced study of selected topics. May be repeated with consent of instructor. Maximum 8 hrs.

640 Special Topics in U.S. Constitutional Law (3) Systematic analysis of published research and judicial decision, development of constitutional law as major component of public policy. May be repeated with consent of department. Maximum 9 hrs.

642 The Politics of Criminal Justice (3) Selective examination of contemporary problems of research and public policy formulation: criminal process; law enforcement administration; criminal court administration; and prison administration. May be repeated with consent of department. Maximum 9 hrs.

654 Contemporary Public Policies (3) Problems in one or more public policy areas in political and administrative perspectives. Topics selected by instructor. May be repeated with consent of department. Maximum 9 hrs.

660 Contemporary Perspectives on Public Administration (3) Development of theory in public administration: contemporary critiques and alternatives. May be repeated with consent of department. Maximum 9 hrs.

667 Comparative Public Administration (3) Comparison of policy-making structures and public policies in selected countries. May be repeated with consent of department. Maximum 9 hrs.

668 Special Topics in Public Administration (3) Analysis of selected issues and problems in public administration. May be repeated. Maximum 9 hrs.

670 Special Topics in Comparative Government and Politics (3) Research into selected topics. May be repeated with consent of department. Maximum 9 hrs.

682 Theory and Analysis of U.S. Foreign Policy Processes (3) Theoretical approaches to decision making in foreign policy. May be repeated with consent of department. Maximum 9 hrs.

688 Special Topics in International Politics (3) Selected issues and problems in international politics. Specific content determined by instructor. May be repeated with consent of instructor. Maximum 9 hrs.

Polymers
Engineering
See Materials Science and Engineering

Psychoeducational
Studies
(College of Education)

MAJORS

DEGREES

MAJORS

DEGREES

Education ................. Ed.D., Ed.D., Ph.D.

Educational Psychology ................. M.S.

R. S. McCallum, Leader

Professors:

Benton, Jerry J. (Emeritus), Ed.D. ................. UC Berkeley

Brockett, Ralph G., Ph.D. ................. Syracuse

Carmer, 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

Kawas, Carol, Ed.D. ................. Georgia

McCallum, R. S., Ph.D. ................. Tennessee

Mcallum, John M., Ed.D. ................. NC State

Williams, R. L. (Liaison), Ph.D. ................. George Peabody

Associate Professor:

Kindall, Luther M., Ed.D. ................. Tennessee

Assistant Professor:

Whitaker, Dianne, Ph.D. ................. Washington
concentration in school psychology, and (3) 
500 Thesis (1-15) Pr/NP only.

Education

Doctor of Education

Education

Educational psychology: collaborative learning

Doctor of Philosophy

Education

Adult education

School psychology

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 lifelong learning. The unit seeks 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 concentration under the college-wide Ph.D. program is accredited by the American Psychological Association. The school psychology concentration under the Ph.D. and Ed.S. programs are accredited by the National Association of School Psychologists and both have the approval of the National Council for Accreditation of Teacher Education.

Three programs have an application deadline of 15 January: (1) Ph.D. with a major in Education, concentration in school psychology, (2) Ed.S. with a major in Education, concentration in school psychology, and (3) Ed.D. with a major in Education, concentration in educational psychology: collaborative learning. Two programs have application deadlines of 15 January and 15 October: (1) Ph.D. in Education, concentration in adult education, and (2) Ed.D. in Education, concentration in adult education. Application reviews are completed throughout the year for both concentrations under the M.S. degree program with a major in Educational Psychology.

Admission Requirements

Admission requirements include completion of all items in the unit admissions packet and three letters of recommendation. Up-to-date GRE scores are required for application to all degree programs except the master’s program. For all doctoral programs, a writing sample is also required.

GRADUATE COURSES

432 The Disadvantaged Student: Psychoeducational Perspectives (3) Theory and research regarding the psychological, 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) Pr/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 or faculty time before degree is completed. May not be used toward degree requirements. May be repeated. S/N or letter grade. E


504 Special Topics (1-3) Instructor-initiated course offered at convenience of unit on topics of current interest. May be repeated. Maximum 15 hrs. S/N or letter grade. E

509 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 lifetime with applications to educational and therapeutic settings. F, Su

513 Reflective Practice in Education and Psychology (3) Concepts, theories and processes of reflective practice applied to educational settings. E

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 systems to apply to student motivation, discipline and learning. F, Su

516 Educational Applications of Cognitive Learning Theories (3) Cognitive theory and research, social learning theory, attribution and information processing as applied to education. Su

518 Educational Specialist Research and Thesis (3) May be repeated. P/NP only. E

520 Survey of Adult Education (3) Historical development, philosophies of adult education agencies, associations, programs, issues, and literature illustrating process of adult education and diversity of continuing education. Prereq: Consent of instructor. F, Su

521 Program Development and Operation in Adult Education (3) Theories and methods from research to practice in planning and operating adult education programs. Prereq: Consent of instructor. F, Su

522 Adult Development (3) Changes in characteristics of adults over lifetime and implications for adult education. Prereq: Consent of instructor. Sp, Su

523 Post-Secondary Education for Adults (3) History, evolution, philosophy, structure and functions of post-secondary, sub-university institutions, their programs and clientele. Prereq: Consent of instructor. E

524 Continuing Professional Education (3) Theories and concepts supporting design and management of educational programs for adults in professions. Prereq: Consent of instructor. F, Su

525 Characteristics of Adult Learners (3) Key characteristics of adult learners, and applications to teaching and learning contexts. Sp

526 Informal Methods of Assessment and Development of raters, checklists, observation, test situations and case reports in assessment and counseling of children and adults. Prereq: Counselor Education and Counseling Psychology 525. Su

527 Controversies in Adult Education (3) Controversial issues confronting field of adult education; development of critical analysis skills by looking at controversies from different perspectives. Sp

528 Psychology of Aging (3) Theory and research of aging and gerontology related issues: psychological and related physiological changes that occur in later life stages of human development. Implications for treatment programs and policy. Sp

530 Methods of Collaborative Inquiry (3) Philosophical and theoretical frameworks for designing and conducting collaborative inquiry projects. Practice in conducting research. Sp, Su

540 Seminar in School Psychology (3) Essentials of theory and practice of school psychology as a professional specialty. Consideration of history and current issues in school psychology. Sp

541 Psychoeducational Assessment (3) Direct, psychometric and naturalistic assessment methods in learning environments. Prereq: Admission to school psychology program or consent of instructor, and Counselor Education and Counseling Psychology 525 or equivalent. May be repeated. Maximum 6 hrs. F, Sp

542 Practicum in Psychoeducational Assessment (3) Application of assessment skills to clients in learning environments. Coreq: 541 or consent of instructor. May be repeated. Maximum 8 hrs. S/N only. F, Sp

545 Psychoeducational Consultation (3) Use of two-or three-person model of consultation in educational and therapeutic settings based on behavioral ecological, social learning and cognitive-behavioral theories. F

546 Practicum in Consultation (3) Application of consultation skills to educational settings. Prereq: 545. Sp

549 Internship in School Psychology (1-6) Supervised employment in unit approved school psychology internship site. Prereq: Enrollment in school psychology program and consent of instructor. May be repeated. Maximum 12 hrs. S/N only. E

550 Discipline and Conflict Resolution (3) Applications of major models of discipline and conflict resolution strategies in development of constructive atmosphere for classroom learning. Sp

572 Cognitive Education: Models and Approaches (3) Models and approaches in field of cognitive education: research and clinical support for various program components, critical variables of organizational learning that affect success of implementation. Sp

573 Meeting Needs of Nontraditional and Underachieving Learners (3) Exploration of students’ needs at any age and level of functioning who are not progressing up to their fullest potential, causes of academic and motivational problems, and approaches to overcome them. Learning to learn, cultural alienation, and personal world view and interaction with effective teaching and learning. Su

574 Facilitating Group Change (3) Practical issues of group change. Analyses of group and individual experiences in all types of educational settings in relation to systems theory and collaborative learning theory. Needs of individuals and groups involved in change and roles of inside and outside change agents. F, Su


593 Independent Study (1-3) May be repeated. S/N or letter grade. E

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

602 Directed Research (1-3) Instructor-initiated group investigation of empirical and theoretical problems in educational and counseling psychology. May be repeated. Maximum 12 hrs. S/N only. E

604 Special Topics (1-3) Instructor-initiated courses offered at convenience of unit on topics of interest. May be repeated. Maximum 15 hrs. S/N or letter grade. E

699 Advanced Seminar in Curriculum and Learning (3) Team-taught interdisciplinary seminar stressing trends, themes, and issues in curriculum and learning. Reading and discussions based on significant research and scholarly publications. Sp

630 Seminar in Adult Education (3) Issues in adult education, theories and concepts, philosophical positions, research trends and methodologies. Prereq: 520 or equivalent. F

631 Seminar in Program Planning (3) Concepts, principles, and processes related to program planning in adult education. Prereq: 521 or equivalent. Sp

660 Doctoral Seminar in Collaborative Learning (3) Issues, theories, concepts and research in collaborative learning. Prereq: Admission to Ed.D. in Educational Psychology. Sp

661 Advanced Seminar in Program Planning (3) Concepts, principles, and processes related to program planning in adult education. Prereq: 521 or equivalent. Sp

662 Advanced Seminar in Adult Development (3) Adult development research. Designing research for studies of life cycle. Prereq: 522 or equivalent. Sp, Su

663 Doctoral Seminar in Collaborative Learning (3) Issues, theories, concepts and research in collaborative learning. Prereq: Admission to Ed.D. in Educational Psychology. Sp
centation in educational psychology: collaborative learning. May be repeated. Maximum 12 hrs. SNC or letter grade. E.

635 Ethical, Legal, and Professional Issues in Psychology (3) Same as Psychology 635 and Counselor Education and Counseling Psychology 635. F.

