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 societal policy, organizational, and community contexts.
—Research-based knowledge to inform and guide social work practice, social policy, and social welfare program development.

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

Admission Requirements

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

General Requirements

1. A minimum of 60 semester hours beyond the therapy model including a) completion of 21 credits of required course work, b) completion of 15 credits of advanced electives, at least 12 of which are taken outside the department, and c) completion of at least 24 credits of dissertation research.
2. Successful completion of qualifying and comprehensive examinations.
3. Completion and defense of the dissertation.

Curriculum

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

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

Specific courses required are 601, 602, 612, 613, 640, 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.

ACADEMIC COMMON MARKET

An agreement among southern states for sharing graduate programs allows legal residents of some states to enroll in certain programs at UTK or an on-campus 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 Wisconsin. 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 of students 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 applied to problems in social welfare. Problem formulation; research design; ethics; instrument construction: data collection, analysis, and reporting; statistical procedures; research reporting; and evaluation analysis. Prerequisites: 520 and 522. May be repeated. S/NC only. E
512 Social Work Practice (3) Basic theory, values, and methodology generic to social work practice at various levels of practice. Prereq: Foundation 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 conceptualized along functional, dysfunctional, and normal-deviant continuum: stress, development and maturation. Open systems approach. Emphasis on development of biologically, psychologically, and socially sensitive 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 contemporary social policy at local, state, national, and international levels. Contribution of social work professionals to formal policy-making process through which macrosocial change is effected and through which aggregate social welfare services are provided, organized, financed, and programmed. Complex organizations as clients of 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, emotions. Prereq: Admission to college or consent of instructor. Sp
520 Social Work Treatment with Individuals and Families (3) Nature and process of social work intervention in helping clients solve problems of living. Working with disadvantaged clients and enhancing client competence. Prereq: Foundation or consent of instructor. Sp
522 Social Work Treatment 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 psychodysfunction 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
531 Family Therapy in Social Work Practice (3) Major family therapy theories and perspectives on family dynamics and interaction, and techniques of treatment and 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.
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 administrative and planning structures of social welfare programs. Techniques of program analysis and evaluation of services to clients. Models of social welfare administration, their historical and philosophical perspectives, context for designing organizational structure and processes, planning, developing and implementing agency policies and programs, and management of service delivery systems. Prereq: Foundation or consent of instructor.
542 Financial Management and Resource Development in Social Welfare Administration (3) Administrative decision-making related to financial planning and resource allocation in human service organizations. Knowledge and skills in accounting, budgeting and auditing, techniques in fundraising, grant-writing, marketing and other financial management and resource development 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 leadership skills required for 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 areas 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 fields of service. 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.

560 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 emotional 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 social, cultural, medical and psychological factors underlying alcoholism and drug abuse and addiction; recent research and treatment innovations. Prereq: Foundation or consent of instructor.

565 Roles and Status of Women (3) Causes and consequences of women's social and economic roles and statuses in American society. Variations in women's experiences by race and ethnicity, class, age, and life-cycle. Prereq: Foundation or consent of instructor.

566 Social Gerontology (3) Physical, psychological and social aspects of aging. Major social policies and resource policies needed to meet human needs. 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 coreg: 512. S/NC only. E

581 Field Practice (4) Instruction and supervision in social work practice, student's selected concentration in social work treatment or social welfare administration and planning. Prereq: Foundation, S/NC only. Sp

582 Field Practice (6) Instruction and supervision in social work treatment or social welfare administration and planning. Prereq: Foundation, 581. Prereq or coreg: Treatment 520, 524, S/NC only. F

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

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

585 Seminar in Gerontology (3) (Same as Human Ecology 585) Educational and Counseling Psychologi-
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
Forty-eight hours of coursework beyond the baccalaureate degree are required (exclusive of S/NC credits). Students who enter the program without the courses recommended for the M.A. program (521, 531, 534, 535-38) or equivalents are required to take remedial work beyond the minimum course requirements. Completion of 622 is recommended. Completion of 629 or 637-638 or two concentrations in each of two areas concentrations is encouraged. A student who cannot achieve his/her educational goals within the department’s concentrations may construct an individualized course of study subject to the approval of the student’s doctoral committee and the Graduate Program Committee. Twelve hours of course credit in sociology at the 600 level is required. 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 in 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. Substantive examinations are also given upon completion of theory and methodology examinations, specializations within concentrations, or other areas of specialization. Detailed information on examinations 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 the baccalaureate degree (exclusive of S/NC credits), graduate students who enter the program without the courses recommended for the M.A. program (521, 531, 534, 535-38) or equivalents are required to take remedial work beyond the minimum course requirements. Completion of 622 is recommended. Completion of 629 or 637-638 or two concentrations in each of two areas concentrations is encouraged. A student who cannot achieve his/her educational goals within the department’s concentrations may construct an individualized course of study subject to the approval of the student’s doctoral committee and the Graduate Program Committee. Twelve hours of course credit in sociology at the 600 level is required. 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 in 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. Substantive examinations are also given upon completion of theory and methodology examinations, specializations within concentrations, or other areas of specialization. Detailed information on examinations 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.

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 models, typologies, and theories; hierarchies of authority; communication; interpersonal relations in work settings; organizational change.

414 Organization of Medical Care (3) Organization of health care facilities, staff-patient relationships, demographic characteristics, and prevalence of disease.

415 Sociology of Aging (3) How roles and statuses change with age in relation to major social institutions; impact that rapidly increasing number of older people has on society, effect of society on older people.

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


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

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

462 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 Urban Studies 464.)

471 Sociolinguistics (3) (Same as English 471 and Linguistics 471.)

480 Diffusion of Agricultural Technology (3) (Same as Rural Sociology 480.)

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

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

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

505 Foundations of Criminology (3) Critical overview of contemporary criminology, theories of crime causation and theories of responses to crime. Prereq: 350 or equivalent.

507 Foundations of Social Psychology (3) Current and classical theoretical perspectives in social psychology.

510 Teaching Sociology (3) Art and craft of teaching sociology from curricular considerations through teaching techniques. May be repeated. Maximum 6 hrs.

521 Sociological Theory I (3) Assessment of what sociological theory is; its major figures and their approaches to understanding society.

531 Research Methods in Sociology (3) Research design, measurement, sampling, quantitative and qualitative data collection techniques, data, reduction, and analysis.

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

535-36 Statistical Analysis in Sociology I and II (3.3) Should be taken in sequence. 535—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.

540 Occupations (3) Occupations in relation to individual 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, capitalism, colonialism, dependency; comparative impact of various development paths upon selected aspects of social structure and change.

551 Delinquency and the Social Structure (3) How study of delinquency and juvenile justice is affected by 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 (2) Standard rates and measures of demographic variables, life table analysis, increment-decrement models, and survey techniques of population analysis.

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

591 Foreign Study (1-15) See 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 515.)

595 Special Topics in Rural Sociology I-3 (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 (3) Individual guidance. Preparation for comprehensive examination. Prereq: Consent of instructor or faculty members.

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

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 social class and structure.

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

645 Advanced Studies in Political Economy (3) Topical seminar. Prereq: 504 or consent of instructor. May be repeated. Maximum 6 hrs.

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. Prereq: 555. May be repeated 6 hrs.

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

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

663 Advanced Studies in Population (3) Current the- orical issues and methodological advances in fertility, mortality, and migration in modern or historical demog- raphy. Prereq: 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 within area. Prereq: Consent of instructor. May be repeated. Maximum 6 hrs.

