separately by each school and will apply only to credit being earned at the school providing the aid.

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 and 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 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, and Statistics 531 and 532. A student working full-time on the dissertation registers for 12 hours of 600 per semester.

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.

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.S.W. and Ph.D. programs in Social Work are available to residents of the state of Arkansas; the Ph.D. to residents of Kentucky or West Virginia. Additional information may be obtained from the Residency Assistant in the Office of Graduate Admissions and Records.

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.

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 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

508 Practicum in Social Work Research (3-6) Supervised practice in application of research methods to social work. Prereq: 510 and consent of faculty conducting investigation. May be repeated. Maximum 6 hrs. S/NC only. E

509 Graduate Seminar in Public Health (1) Same as Public Health 509, Nursing 509, Nutrition and Food Science 509, Physical Education 509.

510 Social Work Research (3) Research methodology for problems in social work. Problem formulation; research design; ethics; instrument construction; data collection, analysis, and reporting; statistical procedures; research reporting; and evaluation and utilization of research. Prereq: Admission to college or consent of instructor. F

512 Social Work Practice (3) Basic theory, values, and methodology generic to social work practice at various system levels presented from ecological perspective. Assessment, planning, counseling, and evaluation skills. Classroom and skills laboratory experiences. Prereq: Admission to college or consent of instructor. F

514 Human Behavior and Social Environment (3) Theories pertaining to individual, family, small group, and community in context of functions, structure, roles, and processes. Systems conceptualization along functional, developmental, and norm-deviant continua. Prereq: Development and maturation. Open systems approach to understanding interrelationships of biological, psychological, and social variables, implications of culture, race, ethnicity, and gender. Prereq: Admission to college or consent of instructor. F

516 Social Welfare Policy and Services (3) Development of conceptual, strategic, policy-making processes on national, and international levels. Contribution of social work professionals to formal policy-making processes through macro level involvement and through which aggregate social welfare services are proposed, authorized, financed, and programmed. Theory and practice of organizing applied to social welfare service delivery settings. Prereq: Admission to college or consent of instructor. F

518 Social Work with Oppressed Populations (2) Social work's professional role in working with individuals and groups in American society whose oppression is based upon distinguishing characteristics: age, sex, economic class, religion, sexual preference, handicap, and psychological and sexual orientation. Prereq: Admission to college or consent of instructor. Sp

520 Social Work with Individuals and Families (3) Nature and processes of human behavior with individuals and families in helping them resolve or cope with problems of living. Working with disadvantaged clients entering client service. Prereq: Foundation or consent of instructor. Sp

522 Social Work with Groups (3) Theories and practice of social work with small groups. Treatment groups, task groups. Prereq: Foundation or consent of instructor.

524 Psychopathology and Social Deviance (3) Theories of and recent research in etiology of psychiatric dysfunction and social variance. Categorical approach to psychopathology. Prereq: Foundation or consent of instructor.

526 Research for Assessment of Social Work Treatment (3) Application of research methods for assessment of social work treatment. Prereq: Foundation, 520 or 522, or consent of instructor. Sp

530 Seminar in Social Work Treatment (2-3) Topics in theory and practice of social work treatment with individuals, couples, families, and groups. Prereq: Foundation and 520, or consent of instructor. Required for graduate treatment: 522. May be repeated. Maximum 6 hrs.

531 Family Therapy in Social Work Practice (3) Major family therapy models, perspectives on family dynamics and interaction, and techniques and implications of their application to families from diverse social and cultural backgrounds. Prereq: Foundation and 520, or consent of instructor.

532 Short-Term Treatment (3) Theory and practice of planned short-term treatment, emergency treatment, and crisis intervention. Prereq: Foundation and 520, or consent of instructor. Sp

533 Social Work Treatment with Couples (3) Theories regarding contemporary marriage styles, problem areas in relationships, and application of treatment methods and skills for problem resolution. Prereq: Foundation and 520, or consent of instructor.

534 Social Work Treatment with Children and Adolescents (3) Examination of various treatment modalities for assessing and treating children and adolescents. Prereq: 520 and 522, or consent of instructor.

540 Administration of Social Welfare Programs and Services (3) Analysis of organizations and provision of services to clients. Knowledge of social welfare administration, their historical and philosophical perspectives, context for designing organizational structure and processes, planning complex ongoing implementing agency policies and programs, and management of service delivery system. Prereq: Foundation or consent of instructor.

opment techniques. Prereq: Foundation or consent of instructor.

544 Management Information Systems and Evaluative Research (3) Management information systems design and implementation; evaluative research design and methodology; and utilization for organizational decision-making and policy setting. Prereq: Foundation or consent of instructor.

546 Human Resources Development in Social Welfare Administration (3) Administrative and leadership skills required for management and development of human resources within context of organization and its environment. Prereq: Foundation or consent of instructor.

550 Seminar in Social Welfare Administration and Planning (2-3) Areas and issues relating to methods and techniques of social welfare administration and planning. Prereq: Foundation or consent of instructor. May be repeated. Maximum 6 hrs.

551 Seminar in Social Welfare (2-3) Social welfare problem area or field of practice. Prereq: Foundation or consent of instructor. May be repeated. Maximum 6 hrs.

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.

553 Social Planning (3) Theory, philosophy, implications for programs for planning social change in diverse settings. Prereq: Foundation or consent of instructor.

554 Social Policy Analysis (3) Techniques for assessing social, political, and economic implications of social policy proposals. Prereq: Foundation or consent of instructor.

556 Seminar in Human Behavior and Social Environment (2-3) Areas of current importance in understanding human behavior and social environment. Specific theories, research and/or issues. Prereq: Foundation or consent of instructor. May be repeated. Maximum 6 hrs.

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

562 Social Work and Black Families (3) Historical and contemporary theories about black family systems. Development of frameworks to assess and plan for black families within service delivery systems. Prereq: Foundation or consent of instructor.

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

564 Substance Abuse (3) Survey and analysis of substance abuse problems and their implications for social work. Prereq: Foundation or consent of instructor.

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

566 Social Gerontology (2) Physical, psychological and social aspects of aging. Major social policies and programs. Prereq: Foundation or consent of instructor.

570 Advanced Standing (12) Twelve-week program providing qualified students with intensive academic and field experience to enter final year of graduate study upon successful completion of term. S/NC only. Su

580 Field Practice (3) Instruction and supervision in social work practice. Prereq or coreq: 512. S/NC only. E

581 Field Practice (4) Instruction and supervision in social work practice, student's selected concept and methodology. Prereq: Foundation or consent of instructor. S/NC only.

582 Field Practice (6) Instruction and supervision in social work treatment or social welfare administration and planning. Prereq: Foundation. S/NC only.

583 Field Practice (6) Instruction and supervision in social work treatment or social welfare administration and planning. Prereq: Foundation or coreq. 512. May be repeated. S/NC only. Sp

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

585 Seminar in Gerontology (1) (Same as Human Ecology 585, Educational and Counseling Psychology 585, Nursing 585, Physical Education 585, Psychology 585, Public Health 585, and Sociology 585.)

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

600 Doctoral Research and Dissertation (3-15) 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 9 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 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

660 Issues in Social Work Knowledge Building (3) Advanced seminar in theory and model building in direct intervention, administration and planning. Prereq: First year required Ph.D. courses or consent of instructor. May be repeated. Maximum 9 hrs. F,Sp

663 Directed Study in Social Work Research (3) Advanced individual study, under faculty guidance, of social work practice issues. Prereq: First year required Ph.D. courses or consent of instructor. May be repeated. Maximum 9 hrs. F,Sp

Sociology

(College of Liberal Arts)

MAJOR

DEGREES

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

Thomas C. Hood, Head

Professors:

Beitz, D, Michael, Ph.D. ....................... Michigan State University
Black, John A., Ph.D. ............................. Iowa State University
Champion, Dean J., Ph.D. ..................... Purdue University
Clelland, Donald, C., Ph.D. ...................... Michigan State University
Hastings, Donald W., Ph.D. .................... Massachusetts University
Hood, Thomas C., Ph.D. ........................... Duke University
Ploch, Donald R., Ph.D. ......................... North Carolina State University
Shover, Neal, Ph.D. ................................. Illinois State University
Wallace, Samuel E., Ph.D. ...................... Minnesota State University

Associate Professors:

Benson, Michael L., Ph.D. ....................... Illinois
Kurth, Suzanne B., Ph.D. ....................... Illinois (Chicago)
Perrin, Robert G., Ph.D. ......................... British Columbia

Assistant Professors:

Cable, Sherry, Ph.D. ............................... Penn State University
Gaventa, John P., Ph.D. ........................... Oxford University

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, 551, 653, and 655. The energy, environment and resource policy concentration includes 560, 563, 661, 662, 663, 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 Study in Sociology. All incoming students will be advised by the Director of Graduate Studies.

ADMISSION REQUIREMENTS

1. Acceptable scores on the general Graduate Record Examination (GRE scores in sociology are requested but not required).
2. Completion of the appropriate previous degree (baccalaureate, preferably with a major in one of the social sciences, for the M.A. program; Master's degree in one of the social sciences for the doctoral program).
3. Completion of the appropriate previous degree (baccalaureate, preferably with a major in one of the social sciences, for the M.A. program; Master's degree in one of the social sciences for the doctoral program).

THE MASTER'S PROGRAM

Thesis Option

A minimum of 30 hours beyond the baccalaureate degree, including 24 hours of coursework and 6 hours of Thesis 500, is required. Students must complete Sociology 521, 531, 535, and one of Sociology 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, 535, and one of the following: 504, 505, or 560. Sociology 534, 535, and 622 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/NC credits). Twelve hours of course credit in Sociology at the 600 level are required. Students who enter the program without the courses required for the M.A. degree (521, 531, 536) or their equivalents must take them as remedial work which does not apply to their residency. Students must complete Sociology 622; 534, 563, 633, or 636; and 536 or another advanced course in statistics. Completion of 12 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 advisor 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 (theory, research methodology, and two substantive areas). Doctoral students are eligible to take the theory and methodology examinations whenever offered. Other substantive examinations may be taken upon completion of theory and methodology examinations. Detailed information on examinations and examination options (generalist, specialist, and collateralist) may be obtained from the department.

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

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 Sociology is available to residents of the state of South Carolina. Additional information may be obtained from the Residence Advisor 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. (Same as Physical Education 405.)

413 Formal Organization (3) Analysis of organizational messages, typologies, and theories; hierarchies of authority; communication; interpersonal relations in work settings; organizational change.

414 Sociology of Health Care (3) Organization of health care facilities, staff-patient relationships, demographic and geographic changes, 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 capitalist world-system as social system: 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 power and conflict, theories of corporate crime, and organized responses to this type of crime by governmental regulatory agencies.

462 Populations (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 Biological Sciences 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. Stuents must complete Sociology 580.)

505 Foundations of Criminology (3) Critical overview of current trends 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. Prereq: 291 or consent of instructor. E

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. E

534 Advanced Sociological Analysis (3) Underlying assumptions and logical procedures used by sociologists in formulating explanations; foundations of sociological research strategies and techniques.

535-36 Statistical Analysis in Sociology I and II (3.3) Should be taken in sequence. 536—Data reduction, exploratory data analysis, general linear model. 536—Sampling; inferential statistics based on general linear model, introduction to multi-variate analysis. Prereq: Statistics 201 or consent of instructor. E

540 Occupations (3) Occupations in relation to individuals and society, technology, economic stratification, and social organizations.

541 Collective Behavior, Social Movements, Social Change (3) Basic theory and research on conditions of social unrest in human collectivities and efforts of collectives to change existing society.

542 Sociological Aspects of Sports and Physical Education (3) (Same as Physical Education 542.)

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

541 Delinquency and the Social Structure (3) How study of delinquency and juvenile justice is affected by changing structures of childhood and adolescence, changing demographic and institutional influences, and changing views about responsibility and punishment.

560 Environmental Sociology (3) Systematic treatment of current research in environmental sociology. Social impact analysis and conflicts over environmental issues.

563 Demographic Techniques (3) Standard rates and measures of demographic variables, life table analysis, increment-decrement models, and survey techniques of population analysis.

580 Advanced Rural Sociology (3) (Same as Rural Sociology 580.)

585 Seminar in Gerontology (1) (Same as Human Ecology 585, Educational and Counseling Psychology 585, Nursing 585, Psychology 585, Public Health 585, Physical Education 585, Anthropology 585.)

591 Foreign Study (1-15) See page 31.

592 Off-Campus Study (1-15) See page 31.

593 Independent Study (1-15) See page 31.

594 Social Theories of Sport (3) (Same as Physical Education 511.)

595 Special Topics in Rural Sociology (1-3) (Same as Rural Sociology 593.)

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

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

611 Complex Organization (3) Selected topics in formal organizations, cases and incident process analysis; examines strategies for dealing with organizational change, authority hierarchies, communication patterns; technology and organizational structure; job satisfaction, motivation, morale and interpersonal phenomena.

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 (1) Individual guidance. Preparation for comprehensive examination. Prereq: Consent of instructor. S/NC only.

633 Survey Design and Analysis (3) Systematic exploitation of survey problems through student participation in design and analysis of survey. Prereq: 531 or consent of instructor.

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. Preparation for comprehensive examination. Prereq: Consent of department. 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.


653 Sociology of Law (3) Intensive examination of selected topics in sociology of law. Prereq: 505 or consent of instructor.
655 Advanced Studies in Criminology (3) Intensive examination of selected topics in criminology. Recommended prerequisite: 555. 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. Prerequisite: Consent of instructor.