649 Advanced Internship in School Psychology (1-9) Supervised experience as a school psychologist in an approved internship site for doctoral level students. Prereq: Enrollment in doctoral level school psychology program and consent of instructor. May be repeated. Minimum 9 hrs. SNC only. E.

650 Professional Practice in School Psychology (1) Field setting to facilitate academic, social, and interpersonal development of children and adults. School and mental health settings for intervention, consultation, prevention, and assessment services. May be repeated. Maximum 9 hrs. SNC only. E, F, Sp.


663 Scale Construction (3) Development, pilot testing, and revision of attitude inventories, rating scales, and other paper-and-pencil techniques for assessing beliefs, personality characteristics, and opinion. Prereq: Counselor Education and Counseling Psychology 525, and two-course sequence in statistical analysis. A.

665 Analysis of Research in Instructional Technology (3) Research on human learning, design of learning environments. Analysis of teacher behavior, test development, computer design and video presentations. A.

668 Practicum in Instructional Planning (3) Development and management of course or program of instruction in educational psychology. Prereq: 665, or consent of instructor. E.

669 Internship in Educational Psychology (1-6) Supervised employment in an approved educational psychology internship site. May be repeated. Maximum 12 hrs. SNC only. E.

671 Mediated Learning Theory (3) Feuerstein's theory of mediated learning experience and its connections to work of Piaget, Vygotsky, and others. Implications for transformational learning and building of learning communities for learners of all ages. Prereq: Admission to doctoral program or consent of instructor. F.

673 Collaborative Learning (3) Team teaching, interactive course on collaborative learning theory related to professional practice. Integration of mediated learning theory with interactive practice theory related to teaching of collaborative learning. Prereq: Consent of instructor. Sp.

690 Psychopathology of Childhood (3) Descriptive and critical study of psychopathology of childhood and of systems of treatment as applied to individuals with mental disorders; nomenclature provided in State Department of Education's Student Evaluation Manual and Diagnostic and Statistical Manual of Mental Disorders of American Psychiatric Association. E.

693 Independent Study (1-3) May be repeated. SNC or letter grade. E.

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**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 clinical psychology is offered through the Life Sciences program.

**Experimental Psychology**

A graduate study leading to the M.A. degree in psychology is available with a concentration in experimental psychology. This program 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.

**Clinical Psychology**

This program is designed to equip the student 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.

Doctoral study in experimental and organizational psychology is offered through the Intercollegiate program in Industrial and Organizational Psychology, to which application is made through the Department of Management.
GRADUATE COURSES

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
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<tbody>
<tr>
<td>400 Cognitive Psychology: Language and Symbolic Processes (3)</td>
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<td>Psychology of knowing, explaining, and understanding. Directed and associative thinking, memory, problem-solving, concept-formation, nature, use, and development of language. Prereq: 310 or consent of instructor.</td>
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<tr>
<td>409 Group Facilitation (3) Study of theory and technique through supervised experience in small groups. Prereq: 110 and consent of instructor. May be repeated. Maximum 6 hrs.</td>
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<tr>
<td>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.</td>
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<tr>
<td>424 Psychology and the Law (3) Psychological aspects of legal systems. Prereq: 110 or equivalent, upper-division standing and consent of instructor.</td>
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<tr>
<td>430 Health Psychology (3) Survey of psychological factors related to health and illness: stress, personality, and environment. Applications of psychological treatments to physical illness. Prereq: 110 or equivalent, 210.</td>
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<tr>
<td>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.)</td>
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<tr>
<td>440 Organizational Psychology (3) Social-psychological analysis of organizations, role-theory and systems theory. Prereq: 390.</td>
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<td>450 Comparative Animal Behavior (3) (Same as Ecology and Evolutionary Biology 450.)</td>
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<tr>
<td>458 Comparative Animal Behavior Laboratory (3) Coreq: 450. (Same as Ecology and Evolutionary Biology 458.)</td>
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<tr>
<td>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.</td>
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<tr>
<td>469 Laboratory in Physiological Psychology (3) Laboratory studies of nervous system and physiological correlates of behavior. Coreq: 461.</td>
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<tr>
<td>470 Theories of Personality (3) Survey of major theories of human personality and their development. Prereq: 220 and 300 or 330.</td>
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<td>480 Theories of Learning (3) Classical and current approaches to learning and cognition. Prereq: 310.</td>
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<tr>
<td>482 Topics in Psychology (3) Intensive analysis of special topics: Afro-American psychology or evaluation of programs in community. Prereq: Biological Basis of Behavior or Behavior and Experience: Humanistic 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.</td>
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<tr>
<td>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.</td>
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<td>500 Thesis (1-15) P/NP only.</td>
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<td>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.</td>
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<tr>
<td>507 Foundations of Applied Psychology (3) Fundamentals for application of psychology principles and techniques in community, organizational, and industrial settings, and related ethical and theoretical issues. Prereq: 525 and consent of instructor.</td>
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<td>508 Readings and Special Issues in Psychology (1-3) Prereq: Consent of instructor. May be repeated. Maximum 9 hrs. E</td>
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<tr>
<td>509 Research Practicum (1-3) Required of first-year graduate students in psychology. May be repeated. Maximum 9 hrs. S/NC only. E</td>
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<tr>
<td>510 Topics in Psychology (3) Intensive examination of selected issues in psychology. Prereq: Consent of instructor. May be repeated. Maximum 9 hrs.</td>
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<tr>
<td>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.</td>
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<tr>
<td>512 Life-Span Development (3) Theories and research concerning normal human development throughout life, adulthood and old age. Prereq: Consent of instructor.</td>
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<tr>
<td>513 Foundations of Psychology: Biological Factors, Perception, Learning, Therapy, and Motivation (4) Intensive survey. Prereq: Consent of instructor.</td>
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<tr>
<td>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</td>
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<tr>
<td>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</td>
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<tr>
<td>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.</td>
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<tr>
<td>537 Behavioral Neurology (3) Disorders of nervous system, organic brain dysfunctions. Diagnosis and treatment. Prereq: Consent of instructor.</td>
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<tr>
<td>538 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.</td>
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<tr>
<td>545 Advanced Animal Behavior (3) (Same as Ecology and Evolutionary Biology 545.)</td>
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<tr>
<td>546 Ethological Psychology (3) Basic ethology and comparative psychology approaches for human behavior. Prereq: Consent of instructor.</td>
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<tr>
<td>547 Conceptual Foundations of Evolution and Behavior (3) Critical evaluation of seminal writings on theory and method in comparative analysis of behavior. (Same as Ecology and Evolutionary Biology 547.)</td>
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<tr>
<td>550 Social Psychology (3) Survey of theory and research concerning interpersonal interaction and individual behavior in social context. Prereq: Consent of instructor. F</td>
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<tr>
<td>554 Laboratory in Psychometrics (3) Further learning about psychometrics theories: item response theory (modern mental test theory), factor analysis, and applications of those methods using computer programs to</td>
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</table>
Rehabilitation, Deafness, and Human Services (College of Education)

MAJORS

Counseling ...................................... M.S., Ph.D.

Robert F. Kronick, Leader

Professors:


Associate Professors:


Assistant Professors:

Barnes, Rhoda, Ph.D. .............. California McLean, James D., Ph.D. ........ Chicago

The Rehabilitation, Deafness and Human Services Education unit participates in graduate programs leading to degrees, majors, and concentrations in:

Master of Science Counseling Rehabilitation counseling Education Track 1—counseling of the deaf and hard of hearing Track 2—education of the deaf and hard of hearing

Doctor of Philosophy Education Rehabilitation/special education

See Education under Fields of Instruction for full description of all degree requirements. The vision of the Rehabilitation, Deafness, and Human Services unit is one of full inclusion for persons with disabilities in a multicultural nation. Faculty and staff pursue, as a common mission, improvement in the quality of life for persons with disabilities and focus research interests on the development of new knowledge and technology to meet the unique educational, social, and employment needs of this population. A major goal of the unit is the preparation of graduates for future leadership and professional roles in business and industry, education, and community and government service.

The Rehabilitation, Deafness, and Human Services unit includes several educational programs sponsored by the U.S. Department of Education, Office of Special Education and Rehabilitation Services, Rehabilitation Administration, including: Regional Rehabilitation Continuing Education Program, Orientation to Deafness, Southeastern Regional Interpreters Training Consortium, National Interpreter Training Center, and the Educational Interpreting program.

GRADUATE COURSES

415 Language Development of Hearing Impaired (3) Language problems of hearing impaired contrasted with scope and sequence of normal language development. Formal linguistic systems used to describe language development problems.


419 Speech Development of Hearing Impaired (4) Theories of speech development, approaches in training perception and production of speech; and aural habilitation. Practice experiences.

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; coping with 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 meth-
Assistant Professors:

Beaurois, Margaret, Ph.D. ................. Texas
Essif, Les, Ph.D. ....................... Brown
Kaplan, Gregory, Ph.D. .................. Columbia
McAlpin, Mary K., Ph.D. ................. Sorbonne
Nakuma, Constantio, Ph.D. ............... Silvanfilho, Euridice, Ph.D. .......... North Carolina

The Department of Romance Languages offers two advanced degrees: the Master of Arts in French and in Spanish and the Doctor of Philosophy in Modern Foreign Languages.

Inquiries should be addressed to the head of the department. The head, through the coordinators of Spanish and French, will make available further departmental requirements, regulations, and materials not listed below.

THE MASTER'S PROGRAM

Thesis Option

1. Completion of a minimum of 24 semester hours in coursework plus at least 6 hours in 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, Slavic and Asian Languages and the Department of Romance 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, Slavic, and Asian 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, distributed 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 12 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 30 (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, 564 or Spanish 512 and 550. Theses are excluded. If 512 is used as part of the 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 I only), Russian or Spanish. For Track I, 12 of these hours must be 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 59 (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 languages 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
French

GRADUATE COURSES


411 French Literature of the 16th Century (3) Highlights of 16th-century French literature. Excerpts from Rabelais and Montaigne; readings of poems from writers from Lyon and members of Pleiad. 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 Composition and Conversation 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 Conversation or French for Business.