675 Advanced Studies in Social Psychology (3) Selected topics in social psychology theories. Prereq: 541 or consent of instructor. May be repeated. Maximum 6 hrs.

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


Spanish
See Romance Languages

Special Programs
(College of Liberal Arts)
Lynn Champion, Director

The following courses are restricted to participants in the James R. Stokely Fellows Program in the College of Liberal Arts. Selection of participants is based on academic ability, references, an application essay, and a personal interview. Secondary school teachers, administrators, guidance counselors, and librarians may apply. For additional information, contact the program director.

GRADUATE COURSES
510 Perspectives in the Liberal Arts (2) Seminar on nature and development of liberal arts through study of formative tests and critical figures, Bible, Plato, Descartes, Milton, Darwin, Freud, Marx.

520 Inquiry in the Liberal Arts (2) Seminar on nature of creative inquiry in liberal arts and sciences; an overview of pivotal issues within and between disciplines pertinent to identifying and solving problems related to personal and social progress.

530 Learning in the Liberal Arts (2) Builds upon readings, presentations, and discussions of 510 and 520 by reflecting on them in distinct but related contexts—classroom, region, called Appalachia, and perspectives and experiences associated with liberal arts.

Special Services Education
(College of Education)

MAJORS
Special Education .................................. M.S.
Rehabilitation Counseling .......................... M.S.
M.A.
Education .................................. Ph.D.

Laurence J. Coleman, Head

Professors:
Coleman, Laurence J., Ph.D. .... Kent State
Doll, E. E. (Emeritus), Ph.D. .... Pennsylvania
George, Thomas, Ed.D. ......... Tennessee
Hargis, Charles H., Ed.D. ..... Colorado State
Kronick, Robert F., Ph.D. ......... Tennessee
Miller, James H., Ed.D. ........... Auburn
Schindler, W. Jean, Ph.D. ....... Kent State
Woodrick, William E., Ed.D. .... Mississippi

Associate Professors:
Bannor, Susan M., Ed.D. ....... Columbia
Cassell, Jack L., Ph.D. ....... Kansas
Colvin, Craig R., Ed.D. ....... Virginia
Hannum, Michael C. ......... Northern Colorado
Kopp, Katherine H., Ph.D. ........ George Peabody
MoClam, T., Ph.D. ............. South Carolina
Mulkey, J. Wayne, Ph.D. ....... Florida State
Wesch, Olga, Ed.D. ........... Tennessee
Woodside, M. R., Ed.D. ........... VPI

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 various public and private settings. Students should expect to spend four semesters, including summer, in classwork and in internships.

Both majors have a thesis and non-thesis option. If a student elects to do a thesis, the Master's program will contain a minimum of 30 semester hours including 8 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 comprehen- sive 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 serving 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 may 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 UTK on an in-state tuition basis. The M.S. program in Special Education is available to residents of the state of 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. Prereq: Admission to teacher education program. Sy NG only. Sp,Su

423 Communication Processes for the Hearing Impaired (3) Expressive and receptive vocabulary develop- ment 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 instru- mentation for assessment of hearing level; interpretation of audiologic services to medical and other rehabilita- tive disciplines.

425 Introduction to the Psychology and Education of the Hearing Impaired (3) Primarily for those planning to teach hearing impaired. Overview of research related to psychology, social adjustment, communica- tion methodology, language development and education of hearing impaired. Survey of literature. Visits to programs.

433 Clinical Practice in Speech-Language Pathology (1-4) (Also as Audiology and Speech Pathology 433.)
434 Clinical Practice in Speech-Language Pathology I (1-4) (Same as Audiology and Speech Pathology 434.)

440 Voice Disorders (3) (Same as Audiology and Speech Pathology 440.)

451 Psychology and Education of the Mildly Handicapped (3) Nature and characteristics of mildly handicapped students with learning disabilities, emotions, and social behaviors, their presentation, and the compensatory approaches, techniques, and evaluation and development of materials. Coreq: Cor402, F.

452 Psychology and Education of the Moderately and Severely Handicapped (3) Nature and characteristics of children with moderate and severe handicapping conditions, and educational strategies necessary to accommodate them. Traditional and innovative trends and approaches. Coreq: Cor402, Sp.


456 Speech and Language Basis of Learning Disabilities in the Classroom (3) Normal communication development; understanding of speech and language impairments in school-age students; integration of oral/written communication skills into existing curriculums, especially for high incidence special education students.

470 Psychology of the Exceptional Child (3) Varied characteristics of exceptional children; general characteristics and educational needs. Implications of developmental variations for functioning as adults. Opportunity to expand study upon particular exceptionalities. Enrollment limited to non-special education majors.

471 Internship I: Special Education (3-15) Intensive experience designed to allow student to practice art and science of teaching exceptional children under supervision of experienced teachers. Prereq: 480.

472 Audiology II (3) (Same as Audiology and Speech Pathology 472).

480 Field Experience with Mildly Handicapped Students (3) Practicum in teaching mildly handicapped persons. Planning, developing, implementing, and evaluating instruction. Coreq: Cor452, F.

481 Policies, Procedures, and Practices in Special Education (3) Comprehensive review of Federal and State laws and regulations which direct implementation of special education programs in all public and private facilities and agencies. Multiple service delivery systems for disabled persons.

482 Speech and Language Services in the Schools (3) Organization and implementation of speech and language programs in schools. IEP process as it affects assessment, case-selection, and programming for students age 4-21. Procedures and mechanisms, group intervention, and classroom consultation.

483 Clinical Practice in Disorders in Schools (3) Supervised practice with children with communication disorders. Prereq: 433, 434 (60-100 clinical contact hrs), 482.

484 Internship with Hearing Impaired Children (6) Supervised practicum with preschool, day school and residential students.

490 Field Experience with Moderately and Severely Handicapped Students (3) On-site teaching experience with moderately and severely handicapped children and youth. Cor: Cor 452, Sp.

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

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

503 Problems in Lieu of Thesis (1-3) May be repeated. Maximum 9 hrs. S/NC only. E

504 Clinical Experience in Teaching and Supervision of Exceptional Children (3) Placement in 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 groups and under supervision of master practitioners. Enrollment limited to those in fifth-year program. S/NC only.

508 Vocational Guidance and Career Planning With Hearing Impaired (3) Utilization of psychological, educational, social and vocational, diagnostic materials and resources appropriate for hearing impaired persons to provide individual career decisions and individualized rehabilitation plan.

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


523 Practicum in Hearing Impairment (3) Receiptive and expressive language capabilities of hearing impaired student. Designing, teaching, and post-testing unit of instruction for remediation of specific language errors. Prereq: 522.

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.

528 Advanced Sign Language (3) Intermediate ASL stressing fluency of expressive and receptive communication with deaf people and structure and history of language. Prereq: 522 or equivalent.


529 Teaching Reading to the Hearing Impaired (3) Specific methods necessary to teach the prelingually hearing impaired student. Practice in preparation of developmentally appropriate reading 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, utilization, and utilization of rehabilitation resources.

532 Case Load Management in Rehabilitation (3) Techniques and procedures involved in management of case loads in Federal-State vocational rehabilitation agencies, private rehabilitation companies, and public or private rehabilitation facilities. Analysis of appropriate industrial management models related to rehabilitation plans.