662 Urban and Regional Sociology (3) Historical and contemporary studies of South Appalachian region with comparisons to other regions.

663 Advanced Studies in Population (3) Current theoretical issues and methodological advances in fertility, mortality, and migration in modern or historical demography. Prerequisite: 563 or consent of instructor. May be repeated. Maximum 6 hrs.

665 Advanced Studies in Energy, Environment and Natural Resources Policy (3) Topical seminar covering particular line of research and theory with in area. Prerequisite: Consent of instructor. May be repeated. Maximum 6 hrs.

669 Tutorials in Advanced Topics (3) Individual instruction. Prerequisite: Consent of department. May be repeated. Maximum 6 hrs.

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Special Services Education

(College of Education)

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<th>MAJORS</th>
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Laurence J. Coleman, Head

Professors:
- Coleman, Laurence J., Ph.D., Kent State
- Doi, E. E. (Emeritus), Ph.D., Pennsylvania
- Frey, Roger M., Ed.D., Illinois
- George, Thomas, Ed.D., Tennessee
- Hargis, Charles H., Ed.D., Colorado State
- Kronick, Robert F., Ph.D., Tennessee
- McClain, T., Ph.D., North Carolina
- Miller, James H., Ed.D.
- Schindler, W. Jean, Ph.D., Kent State
- Woodrick, William E., Ed.S., Mississippi
- Woodside, M. R., Ed.D., VPI

Associate Professors:
- Benner, Susan M., Ed.D., Columbia
- Cassell, Jack L., Ph.D., Virginia
- Colvin, Craig R., Ed.D., Kansas
- Hannum, Michael C., Ed.D., Northern Colorado
- Kopp, Katherine H., Ph.D., George Peabody
- Mulkey, S. Wayne, Ph.D., Florida State
- Oliga, Ed.D., Tennessee

Assistant Professors:
- McLean, J. D., Ph.D., Chicago
- Warden, K., Ph.D., Tennessee

Instructors:
- Ashmore, Don L., M.S., Tennessee
- Barnes, Wendell W., Jr., M.Ed., Georgia
- Griffin, M., M.S., Tennessee

Lecturer:
- Byrd, H. L., Jr., M.S., Tennessee

The Department of Special Services Education offers graduate programs leading to the Master of Science with a major in Special Education or in Rehabilitation Counseling. The department also participates in the Doctor of Philosophy program in Education as described under Education.

THE MASTER'S PROGRAMS

The Master's program in Special Education offers concentrations in the following areas: 1) hearing impaired; 2) gifted; 3) learning disabilities; 4) mental retardation; 5) multiple disabilities; 6) socially or emotionally maladjusted; 7) early childhood special education; and 8) general special education.

Teacher certification can be obtained while working toward the Master's degree. Course offerings are available that lead to general special education teacher certification and to certification to teach hearing impaired children.

The Rehabilitation Counseling program enables counselors to acquire competencies which facilitate the movement of a person with disabilities toward optimal functioning in the three broad areas of living, learning, and working. The rehabilitation counselor works primarily with adults who are being served in varied public and private settings. Students should expect to spend four semesters, including summer, in coursework and in internship. The program requires 54 semester hours. Both majors have a thesis and non-thesis option. If a student elects to do a thesis, the Master's program in Special Education will contain a minimum of 30 semester hours including 6 hours of Thesis 500. Eighteen semester hours in special education coursework is required.

The non-thesis option requires a minimum of 36 semester hours total with a minimum of 18 in special education. In the non-thesis option, a final written comprehensive with an oral examination is required.

ADDITIONAL PROGRAMS

Under the sponsorship of the Office of Special Education and Rehabilitative Services (R.S.A.), specialized institutes for the preparation of professionals to adapt their skills toward services to hearing impaired and deaf people are provided. A federally supported Educational Consortium provides staff development and technical assistance for post-secondary programs serving hearing impaired students in a 13-state southeastern region.

Details concerning each program can be obtained by writing to the department head.

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 Special Education is available to residents of the states of Kentucky or West Virginia; the M.S. in Rehabilitation Counseling is available to residents of Louisiana. Additional information may be obtained from the Residency Assistant in the Office of Graduate Admissions and Records.

Special Education

GRADUATE COURSES

410 Pre-Internship Seminar (1) Orientation, objectives, and policies of internship program. Must be completed term immediately preceding internship. Prerequisite: Admission to teacher education program. SDN only. SP, SU

423 Communication Processes for the Hearing Impaired (3) Expressive and receptive vocabulary development in sign communication. Fingerspelling and educational applications of sign language.

424 Nature of Hearing Impairments (3) Basic principles of audiology: anatomy and physiology of hearing; nature and causes of hearing loss; methods and instrumentation for assessment of hearing level; interpretation of audiologic services to medical and other rehabilitation disciplines.

425 Introduction to the Psychology and Education of the Hearing Impaired (3) Formally for those planning to teach hearing impaired. Overview of research related to psychology, social adjustment, communication meth-
504 Clinical Experience in Teaching and Supervision of Exceptional Children (3-15) Placement in professional educational settings. May be repeated. Maximum 9 hrs. S/NC or letter grade.

506 Internships in Teaching in Special Education and Rehabilitation (3-15) Placement in professional settings in public schools or agencies under supervision of master practitioners. Enrollment limited to those in fifth-year program. S/NC only.

509 Vocational Guidance and Career Planning (3) Determining employment-readiness of people with disabilities; integration of oral/written communication, legal and economic bases, current issues, and interface between school-based programs and rehabilitation agencies.

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

521 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.


523 Practicum in Hearing Impairment (3) Receptive and expressive language capabilities of hearing impaired student. Designing, teaching, and post-testing unit of instruction for remediation of specific language errors. Prereq.: Consent of instructor.

524 Linguistics in the Education of the Hearing Impaired (3) Recent research and developments in theoretical and applied linguistics. Prereq.: 521, 522, 523, 529.

525 Manual Communication (3) American Sign Language (ASL) and culture of American deaf community. Acquisition of basic linguistic properties of ASL, cultural differences between hearing and deaf community, and vocabulary development. Prereq: Prior sign language experience or consent of instructor.

526 Advanced Sign Language (3) Intermediate ASL stressing fluency of expressive and receptive communication with deaf people and structure and history of language. Prereq.: 525 or equivalent.


529 Teaching Reading to the Hearing Impaired (3) Specific methods necessary to teach the prelingually hearing impaired student. Practice in preparation of teaching materials. Methods which assist in integrating hearing impaired students in regular reading curricula and materials. Prereq.: 521.

530 Orientation to Rehabilitation (3) History, philosophy, legal and economic bases, current issues, and practices in public and private rehabilitation programs. Qualifications of service providers. Assessment, plan development, and provision of services to people who have disabilities and vocational handicaps. Identification, mobilization, and utilization of rehabilitation resources.

532 Caseload Management in Rehabilitation (3) Techniques and procedures involved in management of caseloads in Federal-State vocational rehabilitation agencies and assisting clients in seeking, obtaining, and retaining employment. Job analysis, job modification and re-engineering, marketing, and employer-serving techniques; legislation impacting job placement; supported work; and use of occupational information.

535 Vocational Evaluation: Statistical Methods (3) Process principles and techniques used to determine vocational assets and liabilities to people with disabilities. Functional analysis of biographical and interview data; selection and application of test instruments; integration of statistical data into diagnostic reports; application of computer-generated reporting systems.

537 Vocational Evaluation: Clinical Methods (3) Process, principles, and techniques used to assist individuals in determining and understanding their own work behavior and vocational potential. Selection and use of occupational exploration programs and work samples; application of situational tasks, job tryouts, and simulated work experiences in vocational evaluation. Clinical interpretation of data through formal staff conferences, vocational counseling, and report writing.

539 Transition from School to Work (3) Development of programs and procedures to facilitate adjustment of exceptional persons to independent living. Exploring perspectives of work, attributes of effective programs, and interface between school-based programs and rehabilitation agencies.

541 Psychosocial Aspects of Exceptionalities (3) Psychosocial impact of exceptionality on person and family. Reaction to loss, coping with disability, and societal adjustments.

543 Medical Aspects of Disability (3) Etiology and clinical symptoms related to disabling conditions served by special education and rehabilitation personnel. Reconstructive measures to enhance remaining handicaps. Skills necessary to communicate with lay and professional persons.

545 The Rehabilitation Interview (3) Interview as used in assessment and planning with people who have disabilities and vocational handicaps.

547 Practicum in Rehabilitation (3) Supervised experience in area of rehabilitation; application of concepts, principles, and skills. Prereq: Consent of instructor.

549 Internship in Rehabilitation Counseling (12) Supervised practice in rehabilitation counseling. Full time clinical experience for second-year students (600 clock hrs required).

551 Psychology of Learning Disabilities (3) Overview of disabilities: history, characteristics, and perspectives and emerging direction; basic theories of learning disabilities, medical aspects of research, assessment, treatment, characteristics of children and youth, educational implications. Prereq.: 451 and 452 or equivalent or consent of instructor.

552 Instructional Systems for Learning Disabilities (3) Information assessment and use of technology to teach, data collection, instructional programming, and decision-making related to nature and needs of persons with disabilities. Prereq: or coreq: 555 or consent of instructor.

553 Assessment of Exceptional Students (3) Historical and legal issues related to assessment; concepts of evaluation models; test instruments and assessment processes demonstrated, practiced, results applied to educational programming; basic statistics related to norm and criterion-referenced testing covered. Coreq: 599. F

554 Assessment in Early Childhood Special Education (3) Development of knowledge and skills in appropriate formal and informal assessments of handicapped infants and young children: screening, identification, diagnosis, placement and programming assessment issues. Prereq.: 553 or consent of instructor.

556 Characteristics of Social and Emotional Disturbances in Children and Youth (3) Identification, identification, symptoms of disturbed child compared and contrasted to normal social and emotional growth. Prereq.: 451 and 452 or equivalent or consent of instructor.

557 Instructional Systems for the Emotionally Disturbed and Delinquent (3) Educational strategies and options for middle school and high school students, identification, diagnosis, placement and programming of students with emotional and behavioral disorders. Prereq.: Consent of instructor.
562 Instructional Systems for the Mentally Retarded (3) Design, development, behavioral strategies, and techniques. Curricular design and evaluation. Educational needs of mentally retarded children and youth. Prereq or coreq. 561 or consent of instructor.

564 Psychosocial Development of Gifted and Talented Children (3) Phenomena of talent development in context of home, school, and society. Implications of maladjustment. Practices for promoting social and emotional development. Prereq: 451 and 452 or equivalent or consent of instructor.

565 Instructional Systems for the Gifted and Talented (3) Instructional methods and systems evaluated in light of effectiveness in various educational environments. Prereq or coreq: 564 or consent of instructor.

566 Early Intervention for Handicapped Children (3) Exploration of characteristics and needs of young handicapped children. Program and curriculum development of early intervention system.

575 Creative Problem-Solving Strategies for Special Educators (3) Techniques for solving problems encountered by special educators in any setting.

579 Special Topics (1-3) Prereq: Admission to graduate program. May be repeated. Maximum 6 hrs. S/NC or letter grade.

585 Seminar in Research Techniques in Special Education (3) Evaluation of appropriate research methodology with handicapped populations.


590 Application of Microcomputer Technology in Special Education and Vocational Rehabilitation (3) Application of microcomputer technology with all categories of exceptionalities and across all chronological and functioning age ranges. Microcomputer adaptive software, special switch access, authoring systems, telecommunication, and strategies for cognitive development.


595 Clinical Experience in Assessment and Instruction (3) Academic remediation applied in lab/field setting: tasks related to teaching: assessment, preparation of lessons, and delivery of instruction. Coreq: 553. S/NC or letter grade. F.

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

601 Seminar in Educational Theories in Special Education and Rehabilitation (3) Education theories: educational and rehabilitation of exceptional persons. Theory applications in educational settings. Prereq: Admission to doctoral program or consent of instructor.

602 Seminar in Social Processes in Special Education and Rehabilitation (3) Social phenomena which influence the behavior of disabled person and on significant others. Implications for habilitation. Prereq: Admission to doctoral program or consent of instructor.

603 Seminar in Research in Special Education and Rehabilitation (3) Development and implementation of research. Independent research studies, Research proposals. Prereq: 9 hrs of research core and consent of instructor.

610 Internship in College Teaching and Supervision (3-9) Supervised practice in college teaching and supervision. Prereq: Admission to doctoral program or consent of instructor. May be repeated. Maximum 9 hrs. S/NC or letter grade.

620 Internship in Research in Special Education and Rehabilitation (3-9) Placement with professional engaged in theoretically-based research: public school, institutions, agencies or university settings. Prereq: 9 hrs in statistical and research methods. May be repeated. Maximum 9 hrs. S/NC or letter grade.

630 Internship in Institutional Leadership in Special Education and Rehabilitation (3-9) Advanced level field experiences under supervision of practitioner. Prereq: Consent of instructor. May be repeated. Maximum 9 hrs. S/NC only.

679 Special Topics (1-3) Prereq: Admission to doctoral program. May be repeated. Maximum 9 hrs. S/NC or letter grade.

Speech Communication

Syllabus

Speech Communication (College of Liberal Arts)

Lorayne W. Lester, Head

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

Associate Professors:
Ambrester, M. L., Ph.D. ..................... Ohio State
Buckley, J. E., Ph.D. ..................... Northwestern
Cook, N. C., M.A. ..................... Alabama
Glen, Robert W., Ph.D. ..................... Northwestern

Assistant Professor:
Ambier, R. S., Ph.D. ..................... Ohio State
Haas, John W., Ph.D. ..................... Kentucky

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

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

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

460 History of Rhetorical Theory (3) Western rhetorical theory from Plato to present.

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

466 Rhetoric of the Women's Rights Movement (3) Historical and critical study of public address in campaigns for women's rights from 1830's to present. (Same as Women's Studies 466.)