423-4 Advanced Conversation (1,1) Informal conversation with native speaker on contemporary topics. Stress on in-class contact rather than outside preparation. Prereq: Intermediate Composition and Conversation or French for Business. 2 hrs weekly.

425 Introduction to Descriptive Linguistics (3) Theory and practice of techniques of linguistic analysis in a variety of fields. Coursework in phonetics, phonology, morphology, syntax, semantics, pragmatics and historical linguistics; discussion of relevance of learning and teaching of foreign languages and to study of literary texts. Recommended prerequisite: French language. (Same as German 425, Linguistics 425, Russian 425, and Spanish 425.)

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

420 Romance Linguistics (3) Development of Classical Latin through Vulgar Latin into major Romance languages. (Same as Spanish 429 and Linguistics 429.)


431 Highlights of French Civilization (3) Survey of French civilization from the Gauls to World War II. Historical events, daily life, all forms of arts. Prereq: 300-level literature course.

432 Contemporary French Culture (3) French contemporary civilization and culture since World War II. Problems, trends, and organization of French society today. Prereq: 300-level literature course.

434 Literature of Quebec (3) Survey of literature of Quebec, as well as French literature connected with North America. Readings include French-speaking missionaries, such as the voyages of Champlain and philosophers of the Jesuits, and literature of contemporary Quebec. Prereq: 300-level literature course.

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 cultural sensitivities 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 explication 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. Prereq: 300-level literature course.

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 skills and scholarly research in French literature and language. Practical exercises on compiling of scholarly data using computer-based and non-computer sources.


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

532 French Literature of the 16th Century II (3) Literature of the second half of 16th century, mature works of Pleiade writers and such poets as d'Attigny and Sponde; Montaigne, writers of scientific works and moralists and drama.

541 French Literature of the 17th Century I (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 French Literature of the 18th Century (3) Reading and interpreting works of Mme. de Nevers, Voltaire, Diderot, Rousseau, Beaumarchais, and others.

561 Lyric Poetry of the 19th Century (3) Reading and interpreting great French romantic poets, 'Tart pour lart' movement, Parnassians, Charles Baudelaire and Symbolists.


571-72 Trends in Modern French Literature (3,3) 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 improvement of one's own creative French.

584 Modern Theory and Criticism (3) Survey of twentieth century critical theory, including psychoanalytic, Marxist, structuralism and more.

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. Letter grade or S/NC.

594-95 French Directed Readings (3,3)

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


632-33 Seminar in French Literature (3,3) 632-19th Century, 633-20th Century. May be repeated with consent of department. Maximum 6 hrs each.
424 Advanced Composition (3) Prereq: 212 or consent of instructor.

439 Literature of the Rinsascimento (3) From Pulci to Tasso; Quattrocento and Cinquecento; Prereq: 212 or consent of instructor.

406 Modern Italian Poetry (3) From Pascoli to Montale. Prereq: Italian 212 or consent of instructor.

406 The Modern Italian Novel (3) From Manzoni to Calvino; Prereq: 212 or consent of instructor.

409 Directed Readings (3)

410 Italian Theatre (3) Survey of Italian theatre from Renaissance to present. Prereq: Intermediate Italian or consent of instructor.

421 Topics in Italian Literature and Cinema (3) Italian literature and cinema from 1930 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 1930. Films in Italian with English subtitles. May be repeated. Maximum 6 hrs. (Same as Cinema Studies 421.)

510 Readings in Italian Literature (3) Topics vary. May be repeated with consent of department.

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.

**Portuguese**

**GRADUATE COURSES**

400 Portuguese for Speakers of Another Romance Language (3) Accelerated class for beginning students of Portuguese with strong background in another Romance language. Introduction to grammar, reading and culture of Portugal and Brazil. Prereq: 3 hours at 300-level in another Romance language or equivalent.

431-32 Topics in the Literature & Language of Portuguese-speaking World (3,3) Outstanding works of literature and culture from Portugal and Brazil. Topics vary. Prereq: At least one course at the 500 level or by equivalent. May be repeated. Maximum 12 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.

**Spanish**

**GRADUATE COURSES**

421 Phonetics (3) Prereq: Intermediate Conversation and Composition or consent of instructor.

422 Advanced Grammar (3) Finer points of grammatical structures. Required for all majors. Available to non-native speakers only. Prereq: Intermediate Conversation and Composition and Grammar of 9 hrs of upper division Spanish.

423 Advanced Conversation (3) Develops speaking skills to advanced level through wide range of activities. Available to non-native speakers only. Prereq: 422 or consent of instructor.

424 Advanced Composition (3) Develops writing skills to advanced level through numerous compositions on assigned topics. Available to non-native speakers only. Prereq: 422 or consent of instructor.

425 Introduction to Descriptive Linguistics (3) Same as French 425, German 425, Russian 425, and Linguistics 425.

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

429 Romance Linguistics (3) Same as French 429 and Linguistics 429.

430 History of Spanish Language (3) Evolution of Spanish language from its origins to present; major differences between Hispanic-American and Iberian Spanish. Prereq: Intermediate Composition and Grammar.

431 Spanish Civilization (3) Major social, political, and cultural achievements of Spanish people from origins of their civilization until today. Prereq: Aspects of Spanish and Spanish-American Literature or equivalent.

435-36 Survey of Spanish Literature (3,3) 435-Spanish literature through Golden Age. 436-Spanish literature since 1700. Prereq: Aspects of Spanish and Spanish-American Literature or equivalent.

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 equivalent. May be repeated with consent of department. Maximum 6 hrs.

451 Hispanic Prose (3) Close reading and analysis of representative works by selected novelists, essayists or short story writers of Spain or Spanish America. Topics vary. Prereq: Aspects of Spanish and Spanish-American Literature or equivalent. May be repeated with consent of department. Maximum 6 hrs.

452 Hispanic Poetry (3) Major poets of each period, either Spanish or Spanish-American. Topics vary. Prereq: Aspects of Spanish and Spanish-American Literature or equivalent. May be repeated with consent of department. Maximum 6 hrs.

461 Special Topics (3) Aspect of Hispanic literature, culture, linguistics, or language pedagogy. Topics vary. May be repeated with consent of department. Maximum 6 hrs.

471 Latin American Civilization (3) Latin America's diverse heritage and major social and political institutions. Prereq: Aspects of Spanish and Spanish-American Literature or equivalent.

473-74 Survey of Spanish American Literature (3,3) 473-Historical survey from Conquest to late 19th century. 474--Major literary movements, writers and works of 20th century. Prereq: Aspects of Spanish and Spanish-American Literature or equivalent.

479 Social Protest Literature of Latin American (3) Analysis of literature as means of unmasking social ills that have traditionally beset Latin America, including revolutions, black literature, women writers, role of writer in Latin American society. Prereq: Aspects of Spanish and Spanish-American Literature or equivalent.

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. SYC only. E

510 Teaching a Foreign Language (3) Practical application of methods for teaching and evaluating basic 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.

522 Advanced Communication Skills for Teachers and Other Professionals (3) Advancement of oral and written proficiency in Spanish through extensive use of authentic contemporary materials; class lectures and discussions; oral and written examinations and reports. Especially recommended for graduate students, teachers and other professionals seeking to maintain or enhance high level communicative competency.

531 Old Spanish (3) Evolution of Spanish language from its origins through 15th century.

532 Medieval Spanish Literature (3) Spanish literature through 15th century.

533 Golden Age Prose (3) Wide range of prose fiction in Spain during 16th and 17th centuries: Moretho, picaresque, sentimental, pastoral and exemplary novels, and dialogues.

534 Don Quixote (3)

535 Golden Age Poetry (3) Garcilaso, Fray Luis de Leon, San Juan de la Cruz, Lope de Vega, Quevedo, and Gongora.

537 Golden Age Drama (3) Major dramatists of period: Lope de Vega, Tirso de Molina, Ruiz de Alarcon, Guillen de Castro, Calderon de la Barca, Moreto, and Rojas Zorrilla.

540 Eighteenth- and Nineteenth-Century Spanish Literature (3) Major works from 18th- and 19th-century Spain. Content varies with regard to themes, genres or literary movements.

542 20th-Century Spanish Literature: Generation of '98 through Civil War (3) Principal achievements and representative directions in literature of Spain through Civil War years.

543 20th-Century Spanish Literature: Post-Civil War through Present (3) Principal achievements and representative directions in literature of Spain from Post-Civil War period to present.

550 Techniques of Literary Analysis and Research Methods (3) Theoretical and critical essays on various techniques of literary analysis. Exploration of bibliographical and research materials.

551 Special Topics in Spanish or Spanish-American Literature (3) May be repeated. Maximum 6 hrs.

552 Directed Readings (3)

561 Spanish American Colonial Literature (3) From pre-Columbian era through 18th century. Reading and analysis of selected works from Colonial Spanish American period and their Continental sources. Indigenous texts and authors.

562 Nineteenth-Century Spanish American Literature (3) From early nineteenth century to 1880. Content varies with regard to genre, theme, literary movements, or other aspects contributing toward definition of Spanish American literature.


573 The Spanish American Novel: Chile and the River Plate Nations (3) Novels from Chile, Argentina, Uruguay and Paraguay. Modern world.


576 Contemporary Spanish American Poetry (3) Major poets in Spanish American from post-modernismo to present day.

577 Spanish American Drama (3) Major playwrights of 20th-century Spanish America.


579 The Spanish American Short Story (3) Short story by major writers in Spanish America from Romanticism to present day, theory and criticism of genre.

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. Letter grade only.

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

621-22 Seminar in Spanish American Literature (3) Topics vary. May be repeated with consent of department. Maximum 9 hrs.

631 Seminar in Spanish American Literature (3) Topics vary. May be repeated with consent of department. Maximum 9 hrs.

Addison, Sandra (Memphis), M.S.W. Tennessee
Bailes, Melinda (Nashville), M.S.S.W.
Betz, Phyllis (Knoxville), M.S.S.W.