533 Job Analysis, Development, and Placement (3) Determining employment-readiness of people with disabilities, identifying appropriate jobs for selected clients, and appropriately planning and retaining employment. Job analysis, job modification and re-engineering, marketing, and employer-serving techniques; legislation impacting job placement; support and 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 administration of psychometric instruments; integration of statistical data into diagnostic reports; application of computer-generated reporting systems.

536 Vocational Evaluation: Clinical Methods (3) Process, procedures, 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 conference, 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. Evolving perspectives of work, attributes of effective programs, and interface between school-based programs and rehabilitation agencies.

541 Psychosocial Aspects of Exceptionalities (3) Psychological implications used to assist individuals in dealing with disabling conditions served by special education programs, and societal rehabilitation.

543 Medical Aspects of Disability (3) Etiology and clinical situations related to disabling conditions served by special education programs, and rehabilitation. Restrictive measures to eliminate or minimize resultant handicaps. Skills necessary to communicate with individuals and professionals.

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) SUPER- vised practice in rehabilitation counseling. Full time clinical experience for second-year students (600 clock hrs required).

543 Psychology of Learning Disabilities (3) Overview of learning disabilities; review of field's historical perspectives and emerging direction; basic theories of learning disabilities; medical aspects of research, assessment and treatment: characteristics of children and youth, educational implications; restrictive measures to eliminate or minimize resultant handicaps. Skills necessary to communicate with individuals and professionals.

552 Instructional Systems for Learning Disabilities (3) Formal assessment for determining what and how to teach, data collection, instructional programming and decision-making related to nature and needs of persons with learning disabilities.

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 relative to norm and criterion referenced testing covered. Coreq: 593, F.

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

556 Characteristics of Social and Emotional Disturbance of Children and Youth (3) Differential diagnosis, identification, symptoms of disturbed child compared and contrasted to normal social and emotional growth.

556 Instructional Systems for the Emotionally Disturbed (3) Development of knowledge and skills in instructional strategies and models of instruction; simulation, demonstration, and media. Teaching techniques, materials, and teacher/pupil family interaction. Transfer of instruction through art, music, role play, puppetry, bibliography, and group interactions.
Instructors:
Cwiek, Charles, M.S.............Tennessee
Neidert, Sharon, M.S............Miami (Ohio)
Wright, S. Paul, M.S.............Tennessee

Additional Intercollegiate Program Committee
Members:
Bunting, Dewey, Liberal Arts
Desert, Don, Education
Fribourg, Henry, Plant and Soil Science
Glisson, Charles, Social Work
Huck, Schuyler W., Educational Counseling
Psychology
Ladd, R. T., Management
McLaren, J. B., Animal Science
Miller, Mark, Communications

THE MASTER'S PROGRAM

The M.S. program in Statistics provides students with the foundations in theory and practice required for careers in applied statistics. In addition to the education traditionally offered in such a program, the department offers a concentration in industrial statistics, which provides unique opportunities for experiences in practical applications of statistics. Through involvement in The University of Tennessee Institute for Productivity Through Quality and related programs, department faculty participate in a variety of consulting and research projects in industry. Students may supplement their classroom study with an industrial internship and participation in research projects dealing with industrial problems. Department faculty also collaborate with researchers from many academic disciplines and hold joint appointments with the College of Agriculture, the Computing Center and the Medical Center. Statistics graduate students can gain extensive non-industrial consulting experience by becoming research assistants within such organizations. All students are required to participate in supervised internship or consulting activities as part of their graduate program.

Individuals with undergraduate or graduate degrees in other disciplines are encouraged to enter the program. The candidate's major background should include differential and integral calculus of several variables. Individuals with limited mathematics background should seek departmental guidance regarding specific ways in which they may prepare themselves for the program by taking coursework as non-degree students. Requests for application forms and further information may be sent to the Director of Graduate Studies, Department of Statistics, Stokely Management Center, University of Tennessee, Knoxville, TN 37996-0532.

Admission Requirements

General admission requirements for The Graduate School are stated beginning on page 13. Applicants for Statistics must submit results of the Graduate Record Examination (GRE) general portion, although GMAT exam scores may be substituted. Applicants for the statistics program must have completed two years of college-level mathematics, including the calculus of several variables and matrix algebra, and be proficient in a computer language. Applicants whose native language is other than English must submit results of the Test of English as a Foreign Language (TOEFL).

Curriculum

A minimum of 33 credit hours must be completed for the Master's degree. Required of all students are 6 hours in statistical methods, 6 hours in statistical theory, 1 hour in statistical computing, and 3 hours in either supervised 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 comprehensive 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. Curriculum requirements for the statistics component of each joint degree are specified in terms of completion of alternative sequences of course options. Course options consist of courses in statistics, offered either by the Department of Statistics or by other departments, that have been reviewed and approved by the Executive Committee. Interested students should contact their major department head for information on specific course requirements.

General Admission Requirements

1. The student's sponsoring department must have established with the executive committee an approved joint degree program along with specified sequences of statistics courses taught by the Statistics Department and/or other departments.

2. The student's Admission to Candidacy form must contain all courses required for the Statistics minor/major set off in a group and labeled "Statistics courses required for the minor/major."


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 factorial, 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 (1-6) 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 report. Prereq: 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 and 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 only.

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


673 Linear Models (3) Review of full rank models and models not of full rank with application to unbalanced designs, generalized inverses, estimable functions, b.i.l.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.

**DEGREES**

**MAJORS:**

- **Technological and Adult Education**: M.S.
- **Vocational-Technical Education**: Ed.S.
- **Education**: Ed.D.

**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 degree has two options: a thesis option and a problems in lieu of thesis option, both requiring a minimum of 36 hours. 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 be used toward meeting 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, 9 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 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 vocational education and private sector through advisory committees, councils, and working partnerships. Development and management of public relations programs. Prereq: 3 yrs teaching experience. Sp

415 Coordination Techniques (3) Necessary procedures, duties and responsibilities to implement, maintain, and evaluate successful cooperative education programs. Prereq: Senior standing and consent of instructor. Sp

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. Su

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

436 Supervised Occupational Experience (3) Practical field experiences in selected settings under supervision of practitioner and departmental representative. Prereq: Consent of instructor. May be repeated. Maximum 15 hrs. F

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 9 hrs. E

510 Foundations of Technological and Adult Education (3) Historical, philosophical, economic, 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) Academic, socioeconomic, cultural, and other historical views of special students. Prereq: 9 hrs of graduate credit. F

513 Special Topics in Technological and Adult Education (1-3) 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 supervising instructor. 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 bitmap graphics for microcomputer. Hands-on learning and program development. Prereq: 515 or consent of instructor. E

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

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

522 Adult Development (3) Changes in characteristics of adults over life span and implications for adult education. Prereq: Consent of instructor. F

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. Sp

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

530 Methods and Materials for VOE Programs (3) Development of instructional aids, recent developments and research, individualized instructional, and occupational clusters. Prereq: 510 or equivalent. Sp

531 Organization and Supervision of VOE and Marketing Programs (3) Developing office and marketing occupations, guidelines in cooperative, local and model office programs. Trends in office and marketing education, physical facilities, state plans, instructor qualifications and advisory committees. Prereq: Consent of instructor. Sp

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

533 Improvement of Instruction in Office Technology (3) Research, principles of learning issues, and materials in office technology, word processing, automated accounting and data processing. Prereq: Consent of instructor. Sp

534 Improvement of Instruction in Accounting and Data Processing (3) Principles of learning, issues, research findings, methods, and materials in accounting, automated accounting and data processing. Prereq: Consent of instructor. Sp