470 Theories of Argumentation (3) Studies of conceptual bases of argumentation from classical to contemporary theories. Prereq: Consent of instructor.

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

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

502 Registration for Use of Facilities (3-16) 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

505 Fundamentals of Graduate Research in Speech Communication (3) Techniques of historical, descriptive and experimental research.

510 Studies in Persuasion (3) Prereq: 310 or equivalent or consent of instructor.

520 Topics in Group and Interpersonal Communication (3) Prereq: 320, 330, 420, or consent of instructor. May be repeated. Maximum 15 hrs.

550 Communication Theory (3) Analysis of contemporary theories of human communication; similarities and differences of communication processes in intrapersonal, interpersonal, small group, organizational, and public communication. Prereq: 350 or equivalent or consent of instructor.

550 Studies in Rhetoric (3) Content varies. Prereq: 450 or consent of instructor. May be repeated with consent of department. Maximum 9 hrs.

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

575 Directing the Forensics Program (3) Philosophy and methods of directing ocular and extracurricular forensic activities in high schools and colleges: competitive and noncompetitive approaches to directing debate, oral interpretation and public speaking events.

580 Theory and Production Techniques of Oral Interpretation (3) Literary, psychological, communicative, and aesthetic approaches to collection, adaptation, and oral presentation of literature. Prereq 390, 385, 440, or consent of instructor.

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

591 Foreign Study (1-15) See page 31.

592 Off-Campus Study (1-15) See page 31.

593 Independent Study (1-15) See page 31.

Statistics

Statistics (College of Business Administration and Intercollegiate Program)

MAJORS

DEGREES

Statistics .................. M.S. Business Administration .................. MBA

Professors:
Downing, Darryl L. (Adjunct), Ph.D. ..................... Florida State
McLean, Robert A., Ph.D. ..................... Purdue
Parr, William C., Ph.D. ..................... Southern Methodist
Philpot, John W., Ph.D. ..................... VPI
Sanders, William L. (Adjunct), Ph.D. ..................... Tennessee
Sylwester, David L., Ph.D. ..................... Stanford
Thigpen, Charles C., Ph.D. ..................... VPI

Associate Professors:
Guess, Frank M., Ph.D. ..................... Florida State
Mee, Robert W., Ph.D. ..................... Iowa State
McGuire, Stephen S. (Adjunct), Ph.D. ..................... Kansas State
Raney, Gipside B. (Adjunct), Ph.D. ..................... NC State
Sanders, Richard D., Ph.D. ..................... Texas
Wright, Tommy (Adjunct), Ph.D. ..................... Ohio State
Younger, M. S., Ph.D. ..................... VPI

Assistant Professors:
Lillicraker, Mary G., Ph.D. ..................... Kentucky
Lin, Dennis K. J., Ph.D. ..................... Wisconsin
Walker, Esteban, Ph.D. ..................... VPI

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

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

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

INTERCOLLEGIATE GRADUATE STATISTICS PROGRAM
The Intercollegiate Graduate Statistics Program is a formal University of Tennessee academic program established to recognize graduate students for completing the requirements of a major or minor in Statistics as part of their degrees. The program enables a student to obtain the M.S. in Statistics simultaneously with the Ph.D. or Ed.D. in another department. The program also enables a student to obtain a Statistics minor along with the M.S., Ph.D., or Ed.D. in another department. The program is administered by an executive committee with advisory input from the program faculty. The program is open to well-qualified graduate students in all departments which have an approved Statistics minor and/or joint major curriculum offered through the program. Students must pass a two-part written examination for the degree. The non-thesis option for the Master's degree is available for students writing a thesis. Alternatively, the non-thesis option requires a minimum of 3 hours in approved statistics courses, exclusive of consulting, internship, independent study, or thesis.

Degree Requirements
The program offers the M.S. in Statistics with a minor in another department, a joint major program in which the student earns a Master's or doctoral degree in the student's sponsoring department along with the M.S. in Statistics, and a joint major and minor program in which the student earns a Master's or doctoral degree in the student's sponsoring department along with a minor in Statistics. The table below presents the minimum number of semester hours in statistics for each of these alternatives. The hours do not represent the minimum required for the degree program. The student selects courses to satisfy the requirements established by the student's sponsoring department and approved by the Program Executive Committee. The student's committee must include a faculty member of the Statistics Department at the rank of Assistant Professor or above. The student's formal examination procedure as established by the sponsoring department must include an appropriate section on statistics. Successful completion of the Statistics minor/major is recognized by appropriate documentation on the student's transcript. Students who do not complete all required courses for the Statistics minor/major will still receive academic credit for statistics courses they have successfully completed.

Degree Program:
Hours*
M.S. in Statistics, minor outside of Statistics 21
M.S. outside of Statistics, minor in Statistics 8
M.S. outside of Statistics, usual separate
requirements for M.S. in Statistics, both degrees 16
Doctorate outside of Statistics," minor in Statistics 24
Doctorate outside of Statistics," M.S. in Statistics

*Approved Statistics courses from the Department of Statistics and/or other departments.
**Courses taken for the minor or the Master's degree in Statistics may fulfill requirements for the doctoral degree. Contact the home department for details.

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 coreq of 561.

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 grade-point average is 3.0 or higher at the end of the probationary period. The probationary period is defined as the next semester's coursework as established by the degree program for full-time students and the next two semesters' coursework as established by the degree program for part-time students.
**Graduate Courses**

411 Introduction to Statistical Computing (3) Use of computer operating system commands and packaged programs for statistical analysis and file management. Not available for credit for statistics majors. Prereq: 201 or 251.


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

501 Statistics for Management (3) Fundamentals of descriptive and inferential statistics. Introduction to probability models, statistical inference: statistical process control, correlations and regression, basic time series. Open only to MBA students.

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

531 Statistical Methods for the Social Sciences I (3) Probability and sampling distributions, parametric and nonparametric estimation and hypothesis testing, simple linear regression and correlation. Credit not given for both 531 and 537. Prereq: 1 yr college mathematics and 1 course in statistics.


537 Statistics for Research in the Behavioral and Biological Sciences I (3) Principles and applications of statistical methodology, integrated with considerable use of major statistical computing system. Probability and probability distributions, forming and testing hypotheses, estimation, confidence intervals, and nonparametric inference methods. Matrix-based simple linear regression and correlation. Career in research. Credit not given for both 531 and 537. Prereq: 1 yr undergraduate mathematics and 1 undergraduate statistics course.

538 Statistics for Research in the Behavioral and Biological Sciences 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, planned versus post-hoc contrasts. Random factors and repeated measures. Prereq: 537.

561 Introduction to Computing for Data Management and Analysis (1) UTK computing environment for beginning graduate students; use of operating system commands, text editing, use of standard computer packages, SAS, for data entry and editing, file management, and statistical analysis in interactive and batch environments. IBM CMS and MVS. Use of microcomputer for statistical analysis. Coreq: 531, 537, or 571, 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, estimation of variance components, problems of measurement, special industrial applications. Prereq: 571 or equivalent.


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

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

585 Principles of Statistical Process Management (3) Control charts and other statistical techniques applied to management of business processes. Prereq: Consent of department head.

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

592 Internship (1-6) Supervised off-campus experience in application of statistical principles and methods in business, industry, or government. Written and oral reports. 4 courses in graduate-level statistics and consent of statistics department director of graduate studies. May be repeated. Maximum 6 hrs. S/NC only.

593 Independent Study (2-6) Faculty directed readings and investigation of specified topic in probability or statistics. Written report and oral presentation. Prereq: 2 courses in statistics and consent of the statistics department director of graduate studies. May be repeated. Maximum 6 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 design and hypotheses. Discussion of activities in regular seminar meetings. Final written reports and/or detailed diaries. Prereq: 572 or 538. May be repeated. Maximum 6 hrs. S/NC or letter grade.


673 Linear Models (3) Review of full rank models and matrix theory, nonorthogonal designs, generalized inverses, estimable functions, b.i.u.e., linear hypothesis testing, reductions in sums of squares, least squares means, mixed model equations, methods of variance component estimation from unbalanced data. Prereq: Analysis of variance.

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

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

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

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**Technological and Adult Education**

(Graduate of Education)

**MAJORS**

<table>
<thead>
<tr>
<th>DEGREES</th>
<th>TECHNOLOGICAL AND ADULT EDUCATION</th>
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<tr>
<td>M.S.</td>
<td>Technology and Adult Education</td>
</tr>
<tr>
<td>Ed.D.</td>
<td>Vocational-Technical Education</td>
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</tbody>
</table>

**Graduate Faculty**

- Cameron, W. A., Ph.D., Ohio State
- Campbell, C. P., Ph.D., Kansas State
- Cheek, Gerald D., Ph.D., Wisconsin
- Coakley, Carroll B., Ph.D., Cornell
- Haskell, R. W., Ph.D., Purdue
- Matthews, John L., Ph.D., Arizona State
- Pender, D. M., Ed.D., North Carolina State
- Reed, J. L. (Emeritus), M.S., Indiana State
- Wagner, G. E. (Emeritus), M.S., Woodin, R. J. (Emeritus), Ph.D., Ohio State

**Associate Professors:**

- Brewer, Ernest, Ed.D., Tennessee
- Brockett, Ralph, Ph.D., Syracuse
- Hanson, R., Ph.D., Purdue
- Kasten, Carol, Ed.D., Georgia
- Ledford, B. J., Ed.D., Tennessee
- Mann, E. C., Ed.D., Penn State
- Petty, G., Ed.D., Notre Dame
- Radcliff, B. J., M.S., West Virginia

**Assistant Professors:**

- Pierce, R., Ph.D., Ohio State
- Powell, Terrence L., M.S., Oklahoma
- Reynolds, Eunice, Ed.D., Tennessee

**The Master's Program**

The Department of Technological and Adult Education offers graduate programs leading to the Master of Science with a major in Technological and Adult Education. The program is available with concentrations in adult education, business and marketing education, industrial education, industrial training, and vocational-technical education. The thesis option requires the completion of 33 semester hours including 6 hours of thesis. The non-thesis option requires the completion of 36 hours of coursework. Details and specific requirements for the various degree options may be obtained from the coordinators of the service areas.

**The Specialist Program**

The Ed.S. program is a cooperative undertaking involving all vocational service areas. Concentrations are available in agricultural, business, marketing and distributive, home economics, industrial, and technical education, and in general vocational education. The degree requires a minimum of 60 hours of graduate study. Credits earned for the Master's degree may meet program requirements in the courses which contribute to the program objectives of the candidate. A major core of studies offers advanced concepts in technological and adult education.

**The Doctoral Program**

The comprehensive Ed.D. program in the department is designed to provide opportunities for graduate students to achieve professional objectives, develop needed competencies, and gain desirable experiences and understanding of technological and adult education.
The minimum requirements in the doctoral program consist of the following: departmental specialization, 12 hours; departmental core and electives, 21 hours; cognate field, 9 hours; professional education core, 12 hours; research techniques, 12 hours; and dissertation, 24 hours. A minimum of 90 hours above the baccalaureate is required.

The Doctor of Philosophy with a major in Education includes concentrations and specializations as listed under education.

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. and Ed.D. programs in Technological and Adult Education are available to residents of the state of South Carolina; the Ed.D. program is available to residents of West Virginia. Additional information may be obtained from the Residency Assistant in the Office of Graduate Admissions and Records.