THE MASTER'S PROGRAM

The Master of Science in Social Work program prepares social workers to provide professional leadership in: 1) Clinical social work practice and 2) Social work management and community practice. These objectives are met through a curriculum requiring of all students a professional foundation and a concentration in either clinical social work practice or management and community practice.

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 a course in human and demonstrate a liberal arts perspective through coursework in at least four of the following five areas: economics or mathematics; government, political science or history; psychology, philosophy, literature, or the arts. 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.

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 undergraduate social work with substantial participation 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, an overall undergraduate GPA of 3.0 or greater, and 2) 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 social work 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 theory, 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 related needs; and the organizational 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 field 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.

Students receiving a grade of NC in field practice may not repeat the field practice.

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/NC 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 8 semester credits from work earned in discipline 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.

Proiciency 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 Ph.D. program for further information regarding admissions criteria.

General Requirements
1. A minimum of 63 hours beyond the master's degree including: a) completion of 24 hours of required coursework, b) completion of 15 credits of advanced electives, at least 12 of which are taken outside the department, and c) completion of at least 24 credit hours of dissertation research.

2. Successful completion of qualifying and comprehensive examinations.

3. Completion and defense of the dissertation.

Curriculum
The curriculum of the Ph.D. program consists of foundation course work, electives, and dissertation research. The foundation curriculum consists of 24 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 coursework 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, 640, 650 and Statistics 531 and 532 or any two 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 among residents of some states to enroll in certain 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 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


502 Registration for Use of Facilities (3-15) Required for the student not otherwise registered during any semester when the 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

503 Foundations of Social Work Practice II (3) Generalist practice with individuals, families, and group systems. Eclectic approach to frame understanding of such systems and their adaptation to environments. Various social work roles and intervention 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 philosophy 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

509 Graduate Seminar in Public Health (1) (Same as Public Health 599, Exercise Science 599, Nutrition 599, and Nursing 599).

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 structures: race, ethnicity, social class, gender roles. Prereq: Admission to College or consent of instructor. F

515 Human Behavior and Social Environment II (3) Patterns of adaptation and maladaptive behavior, recognizing different theories, 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 process through which macro-social changes in the community have taken place. Also an exploration of the major components of social welfare service delivery settings. Prereq: Admission to college or consent of instructor. F

518 Social Work and Oppression (3) Sources, dynamics, and impact of oppression in U.S. society as manifested in both social/psychological systems and personal experience. Connections among various forms of oppressions: racism, sexism, classism, and heterosexism. Forces which perpetuate such conditions. Prereq: Admission to College or consent of Instructor. F

521 Clinical Social Work Practice with Individuals (3) Therapeutic knowledge and skills for clinical practice with individuals from eclectic and time limited therapeutic perspectives. Therapeutic processes and treatment strategies, incorporating content from psychodynamic and cognitive practice models. S/NC only. F

522 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. Treatment of terms of application to families with varied system and individual problems and to families from varied social and cultural backgrounds. Prereq: Completion of foundation or consent of instructor. F

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 leader interventions. Prereq: Completion of foundation or consent of instructor. F

526 Research for Assessment of Social Work Treat-ment (3) History and philosophy, conceptual approaches, techniques and methods of treatment research as applied to evaluation and implementation of direct services to clients. Prereq: Completion of foundation or consent of instructor. Sp

530 Seminar in Social Work (3) Topic in theory and practice of social work. Prereq: Completion of foundation or consent of instructor. F

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

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

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. F

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. F

541 Leadership and Management in Human Services (3) Management principles 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. Policies and procedures skill in budgeting, allocating, expenditure control, fundraising, grant writing, marketing, and evaluation. Prereq: Foundation or consent of instructor. F

547 Evaluation Research (3) History and philosophy, 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 strengths and limitations of evaluation methods, microcomputer application of data, and measurement of program goals and objectives. Prereq: Completion of foundation or consent of instructor. F

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 (2) Advanced social welfare policy seminar in specific fields of practice. Prereq: Foundation or consent of instructor. May be repeated. Maximum 6 hrs. E

552 Community Organization (3) Locality development, social planning and social action as practice models for development of resources to meet human needs. Prereq: Foundation or consent of instructor. F

555 Current Issues in Management and Community Practice (3) Major trends affecting delivery of human services and requires knowledge and problem solving skills related to address them: board/leadership development, coalition building, conflict management, and team development. Prereq: Completion of foundation or consent of instructor. F

561 Supervision and Consultation in Social Work (3) Roles, techniques, and practices of social work supervision and consultation. Prereq: Foundation or consent of instructor. F

563 Social Aspects of Illness (3) Social, economic, and emotional problem arising from or related to illness and disability and their implications for social work. Prereq: Foundation or consent of instructor. F

566 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. F

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

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

581 Field Practice (3) Instruction and supervision in social work practice. Prereq or coreq: 501. S/NC only. F

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

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

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

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

593 Independent Study (1-4) Individualized study, student selects, designs, and completes examination of special issue or problem. Prereq: Consent of instructor. May be repeated. Maximum 8 hrs. F,Sp

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

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

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

604 Research in Social Service Settings (3) Advanced research, under faculty supervision, of practice issues in community agency. Prereq: First year required. Ph.D courses or consent of instructor. May be repeated. Maximum 8 hrs. F,Sp

608 Evaluative Research for Social Work Practice, Programs and Policy (3) Techniques and strategies for quantitative and qualitative analysis for social policy’s impact on individuals and groups and for evaluating processes and outcomes of social work practice. F


613 Social Work Practice and Its Social Context II (3) Critical analysis of knowledge bases of major practice modalities in administration and planning. Sp

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

650 Programs and Legislation for Children and Families (3) Background, purposes, and current issues surrounding major social welfare and health programs serv-
Sociology

(College of Arts and Sciences)

MAJOR

Sociology .................................................. M.A., Ph.D.

Michael L. Benson, Head

Professors:

Betz, D. Michael, Ph.D. ....................... Michigan State
Black, James A., Ph.D. ......................... Iowa
Gaventa, John P., Ph.D. ......................... Oxford
Hastings, Donald W., Ph.D. ................. Massachusetts
Hood, Thomas C., Ph.D. ....................... Duke
Perrin, Robert G. (Liaison), Ph.D. .................................. British Columbia
Soyer, Neil, Ph.D. ................................. Illinois
Wallace, Samuel E., Ph.D. ................. Minnesota

Associate Professors:

Benson, Michael L., Ph.D. ....................... Illinois
Cable, Sherry, Ph.D. ............................. Penn State
Jaleta, Asafa, Ph.D. ............................... SUNY (Binghamton)
Kurth, Suzanne B., Ph.D. ............. Illinois (Chicago)

Assistant Professor:

Jones, Robert E., Ph.D. ......................... Washington State

The Sociology Department offers graduate study leading to the Master of Arts and the Doctor of Philosophy. The M.A. program includes a thesis and non-thesis option. The graduate program has concentrations in criminology; energy, environment, and resource policy; and political economy. The criminology concentration includes 505, 531, 653, and 655. The energy, environment, and resource policy concentration includes 560, 583, 661, 662, and 665. 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 degree, 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 Theses 500, is required. Students must complete coursework 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 those 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/N credit). 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 residence. Students must complete Sociology 622, 534, 535, 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 individualized 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 colateralist) 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 the deadlines specified by the Graduate School.

MINOR IN ENVIRONMENTAL POLICY

The department participates in a program designed to give 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 in American society with her/his 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 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.

446 The Modern World System (3) Critical examination of historical world-systems as social systems, its coherence, boundaries, regions, member groups, cleavages, and patterns of conflict. Analysis of who gets what, why, and how in global political economy.

455 Society and Law (3) How laws and legal processes are affected by social change, social impact of legal sanctions, relations between law and social justice.

459 Organizational and Corporate Crime (3) Analysis of crime and deviance committed by organizations. Case studies of corporate and organizational crime, organizational dynamics of crime, theories of corporate crime, and organized responses to this type of crime by governmental regulatory agencies.

462 Population (3) Demographic factors and social structure; trends in fertility, mortality, population growth, migration, distribution, and composition; population policy.

464 Urban Ecology (3) Relation of humans to their 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) 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

504 Sociological Foundations of Political Economy (3) Survey of contemporary sociological theories of political economy, sources of political and economic power and conflict.

506 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) Assessment of what sociological theory is, its major figures and their approaches to understanding society.

531 Research Methods in Sociology (3) Research design, measurement, sampling, quantitative and qualitative 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.

543 Sociology of Development (3) Sociological theories and studies of development: modernization, colonialism, dependency; comparative impact of various development paths upon selected aspects of social structure and change.

551 Delinquency and the Social Structure (3) How study of delinquency and juvenile justice is affected by historical and social conditions; changing influence of biological, institutional, and social factors, and the interaction of social control agencies and their methods of intervention in the socialization of adolescents.

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.)

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

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.

594 Social Theories of Sport (3) (Same as Physical Education 515.)

599 Readings (3) Selected topics. May be repeated. Maximum 6 hrs.

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

622 Sociological Theory II (3) Distinct schools of sociological theory and contributions of their principal exponents. Prereq: 521 or consent of instructor.

629 Supplementary Readings in Sociological Theory (3) Individual guidance. Prerequisite: Doctoral research or dissertation. S/NC only.

633 Survey Design and Analysis (3) Systematic exploration of survey problems through student participation in design and analysis of survey. Prereq: 531 or consent of instructor. (Same as Child and Family Studies 633.)

636 Field Research (3) Research experience in selected field sites using techniques of interviewing, participant observation, and other methods of field research. Prereq: 531 or consent of instructor.

639 Supplementary Readings in Methodology (3) Individual guidance. Prerequisite: Doctoral research or dissertation. S/NC only.