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. Sp

536 Organizing and Teaching Adult Business and Marketing Education (3) Planning, organizing, promoting, teaching and evaluating continuing education programs in business and marketing education; utilizing trade associations, employment agencies, business groups, and advisory committees in program implementation. Prereq: 3 yrs teaching experience and consent of instructor. Sp


540 Special Topics in Business and Marketing Education (1-3) Specific objectives, activities, and evaluations vary. Prereq: Consent of instructor. May be repeated. Maximum 9 hrs. Sp

541 Practicum in Business/Marketing Education (3) Practicum 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 and illustrative 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, industry and vocational education programs in secondary and post-secondary school settings. Prereq: Consent of instructor. Sp
551 Supervision of Industrial Education Programs
(3) Techniques used to improve industrial education programs. State, 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. Sp,Su

554 Technical Program Planning (3) Instructional systems attending to analysis, design, development, implementation, and evaluation of trade, technical supervision and related training. Prereq: Curriculum development course and 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. Sp,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

572 Advanced Methods of Teaching Technical Subjects
(3) Field experience 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 programs. Prereq: 12 hrs 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 through quality 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 control, inventory control, and productivity improvement groups. Prereq: 571. Sp,Su

600 Doctoral Research and Dissertation (3-18) P/NP only. F

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

602 Planning and Evaluation of Programs in Technological and Adult Education (3) Techniques utilized in planning, developing, and evaluating instructional programs. Prereq: 560/601/650/750. Planning curriculum improvement 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 Technological and Adult Education (3) Leadership, policy, organization, planning, personnel, student development services, record keeping, 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 Education
(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 Applications
(3) Advanced programming and applications of intelligent or program-generating software. Progression of commercial relational database management programming environments. Concepts and applications of communications and networking. Hands-on environment. Prereq: 516 or equivalent. Sp,Su


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

626 Adult Problem Solving and Learning (3) Contemporaneous research and theories in adult problem solving and learning. Prereq: 522 or equivalent. F,Su

630 Current Issues in Business and Marketing Education
(3) Current trends, issues, problems and innovations in business and marketing education. Prereq: Consent of instructor. Sp,Su

621 Higher Education in Business and Marketing Education
(3) Associate Professors:
Bressee, Randall R., Ph.D.............. Florida State University
Dyer, C. L., Ph.D...................... North Carolina State University
Rabun, Joseph, Ph.D..................... Tennessee State University

Assistant Professors:
Crouse, J. L., Ph.D...................... North Carolina State University
Dillard, S. J., M.S...................... Florida State University
Havasy, J. B., Ph.D...................... Ohio State University
Houser, T. L., M.S...................... Tennessee State University
Simpson, Ethel, Ph.D..................... Oklahoma State University

Interior Design
The Department of Textiles, Merchandising and Design offers a Master's degree in Interior Design. This program is the only Master's degree program in the nation accredited by the Foundation of Interior Design Education Research (FIDER). To enter the program, students are expected to have a good foundation in this area. The program of study will prepare students for careers in interior design or architectural firms, public and private agencies, and educational institutions. Interested students should contact the department head for more information.

ADMISSION REQUIREMENTS
A complete 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.

Propective graduate students pursuing a degree in advanced interior design should submit a portfolio of their undergraduate studio work to the department. This portfolio may include slides or original work.

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 probation with specific goals set for a specified time or termination.

THE MASTER'S PROGRAM
Major (Required courses: 510, 552, 562, 564, 590)
18-21 hours
Cognate Area
9 hours
Research Methods
3 hours
Thesis
6 hours
TOTAL
38 hours

A comprehensive oral examination, administered by the thesis committee, will occur upon completion of thesis research. A non-thesis option is not available.
ACADEMIC COMMON MARKET

The ACM is an interstate agreement among southern states for sharing academic programs. Residents of one of the participating states who qualify for admission may enroll in certain programs on an in-state tuition basis. Students entering Interior Design who are residents of Kentucky or Louisiana are eligible for in-state tuition.

GRADUATE COURSES

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


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

502 Registration for Use of Facilities (3-15) Required for the student not otherwise registered during any semester at or subsequent to the time he/she 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 Problem Solving in Interior Design (3) Use of systematic, logical methodology and design research methods as part of design problem-solving experience. Lecture and studio. May be repeated. Maximum 6 hrs. Prereq: Admission to graduate program. F

529 Integrative Interior Design Studio (3) Identification, integration and synthesis of multidisciplinary data input. Advanced programming techniques and design evaluation. Lecture and studio. Prereq: 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. Prereq: 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. Prereq: Architecture 403 or consent of instructor. Sp

542 Special Topics: History of American Interior Design (3) Recent advanced developments and current issues in American interior design history. Topics vary. Prereq: 475 or consent of instructor. May be repeated. Maximum 8 hrs. F

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

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

563 Research Methods in Interior Design (3) Methodological approaches appropriate to interior design. Prereq: 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. Prereq: 8 hrs behavioral science and 6 hrs natural science, or consent of instructor. Sp

574 Environmental Design Analysis (3) Integrative problem-solving Studio from multidisciplinary perspective. Systems approaches. Available to students from design disciplines and social and behavioral sciences. Prereq: 564 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 stylistic movements and design disciplines and social and behavioral sciences. 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

1. Each graduate student will be evaluated at the end of the second semester (or after completing a minimum of 18 graduate hours).
2. 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 6 hours
Statistics 3 hours
Thesis 6 hours
TOTAL 34 hours

*Students with textile science background must take 550; students without it must take 522.

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 hours in a cognate area;
6. Textiles and apparel courses in area of specialization (16-20 hours); and
7. Dissertation (24 hours).

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 in relation to retail systems; information in system planning and strategy designs in retail areas. Prereq: 410 or equivalent. Sp

520 Textile Microscopy and Physical Testing (3) Optical and electron microscopy techniques for textile fibers, yarns and fabric. Methods and equipment used in physical testing following approved textile standards. Prereq: 320 or equivalent. Sp

522 Fiber Chemistry (4) Chemistry of textile fibers; structure, preparation and reactions; dyeing and finishing of fabrics. Introduction to color science. Prereq: Organic chemistry, 2 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. Prereq: 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. Prereq: Engineering Science and Mechanics 321, Mathematics 142, or equivalent. F,A

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. Prereq: Computer literacy. F

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

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

548 International Textiles (2) Development of traditional and historic textiles; influence of culture, economics and commerce. Prereq: 3 hrs textiles. Sp,A

550 Consumer Economics and Market Choices (3) Economic framework for evaluating consumer behavior and consumer choice within market system. Theory of consumer preferences and decision making; consumption and demand models for individuals and households. International consumer economics, issues and policies. Prereq: Graduate 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; economic and functional performance and consumer issues; U.S. and international focus. F
580 Research Methods in Textiles, Apparel and Design
(3) Fundamentals of scientific research methods; issues of applied research in textiles, apparel, and interior design. Prereq: 550, 552, or consent of instructor. S, F, Sp.


593 Directed Study (1-3) Individual problems in textiles, merchandising or apparel. Prereq: 9 hrs textiles/apparel graduate coursework. May be repeated. Maximum 9 hrs.

595 Advanced Topics in Textiles and Apparel (1-3)
Lecture, group discussion on specialized topics: apparel production management, functional design, handicapped/elderly, historic costume, technical 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 251, or equivalent. Sp, A.