GRADUATE COURSES

401 Utilization of Community Resources (3) Strategies of developing linkages between educational and private sector through advisory councils, committees, and consultation, and development and management of public relations programs. Prereq: 3 yrs teaching experience. Sp

415 Coordination Techniques (3) Necessary procedures, duties and responsibilities involved in implementing and operating programs. Prereq: Senior standing and consent of instructor. F, Su

430 Principles and Organization of Business and Marketing Education (3) Historical background and development needs. Principles of vocational education in business and marketing, curriculum implications; establishing, evaluating, and improving programs. F

432 Methods and Materials in Business and Marketing Education (3) Teaching techniques, aids and evaluation in subject matter fields. Prereq: Consent of instructor. F, Su

436 Supervised Occupational Experience (3-9) Practical field experience in business and marketing settings under supervision of practitioner and departmental representative. Prereq: May be repeated. Maximum 9 hrs. F

439 Areas of Marketing (3) Marketing, personnel development, operations, and management as affects instructional leadership program in marketing education. Prereq: 432. F, Su

454 Training Aids Development (3) Study and preparation of instructional aids and non-print media commonly used by technical instructors and trainers. Prereq: Senior standing or consent of instructor. F, Su


456 Organization and Operation of VICA/HOSA (3) Planning, organizing and implementing youth-club activities in vocational-technical programs. Prereq: Senior standing or consent of instructor. F, Su

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

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

503 Problems in Lieu of Thesis (3) May be repeated. Maximum 6 hrs. S/NC only. E

504 Research in Technological and Adult Education (3) Solution of problems encountered in technological and adult education. Review of studies unique to technological and adult education. Prereq: 12 hrs of graduate credit. F, Su

505 Selection, Placement, and Follow-up Procedures in Technical Education (3) Methods and procedures utilized in establishing criteria for trained selection and placement in instructional programs and in determining, analyzing, and reporting follow-up data appropriate for making program improvements. Prereq: Consent of instructor. F, Su

506 Adult Continuing Education: A General Survey (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

509 Internship in Technological and 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 Foundations of Technological and Adult Education (3) Theoretical and philosophical, economical, social, and psychological foundations of vocational, technical and adult education; fundamental principles and contemporary objectives. Prereq: Consent of instructor. F

511 Issues and Trends in Technological and Adult Education (3) Specific objectives, activities, and evaluation. Prereq: Consent of instructor. May be repeated. Maximum 9 hrs. E

514 Individual Study in Technological and Adult Education (3) Prereq: Consent of supervisor. Approval form must be filed in office of department head. May be repeated. Maximum 6 hrs. E

515 Microcomputer Operations and Programming in Education (3) Operating procedures and BASIC programming for education and training applications. Hands-on experience in operating and programming microcomputers, writing, debugging, and running educational programs using sequential data files. Prereq: Teaching, administrative, or related experience in education or training, or consent of instructor. E

516 Microcomputer Software Development (3) Advanced software design in BASIC: random access and binary files, search and sort algorithms, and bitmapped graphics for educational environment. Hands-on learning and program development. Prereq: 515 or consent of instructor. E

518 Education Specialist Research (3) May be repeated. Maximum 9 hrs. P/NP only. E

521 Program Development and Operation in Technological and Adult Education (3) Specific objectives, activities, 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 life span and implications for adult education. Prereq: Consent of instructor. F, 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. F, Su

524 Continuing Professional Education (3) Theories and concepts supporting design and management of educational/training programs for adults in professions. Prereq: 510 or equivalent. F

530 Methods and Materials for VOE Programs (3) Development of instructional aids, recent developments and research in technological and adult education, and occupational clusters. Prereq: 510 or equivalent. F

531 Organization and Supervision of VOE and Marketing Programs (3) Developing office and marketing programs in the instructional, and occupational laboratory and model office programs. Trends in office and marketing education, physical facilities, state plans, instructor qualifications, and advisory committees. Prereq: Consent of instructor. F, Su

532 Improvement of Instruction in Basic Business and Marketing Education (3) Issues, research findings, and methods for improved instruction of both secondary and post-secondary levels. Prereq: 12 hrs of graduate credit. F, Su

533 Improvement of Instruction in Office Technology (3) Research, principles of learning issues, and methods for improved instruction in traditional settings for business and marketing education. Prereq: Consent of instructor. F, Su

534 Improvement of Instruction in Accounting and Data Processing (3) Principles of learning issues, research findings and materials in basic accounting, automated accounting and data processing at secondary and post-secondary levels. Prereq: Consent of instructor. F, Su

535 Curriculum in Business and Marketing Education (3) Curriculum designs in career, secondary, post-secondary education. Legislation, technology, social, economic and research results that affect business and marketing education. Prereq: Consent of instructor. F, Su

536 Organizing and Teaching Adult Business and Marketing Education (3) Planning, organizing, teaching and evaluating continuing education programs in business and marketing education. Prereq: 3 yrs teaching experience and consent of instructor. F, Su

537 Measurement in Business and Marketing Education (3) Testing and evaluation of learner performance in business and marketing settings. Prereq: Consent of instructor. Sp, Su

540 Specific Topics in Business and Marketing Education (1-3) Specific objectives, activities, and evaluations vary. Prereq: Consent of instructor. May be repeated. Maximum 6 hrs. F

541 Practicum in Business/Marketing Education (3) Practical updating and upgrading experiences in non-traditional settings for business and marketing teachers. Prereq: 15 hrs of graduate credit. E

542 Problems in Business and Marketing Education (3) Selective research problems in teaching of business and marketing education and related areas. Prereq: Consent of instructor. E

550 Administration of Industrial Education Programs (3) Developing, staffing, administering and evaluating trade, industrial and technical education programs in secondary and post-secondary school settings. Prereq: Consent of instructor. Sp, Su

551 Supervision of Industrial Education Programs (3) Techniques used to improve industrial education programs. Staff development, curriculum improvement and program updating techniques. Prereq: 455 or equivalent. F, Su

552 History and Philosophy of Industrial Education (3) Social, political, and economic events that impact development of industrial education. Philosophical problems: justification, values, principles and concepts of industrial education. Prereq: Consent of instructor. F, Su

553 Planning Technical Education Facilities (3) Preparation of educational specifications, site selection, and working relationships with other professionals involved in process of planning technical-education facilities. Prereq: Consent of instructor. F, Su

554 Technical Program Planning (3) Instructional systems attending to analysis, design, development, implementation, and evaluation of technical education. Prereq: 374 or 554 or consent of instructor. F, Su

555 Curriculum Planning for Industrial Education Programs (3) Developing performance-based, criterion-referenced instructional programs. Prereq: 374 or 554 or consent of instructor. F, Su

556 Staff Development Programs (3) Strategies for assessing, planning, and implementing programs for professional development of vocational-technical personnel. Prereq: 551 or consent of instructor. Sp, Su

557 Advanced Methods of Teaching Technical Subjects (3) Proper selection and effective application of innovative methods and teaching specialized skills and
technical information. Diversifying and individualizing teaching of technical subjects. Prereq: 373. Sp,Su

558 Seminar in Industrial Education (1-3) Current issues, innovations, problems associated with technical education. Prereq: permission of graduate courses. May be repeated. Maximum 6 hrs. F,Su

559 Evaluation of Technical Training Programs (3) Internal and external evaluation of training programs to maintain quality control and/or to justify revisions. Prereq: 455 and consent of instructor. Sp,Su

571 Supervisory Skills for Improving Industrial Productivity (3) Philosophy of improving industrial productivity and practical techniques in maintaining and introduction to basic tools of statistical process control. Deming philosophy, control charting and interpretation, process capability, techniques for training hourly workers in quality control, and measurement procedures for quality control. Prereq: Statistics course and consent of instructor. F,Su

572 Advanced Training Methods for Industrial Productivity (3) Techniques of training hourly workers in use of statistical process control tools. Techniques for involving hourly workers and supervisors in quality assurance, inventory control, and productivity improvement through a team-oriented approach. Prereq: 571. Sp,Su

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

601 Curriculum Planning in Technological and Adult Education (3) Curriculum theory, models, content, development and implementation of specialized program areas. Prereq: 555 or equivalent. Sp,Su

602 Planning and Evaluation of Programs in Techni- cal and Adult Education (3) Techniques utilized in planning, developing, and evaluating instructional programs. Prereq: 500-level planning course and consent of instructor. Sp,Su

604 Seminar in Technological and Adult Education (1) Required 2 consecutive semesters during doctoral residency. May be repeated. Maximum 3 hrs. S/NC only. E

605 Administration and Supervision of Techni- cal and Adult Education (3) Leadership, policy, organization, planning, personnel, student development services, and budgeting relating to vocational, technical and adult education at secondary, post-secondary, and higher education levels. Principles, problem solving, and management activities. Prereq: Administrative theory course and consent of instructor. F,Su

610 Research Development in Technological and Adult Education (3) Proposal development, theoretical base, research design, sampling, application of statistics, and evaluation of research in technological and adult education. Prereq: 6 hrs of advanced statistics courses and consent of instructor. Sp,Su

611 Internship in Technological and Adult Edu- cation (3) Field experience in relevant organizations. Prereq: Consent of instructor. May be repeated. Maximum 6 hrs. E

613 Special Topics in Technological and Adult Education (3) Prereq: Consent of instructor. May be repeated. Maximum 9 hrs. E

615 Advanced Microcomputer Software Applica- tions (3) Advanced programming and applications of intelligent or program-generating software. Progression of commercial relational data-base management program environments. Concepts and applications of communications and networking. Hands-on environment. Prereq: 516 or equivalent. Sp,Su

618 Work Force Planning (3) Methods and procedures involved in planning, conducting, and analyzing data from national, regional and community surveys. Interna- tional manpower policies compared to U.S. policies. Applications of planning to particular fields of occupational education. Prereq: Advanced statistics and 602. Sp

620 Seminar in Adult Education (3) Issues in adult education theories and concepts, philosophical positions, research trends and methodologies. Prereq: 510 or equivalent. F,Su

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

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

625 Adult Problem Solving and Learning (3) Contem- porary problem solving and learning. Prereq: 522 or equivalent. F,Su


631 Higher Education in Business and Marketing Education (3)

Textiles, Merchandising and Design

(College of Human Ecology)

MAJORS

DEGREES

Interior Design .................................................. M.S.
Textiles and Apparel ............................................ M.S.
Human Ecology ................................................. Ph.D.

Larry Wadsworth, Acting Head

Professors:

Blakemore, Robbie G., Ph.D. ........... Florida State
DeLong, A. J., Ph.D. ............... Penn State
DeJonge, Jacqy lynn O., Ph.D. ......... Iowa State
Drake, Mary Fran, Ph.D. ........... Penn State
Duckett, Kermit E., Ph.D. .......... Tennessee
Moran, W. J., M.S. ................ Wisconsin
Wadsworth, Larry C., Ph.D. ........ NC State

Associate Professors:

Brese, Randall R., Ph.D. .......... Florida State
Dyer, C. L., Ph.D.................. North Carolina
Rabun, J osette, Ph.D. .......... Tennessee

Assistant Professors:

Houser, T. L., M.S. ................. Tennessee
Simpson, Ethel, Ph.D. ............ Oklahoma

Interior Design

The Department of Textiles, Merchandising and Design offers a Master’s degree in Interior Design. This program is accredited by the Foundation for Interior Design Education Research (FIDER). The program of study will provide a balance between creative and theoretical foundations of the field. The goal of the graduate program in interior design is to provide the student with scholarly and professional experiences through seminars, studio work, and research. Interdisciplinary thrusts will increase the depth of understanding of the field of interior design essential to function as educators or as independent professionals.

Areas of emphasis within interior design may include: historical background, use/ history of interior design, computer-aided design, and human environment interaction. Supporting courses are available in lighting, furniture design, business practices, etc.

ADMISSION REQUIREMENTS

A complete file for review includes a College of Human Ecology application, Graduate Record Examination (GRE) scores for the general section, completion of three Graduate School Rating Forms by individuals who can attest to the potential for graduate education. Forms may be obtained from the Dean’s Office, College of Human Ecology.

In addition to specified entrance require- ments stipulated by The Graduate School, admission to the graduate program in Interior Design requires: 1) a background in interior design; 2) a cumulative GPA of 3.0 or above (on a 4.0 scale); and 3) a portfolio of undergraduate studio work (and professional work, if appli- cable) submitted to the department. The portfolio may include slides or original work. It is recommended that deficiencies in preparation, as identified in the admission process, be removed prior to full admission to the graduate program. Superior students, deficient in one or more of the above requirements, may be admitted at the discretion of the department’s graduate faculty.

ACADEMIC STANDARDS

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

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

THE MASTER’S PROGRAM

Major (Required courses: 510, 552, 562, 564, 690) 18-21 hours
Cognate Area 9 hours
Research Methods 3 hours
Thesis 6 hours
TOTAL 36 hours

A comprehensive oral examination, ad- ministered by the thesis committee, will occur upon completion of thesis research. A non-thesis option is not available.

ACADEMIC COMMON MARKET

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

GRADUATE COURSES

410 Environment as Code (3) Advanced theoretical issues in considering environment as medium of human communication. Prereq: 200, 400 or consent of instruc- tor. Sp,A

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

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. Must be repeated. Maximum 9 hrs. Pre-reg: Admission to graduate program. F

510 Problem Solving in Interior Design (3) Use of systematic design methodology and design research methods as part of design problem-solving experience. Lecture and studio. May be repeated. Maximum 6 hrs. Pre-reg: Admission to graduate program. F

520 Integrative Interior Design Studio (3) Identification, integration and synthesis of multidisciplinary data input. Advanced programming techniques and design evaluation. Lecture and studio. Pre-reg: 510; 564, or consent of instructor. Sp

530 Practicum in Interior Design (1-12) Field experience in selected agencies, organizations, or firms that focus on solutions to problems in interior design. Pre-reg: 9 hrs graduate level interior design or consent of instructor. E

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

542 Special Topics: History of American Interior Design (3) Philosophical and stylistic movements, America of seventeenth, eighteenth, or nineteenth centuries. Topics vary. Pre-reg: 475 or consent of instructor. May be repeated. Maximum 9 hrs. F

552 Seminar in Interior Design (3) Twentieth-century design concepts, persons, motivation, and creative components leading to visual innovation. Pre-reg: 470 or consent of instructor. F

563 Research Methods in Interior Design (3) Methodology for research problems in interior design. Pre-reg: 9 hrs of graduate level interior design or consent of instructor. May be repeated. Maximum 9 hrs. E

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

574 Environmental Design Analysis (3) Integrative problem-solving/study from multidisciplinary perspective. Systems approaches. Available to students from design disciplines and social and behavioral sciences. Prereq: 4 hrs or consent of instructor. May be repeated. Maximum 6 hrs. F,A

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

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

582 Directed Study in Historic Design (1-3) Independent advanced research in area of historic style in interior design. Prereq: Consent of instructor. May be repeated. Maximum 9 hrs. E

583 Directed Study in Furniture Design (1-3) Independent advanced research in furniture design. Prereq: Consent of instructor. May be repeated. Maximum 9 hrs. E

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

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

Textiles and Apparel

The Department of Textiles, Merchandising and Design offers the Master's degree. Students are expected to have a good foundation in one of these areas to enter the program. The program of study will prepare students for careers in industry, business, public and private agencies, and educational institutions. Interested students should contact the department head for more information.