643 Class Analysis (3) Critical analysis of theories and research on class structure and conflict.

644 Political Sociology (3) Critical examination of theories of state and political processes.

645 Advanced Studies in Political Economy (3) Topical seminars. Prereq: 544 or consent of instructor. May be repeated. Maximum 6 hrs.

649 Supplementary Readings (3) Prereq: Consent of department. May be repeated. Maximum 6 hrs. S/NC only.

653 Sociology of Law (3) Intensive examination of selected topics in sociology of law. Prereq: 535 or consent of instructor.

655 Advanced Studies in Criminology (3) Intensive examination of selected topics in criminology. Recommended prerequisite: 505. May be repeated. Maximum 6 hrs.

661 Theory and Methods of Human Ecology (3) Historical and contemporary studies of interaction between humans and their environment. Prereq: Consent of instructor.

662 Urban and Regional Sociology (3) Historical and contemporary studies of urban and regional sociology. Prereq: Consent of department. May be repeated. Maximum 6 hrs.

665 Advanced Studies in Criminology (3) Topical seminars on current issues in criminology. Prereq: Consent of instructor. May be repeated. Maximum 6 hrs.

666 Sociological Theory (3) Distinct schools of sociological theory and contributions of their principal exponents. Prereq: 521 or consent of instructor.

675 Advanced Studies in Social Psychology (3) Special contemporary research issues related to social psychological theories. Prereq: 541 or consent of instructor. May be repeated. Maximum 6 hrs.

695 Advanced Special Topics (3) Topic of special interest or student-initiated courses that will not be regularly offered. Prereq: Consent of department. May be repeated. Maximum 6 hrs.


Spanish

See Romance and Asian Languages

Special Programs

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

Graduate courses in Speech Communication (College of Arts and Sciences)

John Haas, Head

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

Associate Professors:
Ambrester, 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. Florida State
Arnold, Christa L., Ph.D. Florida State

Graduate courses in Speech Communication as significant factor in development, management, and resolution of conflict at interpersonal, small group, organizational or societal levels.

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 organization.

468 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 468.)
The following retention policy applies to all graduate students seeking a degree in this unit: 1) Graduate students are required to maintain an overall 3.0 GPA. 2) Any student who fails 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. Letters should be addressed to Graduate Assistantships Coordinator, Sport and Physical Activity unit, The University of Tennessee, Knoxville, TN 37996-2700.

Dance

GRADUATE COURSES

416 Teaching Creative Dance for Children (3) Theory, methods, materials and practical experience in presentation and integration of creative dance in grades K-6. Mini-teaching experience.

480 Dance Through the 20th Century (3) Dance of various societies and cultures from pre-history through 19th century.

495 Dance Pedagogy (3) Principles and methods of teaching dance with practical experience in mini-teaching experience. Prereq: Upperclass or graduate standing and consent of instructor.

Statistics

(College of Business Administration and Intercollegiate Program)

MAJORS DEGREES

Statistics.............................. M.S.
Business Administration........ MBA, Ph.D.

Robert W. Mee, Head

Professors:

Bozdogan, Hamparsum, Ph.D. .... Illinois
Guess, Frank M. (Liaison), Ph.D., Florida State
McLean, Robert A. (Emeritus), Ph.D.... Purdue
Mee, Robert W. Ph.D........ Southern Methodist
Parr, William C., Ph.D........ Texas
Sylvestre, David L., Ph.D........ Stanford
Thigpen, Charles C. (Emeritus), Ph.D..... VPI

Sanders, Richard D., Ph.D........ Texas

Associate Professors:

Leitmaker, Mary G., Ph.D........ Kentucky
León, Flávia V., Ph.D........ Florida State
Walker, Esteban, Ph.D........ VPI
Younger, M. S., Ph.D........ VPI

Statistics 179
Additional Intercollegiate Program Faculty:
Bunting, Dewey, Arts and Sciences; Chattejee, Anun, Engineering; Dessart, Don, Education; Dyer, Carl, Human Ecology; Fitzpatrick, Ben, Arts and Sciences; Fribourg, Henry, Agricultural Sciences and Natural Resources; Garti, Michael, Arts and Sciences; Glisson, Charles, Social Work; Gross, Louis, Arts and Sciences; Huck, Schuyler, Education; Ladd, R. T., Business Administration; Lounsbury, John, Arts and Sciences; Lyons, William, Arts and Sciences; McLeod, Dan, Agricultural Sciences and Natural Resources; Miller, Mark, Communications; Omohundro, John, Social Work; Ploch, Donald, Arts and Sciences; Rajput, Communications; Orme, John, Social Work; 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.

THE MASTER'S PROGRAM

The M.S. program in Statistics provides students with the foundations in theory and practice required for careers in applied statistics. In addition to the education traditionally offered in such a program, the department offers a concentration in industrial statistics, working with faculty involved in these consulting and research projects dealing with industrial problems. Department faculty also collaborate with researchers from many academic disciplines and hold joint appointments with the College of Agriculture, the Computing Center, and the Medical College. Intercollegiate graduate students may gain consulting experience by working with faculty involved in these consulting activities. All students are encouraged to participate in supervised internship or consulting activities as part of their graduate program.

Individuals who have completed an undergraduate degree in another discipline may apply for admission. Students who wish to participate in this program should contact their college representative or the Chair of the Intercollegiate Graduate Statistics Program (IGSP) for information about IGSP requirements.

Admission Requirements

General admission requirements for the Graduate School are stated beginning on page 12. Applicants for Statistics must submit results of the Graduate Record Examination (GRE) general portion, although GMAT exam scores may be substituted. Applicants for the statistics program must have completed at least two years of college-level mathematics, including the calculus of several variables and matrix algebra, and be proficient in a computer language. Applicants whose native language is other than English must submit results of the Test of English as a Foreign Language (TOEFL).

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 maximum 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

Hours in Approved IGSP Courses

Master's in home department, minor in Statistics
Master's in home department, M.S. 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 wishes to include as part of the comprehensive examination for the master's degree.

General Admissions and Degree Requirements

1. The student's home department must have approved a 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.

2. Students who wish to participate in this program should contact their college representative or the Chair of IGSP in the Department of Statistics.

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.

BUSINESS ADMINISTRATION CONCENTRATION

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

MBA Concentration: Statistics

Minimum course requirements are 571, 566, 572 with prerequisite or corequisite 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


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 the student uses University facilities and/or faculty time before degree is completed. May not be used toward degree requirements. May be repeated. E


531 Survey of Statistical Methods I (3) Univariate and bivariate data collection and organization, statistical estimation and hypothesis testing; analysis of relationships for categorical and numerical data, including Chi-square tests and simple linear and quadratic regression. Use of computing facilities. Credit not given for both 531 and 537. Prereq: 1 yr. college mathematics. E

532 Survey of Statistical Methods II (3) Multiple linear regression, including 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 (3) Principles and application of statistical methodology, integrated with considerations of major statistical computing system. Probability and probability distributions, combining and testing hypotheses using parametric and nonparametric inference methods. Matrix-based analysis of linear regression and correlation. Credit not given for both 531 and 537. Prereq: 1 yr. undergraduate mathematics and 1 undergraduate statistics course.

538 Statistics for Research II (3) General linear model as applied to multiple regression and analysis of variance. Diagnostic and influence techniques. One-way, factorial, blocking, and nested designs, preplanned versus posthoc contrasts. Random factors and repeated measures. Prereq: 537 or 532. S, P

561 Introduction to Computing for Data Management and Analysis (1) UT computing environment for beginning statistics graduate students. Use of operating system commands, language editor, utility programs and SAS statistical packages for data entry and outputting. Operating environment and statistical analysis. Use of UTCC computing facilities required. Coreq: 531, 537 or 531, or consent of instructor.


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 and estimation of variance components, problems of measurement, special industrial applications. Prereq: 571 or equivalent.


572 Applied Linear Models (3) Simple and multiple linear regression and analysis of variance. Regression diagnosis and 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. Conventional designs, analysis of covariance, split-plot and nested designs, fractional factorials, sequential designs. Prereq: 571.

575 Applied Time Series (3) Fundamental characteristics of time series analysis: Autoregressive, moving average models, and spectral theory. Prereq: 538 or 572 or consent of instructor.


583 Special Topics in Applied Statistics (1-3) May be repeated. Maximum 9 hrs.

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


593 Independent Study (2-6) Faculty directed study and investigation of specified topic in probability or statistics. Written report and oral presentation. Prereq: 2 courses in statistics and consent of statistics department director of graduate studies. May be repeated. Maximum 5 hrs. S/NC or letter grade.

595 Statistical Consulting Practicum (1-6) Supervised experience helping on-campus researchers plan, manage data, and develop and perform analyses specific to designs and hypotheses. Discussion of problems in regular seminar meetings. Final written reports and detailed diaries. Prereq: 572 or 538. May be repeated. Maximum 6 hrs. S/NC only.


598 Advanced Statistical Consulting (3) Statistical analysis of real world data, development of statistical models, and statistical analysis for real-world problems. Prereq: Consent of instructor. S/NC only.


673 Advanced Topics in Design of Experiments and Linear Models (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: Consent of instructor.

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

677 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. Prereq: 561 and 537 or basic linear models.

681 Special Topics in Probability (1-3) Presentation of specialized topics in probability and stochastic processes. Prereq: Consent of instructor. S/NC or letter grade.

683 Special Topics in Statistics (1-3) Presentation of specialized topics in statistics. Prereq: Consent of instructor. S/NC or letter grade.

691 Graduate Seminar in Applied Statistics (3) Reading of literature and discussion of current problems important to industry: design of experiments, mathematical programming, process control, regression, and reliability. Prereq: Consent of instructor. S/NC or letter grade.