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 251 or equivalent. F, A.

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. Sp, A.

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

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. F.

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.

Theatre
(College of Liberal Arts)

MAJOR

DEGREE

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

Tom Cooke, Head

Professors:

Cooke, Tom, Ph.D. ..................... Florida State
Cothran, R. M. ....................... Miami (Ohio)
Field, R. C., M.A. ..................... Ohio State
Fields, J. Fred (Emeritus), M.A. .... Ohio State
Garvie, Peter, M.A. ..................... Cambridge
Harriss, Al J., Ed.D. ................. Tennessee
Henshaw, H. Wandalie, Ph.D. ..... Pittsburgh
Musgrave, Robert R., Ph.D. ......... Florida State
Ober, Paul L. (Emeritus), Ph.D. ... Cornell

Associate Professor:
Custer, M., M.F.A. .................... Wisconsin

Assistant Professors:
Black, W., M.F.A. .................... Illinois
DeCuir, L. J., M.F.A. .................. Tulane
Schmitt, P., Ph.D. ..................... Wisconsin

Adjunct Faculty:
Arnout, P., M.A. ..................... Catholic
Parris-Bailey, L., B.F.A. ............. Howard

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 required 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 the first semester of residence. Also required are Theatre 401, 310-11, and at least 3 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 juried performance or portfolio submission. Continuance in the program is with the approval of the faculty committee for the MFA program. Satisfactory completion of the comprehensive examination is prerequisite to entry into the third year. Thesis and oral defense (Theatre 500, 6 hours minimum) 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 courses. Theatre 401 Principles of Design is required 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 of 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 (2) Problems in make-up design and application, character analysis, physiognomy and characto.suro. Prereq: 320.

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


425 Advanced Phonetics (3) Phonetic aspects of contemporary dialects of English language. Prereq: Consent of instructor.

430 Principles of Play Directing (4) Problems in composition, presentation, and design. Prereq: 320, 221, and consent of instructor.


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

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

450 Advanced Scenography I (3) Study and practice of theatre woodworking; production participation required. Prereq: 340. Graduate credit to theatre M.F.A. students only.

451 Advanced Scenography II (3) Study and practice of metalworking and plastics for theatrical
463 Sound Design (3) Sound design for performing theatre, opera, and dance. Prereq: 362 or consent of instructor.

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

451 Sound Design (3) Sound design for performing arts. Review of 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-design practitioners, director, actors, choreographers, architects. Not open for specialization in lighting design.

470-71 Playwriting (3,3) Advanced instruction in writing of 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 direction 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 Pattern Making (3) Advanced studies in pattern 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 scenic 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.

563 Projects in Sound Design (1-8) Production assignment as sound designer on approved play or project. Prereq: Consent of instructor.

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.

576-78 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.


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

(Veterinary Medicine (College of Veterinary Medicine))

MAJOR DEGREE
Veterinary Medicine.......................... D.V.M.
D. J. Krahwinkel, Head

Professors:
Brace, J., D.V.M............................... California (Davis)

Bright, R. M., D.V.M............................ Ohio State
Dorn, A. S., D.V.M............................. Illinois
Krahwinkel, D. J., D.V.M.......................... Auburn
Legendre, A. M., D.V.M.......................... Texas A&M
Walker, M. A., D.V.M............................. Auburn

Associate Professors:
DeNovo, R. C., Jr., D.V.M.......................... Illinois
Gompf, R. E., D.V.M.............................. Ohio State
Paddock, R. R., D.V.M............................ Missouri
Selcer, R. R., D.V.M.............................. Texas A&M
Wiegel, J. P., D.V.M.............................. Colorado State

Assistants:
Bright, J. M., D.V.M.............................. Purdue
Brooks, D. E., D.V.M, Ph.D........................ Florida
Daniel, G. B., D.V.M.............................. Auburn
Harvey, R. C., D.V.M............................. Tennessee
Jenkins, C. C., D.V.M............................. Tuskegee
Laratta, L. J., D.V.M............................. Michigan State
Pardo, A. D., D.V.M.............................. California (Davis)
Schmeitzel, L. P., D.V.M............................. Auburn

Clinical Associate:
Augeris, S., D.V.M............................... Tennessee

Residents:
Cook, S., D.V.M................................. Minnesota
Golden, D. L., D.V.M.............................. Florida
Graehl, R., D.V.M................................. Auburn
Hodges, R., D.V.M................................. Tuskegee
Hoskinson, J., D.V.M............................. Washington State
Okrainsky, E., D.V.M.............................. Georgia
Ross, W., D.V.M................................. Tuskegee
Sackman, J. E., D.V.M............................. Michigan State
Thompson, L., D.V.M.............................. Auburn
Wantschek, L., D.V.M.............................. Texas A&M

Intern:
Gartrell, C., D.V.M............................... Tuskegee

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

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

Veterinary Medicine

(College of Veterinary Medicine)

MAJOR DEGREE
Veterinary Medicine.......................... D.V.M.
Comparative and Experimental Medicine........... M.S., Ph.D.
THE PROFESSIONAL PROGRAM

Admission Requirements
To qualify for admission to the professional program of the College of Veterinary Medicine, a candidate must have completed at least the minimum pre-veterinary requirements listed below. These may be met at any accredited college or university that offers courses equivalent to those at The University of Tennessee, Knoxville, and must be completed by the end of spring term of the year in which the student intends to enroll. Biochemistry requirements must have been satisfied within five years of the time the student wishes to enter the program.

<table>
<thead>
<tr>
<th>Subject Area</th>
<th>Semester Hours</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Humanities and Social Sciences*</td>
<td>18</td>
<td>18</td>
</tr>
<tr>
<td>Calculus</td>
<td>6</td>
<td>6</td>
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<td>Physics</td>
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<td>Biochemistry**</td>
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<td>4</td>
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<tr>
<td>Genetics</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Cellular Biology***</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>72</td>
<td>72</td>
</tr>
</tbody>
</table>

*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 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 UTK 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 3.20 ON A 4.0 SCALE.

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

D.V.M. Curriculum
The curriculum of the College of Veterinary Medicine is a nine-semester, four-year program. Each class begins in August and graduates four years later in May. The first three years follow the traditional fall and spring semesters with the summer break following years one and two. The final year of the professional curriculum begins immediately following semester six and is a continuous clinical training schedule extending over one calendar year. The first year consists mostly of preclinical subjects such as anatomy, physiology, histology, and microbiology. Included in this first year also are subjects such as physical diagnosis and anesthesia. Considerable integration of subject matter is incorporated during this time.

The second and third years include the study of diseases, their causes, diagnoses, treatment and prevention and are taught on a rotated basis. 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 format 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 credit hours and these 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. An extramural elective experience requires approval by the department concerned and the College of Veterinary Medicine Curriculum Committee. The extramural program identified by the student must represent a learning experience not available within The University of Tennessee, Knoxville.

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. Because of the interdisciplinary departmental administration of the College of Veterinary Medicine, the faculty have opportunities in the graduate programs of other instructional units, including Animal Science (nutrition and physiology), Microbiology (bacteriology, virology and immunology), Food Science (food microbiology and 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 I, II (5,4) Pathogenesis of bacterial, fungal and viral diseases. Study relating microbial structure, metabolism and genetics to patterns of disease and mode of action of antimicrobials, antigens and antibodies. Immunobiology, study of mechanisms of immune reaction, 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, mycology, virology and immunology.