ADMISSION REQUIREMENTS

A completed file for review includes a College of Human Ecology application, Graduate Record Examination (GRE) scores for the general section, and completion of three Graduate School Rating Forms by individuals who can attest to the potential for graduate education. Forms may be obtained from the Dean's office, College of Human Ecology.

ACADEMIC STANDARDS

Each graduate student will be evaluated at the end of the second semester (or after completing a minimum of 18 graduate hours). If the student's GPA is below 3.0, the faculty may recommend probation with specific goals set for a specified time or termination.

THE MASTER'S PROGRAM

Major (Required courses: 540, 550/552, 580, 590) 19 hours

Cognate Area

Economics 6 hours

Statistics 3 hours

Thesis 6 hours

TOTAL 34 hours

*Students with textile science background must take 550; students without it must take 552.

A comprehensive oral examination, administered by the thesis committee, will be given upon completion of the thesis research.

A non-thesis option is not available.

THE PH.D. CONCENTRATION

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

1. Nineteen hours in required textiles and apparel courses: 550, 552, 540, 590, 641, 685, and 695;

2. College Professional Seminar, Human Ecology 610;

3. Research Seminar, 590. Attendance at seminar is required for all full-time students;

4. Nine credit hours in research methods including 6 hours of 500-level statistics;

5. Nine credit hours in properly chosen electives; and

6. Textiles and apparel courses in area of specialization (16-20 hours); and

7. Dissertation (24 hours).

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 Textiles and Apparel is available to residents of the states of Kentucky or Mississippi. Additional information may be obtained from the Residency Assistant in the Office of Graduate Admissions and Records.

For the Ph.D., see Human Ecology.

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 student uses university facilities and/or faculty time before degree is completed. May not be used toward degree requirements. May be repeated. S/NC only. E

510 International Retail Systems (3) Acquisition and management of information for retail decision; analytical decision making skills and decision making, as it is system planning and strategy designs in retail areas. Pre-reg: 410 or equivalent. Sp

520 Textile Microscopy and Physical Testing (3) Optical and electron microscopes and techniques for textile fibers, yarns and fabrics. Methods and equipment used in physical testing following approved textile standards. Pre-reg: 420 or equivalent. E

522 Fiber Chemistry (4) Chemistry of textile fibers; structure, preparation and reactions; dyeing and finishing of fabrics. Introduction to color science. Pre-reg: Organic Chemistry 2 and 4 hrs and 4 labs. Sp

524 Advanced Textile Dyeing and Finishing (4) Chemistry, processing and fastness of chemical finishes and various classes of dyes on different fibers. Pre-reg: 522 or consent of instructor. 2 hrs and 4 labs. Sp

525 Physical Properties and Processing of Textiles (3) Methods and mechanics of processing staple and continuous filament yarns; mechanics of deformation of fibers, yarns and fabrics; physical behavior and textile structure. Pre-reg: Engineering Science and Mechanics 321, Mathematics 142, or equivalent.

530 New Technology in the Textile/Apparel Industry (3) Innovations in equipment which affect textile and apparel industries; computer-aided design and computer applications; improvements which give U.S. industry competitive edge. Field trips. Pre-reg: Computer literacy.

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

546 Fashion Development in Historic Perspective (3) Style in relation to contemporary conditions (cultural determinants): commerce, economics and social phenomena.

548 International Textiles (3) Development of traditional and historic textiles; influence of culture, economics and commerce. Pre-reg: 3 hrs textiles.

550 Consumer Economics and Market Choices (3) Economic framework for evaluating consumer behavior and consumer choice within market system. Theory of consumer preferences, identification and classification, demand and demand models for individuals and households, international consumer economics, issues and policies. Pre-reg: 330 or consent of instructor. F

552 Textile Economics and Technology (3) New developments in processing textile fibers, yarns and fabrics into consumer products. Economic developments and analysis of textile complex; economics and functional performance and consumer issues; U.S. and international focus.

560 Research Methods in Textiles, Apparel and Design (3) Fundamentals of scientific research methods; issues of applied research in textiles, apparel and interior design.

590 Research Seminar (1) Research topics in textiles and apparel. S/NC only. F,Sp
563 Directed Study (1-3) Individual problems in textiles, merchandising or apparel. Prereq: 9 hrs textiles/apparel graduate coursework. May be repeated. Maximum 9 hrs.

565 Advanced Topics in Textiles and Apparel (1-3) Lecture, group discussion on specialized topics: apparel production management, functional design, handicrafts, elderly, historic costume, historic textiles, international issues, non-wovens, thermal properties. Prereq: 9 hrs textiles/apparel graduate coursework. May be repeated. Maximum 9 hrs. Su

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

625 Physical Chemistry of Fibers (3) Physical chemistry of fibers and fiber forming polymers; surface chemistry and thermal properties. Prereq: 522, Mathematics 231, or equivalent.

626 Physics of Fiber Structures (3) Morphology of polymeric structures; thermal and processing history on mechanical, electrical and chemical properties of fibers. Prereq: 522; Physics 231 and Mathematics 231 or equivalent.

641 Social and Psychological Theories of Apparel Consumption (3) Theories and concepts from social science, fashion, consumer behavior in relation to apparel. Prereq: 540 and 6 hrs of sociology and/or psychology, or consent of instructor.

651 The Consumer and Public Policy (3) Economic, social, legal and political framework for policy decisions; economic evaluation of policies that affect consumer. Economic implications for societal groups, disadvantaged. Prereq: 550 or 552, or consent of instructor.

685 Integrative Design: Development and Marketing (3) Systems-oriented approach to strategies involved in product development; methods for identifying critical factors central to decision making and techniques for synthesizing information. Prereq: 24 hrs graduate coursework.

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

The Department of Theatre offers the Master of Fine Arts in Theatre with area concentrations in acting/directing, playwriting/dramaturgy, and design/technical production.

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

The Graduate Record Examination is required of all applicants as well as a written comprehensive exam, usually administered in the second year of residence. All M.F.A. applicants must submit three letters of recommendation. Interviews with appropriate faculty are required of all applicants. Applicants for admission to M.F.A. design/technical theatre and playwriting/dramaturgy programs must submit samples of their work.

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

THE MASTER'S 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 during the first semester of residence. Also required are Theatre 401, 310-11, and at least 3 hours in dramatic theory and criticism. 310-11 may be waived by proficiency examination. Students passing this examination must complete 6 hours in advanced theatre history and dramatic theory/criticism, including at least one course from each of the two areas.

Students in the MFA program are evaluated annually by joint jury performance or portfolio submission. Successful completion of the comprehensive examination is prerequisite to entry into the third year. Thesis and oral defense (Theatre 500, 6 hours) 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 580 Design and Technical Production Seminar, and at least 3 hours in the projects course. Theatre 401 Principles of Design is required in the first year of residence. Theatre 430 Play Directing is required of scene design students lacking an appropriate undergraduate foundation in directing.

Acting

Theatre 520-21-22-23-24-25 Master Class are required, along with one course in directing and two hours each in voice and dance.

Directing

Required are 430 Directing, 520-21-22-23-24-25 Master Class, and 3 hours of 536 Projects.

Playwriting

Required are 470-71 Playwriting, at least 12 hours of 573 Playwriting Seminar, and at least 3 hours of 585 Production Workshops.

Dramaturgy

An additional two courses in dramatic theory and criticism are required as are Theatre 570 Dramaturgy: Theory and Practice, at least 6 hours of 585 Production Workshops, 430 Play Directing, 3 hours of 536 Projects in Directing, and 12 hours of 573 Seminar and Projects. In addition, students must select an area and humanities specialization comprising at least one year of language study plus 6 hours in the selected area.

REQUIREMENTS FOR SECOND MASTER'S DEGREE

Students admitted to the MFA program who have already earned a Master's or a doctoral degree may apply up to 12 credit hours from the previous graduate program to the MFA degree with approval of the student's committee, the Dean of the College of Liberal Arts, 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) Problems in make-up design and application, character analysis, physiognomy and chiarascuro. Prereq: 100

410 Dramatic Theory and Criticism (3) Theatre aesthetics from Aristotle to present.

420 Special Studies in Acting (3) Content varies. Exercises in selected areas concentrated in acting, such as stylies, techniques, approaches, etc., Shakespeare, movement, humor. Prereq: Advanced Acting and consent of instructor. May be repeated. Maximum 9 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. Prereq: Consent of instructor.


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

466 Costume Patternmaking (3) Draping patterns for period costumes. Corsetry and study of historic patterns 1500-1900. Prereq: 340 or consent of instructor.

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

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

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

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

460 Advanced Lighting and Sound Technology (3) Projects in lighting and sound coordination. Opera, dance, musical theatre, at and "rock videos." Final projects of five productions. Developing artistic sensibility and subtleties in control. Prereq: 260 or consent of instructor.

461 Special Effects in Lighting and Sound (4) Projects in special effects, creative application of technology. Problem solving, drafting, and execution of effects for production. Participation required. Prereq: 260 or consent of instructor.

462 Advanced Lighting Design (3) Advanced problems in lighting design and theory, lighting musical theatre, opera, and dance. Prereq: 262 or consent of instructor.

463 Sound Design (3) Sound design for performing arts. Review of equipment and acoustical factors that affect sound production. Sound design plotted from selected plays. Final projects mixed, edited, and cued for production.

465 Introduction to Lighting Design for Non-Designers (3) Theory and practice of stage lighting design, relationship between designers and non-practitioners: directors, actors, choreographers, architects, etc.

470-71 Playwriting (3,3) Advanced instruction in writing plays. Prereq: Consent of instructor.

491 Foreign Study (1-15) See page 31.

492 Off-Campus Study (1-15) See page 31.


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

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

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

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

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

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

539 Play Production in the Secondary Schools (3) Principles and methods for directing high school dramatic programs.

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


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

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

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


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

554 Studies in Scenic Design (3) Advanced scene design techniques and approaches to design for complex dramas and varied dramatic forms. May be repeated. Maximum 6 hrs.

560 Projects in Lighting Design (1-3) Conception and completion of major projects, both hypothetical and actual, in lighting design. Prereq: Consent of instructor. 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: 462 or consent of instructor. May be repeated. Maximum 9 hrs.

563 Projects in Sound Design (1-6) Production assignment as sound designer on approved play and/or relevant projects in field of sound design/history/methodology. Prereq: 463 or approval of instructor. May be repeated. Maximum 9 hrs.

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

571 Seminar & Projects in Dramaturgy (3) Directed study and experience. Prereq: Consent of instructor. May be repeated. Maximum 18 hrs.

573 Seminar in Playwriting (3) Exercises and projects tailored for advanced students in playwriting. Prereq: Consent of instructor. May be repeated. Maximum 18 hrs.

575-76 Studies in Dramatic Theory and Criticism (3,3) Broad-based study of major ideas about drama.

580 Design and Technical Production Seminar (1-6) Selected aspects of scene design and technical production. Prereq: Consent of instructor. May be repeated. Maximum 18 hrs.

585 Production Workshops (1-6) Directed experience in production collaborations. Prereq: Consent of instructor. May be repeated. Maximum 12 hrs.

586 Studies in Dramatic Theory (3) Directed study of theory and practice of collaborative nature of theatrical art. May be repeated. Maximum 6 hrs.

599 Project and Thesis (1-6) Available to theatre MFA 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

Urban Practice

(College of Veterinary Medicine)

MAJOR

Veterinary Medicine D.V.M.

D. J. Krahwinkel, Head

Professors:


Associate Professors:


Assistant Professors:


Clinical Associate:

Avgieris, S., D.V.M. Michigan State

Residents:


Intern:

Bradley, D., D.V.M. Ohio State

See Veterinary Medicine for program description.

GRADUATE COURSES

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

501 Special Topics in Small Animal Medicine and Surgery (1-4) May be repeated. Maximum 6 hrs. 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

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

Veterinary Medicine

(College of Veterinary Medicine)

MAJOR

Veterinary Medicine D.V.M.

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

THE PROFESSIONAL PROGRAM

Admission Requirements

To qualify for admission to the professional program of the College of Veterinary Medicine, a candidate must have completed at least the minimum pre-veterinary requirements listed below. These may be met at any accredited college or university that offers courses equivalent...
Subject Area  
Semester Hours

English 6

Humanities and Social Sciences 18

Calculus 6

Physics 8

General Chemistry 8

Organic Chemistry 8

Biochemistry 4

General Biology 8

Genetics 3

Cellular Biology 3

TOTAL 72

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

**Exclusive of laboratory.

***It is expected that this requirement will be fulfilled by a course in cellular or molecular biology. An appropriate microbiology course may be approved if cellular or molecular biology is not offered.

Admission Procedures

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

Forms and instructions for making application for admission may be obtained, after September 1 each year, from Director of Admissions, 201 Student Services Building, The University of Tennessee, Knoxville, TN 37996-0200.

Applications must be completed and mailed in time to reach the UT Knoxville Director of Admissions by January 15 each year. All supporting documents, official transcripts, Veterinary College Admission Test (VCAT) (formerly VAT) (results from a test taken with 24 months of the January 15 application deadline date), and letters of reference must arrive not later than 30 days after the application deadline date.

NON-TENNESSEE APPLICANTS MUST HAVE A MINIMUM CUMULATIVE GRADE-POINT AVERAGE OF 3.2 ON A 4.0 SCALE.