The Department of Theatre offers the Master of Fine Arts degree with a major in Theatre (College of Arts and Sciences)

MAJOR

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

Tom Cooke, Head

Professors:

Cooke, Tom, Ph.D. ................................ Florida State
Cotran, R. M. ..................................... Catholic
Custer, M., M.F.A. ................................. Wisconsin
Field, R. C., M.A. ................................. Miami (Ohio)
Dasher, Robert R., Ph.D. ...................... Florida State
Soper, Paul L. (Emeritus), Ph.D............ Cornell

Associate Professors:

Black, W., M.F.A. ................................. Illinois
Craven, E. H., M.A. ............................. Tennessee
Croakely, R. J., M.F.S. .......................... Southern Methodist
DeCuir, L. J. (Liaison), M.F.A. ............... Tulane
Gould, B. K., M.F.A. ............................. Catholic

Assistant Professor:

Van den Berg, Klaus, Ph.D. ................... Indiana
Weber, T., M.F.A. ................................. Alabama

Theater, 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 degrees approximately equivalent in requirements to those specified for degrees conferred by The University of Tennessee, Knoxville.

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 committees 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 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 M.F.A. 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 would 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.

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 (3) Study and problems in make-up design and application: character analysis. Prereq: Introduction to Theatre.

420 Special Studies in Acting (3) Content varies. Exercises in selected areas such as style, technique, character, scene analysis, etc. Prereq: Consent of instructor. May be repeated. Maximum 6 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 I or consent of instructor. May be repeated. Maximum 6 hrs.

425 Selected Musical Theatre Techniques (3) Study and practice of musical theatre material: dance and vocal work. Prereq: Theatre Dance II 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 America. Prereq: Consent of instructor.


440-41 Advanced Theatre Costume Design (3,3) Costume as expressive element in dramatic production. Prereq: 440.

445 Advanced Costume Construction (3) Specialized construction in costume design; tailoring, vacuum forming, plastic molding, and cobbling. Prereq: Consent of instructor.

446 Costume Painting (3) Advanced techniques in costume painting. Prereq: Consent of instructor.

450 Advanced Scenery Technology I (3) Study and practice of scenery construction materials, techniques, and principles of craft. Prereq: Consent of instructor.

451 Advanced Scenery Technology II (3) Study and practice of scenic technology; 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 (3) Introduction to scenic materials, techniques, and principles of craft. Gaining skill and understanding through studio experience. Prereq: Consent of instructor.

549 Intermediate Scene Design (2) Materials, techniques, and principles of craft. May be repeated. Maximum 6 hrs.


553 Projects in Scenic Design (1-3) Conception and completion of major projects; both theoretical and actual, in scenic design. May be repeated. Maximum 9 hrs.

554 Projects in Scenic Design (1-3) Conception and completion of major projects; both theoretical and actual, in scenic design. May be repeated. Maximum 9 hrs.

562 Special Problems in Lighting Design (3) Advanced problems in lighting design and theory, problems in Broadway production and touring. Prereq: Consent of instructor.


570 Dramaturgy: Theory and Practice (3) Methods and materials. Prereq: Consent of instructor.

590 Design and Technical Production Seminar (1-6) Selected aspects of design and technical production. Prereq: Consent of instructor. May be repeated. Maximum 6 hrs.

599 Project in Lieu of Thesis (1-6) Available to theatre M.F.A. students only. Prereq: Minimum of 30 hrs toward MFA degree and consent of advisor. May be repeated. Maximum 9 hrs.
**Transportation**

See Marketing, Logistics and Transportation.

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**Veterinary Medicine**

*(College of Veterinary Medicine)*

<table>
<thead>
<tr>
<th>MAJOR</th>
<th>DEGREE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Veterinary Medicine</td>
<td>D.V.M.</td>
</tr>
<tr>
<td>Comparative and Experimental Medicine</td>
<td>M.S., Ph.D.</td>
</tr>
</tbody>
</table>

**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 of the 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.

<table>
<thead>
<tr>
<th>Subject Area</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>6</td>
</tr>
<tr>
<td>Humanities and Social Sciences**</td>
<td>18</td>
</tr>
<tr>
<td>Physics</td>
<td>8</td>
</tr>
<tr>
<td>General Chemistry</td>
<td>8</td>
</tr>
<tr>
<td>Organic Chemistry</td>
<td>8</td>
</tr>
<tr>
<td>Biochemistry**</td>
<td>4</td>
</tr>
<tr>
<td>General Biology</td>
<td>3</td>
</tr>
<tr>
<td>Genetics</td>
<td>3</td>
</tr>
<tr>
<td>Cellular Biology***</td>
<td>3</td>
</tr>
</tbody>
</table>

TOTAL 66

**Cellular Biology***

- May include, for example, courses in English literature, speech, music, art, philosophy, religion, language, history, economics, anthropology, political science, psychology, sociology and geography.

**Biochemistry**

- Exclusive of laboratory.

**Cellular Biology***

- 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 application for admission may be obtained beginning July 1, 1997 from the Office of the Associate Dean, The University of Tennessee, College of Veterinary Medicine, P.O. Box 1071, Knoxville, TN 37901-1071.

**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 interdisciplinary departmental administration of the College of Veterinary Medicine, the faculty have opportunities in the graduate programs of other instructional units, including Animal Science (nutrition, pathology, genetics and animal management), Microbiology, Immunology, and Veterinary Medicine, Pathology, and Comparative Medicine. (Refer to other sections of this catalog for a full description of these programs.)

The curriculum is designed 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.

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**PROFESSIONAL COURSES**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>821</td>
<td>Veterinary Anatomy I, II (7, 7) Integrated approach to study of developmental, macroscopic (gross), and microscopic anatomy of common domestic animals. Developmental and comparative anatomy to be covered.</td>
</tr>
<tr>
<td>822</td>
<td>Physiology I, II (4, 4) Introduction to concepts and principles of physiology with emphasis on animal systems. Pharmacology. Principles of laboratory techniques.</td>
</tr>
<tr>
<td>831</td>
<td>Physical Diagnosis (1) Basic care, feeding, restraint, and handling of domestic animals. Introduction to physical examination and diagnostic techniques used by veterinarians.</td>
</tr>
<tr>
<td>832</td>
<td>Anesthesiology (2) Principles and practice of anesthesiology: pharmacology of anesthetic agents, principles and practice of anesthetic techniques in veterinary medicine.</td>
</tr>
<tr>
<td>833</td>
<td>Epidemiology (2) Determinants of health and productivity in groups of animals, and critical appraisal of clinical information.</td>
</tr>
<tr>
<td>834</td>
<td>Hematopoietic System (3) Pathophysiology of hematopoietic and lymphoid organs and tissues. Principles and methods of laboratory evaluation of diseases of other organ systems.</td>
</tr>
<tr>
<td>836</td>
<td>Toxicology (2) Principles and practice of toxicology: clinical aspects and management of toxicologic diseases in domestic and wild animals. Principles of laboratory diagnosis and treatment of toxicologic diseases.</td>
</tr>
<tr>
<td>837</td>
<td>Food Hygiene and Zoonoses (2) Host-agent relationships, public health aspects of veterinary medicine and role of veterinarians in ecology and food hygiene.</td>
</tr>
<tr>
<td>840</td>
<td>Integumentary System (3) Pathophysiology, special pathology, medicine and surgery of diseases of integumentary system. Laboratory examination, pathology, diagnosis and treatment.</td>
</tr>
<tr>
<td>841</td>
<td>Reproductive System (4) Pathophysiology, special pathology, medicine and surgery of diseases of male and female reproductive systems and mammary glands.</td>
</tr>
<tr>
<td>842</td>
<td>Alimentary System (5) Pathophysiology, special pathology, medicine and surgery of diseases of alimentary systems.</td>
</tr>
<tr>
<td>843</td>
<td>Musculoskeletal System I (3) Pathophysiology, clinical description and basic treatment modalities of common diseases and conditions of musculoskeletal system of small and large animals. Principles of diagnostic and treatment skills.</td>
</tr>
</tbody>
</table>

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**Veterinary Medicine**

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FACILITIES FOR RESEARCH AND SERVICE
Facilities for Research and Service

Bureau of Educational Research and Service
(College of Education)
Carol E. Kasworm, Director
Housed in the Associate Dean's Office for Research and Technology, the Bureau is responsible for the coordination of research activities and for the development of college research and service activities based in external funding. In addition, it may be called upon to provide brokering services to connect faculty expertise with needs for consultant services, technical assistance, and possible professional development activities. The Bureau directly coordinates select development of research proposals, as well as college grant and contract review, administration, and fiscal processes. The Bureau also provides the administrative home for the interdisciplinary Center for Literacy Studies, the Appalachian Rural Systemic Initiative Resource Collaborative, and the High School Equivalency Program (Migrant Education).

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 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 areas of research, information technology and information dissemination, located at 100 Glocker.

Center for Information Studies
(School of Information Sciences)
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, and business and industry. 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 for Literacy Studies
(College of Education)
The Center for Literacy Studies was founded in 1988. The Center's purpose is to bridge theory and practice in the field of adult learning and literacy. To achieve its purpose, the Center collaborates with practitioners, policy makers, and other research organizations on projects that address five common themes: 1) building the capacity for literacy delivery systems that can meet the needs of a changing society; 2) forming partnerships with practitioners who are working to make changes in their practice of adult education; 3) developing innovative approaches to adult learning and literacy; 4) developing innovative technology applications for the field; and 5) disseminating results to the field.