821-22 Anatomy I, II (4,4) Gross and applied anatomy; neural structures of common domestic animals: dog, cat, horse, cow. Dissection of embalmed specimens, projections, slides, models, and living animals.

823-24 Physiology I, II (4,4) Introduction to concepts and principles in physiology, with base for clinical applications and for formal training in pharmacology, medicine, pathology, and surgery. Cellular, neuronal, cardiovascular, renal, musculoskeletal, endocrine, and reproductive physiology.

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

827 Special Problems in Animal Science (1-8) Extramural and specially designed study for students interested in select topics in anatomy, histology, and physiology.

630 Art of Veterinary Medicine I (1) Preclinical subject important to veterinary practice: practice management, interpersonal relations, communications, jurisprudence, ethics, careers, animal behavior and veterinary history. May be repeated. S/N 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.

833 Epidemiology/Public Health (4) Principles of epidemiology and public health: Host-agent relationships, public health aspects of veterinary medicine, and role of veterinarian in ecology and food hygiene.

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

835 Medical Interaction (2) Multidisciplinary laboratories and lectures of physiology, pharmacology and surgical concepts. Applied techniques in animal handling to facilitate anesthesia, surgery, post-surgical recovery and wound healing. Demonstration of physical processes and drug effects.
REQUIREMENTS FOR ADMISSION
Applicants for graduate study are expected to have a background no less extensive than that required of undergraduate majors in this department. This includes a knowledge of the basic principles of cell biology, genetics, and ecology. Other requirements for admission are:

1. one year of general zoology or biology;
2. 18 semester hours of upper division zoology or biology;
3. two years of chemistry including one year of general inorganic chemistry;
4. one year of mathematics including calculus;
5. one year of physics;
6. Graduate Record Examination scores (general and biology); and
7. a grade-point average of 3.0 out of 4.0. Otherwise superior students, deficient in one or more of the above requirements, may be admitted at the discretion of the department's Graduate Affairs Committee.

THE MASTER'S PROGRAM
Special requirements in Zoology are as follows:

1. completion of course requirements as determined by the candidate's faculty committee, including a course in biostatistics;
2. achievement of a 3.0 or better GPA in all courses taken for graduate credit;
3. completion of a thesis.

THE DOCTORAL PROGRAM
Special requirements in Zoology are as follows:

1. courses as determined by the candidate's faculty committee, including a course in biostatistics;
2. an oral and comprehensive written examination in zoology and allied fields in which the candidate has had training;
3. a reading knowledge of at least one 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 or (b) earning a grade of 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 UTK 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.

ACADEMIC MARKET

403 General Genetics Laboratory (2) Experiments designed to illustrate basic principles of inheritance—primary organism—Drosophila. Prereq: Biology 220. 2 labs.
404 Cytological Technique (2) Practical experience with various techniques: microscopy, embedding and sectioning, chromosome preparations, autoradiography, in situ hybridization, histochemistry, and immunofluorescence. Prereq: Biology 210, 2 labs.
406-06 Minicourse in Zoology (1,1) Select advanced topics in zoology, concentrated in time and subject matter. Consult departmental listings for offerings. Prereq: Announced. May be repeated. Maximum 3 hrs. May apply toward zoology major.
410 Advanced Cell Biology (3) Molecular and supramolecular structure and functions of eukaryotic cells: regulatory mechanisms, physiology, behavior and cellular interactions. Prereq: Biology 210, 220. 2 hrs and 1 lab.
415 Parasitology (3) Parasitic relationships: physiological, ecological, evolutionary and economic aspects. Prereq: Biology 230 or consent of instructor. 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. Prereq: 449. (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 (3) Genetic and molecular principles and problems of human inheritance. Prereq: Biology 220.
470 Aquatic Ecology (3) Introduction to physiological nature of inland waters with description of botic communities and their interrelationships. Prereq: Chemistry 120-03 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 (3) Evolution, classification, collection and identification, distribution and biology of fishes, freshwater fauna of Eastern North American. Prereq: Biology 230 or consent of instructor. 2 hrs and 1 lab.
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, biogeography, ecology, behavior and functional anatomy of mammals. Prereq: Biology 230 or equivalent. 2 hrs and 1 lab.
480 Physiological Exercise (3) Functions of body in muscular work: physiological aspects of fatigue, training and adaptation to environment. Prereq: 230 or 440. 2 hrs and 1 lab.
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 only to 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 be used toward degree requirements. May be repeated. S/NC only. E
503 Zoology Seminar (1-3) Advanced topics in zoology. Senior zoology majors encouraged. Required of all first- and second-year graduate students. May be repeated. S/NC only.
504 Special Topics (1-3) Selected directed readings or special course in topics of current interest. Consult departmental listings 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 listings for offerings. May be repeated with consent of instructor. Maximum 8 hrs. S/NC only.
507 Animal Cell Culture (2) Techniques for culture of animal cells, tissues and organelles. Prereq: 230. 1 hr.
508 Methods of Taxonomy (2) Speciation, taxonomic decisions, approaches to systematic 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 and Biochemistry 410 or equivalent or consent of instructor. S/NC only.
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 animal. Prereq: 440 or 445.
523 Physiology of Hormones (3) Cellular and organismal action of hormones in invertebrates and vertebrates. Prereq: 490 or consent of instructor. Recommended prereq: Biochemistry 410. 2 hrs and 1 lab.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>524</td>
<td>Zoology 167</td>
<td>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.</td>
</tr>
<tr>
<td>525</td>
<td>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 undergraduate physiology, or consent of instructor.</td>
<td></td>
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<tr>
<td>526</td>
<td>General Vertebrate Neuroanatomy (3) (Same as Psychology 526.)</td>
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</tr>
<tr>
<td>540</td>
<td>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.</td>
<td></td>
</tr>
<tr>
<td>541</td>
<td>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.</td>
<td></td>
</tr>
<tr>
<td>542</td>
<td>Insect Structure and Function (3) Integrated study of morphology and physiology at tissue and cellular level of insects. Prereq: Consent of instructor.</td>
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<tr>
<td>543</td>
<td>Aquatic Insects (3) Taxonomy and biology of aquatic insects; immature forms. Prereq: Consent of instructor. 2 hrs and 1 lab.</td>
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<tr>
<td>544</td>
<td>Fresh Water Invertebrate Zoology (3) Ecology and taxonomy of fresh water invertebrates exclusive of insects. Prereq: 360. 3 hrs lab and field study.</td>
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<tr>
<td>545</td>
<td>Advanced Animal Behavior (3) Second-level course in ethology, stressing evolution, genetics, physiology, ecology and human behavior. Prereq: 450 or equivalent. (Same as Psychology 545.)</td>
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<tr>
<td>555</td>
<td>Seminar in Quaternary Studies (3) (Same as Geology 555 and Botany 555.)</td>
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<tr>
<td>560</td>
<td>Biometry (3) Statistical methods in analysis of quantitative biological data. Prereq: Statistics course or consent of instructor.</td>
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<tr>
<td>573</td>
<td>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.)</td>
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<tr>
<td>583</td>
<td>Zoogeography (3) Processes determining geographic distribution of animals and distribution and composition of animal communities. Prereq: Ecology course or consent of instructor.</td>
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<tr>
<td>591</td>
<td>Foreign Study (1-15) See page 31.</td>
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<td>592</td>
<td>Off-Campus Study (1-15) See page 31.</td>
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<td>593</td>
<td>Independent Study (1-15) See page 31.</td>
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<tr>
<td>600</td>
<td>Doctoral Research and Dissertation (3-15) P/NP only. E</td>
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<tr>
<td>601</td>
<td>Advanced Topics (1-3) Readings and discussion of recent advances. Consult the departmental listing for offerings. May be repeated with consent of department. Maximum 9 hrs.</td>
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<tr>
<td>602</td>
<td>Seminar in Cell and Molecular Biology (1) Readings and discussion based on current literature. May be repeated. Maximum 12 hrs.</td>
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<tr>
<td>603</td>
<td>Seminar in Genetics (1) Readings and discussion based on current literature. May be repeated. Maximum 12 hrs.</td>
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<tr>
<td>604</td>
<td>Seminar in Developmental Biology (1) Readings and discussion based on current literature. May be repeated. Maximum 12 hrs.</td>
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<tr>
<td>605</td>
<td>Seminar in Physiology (1) Readings and discussion based on current literature. May be repeated. Maximum 12 hrs.</td>
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<tr>
<td>606</td>
<td>Seminar in Aquatic Biology (1) Readings and discussion based on current literature. May be repeated. Maximum 12 hrs.</td>
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<tr>
<td>607</td>
<td>Seminar in Ecology (1) Readings and discussion based on current literature. May be repeated. Maximum 12 hrs.</td>
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<tr>
<td>608</td>
<td>Seminar in Ethology (1) Readings and discussion based on current literature. May be repeated. Maximum 12 hrs.</td>
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<tr>
<td>610</td>
<td>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.</td>
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FACILITIES FOR RESEARCH AND SERVICE
Facilities for Research and Service
Bureau of Educational Research and Service
(College of Education)
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 Business and Economic Research
(College of Business Administration)
David A. Hake, Director
The staff of the Center for Business and Economic Research engages in studies of the business and economic environment in Tennessee, the southeast, and the nation. The Center, located at 100 Glocker, serves the business community, state government, individuals, and The University through dissemination of various kinds of economic and socioeconomic information; supports the faculty of the College in seeking funding for research projects; and, through its Computer Resources Group, provides support for integration of technology in the College of Business Administration. Staff members conduct research in regional economics, public finance, and areas related to socioeconomic problems in the region. The Center publishes the results of research in monograph form so that significant developments in the various business disciplines and economics can achieve widespread exposure. In addition, the Center staff does contract research on business and economic problems for governmental organizations and private industry. The Center publishes the Tennessee Statistical Abstract and the Survey of Business. The Center is a member of the Association for University Business and Economic Research.