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

D.V.M. Curriculum

The curriculum of the College of Veterinary Medicine is a nine-semester, four-year program. Each class begins in August and graduates four years later in May. The first three years follow the traditional fall and spring semesters with the summer break following years one and two. The final year of the professional curriculum begins the summer break following years one and two. The first year consists of a series of clinical blocks through which each student will rotate.

The final year (three semesters) is devoted to intensive training in the solving of animal disease problems, including extensive clinical experience in the CVM Teaching Hospital. The final year consists of a series of clinical blocks through which each student will rotate.

An innovative feature of this curriculum is the designation of semester six as one in which the individual student may select his or her courses of study. This formal allows select students with an interest in advanced or dual-degree programs to enroll in all, some, or none of the regularly scheduled courses during that semester. Students will be required to complete at least 16 hours and three hours will be credited toward the D.V.M. The semester of elective study offers a unique educational alternative for select students in the CVM which is intended to enhance professional growth, concentration and additional career choices.

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

The curriculum requires successful completion of 154 semester credits.

Extramural Programs

The opportunity to participate in off-campus learning experiences may be available for a limited number of students during the latter half of the final year of the professional curriculum. Selection of an extramural learning experience requires approval by the department concerned and the College of Veterinary Medicine Curriculum Committee. The extramural program identified by the student must credit the student with an extramural experience not available within The University of Tennessee, Knoxville.

THE GRADUATE PROGRAM

The College also administers a graduate program involving all departments and leading to the Master of Science and the Doctor of Philosophy. This is a major feature 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 and physiology), Microbiology (bacteriology, virology and immunology), Ecology (environmental toxicology), Public Health, and Comparative and Experimental Medicine. (Refer to other sections of this catalog for a full description of these programs.) The majority of the graduate students and graduate faculty of the College of Veterinary Medicine are involved in the Comparative and Experimental Medicine program (see page 64). This program provides a wide spectrum of interdisciplinary training that prepares graduates to assume positions in biomedical environments and in teaching or research capacities involving humans or animals.

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. and Ph.D. programs in Comparative and Experimental Medicine are available to residents of the state of Kentucky. Additional information may be obtained from the Residency Assistant in the Office of Graduate Admissions and Records.

PROFESSIONAL COURSES

811-12 Microbiology LLI (5.4) Pathogenesis of bacterial, fungal and viral diseases. Study relating microbial structure, metabolism and pathogenesis to disease and mode of action of antimicrobials, antigens and antibodies. Immunology, study of mechanisms of infection, infectious diseases and diagnostic immunology, and role of immune response.

817 Special Problems in Microbiology (1-8) Extramural and specially designed study for students interested in select topics in bacteriology, microbiology, virology and immunology.

821-22 Anatomy ULI (4.4) Gross and applied anatomy; neural structures of common domestic animals: dog, cat, horse, cow. Dissection of embalmed specimens, prosections, slides, models, and living animals.

823-24 Physiology ULI (4.4) Introduction to concepts and problems in physiology which form base for clinical applications and for formal training in pharmacology, medicine, pathology, and surgery. Cellular, neural, cardiovascular, renal, respiratory, digestive, endocrine, and reproductive physiology.

825-26 Histology/Organography (3.3) Histology and organography of animal body systems, structural and functional interrelationships. Embryonic development from fertilization through organogenesis. Correlated with 823-24.

827 Special Problems in Animal Science (1-4) Extramural and specially designed study for students interested in select topics in anatomy, histology, and physiology.

830 Art of Veterinary Medicine I (1) Paramedical subjects important to veterinary practice: practice management, interpersonal relations, communications, jurisprudence, ethics, careers, animal behavior and veterinary history. May be repeated for credit only.

831 Physical Diagnosis (1) Basic care, feeding, restraint, and handling domestic animals. Introduction to physical examination and diagnostic techniques used by veterinarians.

832 Anesthesiology (2) Principles of anesthesiology; pharmacology of anesthetic agents, and introduction to anesthetic techniques in veterinary medicine.


834 Hematopoiesis System (3) Pathophysiology, special pathology, and clinical management of diseases of the hematopoietic and lymphoid organs and tissues. Principles, methodology, and laboratory evaluation of diseases from other organ systems.

835 Medical Interaction (2) Multidisciplinary laboratory and lecture courses in physiologic, pharmacologic and surgical concepts. Applied techniques in animal handling to facilitate anesthesia, surgery, post-surgical recovery and wound healing. Demonstration of physiological processes and drug effects.

836 Toxicology (2) Principles of toxicology, molecular mechanisms, pathologic processes and clinical features of animal diseases caused by common toxic agents.

840 Integumentary System (3) Pathophysiology, special pathology, medicine and surgery of diseases of the integumentary system of all species of animals. Laboratory examination, pathology, diagnosis and treatment.

841 Reproductive System (4) Pathophysiology, special pathology, medicine and surgery of diseases of male and female reproductive systems and mammalian gland of all species of animals.

842 Alimentary System (5) Pathophysiology, special pathology, medicine and surgery of diseases of alimentary systems of all species of animals.

843 Musculoskeletal Systems I (3) Pathophysiology, special pathology, medicine and surgery of diseases of muscular and skeletal systems of all species of animals. Basic principles, pathologic changes and radiographic interpretation.
844 Musculoskeletal System II (3) Pathophysiology, special pathology, medicine and surgery of diseases of musculoskeletal systems of all species of animals. Advanced principles, radiographic interpretation and surgical procedures.

845 Principles of Medical Science (2) Physiologic and pathologic principles underlying mechanisms of disease. Selected examples of human and animal diseases; recent scientific advances in biomedical sciences.

846 Multispecies Medicine (4) Anatomy, pathophysiology, medicine, and surgery of avian species, laboratory and zoo animals and reptiles. Species and diseases seen by practicing veterinarian. Current topics on foreign animal diseases.

847 Current Topics in Veterinary Medicine I (3) Elective subjects in veterinary medicine: basic sciences, clinical specialties and issues related to veterinary practice.

848 Art of Veterinary Medicine II (1) Paramedical subjects important to veterinary practice: practice management, interpersonal relations, communications, prudence, ethics, care, animal behavior and veterinary history. May be repeated. S/NC only.

849 General Elective in Clinics (2) Special rotation with clinical training in urban practice, rural practice, environmental practice and pathobiology. S/NC or letter grade.

850 Introduction to Clinics (1) Clinical veterinary practice with discussions and practical experience. Problem-solving and integration of basic sciences with clinical applications. Problem-oriented veterinary medical record.

851 Urinary System (3) Pathophysiology, special pathology, medicine and surgery of diseases of urinary system of all species of animals. Urinary-renal system in health and disease.

852 Cardiovascular System (2) Pathophysiology, special pathology, medicine and surgery of cardiovascular system of all species of animals. Anatomic, physiologic and pharmacologic principles which provide basis for treatment.

853 Endocrine System (2) Pathophysiology, medicine and surgery of diseases of endocrine system of all species of animals. Mechanisms of endocrine and metabolic diseases: therapy and prevention.

854 Respiratory System (3) Pathophysiology, special pathology, medicine and surgery of diseases of respiratory system of all species of animals. Upper and lower respiratory system: infections and noninfectious diseases.

855 Radiology (3) Basic, advanced and specialized techniques in the interpretation and use of radiologic and related techniques in diagnosis and treatment of diseases of all species.

856 Special Senses (2) Pathophysiology, special pathology, medicine and surgery of diseases of visual and auditory systems of all species of animals.

857 Nervous System (3) Pathophysiology, special pathology, medicine and surgery of diseases of nervous system of all species of animals: clinical neurology and neuropathology.

858 Clinical Rotation in Specialties (2) Clinical training in specialty services: anesthesiology, ophthalmology or dermatology. Direct responsibility for diagnosis, patient care, and treatment of clinical cases in both urban and rural practice.

859 Clinical Clerkship (2) Advanced clinical training in urban practice, rural practice, environmental practice, and pathobiology. S/NC or letter grade.

861 Pharmacology (4) Principles of pharmacokineties and pharmacodynamic properties of veterinary drugs: mode of action, pharmacologic effects, chemical and physical properties, metabolism, excretion, important idiosyncrasies and clinical application.

865 Clinical Rotation in Environmental Practice (2) Clinical training in avian medicine, laboratory animal and zoo animal medicine; radiology, public health, and other related disciplines.

867 Special Problems in Environmental Practice (1-8) Extramural and specially designed study for students interested in selected topics in avian medicine, laboratory animal medicine, zoo animal medicine, epidemiology, public health, pharmacology or toxicology.

871 General Pathology (4) Principles of pathobiology: causes of disease, disturbances of cell growth, inflammation, and neoplasia.

872 Parasitology (3) Principles of parasitology: protozoology, helminthology, and entomology and relationship to diseases.

875 Clinical Rotations in Pathobiology II (2) Clinical training and demonstrations in laboratory diagnosis: post-mortem examination and clinical pathologic, radiologic and microbiologic techniques.

876 Clinical Rotations in Pathobiology II (2) Clinical training and demonstrations in laboratory diagnosis: post-mortem examination and clinical pathologic and microbiologic techniques.

877 Special Problems in Pathobiology I (1-6) Extramural and specially designed study for students interested in select topics in morphologic pathology, clinical pathology, clinical microbiology and parasitology.

881 Clinical Rotations in Urban Practice I (4) Clinical training in medicine, surgery and specialty disciplines for companion animals. Direct responsibility for diagnosis, patient care, and treatment of clinical patients.

882 Clinical Rotations in Urban Practice II (4) Clinical training in medicine, surgery and specialty disciplines for companion animals. Direct responsibility for diagnosis, patient care, and treatment of clinical patients.

883 Clinical Rotations in Urban Practice III (4) Clinical training in medicine, surgery and specialty disciplines for companion animals. Direct responsibility for diagnosis, patient care, and treatment of clinical patients.

884 Clinical Rotations in Urban Practice IV (4) Clinical training in medicine, surgery and specialty disciplines for companion animals. Direct responsibility for diagnosis, patient care, and treatment of clinical patients.

885 Clinical Rotation in Radiology I (2) Clinical training in radiographic techniques and interpretation of radiographs as part of diagnostic process.

887 Special Problems in Urban Practice I (1-8) Extramural and specially designed study for students interested in select topics in medicine, surgery, anesthesiology, radiology and medical specialties of small companion animals.

891 Clinical Rotations in Rural Practice I (4) Clinical training in medicine, surgery, specialty disciplines and herd health of food animals and horses. Direct responsibility for diagnosis, patient care and treatment of clinical patients.

892 Clinical Rotations in Rural Practice II (4) Clinical training in medicine, surgery, specialty disciplines and herd health of food animals and horses. Direct responsibility for diagnosis, patient care and treatment of clinical patients.

893 Clinical Rotations in Rural Practice III (4) Clinical training in medicine, surgery, specialty disciplines and herd health of food animals and horses. Direct responsibility for diagnosis, patient care and treatment of clinical patients.

894 Clinical Rotations in Rural Practice IV (4) Clinical training in medicine, surgery, specialty disciplines and herd health of food animals and horses. Direct responsibility for diagnosis, patient care and treatment of clinical patients.

895 Clinical Rotation in Radiology II (2) Clinical training in radiographic techniques and interpretation of radiographs as part of diagnostic process.

897 Special Problems in Rural Practice I (1-8) Extramural and specially designed study for students interested in select topics in medicine, surgery, herd health, reproduction, radiology and medical specialties of large animals.

GRADUATE COURSES


536 Toxicology (2) Principles of toxicology: molecular mechanisms, pathologic processes and clinical features of animal diseases caused by common toxic agents. Prereq: Consent of instructor.

537 Multispecies Medicine (4) Anatomy, pathophysiology, medicine and surgery of birds, reptiles and laboratory and zoo mammals. Common species and diseases. Prereq: Consent of instructor.

545 Principles of Medical Science (2) Physiologic and pathologic principles underlying mechanisms of disease. Selected examples of human and animal diseases: recent scientific advances in biomedical science. Prereq: Consent of instructor.

Zoology (College of Liberal Arts)

MAJOR DEGREES

Zoology M.S., Ph.D.

Arthur C. Echternacht, Head

Professors:

Bagby, R. M., Ph.D. .............. Illinois
Bunting, Dewey L., Ph.D. ........ Oklahoma State
Carlson, J. G. (Emeritus) (Distinguished Prof.), Ph.D. ........ Pennsylvania
Echternacht, Arthur C., Ph.D. ...... Kansas
Ehler, D. A., Ph.D. .............. Minnesota
Handel, Mary Ann, Ph.D. .......... Kansas State
Jeon, K. W., Ph.D. .............. London
Joy, D. C. (Distinguished Scientist), Ph.D. ........ Oxford (UK)
Kennedy, J. R., Ph.D. .............. Iowa
Liles, J., N., Ph.D. .............. Ohio State
MacCabe, J. A., Ph.D. .......... California (Davis)
Pimm, S. L., Ph.D. .............. New Mexico State
Riechert, Susan E., Ph.D. ......... Wisconsin
Roth, L. Evans, Ph.D. .............. Chicago
Shivers, C. A., Ph.D. .............. Michigan State
Tanner, J. T. (Emeritus), Ph.D. ........ Cornell
Vaughan, G. A., Ph.D. .............. Duke
Welch, H. G. (Emeritus), Ph.D. .... Florida
Whiston, G. L., Ph.D. .............. Iowa

Associate Professors:

Burnham, K. D. (Emeritus), Ph.D. ...... Iowa
Chen, T. K., Ph.D. .............. Florida
Fox, David J., Ph.D. .............. Johns Hopkins
Greenberg, Neil, Ph.D. ............. Rutgers
McCracken, G. F., Ph.D. .............. Cornell
Pan, M. L., Ph.D. .............. Pennsylvania

Research Associate Professor:

Ashley, T., Ph.D. .............. Florida State

Assistant Professors:

Boake, C. R. B., Ph.D. .............. Cornell
Drake, J. A., Ph.D. .............. Purdue
Ganguly, R., Ph.D. .............. Nebraska
Gittleman, J. L., Ph.D. .............. Sussex
Hall, J. C., Ph.D. .............. Illinois

The Department of Zoology offers the Master of Science and Doctor of Philosophy with concentrations in aquatic biology, ecology, cell and molecular biology, physiology, genetics, and reproductive and developmental biology.
403 General Genetics Laboratory (2) Experiments of some states to enroll in certain requirements must be fulfilled in the foreign language by (a) passing the official reading examination given by the language department, or (b) demonstrating a reading knowledge of this foreign language in which there exists a sizeable amount of literature relevant to the major field of study. The student has the option of demonstrating a reading knowledge of this foreign language by (a) passing the official reading examination given by the language department at least a B in the second semester of a special language reading course for graduate students. This foreign language requirement must be fulfilled before a student can take the comprehensive examination.