Center for Physical Activity and Health
(College of Education)
The mission of the Center for Physical Activity and Health is to integrate scientific research, education, and practical applications of exercise and health science in a manner that enhances health, fitness, performance, and quality of life. The Center is a service oriented organization designed to educate the UTK and Knoxville communities about the benefits of regular physical activity as well as warn about the serious potential health outcomes of leading a sedentary existence.
The Center focuses its efforts in four main areas: training future leaders in exercise promotion, providing exercise opportunities for members of the UTK community, promoting exercise within the UTK and Knoxville communities, and providing exercise testing and assessment.
For additional information about services, contact Dixie L. Thompson at (423) 974-1271 or via e-mail at dixielee@utk.edu.
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 100 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 S. Schmitt Chair of Excellence in History
- Bernard Blasingame Chair of Excellence in Agricultural Policy
- Clayton Homes Chair of Excellence in Finance
- Condra Chair of Excellence in Policy Studies
- Condra Chair of Excellence in Computer Integrated Engineering and Manufacturing
- 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
- Ivan Ratchef Chair of Excellence in Ornamental Horticulture
- Ivan Ratchef Chair of Excellence in Materials Science and Engineering
- Forrest & Patsy Shumway Chair of Excellence in Romance Languages
- UT 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 premiere university in the state and as a regional and national leader in instruction, research, and public service is enhanced as a result of the infusion of those 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
109 Morgan Hall
College of Veterinary Medicine
UT Knoxville
Knoxville, TN 37996
(423) 974-7262

Center for Materials Processing
Dr. Carl McHargue, Director
121 Perkins Hall
Knoxville, TN 37996
(423) 974-7635

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

Waste Management Research and Education Institute
Dr. Gary Sayler, Acting Director
Dr. Jack N. Barkehus, 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: (1) 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 young children, emergent literacy, children's political 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.

For more information, check Web site at http://funnelweb.utcc.utk.edu/~utkcdl/.

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 communications, and others interested in improving the quality of human communications.

Division of Information Infrastructure

Susan Metten, Vice Chancellor

The UT Division of Information Infrastructure (DII) provides computing and telecommunications resources and services for students, faculty and staff on the Knoxville campus. DII consists of three operating units: Innovative Technologies, Computing and Academic Services, and Telecommunications and Network Services. Information about DII is available on the web site http://www.utk.edu/computing.

INNOVATIVE TECHNOLOGIES

Susan Metten, Acting Director

The Innovative Technologies Center (ITC) maintains a multi-platform development laboratory equipped with updated peripherals, software and resources for designing, developing, authoring, producing and evaluating on-line courseware and multimedia prototypes. The ITC staff is engaged in research and development of advanced instructional technologies, and provides a variety of workshops and presentations for the teaching staff during the academic year. The ITC staff supports faculty and graduate teaching assistants in the integration of appropriate technology into the instructional program. The services provided by ITC enable faculty to significantly enhance the effective-
ness of the educational process and enrich the learning experience of students.

The Data Visualization Laboratory is a component of Innovative Technologies with responsibility for implementing a state-of-the-art, distributed visualization system to facilitate teaching and research at UTK and provide a model for the utilization of this technology.

The ITC staff maintains their own web site at http://www.it.utk.edu, as well as the University of Tennessee Knoxville's web site at http://www.utk.edu.

**COMPUTING AND ACADEMIC SERVICES**

Dewitt Latimer, Director

Computing and Academic Services (CAS), provides computing facilities and services for the university's teaching, research, public service, and administrative activities. Information and assistance in accessing all services may be obtained at the Aconda Court Service Center, Room 104, or by calling the Support Line at 974-9900. Both facilities are open on weekdays from 8 AM to 5 PM. Information and documentation is also available at the CAS web site http://www.cas.utk.edu.

CAS provides an individual UNIX account for all UT Knoxville students, faculty and staff members for duration of their affiliation with UT. The UNIX account may be utilized for E-mail, course work, research, personal Web home pages, etc.

CAS publishes "The Life Preserver", which is an introduction to computing and networking at UT and provides orientation courses, classes in using Microsoft Office products and using the Internet. CAS also provides over 250 self-paced, computer-based training courses on computing and networking topics. Some of the CBT course topics include Microsoft Word, Excel, Access, Powerpoint, Lotus Notes, Novell, UNIX, Win95, Internet, HTML, and Java.

CAS maintains six staffed computing labs and 15 unstaffed labs, and supports computing installations in all resident halls. The computing labs are equipped with more than 200 microcomputers and 8 workstations running current models of Windows, Apple, IBM, Sun, Dell, and Gateway machines. In addition, there are laser printers, scanners and zip drives available. A variety of industry standard software applications are available for use on the machines in the computing laboratories.

CAS provides statistical consulting to help students, faculty and staff to enhance the quality of their research by effectively applying statistical methodology. For more information about the Statistical Consulting Center, call the DII Computing Support Line at 974-9900 and ask to speak to a statistical consultant.

CAS coordinates computing resources for research activities on the Knoxville campus. A 34 node (32 thin, 2 high) IBM SP2 parallel architecture machine was acquired in 1997 and is available for high performance research computing needs.

CAS operates the central UNIX machines which serve a variety of functions; mail server, file server, user logins, etc. Equipment includes three Sun Enterprise 450, three Sun Enterprise 3000, 2 Sun Enterprise 1000, 9 Sun Sparc 20, 1 Sun Ultra 1, 2 Sun Ultra 2, 1 SGI Challenge L, 1 IBM RS/6000 R20. An IBM 6762/R-42 operates under VM/ESA with MVS/ESA/ES/225 and VMS/HP0 guests. Software available on the central servers at CAS includes commonly used compilers and interpreters, and a large number of programs for statistical, mathematical, engineering, operations research, and graphics applications.

CAS participates in educational programs sponsored by IBM, Lotus, Microsoft, SGI, and Sun that provide software packages at reduced or no cost to the University of Tennessee. Individual copies of Microsoft products, including Windows and Office 97, are available to students at a substantially reduced cost. CAS also provides user access to a variety of public domain software for microcomputers and maintains software site licenses for a variety of workstation and microcomputer software.

**TELECOMMUNICATIONS AND NETWORK SERVICES**

Joe Gibson, Acting Director

Network Services provides network connectivity throughout the UTK campus, data communications between the UT campuses, and connectivity to the Internet. The UTK network consists of approximately 10,000 nodes, and network connectivity is available in all campus residence halls. Network Services also provides dial-up access to the campus network via a 600-modem dial-up pool, which supports PPP to allow users to connect to the Internet as well as to file and servers on campus, and digital connections via ISDN.

Network Services participates in national networking initiatives, including Internet2 (I2), NSF's very high speed Backbone Network Service (vBNS), the federal Next Generation Internet (NGI) initiative, and maintains a SUnsite center for Java information and software distribution for networking learning environments. Further information may be obtained from the network services web page at http://www.nsl.utk.edu.

Telecommunication Services operates a Private Branch Exchange, with 15,000 ports, which processes approximately 1.8 million telephone calls per week during each academic year. A copper backbone of approximately 25,000 circuits supports alarm, signaling, voice, and low-speed data services. Local and long-distance telephone services are extended to residents of residence halls and residential properties through The Volunteer Connection. Customer Service Representatives assist customers in systems design, deployment, and use of supported equipment.

**Energy, Environment, and Resources Center**

(Office of Vice Chancellor for Research)

Jack N. Banksen, Executive 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 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 and hazardous waste management, information systems, environmental education, global environmental problems, and pollution prevention. The Center operates the Waste Management Research and Education Institute, the Center for Clean Products and Clean Technologies, the Water Resource Research Center, the Center for Geography and Environmental Education, and the System Development Institute. 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 Moutncastle St., (423) 974-3404; FAX (423) 974-6383.

**Institute for Tourism and Leisure Industries**

(Office of Vice Chancellor for Human Ecology)

Ken Krick, Director

The mission of the institute is to serve as a catalyst for enhancing economic development in East Tennessee by supporting existing, as well as encouraging the creation of new, sustainable tourism and leisure industries. The Institute serves as a center of expertise for providing technical assistance, for conducting feasibility studies and other research, for structuring and delivering training programs, and for providing the critical linkage between human and capital resources necessary for developing new businesses.

The Institute actively collaborates with and actively supports the efforts of many special interest groups throughout East Tennessee. As such, the Institute is in a strategic position to interface groups primarily interested in tourism with groups representing leisure industries and the economy as a whole. Hence, the Institute attempts to build a win-win philosophy among the major components of the leisure economy in East Tennessee.
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 the mechanic arts for the first time. Since 1869, agricultural programs at the University have 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 O. Richardson, Dean
John I. Sewell, Associate Dean
Thomas H. Klindt, 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 U.S. 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 resource 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 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 those 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 Experiment Station

Billy G. Hicks, Dean
Mildred F. Clarke, Associate Dean
D. Ray Humbred, Assistant Dean

The Agricultural Experiment Station was established in 1914. Its purpose is to extend through various educational means, agricultural and home economics information to farmers 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 with local people are supported in the 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.

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
Felder-Hoehne, Felicia H., M.S.L.S. ....... Atlanta
Kaufman, Paula T., M.B.A., M.S. ....... Columbia
Lloyd, James B., M.A., M.S.L.S., Ph.D. Mississippi
Phillips, Linda L., M.S.L.S. .......... Rutgers
Rader, Joe C., M.S.L.S. ........... Tennessee
Webster, Judith D., M.S.L.S. .......... Tennessee

Associate Professors:
Baker, Gayle D., M.S., M.S.L.S. ....... Alabama
Bridges, Anne E., M.A., M.S.L.S. ....... Rhode Island
Britten, William A., M.S.L.S. ......... Clarion
Clement, Russell T., M.A., M.Ln. ....... Brigham Young
Crowther, Carmen N.T., M.A., M.Ln. .... Emory
Dixon, Lona, M.S.L.S. ........... Tennessee
Garrett, Marie A., M.A., M.S.L.S. ....... Kentucky
Harwood, Richard, M.M., M.S.L.S. ....... Texas
Keally, Jillian M., M.S.L.S. ................. Indiana
Kim, Sock-Hyun, M.A.L.S. ........... Pennsylvania
Leach, Sandra S., M.A., M.Ln. ......... Emory
Mack, Thura, M.S.L.S. ........... Tennessee
Miller, Tamara J., M.S.L.S. ........... Kentucky
Milton, James O., M.S., M.S.L.S. ....... Tennessee
Mitchell, Aubrey H., M.S.L.S. ....... Tennessee
Ponnappa, Biddanda P., M.S.L.S. ....... Tennessee
Prescod, Janet, M.S.L.S. ........ Western Michigan
Row, Jane S., M.S.L.S. ........ Tennessee
Sammarato, 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:
Atkins, David P., M.A.L.I.S. .......... Wisconsin
Ellis, Kathryn D., M.S.L.S. ........... North Carolina
Hammons, James W., M.S.L.S. ....... Indiana
Johnson, Kay G., M.L.S. .......... Pittsburgh
Lahmon, JoAnn, M.S.L.S., Ph.D. .... Florida State
Robertson, Michelle, M.S.L.S. .... North Carolina
Shrode, Flora G., M.L.I.S. ............ Texas
Thomas, Deborah L., M.B.A., M.Ln. ....... George Peabody
Thomas, Steve, M.S.L.S. ......... Tennessee
Viera, Ann R., M.L.I.S. .......... California, Berkeley
Wise, Flossie, M.S.L.S. .......... Tennessee

The University of Tennessee Libraries' own approximately 2 million volumes and subscribe to more than 10,000 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 consists of the main library (the John C. Hodges Library), four branches on the Knoxville campus (the Agriculture-Veterinary Medicine Library, the Map Library, the Music Library, and University Archives & Special Collections), and the Social Work Library in Nashville.