Center for Computer Integrated Engineering and Manufacturing
(College of Engineering)
William T. Snyder, Acting Director
The Center for Computer Integrated Engineering and Manufacturing (CCIEM) was established in 1985 and is an interdisciplinary organization within the College of Engineering. The Center, located at 124 Perkins Hall, provides education, research, and service to American industry in the integration of engineering design, manufacturing, and management. 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
(Office of Vice Provost/Student Affairs)
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 UTK, both for American students and faculty and for students and faculty from other countries. The administration of official linkage agreements between UTK 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 UTK students, including the exchange programs it administers between UTK and universities in thirty countries on six continents. CIE coordinates campus administration of such international grants and scholarships 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 six countries. International students and scholars: CIE provides information and assistance in matters relating to United States visa regulations, to UTK requirements for international students, and to UTK academic policies and registration procedures. It publishes The Link, a newsletter for UTK'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 conducted at the beginning of
each term 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 gathering place for international and U.S. students, faculty and staff.

International students seeking admission to UT 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 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, concentrating on areas that will significantly improve the productivity, reliability and safety of industrial systems and processes.

Centers of Excellence
The Centers of Excellence grew out of Tennessee’s Better Schools Program, an initiative to upgrade state-aided education at all levels. State officials and legislators wanted to give a few outstanding academic programs in state-aided colleges and universities a special push toward prominence, well beyond regular annual increases for programs. In 1984, the General Assembly appropriated and the governor approved $10 million for the first Centers of Excellence throughout the state. The public colleges and universities submitted their proposals for Centers of Excellence to the Tennessee Higher Education Commission, which made the final determinations. Funding has been extended each year, and now seven of the University’s twelve Centers of Excellence are sponsored by UT, Knoxville.

Concurrently, the University has received state funding, which it must match dollar for dollar, for Chairs of Excellence. These Chairs are $1 million endowed professorships in areas of significance to the University and to the individual, foundation, or corporation providing the matching gift money.

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

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

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

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

Center for Materials Processing
Dr. Joseph Spruelli, Director
435 Dougherty Engineering Building
Knoxville, TN 37996
(615) 974-5336

Center of Excellence in New Venture Analysis and Entrepreneurship
Dr. Roger Jenkins
527 Stokely Management Center
UT Knoxville
Knoxville, TN 37996
(615) 974-5033

Science Alliance
Dr. Lee Riedinger
611 Physics Building
UT Knoxville
Knoxville, TN 37996
(615) 974-7805, 974-6785

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 communications; (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.

Mainframe computers operated by UTCC include an IBM 3081D, an IBM 3090 200E with two vector processors, two VAX 8800 processors and one VAX 6220 processor in a VAXcluster, a VAX 8650 supporting ULTRIX-32, and two computers, a VAX 8650 and a VAX 8810, supporting the Computer Science Alliance.

UTCC also makes available more than 100 microcomputers in remote user work areas. All the UTCC mainframe computers provide both batch computing and timesharing services. The latter includes the Conversational Monitor System (CMS) under the VM/SP operating system on the IBM 3081D, the VMS operating system on the VAXcluster, ULTRIX-32 on a VAX 8650, and Coursewriter III (an online Computer Assisted Instruction system) and Time Sharing Option (TSO) under MVS/ESA on the IBM 3090.

UTCC timesharing can be accessed through a terminal or microcomputer attached to one of more than 800 directly connected lines or 60 dialup lines. All UTCC timesharing services are available through the Digital Communications Associates (DCA) terminal port allocation and multiplexing system. The UTCC DCA system is connected to the DCA system at the Oak Ridge National Laboratory. In addition, DECnet links the VAXcluster at UTCC with VAX computers located in the Computer Science Department and the College of Engineering on the Knoxville campus, at the UT Space Institute in Tullahoma, and at the University of Tennessee, Memphis. Several sites on the Knoxville campus are connected by Ethernet, a network that provides rapid access to data in remote locations and supports several protocols including LAT, TCP/IP, and XEROX.

The Knoxville campus network is connected to Internet which provides access to other Internet sites such as those on ARPANET and MILNET via the Southeastern University Research Association Network (SURA). SURA connects to the National Science Foundation Network (NSFNET) which joins other state and regional networks as well as directly connecting the five NSF supercomputing centers: the Cornell National Supercomputing Facility, the National Center for Supercomputing Applications at the University of Illinois, the Pittsburgh Supercomputing Center, the San Diego Supercomputer Center, and the John von Neumann Center.

UTCC is an affiliate of the Pittsburgh Supercomputing Center, the National Center for Supercomputing Applications at the University of Illinois, and the Cornell National Supercomputer Facility. Consulting services are provided by UTCC on those systems to UT researchers whose work is supported by the National Science Foundation. The Cornell National Supercomputer Facility has two IBM 3090-600ES, each with six vector facilities. The National Center for Supercomputing Applications has a four processor CRAY X-MP/48 and a CRAY2 with two VAX 11/785 front-end computers. The Pittsburgh Supercomputing Center has a four processor Cray X-MP/48 with scalar and vector processor capability and two attached VAX 8650 front-end computers.
UTCC is also a member of BITNET, a network of more than 2,100 computers located at educational and research institutions throughout North and South America, Europe, and Asia. It allows the rapid exchange of messages and files associated with university work.