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 Zoology is available to residents of the states of Georgia or South Carolina. Additional information may be obtained from the Residency Assistant in the Office of Graduate Admissions and Records.

GRADUATE COURSES
403 General Genetics Laboratory (2) Experiments designed to illustrate basic principles of inheritance; primary organism—Drosophila. Prereq: Biology 210. 2 labs.

404 Cytological Technique (2) Practical experience with variety of techniques: microscopy, embedding and sectioning, chromosome preparations, autoradiography, in situ hybridization, histochemistry, and immunofluorescence. Prereq: Biology 210. 2 labs.

405-06-11-12 Minicourse in Zoology (2.2.2.2) Select advanced topics in zoology, concentrated in time and subject matter. Consult departmental listing for topics offered. Prereq: As announced. May be repeated. Maximum 4 hrs may apply toward zoology major.

410 Advanced Cell Biology (3) Molecular and supramolecular structure and functions of eukaryotic cells: regulatory molecules, physiology, behavior and cellular interactions. Prereq: Biology 210, 220. 2 hrs and 1 lab.

420 Cell and Tissue Structure and Function (4) Study of animal cells and tissues at light and electron microscope levels. Prereq: Biology 210, 2 hrs and 2 labs.

430 Immunology (2) (Same as Microbiology 430.)

439 Immunology Laboratory (1) (Same as Microbiology 439.)


449 Laboratory in Physiology (2) Prereq or coreq: 440 or 445.

450 Comparative Animal Behavior (3) Principles and methods of ethology; ecological, developmental, physiological and evolutionary aspects. (Same as Psychology 450.)

459 Comparative Animal Behavior Laboratory (3) Introduction to observational and experimental research in ethology. Coreq: 450. (Same as Psychology 459.)

460 Evolution (3) Modern concepts of animal evolution. Prereq: Biology 220.

465 Human Genetics (2) Genetic and molecular principles and problems of human inheritance. Prereq: Biology 220.

470 Aquatic Ecology (3) Introduction to physical-chemical nature of inland waters with description of biotic communities and their interrelationships. Prereq: Chemistry 120-30 and Biology 230. 2 hrs and 1 lab.

472 Arachnology (3) Biology of spiders, mites, scorpions and relatives. Prereq: 360 or 380. 2 hrs and 1 lab.

473 Herpetology (3) Biology of amphibians and reptiles, ecology and adaptive radiation. Prereq: Biology 230. 2 hrs and 1 lab.

474 Ichthyology (4) Evolution, classification, collection and identification, distribution and biology of fishes, freshwater fauna of Eastern North America. Prereq: Biology 230 or consent of instructor. 2 hrs and 2 labs.

475 Ornithology (3) Behavior, ecology, populations, evolution and field identification of birds. Prereq: Biology 230. 2 hrs and 1 lab.

476 Mammalogy (3) Evolution, classification, bio- geography, ecology, behavior and functional anatomy of mammals. Prereq: Biology 230 or equivalent. 2 hrs and 1 lab.

480 Physiology of Exercise (3) (Same as Physical Education 480.)

490 Comparative Endocrinology (3) Comparative analysis of physiology and morphology of endocrine glands in vertebrates and invertebrates, their role and interaction in maintenance of organism and species. Prereq: 440 or equivalent.

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

501 Graduate Research Participation (3) Advanced research techniques studied under supervision of staff research director. Open to all graduate students in good standing. Prereq: Consent of department and research director. S/NC only.

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

503 Zoology Seminar (1) Advanced topics in zoology. Seminar course may be recommended. Maximum 4 hrs. S/NC only.

504 Special Topics (1-2) Selected directed readings or special course in topics of current interest. Consult departmental listing for offerings. May be repeated with consent of instructor. Maximum 6 hrs. S/NC only.

506 Research Methods (1-3) Instruction in methods and techniques of research. Consult departmental listing for offerings. May be repeated with consent of instructor. Maximum 9 hrs.

507 Animal Cell Culture (2) Techniques for culture of animal cells, tissues and organs. 1 hr and 1 lab.

508 Methods of Taxonomy (2) Speciation, taxonomic decisions, approaches to systematics and rules of nomenclature. Prereq: Consent of instructor.

513 Advanced Developmental Biology (3) Molecular and genetic aspects of differentiation and morphogenesis, current literature. Recommended prereq: Life Sciences 511-12.

516 Colloquium in Ethology (1) (Same as Psychology 516.)

520 Advanced Mammalian Physiology (5) Cellular and organ systems physiology. Prereq: Undergraduate general anatomy and physiology. Prereq or equivalent or consent of instructor.

521 Experimental Physiology (2) Laboratory principles and techniques in modern physiology; principles of physiological recording. Prereq: 520 or consent of instructor. 2 labs.

522 Advanced Muscle Physiology (3) Cellular and molecular aspects of muscle contraction and nerve control of contraction, and their relationship to locomotor adaptations in whole animals. Prereq. 440 or 445.

523 Physiology of Hormones (3) Cellular and organismal action of hormones in invertebrate and vertebrate animals. Prereq: 450 or consent of instructor. Recommended prereq: Biochemistry 410 or equivalent or consent of instructor.

524 Physiological Ecology of Animals (3) Adaptive physiological response of animals to natural changes in or extremes of physical and biotic environment. Terrestrial vertebrates. Prereq: Undergraduate courses in animal physiology and ecology, 440 and Biology 230 or equivalent.

525 Physiological Ethology (3) Behavioral endocrinology and neurology from ethological perspective; reciprocal relationships of physiology and behavior in natural context. Term paper, review of assigned topic, creative development of special aspect. Prereq: 450 or equivalent. Undergraduate physiology, or consent of instructor.

526 General Vertebrate Neuroanatomy (3) (Same as Psychology 526.)

540 Insect Taxonomy I: Major Orders (3) Survey of classification of major orders of insects, with practical experience in identification of insects at family level. Prereq: Consent of instructor. 4 hrs combined lecture and lab.

541 Insect Taxonomy II: Minor Orders (3) Survey of classification of minor orders of insects, with practical experience in identification of insects at family level. Prereq: 540 or consent of instructor. 4 hrs combined lecture and lab.

542 Insect Structure and Function (3) Integrated study of morphology and physiology at tissue and cellular level of insects. Prereq: Consent of instructor.

543 Aquatic Insects (3) Taxonomy and biology of aquatic insects, immature forms. Prereq: Consent of instructor. 2 hrs and 1 lab.

544 Fresh Water Invertebrate Zoology (3) Ecology and taxonomy of fresh water invertebrates exclusive of insects. Prereq: 360. 3 hrs lab and field study.

545 Advanced Animal Behavior (2) Second-level course in ethology designed to provide depth in ethology, ecology, and human behavior. Prereq: 450 or equivalent. (Same as Psychology 545.)

555 Seminar in Quaternary Studies (3) (Same as Geology 555 and Botany 555.)
560 Biometry (3) Statistical methods in analysis of quantitative biological data. Prereq: Statistics course or consent of instructor.

573 Population Biology (3) Genetics and ecology of natural populations of plants and animals and aspects of behavior in determining population structure. Prereq: introductory courses in ecology and genetics. (Same as Botany 573 and Ecology 573.)

583 Zoogeography (3) Processes determining geographic distribution of animals and distribution and composition of animal communities. Prereq: Ecology course or consent of instructor.

591 Foreign Study (1-15) See page 31.

592 Off-Campus Study (1-15) See page 31.

593 Independent Study (1-15) See page 31.

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

601 Advanced Topics (1-3) Readings and discussion of recent advances. Consult the departmental listing for offerings. May be repeated with consent of department. Maximum 6 hrs.

602 Seminar in Cell and Molecular Biology (1) Readings and discussion based on current literature. May be repeated. Maximum 12 hrs.

603 Seminar in Genetics (1) Readings and discussion based on current literature. May be repeated. Maximum 12 hrs.

604 Seminar in Developmental Biology (1) Readings and discussion based on current literature. May be repeated. Maximum 12 hrs.

605 Seminar in Physiology (1) Readings and discussion based on current literature. May be repeated. Maximum 12 hrs.

606 Seminar in Aquatic Biology (1) Readings and discussion based on current literature. May be repeated. Maximum 12 hrs.

607 Seminar in Ecology (1) Readings and discussion based on current literature. May be repeated. Maximum 12 hrs.

608 Seminar in Ethology (1) Readings and discussion based on current literature. May be repeated. Maximum 12 hrs.

610 Current Topics in Cell and Developmental Biology (1) Critical analyses of current literature in journal club format. May be repeated. Maximum 10 hrs. S/NC only.
FACILITIES FOR RESEARCH AND SERVICE
Bureau of Educational Research and Service

(Timothy J. Pettibone, Director)

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

Center for Computer Integrated Engineering and Manufacturing

(David A. Hake, Director)

CCIEM state-of-the-art computer hardware and software enables faculty and staff to undertake a design and manufacturing agenda crucial to industry. The goals of the Center are to: (1) utilize state-of-the-art CAD/CAM and CIM technologies in engineering research, education, and practice; (2) perform research in communication technologies between heterogeneous computers and control devices; (3) develop computer-based education course-ware; and (4) work with industry in the automation of manufacturing processes and office functions.

CCIEM is supported by U.S. corporations through a variety of funding mechanisms with The University of Tennessee. CCIEM, in turn, supports industry, as well as the academic needs of the College of Engineering faculty, through research and access to necessary computer hardware and software.

Center for International Education

(James Gehlhar, Acting Director)

The Center for International Education (CIE), 201 Alumni Hall, telephone 974-3177, promotes and supports all aspects of international education and international exchange at UT Knoxville, both for American students and faculty and for students and faculty from other countries. The administration of official linkage agreements between UT Knoxville and institutions of higher education in other countries is coordinated by CIE.

American students: CIE provides information and advice about study-abroad options open to UT Knoxville students, including the exchange programs it administers between UT Knoxville and universities in thirty countries on six continents. CIE coordinates campus administration of such international grants and scholarships for students as the Fulbright, Rhodes, and Marshall programs, and provides information about other sources of funding for overseas study and research, including the Rotary Foundation, St. Andrews, and German Academic Exchange Service (DAAD) grants. Within its library on study, work and travel abroad, CIE has information about student summer job programs in seven countries.

International students and scholars: CIE provides information and assistance in matters relating to United States visa regulations, to UT Knoxville requirements for international students, and to UT Knoxville academic policies and registration procedures. It publishes The Link, a newsletter for UT Knoxville’s international community, and administers the insurance policy required of all international students at the University. International student advisors are available to discuss academic and personal concerns. Orientation programs are conducted at the beginning of each term to facilitate adjustment to the campus and community, as does the international student orientation camp prior to the fall term.
The International House, 1515 Cumberland Avenue, is CIE's on-campus social, recreational, and programming center that serves as a meeting place for international and U.S. students, faculty and staff.

International students seeking admission to UT Knoxville should write directly to the Office of Graduate Admissions and Records.

Center for Measurement and Control Engineering

(College of Engineering)

E. C. (Bud) Muly, Director

The Measurement and Control Engineering Center, 101 Perkins Hall, is a University/Industry Cooperative Research Center sponsored by the College of Engineering of The University of Tennessee, the Instrumentation and the Control Division of Oak Ridge National Laboratory, and the National Science Foundation. The Center's program combines education, research, and technology transfer. Interested graduate students apply for affiliation with the Center and are required to take graduate-level courses in measurement science and control theory. Graduate assistantships are provided for qualified students by the Center. The research is funded by major U.S. industrial companies and focuses on theoretical and practical developments in measurement and control. UT Knoxville should write directly to the Office of Graduate Admissions and Records for information concerning the individual centers sponsored by UT, contact:

Center for Laser Applications
Dr. Dennis Koehler, Director
UT Space Institute
Tullahoma, TN 37388
(615) 455-0631 Ext. 475

Center for Livestock Diseases and Human Health
Director
108 Morgan Hall
UT Knoxville
Knoxville, TN 37996
(615) 974-7262

Center for Materials Processing
Dr. Joseph C. Danko, Director
101 Perkins Hall
UT Knoxville
Knoxville, TN 37996
(615) 974-0816

Science Alliance
Dr. Lee Riedinger
611 Physics Building
UT Knoxville
Knoxville, TN 37996
(615) 974-7805, 974-6765

Waste Management Research and Education Institute
Dr. William Colglazier
327 South Stadium Hall
UT Knoxville
Knoxville, TN 37996
(615) 974-4251

Communications Research Center

(College of Communications)

Michael Singletary, Director

The Communications Research Center, 98 Communications Bldg., is an adjunct to the communications graduate program. Objectives of the Center are: (1) to conduct original research in mass and public communication; (2) to disseminate research-generated information; and (3) to provide research services to faculty and students, professional communicators, and others interested in improving the quality of human communications.