Research assistance is available at the reference desk in each library. Free self-searching of selected databases is also available in the reference area and remotely, through the World Wide Web.

Search the catalog of holdings at any library branch or via the UTK Libraries' Web site at www.lib.utk.edu. Materials that are not
available in the UTK Libraries can be requested through Interlibrary Services. The services and facilities of the University Libraries are accessible to persons with disabilities. Adaptive equipment such as a Kurzweil Personal Reader and TDD are available at the Hodges Library.

The John C. Hodges Main Library (1015 Volunteer Blvd.) is a 350,000 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 Agriculture-Veterinary Medicine Library (Room A-113, Veterinary Teaching Hospital) has a strong collection in agriculture; veterinary, comparative and human medicine; and related biological sciences. Most of the publications of the U.S. Department of Agriculture and the State Agricultural Experiment Stations and Extension Services are collected.

The Map Library (Room 15, basement of the Hoskins Library, Cumberland Ave. & 15th St.) maintains and develops a collection of sheet maps, atlases, journals, and books related to cartography. Materials in print, film, and digital formats are acquired from commercial sources as well as the Government Depository program.

The Music Library (301 Music Bldg.) has a comprehensive collection of music and music literature, including books, scores, audio and video recordings, current periodicals, and microfilm. All materials in the Library of Congress “M” classification are located here. Special Collections (2nd floor, west wing, of the Hoskins Library) is a repository of primary source materials and costly modern library materials. The University Archives contains official records of the University; items published officially and unofficially; and other materials that document University of Tennessee life. Materials from Archives and Special Collections are pagged for library patrons from closed stacks for use in the Reading Room.

The Social Work Library (1720 West End Ave., Nashville) serves College of Social Work students in field practice across the state. The library has a working collection of materials in social work and related disciplines.

The Law Library on the Knoxville campus and the libraries located on the campuses in Chattanooga, Martin, Memphis, and Tullahoma are individually administered. Each library at the University of Tennessee is accessible to all students and faculty in the system.

*Data excludes Law Library faculty and statistics.

**Maintenance and Reliability Center**

*College of Engineering*

The Maintenance and Reliability Center (MRC), located in 103 Estabrook Hall, was created in 1996 to provide an international center for research, development, and application of advanced maintenance and reliability engineering. MRC’s primary goal is to provide productivity 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 which 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 as interns with the MRC program while pursuing a degree in an engineering department. A certification in maintenance and reliability engineering can be obtained along the the regular degree.

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. Ribblett, Director

The College of Business Administration’s executive/management education efforts are facilitated through the Management Development Center, 708 Stokely Management Center.

The Center encourages 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). The 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. The Center has provided custom and public programs for 80 of the Fortune 1000 companies.

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 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 areas 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.

**Nutrition Institute**

*College of Human Ecology*

Michael B. Zemel, Director

Thomas C. Namey, Associate 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 Natural Resources, 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.

The Institute publishes an on-line magazine *Nutrition Uncovered* which addresses current issues and controversies in the field. It may be found on the Web at http://nutrition.utk.edu.
Off-Campus Graduate Centers

KINGSPORT GRADUATE PROGRAM

UT Knoxville offers at Kingsport 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 the master's degree in several engineering and related technical areas. The ORGP operation is supported by a contractual agreement with DOE. Students can earn a master's degree in Chemical Engineering, Environmental Engineering (concentrations in nuclear waste management, environmental risk assessment), Industrial Engineering (engineering management or traditional industrial engineering concentrations), Nuclear Engineering (radiological engineering concentration), or Safety Education. The MBA degree program is also available in a partnership program with UT-Martin.

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, http://www.acad.utk.edu/evening/orgp.htm.

CHATTANOOGA EDUCATION PROGRAM

UT Knoxville offers a graduate program in education leading to the Doctor of Education degree with a major in Education, interdisciplinary concentration in leadership for teaching and learning.

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 Program, Post Office Box 117, TMSD Lab Road, Oak Ridge, Tennessee 37831-0117, http://www.acad.utk.edu/evening/orgp.htm.

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

UT Knoxville offers a program leading to the Ph.D. degree with a major in Biomedical Sciences. Graduate students have the opportunity to study and do research in conjunction with 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.

Research Consortiums

The University of Tennessee is a member of three not-for-profit research consortiums: Oak Ridge Associated Universities (ORAU); Southeastern Universities Research Association (SURA); and Universities Research Association, Inc. (URA).

1. ORAU is a nonprofit corporation of colleges and universities and a management 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 fellowships, scholarships, and research appointments; and to organize research alliances among its members.

Through 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 biology, earth sciences, epidemiology, engineering, physics, pharmacology, ocean science, biomedical sciences, nuclear science and technology, 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 Higher Education Initiatives (HEI) seeks opportunities for collaborative research and development alliances among its members, private industry, and major federal facilities. HEI sponsors the Visiting Industrial Scholars program and the Junior Faculty Enhancement Awards.

2. SURA is a nonprofit consortium of 41 universities in thirteen Southeastern states and the District of Columbia. SURA's goals are to foster excellence in scientific research, to strengthen the scientific and technical capabilities of the nation and the Southeast, and to provide outstanding training opportunities for the next generation of scientists and engineers. The SURA-Oak Ridge National Laboratory (ORNL) Summer Cooperative Research Program in Materials Science and Engineering was established in 1980 to promote collaborations between individual university investigators and ORNL researchers. The SURA Continuous Electron Beam Accelerator Facility (CEBAF) Graduate Fellowship Program offers awards to promising graduate students enrolled or enrolling in master's or doctoral programs at SURA member institutions and whose research interests correspond to research activities to be conducted at CEBAF (i.e. nuclear and related particle physics, accelerator physics, and associated scientific and engineering fields).

3. URA, Inc. is a nonprofit corporation consisting of 86 major research-oriented universities in the United States, Canada, and Japan and is a management operating contractor for the U.S. Department of Energy (DOE) for the design, construction, and operation of the Fermi National Accelerator Laboratory (Fermilab) located near Batavia, Illinois. URA provides funds to support courses for graduate students at Fermilab. Member institutions have graduate study programs in science and are active in particle physics and astrophysics.

For more information about ORAU and its programs, SURA, and URA, Inc., contact Dr. Michael D. Devine, Vice Chancellor for Research and ORAU Council member at 423-974-3466 or mddevine@utk.edu; or contact Monnie E. Champion, URA Corporate Secretary at 423-576-3006. Additional information may also be found on World Wide Web sites at http://www.orau.gov and http://cebaf.gov/sura.

Textiles and Nonwovens Development Center

(College of Human Ecology)

Larry C. Wadsworth, Director of Marketing and Technology

The Textiles and Nonwovens Development Center (TANDEC) was chartered in October 1990. TANDEC was made possible through a grant from Exxon Chemical Company. Nonwovens 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 melt blowing 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 nonwoven; 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
(Office of Vice Chancellor for Research)
Stephen H. Richards, Executive Director
The Transportation Center was created in 1970 to foster and facilitate interdisciplinary research, public service, and outreach 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 Policy.

The Center has three goals. The first is to conduct a program of research in transportation research 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 of Undergraduate Academic Affairs 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. The College of Human Ecology offers the M.S. degree program in Retail and Consumer Sciences. Some departments within the Colleges of Agricultural Sciences and Natural Resources, Business Administration, Education, and Engineering offer 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 University Evening School makes arrangements for departments to conduct undergraduate and graduate courses in a number of locations away from the Knoxville campus. The courses are scheduled in response to requests and identifiable needs of adult part-time students who live some distance from the 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: Master of Arts with a major in Human Resource Development in Nashville, and in Memphis for vocational certification only; Master of Science with a major in Speech Pathology in Chattanooga and Tullahoma (State Department of Education contract program).

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

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 lakefront campus in Middle Tennessee. UTSI was established in 1964, and has evolved into an internationally recognized institution for graduate study and research in engineering, physics, 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, and directed research and interacting with 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 Space Science, Engineering, Aviation Systems, Chemical Engineering, Computer Science, Electrical Engineering, Engineering Science, Industrial Engineering, and Management Concentrations, 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, magneto-hydrodynamics, plasma physics, space systems, propulsion, computational fluid dynamics, and other aspects of atmospheric and space flight.

The Institute is a Center of Excellence in Laser Applications and offers graduate and research opportunities in laser diagnostics, laser material interactions, picosecond processes, and coherent and non-linear optics.

The Institute has established Center of Excellence in Laser Applications and offers graduate studies and research opportunities in laser diagnostics, laser material interactions, picosecond processes, and coherent and non-linear optics.

The Institute was established in part to increase the research and engineering resources of the Tennessee through education and practice in relevant scientific and technical areas and in part to interface University faculty and students with the Air Force.
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 UT3 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 37388.

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.
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