Software available on the mainframe computer includes the commonly used compilers and interpreters, as well as a large number of programs for statistical, mathematical, engineering, operations research, and graphics applications. UTCC also has software access to some public domain software for microcomputers and is the administrator for a number of site licenses for microcomputer software. Included is communications software for connecting the mainframes to microcomputers to the mainframes for terminal emulation and file transfer.

UTCC maintains 20 user work areas on the Knoxville campus, including locations in the Library, Administration Building, and the Main Building. The Library contains a wide variety of books, journals, and other resources available to UTCC users.

A graphics center, located in the Main Building, has storage and refresh graphics terminals, digitizing tablets, graphics workstations with integrated tables, and graphics plotters. Additional graphics equipment, including terminals and a large digitizing tablet, is located in the user work area in the Art and Architecture Building. Many of the terminals and microcomputers in the user work areas are capable of being used for graphics.

A CalComp 1051 vector plotter is used to produce graphics output from jobs run on the IBM and the VAX cluster computers. An IBM 6870 and an Imagen laser printer are used to produce high quality printed output. The Imagen printer can also produce graphics at 300 dots per inch.

Many courses, one to five hours in length, are taught throughout the year on topics including programming languages, job control language, vector processing, the use of graphics, and the statistical and mathematical programs available at UTCC. During each term break, UTCC consultants conduct a four-day seminar on the use of either the IBM or VAX cluster computers for faculty, staff, and graduate students. 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 Context.


All users of UTCC facilities are assigned a consultant who is available to answer questions about UTCC resources and to assist through the mainframe computer programs. Forms to request computing services are available from the receptionist, 200 Stokely Management Center. UTCC offices and principal computing facilities are located on the first two floors of Stokely Management Center and on the third floor of Dunford Hall.

**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 Tennessee government and industry in specific problems related to energy, environmental, resource, and technology policy issues. The Center has a close working relationship with researchers at the Oak Ridge National Laboratory and the Tennessee Authority.

Current research includes hazardous and radioactive waste management, information systems, industrial fuel use trends, energy conservation in buildings, and industry electronic utility modeling, environmental research needs, energy education and information, probabilistic risk assessment, and ethical and value issues in technology policy.

**Institute of Agriculture**

D. M. (Pete) Gossett, **Vice President**

The Institute of Agriculture traces its history to 1899 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 1899, agricultural programs at the University have been expanded to include research for the development of new knowledge and extension for dissemination of such knowledge to rural people. Thus the Institute of Agriculture has come to include the work of four main divisions: Agricultural Experiment Station, Agricultural Extension Service, College of Agriculture, and College of Veterinary Medicine.

**AGRICULTURAL EXPERIMENT STATION**

Don O. Richardson, **Dean**

John I. Sewall, **Associate Dean**

Thomas H. Kindt, **Assistant Dean**

The Agricultural Experiment Station was established by The University's Board of Trustees on June 8, 1899, 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 community, (c) Understanding the interaction of agricultural production and land uses on natural resources and the environment as they relate to long-term productivity and quality of 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 scientific accomplishments to develop effective production and marketing systems and to foster the development of a physical and economic environment that provides for the needs of rural, urban, and farm citizens.

To disseminate the scientific information obtained by the Institute of Agriculture, BITNET is a system of computer networks connecting several types of microcomputers and central processing units in the U.S., Canada, Europe, and Asia. It allows the rapid exchange of messages and files associated with the social, economic, and environmental aspects of rural living; and to consumer health and nutrition. Both farm and urban populations gain from the accomplishments of the Agricultural Experiment Station. Examples of some of these accomplishments are new and improved varieties of crops, new and better methods of controlling crop and livestock pests, more efficient production of crops and pasture through improved fertilization and mechanization, and more efficient feeding and management of livestock.

The program is designed and administered through ten subject matter departments located at Knoxville. A majority of the faculty have teaching responsibilities in addition to their research. To assist in the research program, the Station supports over 120 graduate students. To serve Tennessee's diverse agricultural needs, 120 extension agents 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**

M. Lloyd Downen, **Dean**

Mildred F. Clarke, **Associate Dean**

Billy G. Hicks, **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 social and educational resources 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: agricultural and natural resources, community resource development, home economics, and education of young people through 4-H Clubs. County Extension Service personnel, 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.

Library, The University of Tennessee, Knoxville
Paula Kaufman, Dean
The University of Tennessee, Knoxville Library owns approximately 1,600,000 volumes, more than 3,000,000 manuscripts, 70,000 microfilm reels, and 1,600,000 items of other media: microtexts, public audio and video recordings, and United States and United Nations documents. The UT Library currently subscribes to more than 18,000 periodicals and other serial titles. The Library's 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. Special features of the new Hodges Library include a fully-equipped Microcomputer Lab and a state-of-the-art, fiber-optic wired Audioserial Services department. The Library also has comfortable study space for 3,500 students, 308 graduate student carrels, and 196 faculty studies.

The Special Collections Library in the James D. Hoskins Building is a repository of regional and local materials, Tennesseana, and other specialties, including legislative papers and memorando 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 access to commercially available databases, while 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 programming, 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 yet 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 one-week program that provides 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
UTK offers a variety of residential 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 UTK 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 UTK. Information and application forms may be obtained from Marvin K. Goodman, Director, Kingsport University Center, Kingsport, Tennessee, University Boulevard, Kingsport, Tennessee 37660.

OAK RIDGE RESIDENT GRADUATE PROGRAM
UTK 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 Director, 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 UTK.

Students who enroll in these programs must be admitted to The Graduate School of UTK. Information and appropriate forms may be obtained from Jerry Westbrook, Director, Nashville Graduate Engineering Program, Ten and Charlotte, Nashville, Tennessee 37203.

CHATTANOOGA GRADUATE EDUCATION PROGRAM
UTK offers a graduate program in education leading to the Specialist in Education and the Doctor of Education with majors in Educational Administration and Supervision and Vocational-Technical Education. Students who enroll in this program must be admitted to The Graduate School of UTK.

Information and appropriate 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 page 50.

COLLEGE OF SOCIAL WORK
UTK 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 UTK College of Social Work also offers a Doctor of Philosophy with a major in Social Work.

For complete information concerning the programs, see page 141.
The Psychological Clinic

(Office of Vice Provost)

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 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 UTK. The Center's staff is organized into four research divisions and one support division. The five division managers provide the overall management needed to conduct transportation research, service, and training activities efficiently and effectively.

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

Kenneth E. Harwell, Dean

Richard M. Roberds, Associate Dean

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 these accredited academic programs through classroom teaching, informal seminars, active research, and directing the research of their students in an environment of creative work and advanced study. Programs are available to students devoting full-time or part-time effort toward M.S. and Ph.D. degrees, those interested in continuing education for updating and broadening knowledge, and those who wish to pursue post-doctoral research.

Graduate degree programs are available with majors in Aerospace Engineering, Aviation Systems, Chemical Engineering, Computer Science, Electrical Engineering, Engineering Science, Industrial Engineering (engineering management concentration), Mathematics, Mechanical Engineering, 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, 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 related to water resources and to encourage the entry of promising students into careers in these fields.
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