Computing Center

Gordon Sherman, Director

The University of Tennessee Computing Center (UTCC) provides computing facilities and services for the University's teaching, research, public service, and administrative activities. UTCC offices and principal computing facilities are located on the first two floors of Stokely Management Center (SMC) and on the third floor of Dunford Hall.

The Computer Access for Education (CAFE) program provides every UT Knoxville student the opportunity for computing experience through an individual UTCC account. Student accounts for use in coursework are requested by the department through which the course is offered. Faculty and staff members can request a UTCC account by completing a request for computing services. Forms are available from the receptionist at 200 SMC. Each UTCC account is assigned a consultant who is available to answer questions about UTCC resources and to assist in accessing the UTCC library of computer programs.

Noncredit short courses covering levels of computing from personal computing to supercomputing are taught each year. Topics include programming languages, job control language, vector processing, the use of graphics, and the statistical and mathematical programs available at UTCC. Many courses are available on videotape in Audiovisual Services in the John C. Hodges Library. Short courses are announced in the UTCC Newsletter, the "Campus Capsule" section of the UT Daily Beacon, and in the Academic Calendar. During the break following each term, UTCC consultants conduct a four-day seminar for faculty, staff, and graduate students on the use of either the IBM or DEC VAXcluster computers.


The UTCC computing network is comprised of mainframe computers, workstations, microcomputers and video terminals interconnected through Ethernet, fiber optic cable, or one of more than 1200 direct or 60 dialup lines. Hardware and software from Racial-Milgo Information Systems provides a terminal port selection and multiplexing system which is connected to a similar system at the Oak Ridge National Laboratory. DECanet and TCP/IP link the DEC VAX computers at UTCC with DEC VAXclusters at the Oak Ridge National Laboratory, the UT Computing Center, the Science Department and the College of Engineering on the Knoxville campus, at the UT Space Institute in Tullahoma, and at the UT Center for Health Sciences in Memphis. Ethernet and fiber optics connect many buildings on the Knoxville campus in a multivendor, heterogeneous network that provides rapid access to data in remote locations and supports local networks including TCP/IP, DECanet, LAT, and XNS.

Mainframe computers operated by UTCC include an IBM 3090-200E with two vector processors, an IBM 3081-D, two DEC VAX 8800 processors and two DEC VAX 6000/440 processors in a DEC VAXcluster, a DEC VAX 8650 supporting ULTRIX-32, and two computers, a DEC VAX 8650 and a DEC VAX 8810, supporting the Student Academic Management System.

All the UTCC mainframe computers provide both batch computing and time-sharing services. The latter includes the Time Sharing Option (TSO) using TSOESA on the IBM 9090-200E, the Conversational Monitor System (CMS) under the VM/SP HPO operating system on the IBM 3081-D, the VMS operating system on the DEC VAXcluster, and ULTRIX-32 on a DEC VAX 8650.

UTCC provides support for workstations on the UT Knoxville campus, including DEC, HP, Silicon Graphics, IBM, and SUN. Most workstations run a variant of Berkeley Software Distribution (BSD) which is based on the UNIX operating system developed at AT&T.
Energy, Environment, and Resources Center
(Office of Vice Provost)

E. William Colglazier, Jr., Director
The Energy, Environment, and Resources Center, 329 South Stadium Hall, was created to encourage interdisciplinary research directed at solutions to problems related to energy and the environment. The Center provides assistance to faculty interested in developing research and public service projects, manages research and development projects that involve several disciplines, and assists government and industry in specific problems related to energy, environmental, resources, and technology policy issues. The Center has a close working relationship with researchers at the Oak Ridge National Laboratory and the Tennessee Valley Authority.

Current research includes solid, hazardous and radioactive waste management, information systems, environmental assessment of biotechnology, environmental and health and safety and value issues in technology policy. The Center operates the Waste Management Research and Education Institute, a state-funded Center of Excellence.

Institute of Agriculture

D. M. (Pete) Gossett, Vice President
The Institute of Agriculture traces its history to 1869 when the University was designated as Tennessee's Federal Land-Grant Institution. Under terms of the Federal Land-Grant Act, the University was enabled to offer instruction in agriculture and the mechanic arts for the first time. Since 1869, agricultural programs at the University have been expanded to include research for the development of new knowledge and extension for dissemination of such knowledge to rural people. Thus the Institute of Agriculture has come to include the work of four major research stations: Agricultural Experiment Station, Agricultural Extension Service, College of Agriculture, and College of Veterinary Medicine.

AGRICULTURAL EXPERIMENT STATION

Don O. Richardson, Dean
Thomas H. Klintz, Assistant 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 affect the quality of rural life; (d) Understanding the impact of food and fiber resources and the chemicals used in their production on people's well-being and the quality of life. Applied research utilizes these understandings to formulate effective production and marketing systems and to foster the development of a physical and economic environment that provides for the needs of rural, farm, and urban citizens.

The investigations of the Station follow a systematic method of gaining and applying knowledge efficiently to the biological, physical, and economic phases of producing, processing, and distributing farm and forest products; to the social and economic aspects of rural living; and to consumer health and nutrition. Both farm and urban populations are served through the facilities of the Agricultural Experiment Station. Examples of some of these accomplishments are new and improved varieties of crops, new and better methods of controlling pests and livestock, 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 extension educators. To serve Tennessee's diverse agriculture, branch stations are operated at Crossville, Grand Junction, Greeneville, Jackson, Knoxville, Lewisburg, Martin, Milan, Oak Ridge (forestry), Springfield and Spring Hill. Professional and technical staff are in residence at these locations.

AGRICULTURAL EXTENSION SERVICE

Billy G. Hicks, Dean
Mildred F. Clarke, Associate Dean
D. Ray Humberd, Assistant Dean
The Agricultural Extension Service was established in 1914. Its purpose is to extend through various educational means agricultural and home economics information to farm families and others in the state who do not have the opportunity to enroll in resident courses of instruction at colleges.

The educational program is carried on through offices in each of the 95 counties of the state. Educational emphasis includes work in four major program areas: agriculture and natural resources, community resource development, home economics, and education of young people through 4-H Clubs. County Extension staff members working directly with local people are supported in 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 Kaufman, Dean
The University of Tennessee, Knoxville Libraries own approximately 1,600,000 volumes, microfilm reels, and 1,600,000 items of other materials. 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 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. Library holdings in Knoxville are housed in the new 350,000 square foot facility, the John C. Hodges Library, and its branch libraries for agriculture-veterinary medicine and music. The Hodges Library has comfortable study space for 3,500 students, 308 graduate student carrels, and 196 faculty study carrels. The Special Collections Library in the James D. Hoskins Building is a repository of regional and local materials, Tennesseeana, and other specialties, including legislative papers and mementoes of many Tennessee political figures. Special Collections materials are of particular interest to scholars in the fields of history, political science, social sciences, biological sciences, and the arts.

Library research holdings are augmented by Reference and Information Services and by Interlibrary Loan. Reference and Information Services provides research assistance and access to commercially available databases. In the reference room, users may search a number of CD-ROM databases at no charge. Interlibrary Loan borrows monographs and obtains copies of other material from libraries around the world. Library holdings are accessible via a sophisticated online catalog which can be searched both in the library and from home and office computers. 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.

Management Development Center
(College of Business Administration)
John E. Riblett, Director
The College of Business Administration's continuing education efforts are offered through the Management Development Center, 709 Stokely Management Center. The Center emphasizes consistent high-quality program, small class sizes, outstanding faculty, a highly participatory style of instruction, and an applied orientation. The programs range from customized "in plant" programs to the four-week University of Tennessee Executive Development Program (TEDP).

The TEDP is tailored to the needs of upper-level managers and has a strategic focus. Its major objectives are to develop executives for increasingly higher levels of management responsibility and to sharpen existing executive skills needed for comprehensive decision-making and leadership. The management development program is designed for mid-level managers and is operational in scope. It is appropriate for both the experienced manager who has not had advanced management training and the individual being developed for a mid-level position. Other programs include: (1) The Institute for Productivity Through Quality, which teaches the techniques of statistical process control in an intensive 130-contact-hour program for both managers and executives; (2) the Senior Institute for Productivity Through Quality, a one-week program that provides a strategic overview of statistical management; (3) the Administrative Services Institute for Productivity Through Quality, a two-week program that applies the philosophy and tools of statistical management to non-manufacturing environments; (4) the Design of Experiments Institute, a three-week program that provides more advanced statistical training with computer application; and (5) the Executive Development Program for Distribution Managers, which focuses on providing the distribution manager with an intensive exposure to contemporary management approaches.

Off-Campus Graduate Centers
KINGSPORT UNIVERSITY CENTER
UT Knoxville offers at Kingsport resident graduate programs in science and engineering at both the Master's and doctoral levels. The program is operated within the policies formulated by the Graduate Council of UT Knoxville and is coordinated with the graduate and undergraduate offerings of East Tennessee State University.

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 Kingsport University Center, The University of Tennessee, University Boulevard, Kingsport, Tennessee 37665.

OAK RIDGE RESIDENT GRADUATE PROGRAM
UT Knoxville offers graduate study programs at Oak Ridge leading to Master's degrees in Business Administration with a concentration in management, and in Statistics. The Master's and doctoral degrees are available in engineering, mathematics, and physical sciences. Courses are given in late afternoons and evenings with research facilities provided by and used in cooperation with the Oak Ridge Associated Universities (ORAU).

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

Information and applications to The Graduate School may be obtained by writing to the UT-Oak Ridge Graduate School, Post Office Box 117, Oak Ridge, Tennessee 37830.

NASHVILLE GRADUATE ENGINEERING PROGRAM
Opportunities for graduate study leading to the Master of Science in Industrial Engineering and other disciplines, as the need and resources permit, are offered by UT Knoxville. Students who enroll in these programs must be admitted to The Graduate School of UT Knoxville. Information and application forms may be obtained from Jerry Westbrook, Director, Nashville Graduate Engineering Program, Tenth and Charlotte, Nashville, Tennessee 37203.

CHATTANOOGA GRADUATE EDUCATION PROGRAM
UT Knoxville offers a graduate program in education leading to the Specialist in Education and the Doctor of Education with major in Educational Administration and Supervision and Vocational-Technical Education. Students who enroll in this program must be admitted to The Graduate School of UT Knoxville. Information and application forms may be obtained from the Director, c/o Dean, College of Education, UTC, Chattanooga, Tennessee 37403.

THE UNIVERSITY OF TENNESSEE-OAK RIDGE GRADUATE SCHOOL OF BIOMEDICAL SCIENCES
The University provides programs leading to the M.S. and Ph.D. degrees in various areas of biomedical sciences. Graduate students have the opportunity to study and do research in conjunction with the Biology Division of the Oak Ridge National Laboratory.

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

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

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

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

The Psychological Clinic
(College of Liberal Arts)
Alvin G. Burstein, Director
The Psychological Clinic supports graduate training in clinical psychology. Psychological diagnosis and psychotherapy are offered on an outpatient basis, with medical consultants, to the
general public as well as to University students, upon referral by a physician.

**Transportation Center**

(Office of Vice Provost)

Stephen H. Richards, Acting Director

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

The Center, 357 South Stadium Hall, is a University-level organization administratively positioned with the Office of the Vice Provost for Research at UT Knoxville. The Center's staff is presently organized into eight research divisions: Energy and Environment; Systems Analysis and Data Management; Policy and Services; Rail and Water; Safety and Operations; Structures and Construction; Highway Engineering; and Training and Technology Transfer.

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

**The University of Tennessee Space Institute**

Wesley L. Harris, Vice President

The Space Institute is a graduate education and research institution located on a 365 acre lakeshore campus in Middle Tennessee. UTSI was established in 1964 and has evolved into an internationally recognized institution for graduate study and research in engineering, 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 45 faculty members of the Institute carry out the accredited academic programs through classroom teaching, informal seminars, active research, and directing the research of their students in an environment of creative work and advanced study. Programs are available to students devoting full-time or part-time effort toward M.S. and Ph.D. degrees, those interested in continuing education for updating and broadening knowledge, and those who wish to pursue post-doctoral research.

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

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

The Institute was established in part to increase the research and engineering resources of Tennessee through education and practice in relevant scientific and technical areas and in part to interface University faculty and student research with the Air Force Arnold Engineering Development Center. The faculty, research activities, and facilities of the Institute, and those available at Arnold Center through appropriate contractual arrangements, provide students an unusual opportunity for significant research in these areas. Students who enroll at UTSI are admitted to The Graduate School, The University of Tennessee, Knoxville. Graduate Research Assistantships are available for qualified students. Further information may be obtained from the Dean, The University of Tennessee Space Institute, Tullahoma, Tennessee 37388.

**Water Resources Research Center**

(Office of Vice Provost)

E. William Colglazier, Director

The Water Resources Research Center, 428 South Stadium Hall, is a federally designated Institute for the conduct of water research for the state. The purposes of the Center are:

1. To assist and support all the academic institutions of the state, public and private, in pursuing water resources research 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 in fields relating to water resources and to encourage the entry of promising students into careers in these fields.
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