# University Calendar For 1981-82

## Winter Quarter, 1981
- **January 5-6** (Monday-Tuesday)
- **January 7** (Wednesday)
- **February 10** (Tuesday)
- **March 17** (Tuesday)
- **March 20** (Friday)

## Spring Quarter, 1981
- **March 25-26** (Wednesday-Thursday)
- **March 27** (Friday)
- **April 17-18** (Friday-Saturday)
- **April 30** (Thursday)
- **June 8** (Saturday)
- **June 10** (Wednesday)

## Summer Quarter, 1981
- **June 12-15** (Friday-Monday)
- **June 16** (Tuesday)
- **July 3** (Friday)
- **July 6** (Monday)
- **July 16-20** (Thursday-Monday)
- **July 20** (Monday)
- **July 21** (Tuesday)
- **August 7** (Friday)
- **August 21** (Friday)
- **August 24** (Monday)

## Fall Quarter, 1981
- **September 21-23** (Monday-Wednesday)
- **September 24** (Thursday)
- **October 28** (Wednesday)
- **October 30** (Friday)
- **November 7** (Saturday)
- **November 26-28** (Thursday-Saturday)
- **December 8** (Tuesday)
- **December 11** (Friday)

## Winter Quarter, 1982
- **January 4-5** (Monday-Tuesday)
- **January 6** (Wednesday)
- **February 9** (Tuesday)
- **March 16** (Tuesday)
- **March 19** (Friday)

## Summer Quarter, 1982
- **June 12-15** (Friday-Monday)
- **June 16** (Tuesday)
- **July 3** (Friday)
- **July 6** (Monday)

## Fall Quarter, 1982
- **September 21-23** (Monday-Wednesday)
- **September 24** (Thursday)
- **October 28** (Wednesday)
- **October 30** (Friday)
- **November 7** (Saturday)
- **November 26-28** (Thursday-Saturday)
- **December 8** (Tuesday)
- **December 11** (Friday)

### NOTE: Deadlines for degree requirements described on pp. 22-24.
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Financial Assistance
Assistantships—Head of department or program in which you plan to major Fellowships and Scholarships—Assistant Director, The Graduate School
Loans, Work-Study—Director of Financial Aids, 115 Student Services Building

Housing
Married students—Office of Rental Properties, 107 S. Stadium Hall
Single students—Office of Residence Halls, 405 Student Services Building

Handicap Student Services
Counseling Services, 900 Volunteer Boulevard

Where To Write
The University of Tennessee, Knoxville, Tn 37916
Office Hours: 8:00 a.m.-5:00 p.m. Monday-Friday

The Graduate School
Diana C. Lopez, Director of Graduate Admissions
Clea J. Greenawalt, Assistant Director of Graduate Admissions
218 Student Services Building

International Student Affairs
Dixon Johnson, 201 Alumni Hall
Registrar
Bob L. Cochran, 215 Student Services Building

Regulations Subject To Change
Any and all course offerings, academic requirements and other information contained in this publication are subject to change and/or revocation without notice. Anyone interested in the precise course offering, academic requirement at a given time, or other special information should make inquiry in advance.

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**The Graduate School Administration**

L. Evans Roth, A.B. M.S. Ph.D., Vice Chancellor for Graduate Studies and Research  
Clarence W. Minkel, B.A., M.A., Ph.D., Dean for Graduate Studies  
Gerald E. Hills, B.S., MBA, DBA, Assistant Dean for Graduate Studies, Director, Oak Ridge Resident Graduate Program  
Mary P. Richards, B.A., M.A., Ph.D., Assistant Dean for Graduate Studies  
Carl O. Thomas, A.B., M.A., Ph.D., Dean for Research  
L. B. Cebik, B.A., M.A., Ph.D., Assistant Dean for Research  
Diana C. Lopez, B.S., M.S., Director, Graduate Admissions  
Ben Granger, B.A., M.S.W., M.P.A., Ph.D., Dean, School of Social Work  
Charles H. Weaver, B.S., M.S., Ph.D., Dean, UT Space Institute  
A. A. Mason, B.S., Ph.D., Associate Dean, UT Space Institute  
Marvin Goodman, B.S., M.S., Director, Kingsport Graduate Program  
Alexander Hollaender, A.B., A.M., Ph.D., Director, Archival Center for Radiation Biology  
David A. Johnson, B.A., M.C.P., Ph.D., Director, Graduate School of Planning  
W. Edgar Barnett, B.S., M.S., Ph.D., Director, UT-Oak Ridge Graduate School of Biomedical Sciences  
William F. Brandes, M.S., P.E., Director, Water Resources Research Center  
Eric Schonblom, Ph.D., Director, Chattanooga Graduate Engineering Program  
Jerry D. Westbrook, B.E., M.S., Ph.D., Director, Nashville Graduate Engineering Program  
Ann E. Prentice, A.B., M.L.S., D.L.S., Director, Graduate School of Library and Information Science  
Kenneth W. Heathington, B.S., M.S., Ph.D., Director, Transportation Center  
Robert A. Bohm, A.B., A.M., Ph.D., Acting Director, Energy, Environment, and Resources Center

**The Graduate Council**

Membership January 1, 1980

<table>
<thead>
<tr>
<th>Ex Officio Members</th>
<th>Appointed Members</th>
<th>Date of Expiration</th>
<th>Proxy</th>
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<tr>
<td>L. Evans Roth, Vice Chancellor</td>
<td>Dr. Michael E. Gordon</td>
<td>Dec. 31, 1980</td>
<td>Dr. Luther Wilhelm</td>
</tr>
<tr>
<td>Clarence W. Minkel, Dean</td>
<td>Dr. Kenneth E. Harwell</td>
<td>Dec. 31, 1980</td>
<td>Dr. Gary N. Dicer</td>
</tr>
<tr>
<td>Lloyd Seatz, Chairperson for Research Council</td>
<td>Dr. Hyram Kitchen</td>
<td>Dec. 31, 1980</td>
<td>Dr. Norman E. Dittrich</td>
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**College or Unit**  
**Elected Members**  
**Date of Expiration**  
**Proxy**

- **Col. of Agriculture**  
  - Dr. Gary Lessman  
  - Dr. Jan R. Williams  
  - Dr. Charles B. Garrison  
  - Dec. 31, 1980  
  - Dr. Luther Wilhelm

- **Col. of Business Administration**  
  - Dr. Alan D. Fletcher  
  - Dr. Donald J. Dessart  
  - Dr. Madge M. Phillips  
  - Dr. John Peters  
  - Dr. John Ray  
  - Dr. Schuyler Huck  
  - Dec. 31, 1980  
  - Dec. 31, 1981  
  - Dec. 31, 1982  
  - Dr. Kent M. Sidel

- **Col. of Communications**  
  - Dr. Pietro F. Pasqua  
  - Dr. Bruce R. Dewey  
  - Dec. 31, 1980  
  - Dec. 31, 1981  
  - Dec. 31, 1982  
  - Dr. Paul C. Burns

- **Col. of Education**  
  - Dr. Dale Cleaver  
  - Dr. Patricia L. Walne  
  - Dr. John H. Fisher  
  - Dr. T. McN. Simpson  
  - Apr. 30, 1980  
  - Apr. 30, 1980  
  - Dec. 31, 1980  
  - Dec. 31, 1980  
  - Dec. 31, 1981  
  - Dec. 31, 1982  
  - Dec. 31, 1982  
  - Dr. Estil Alexander

- **Graduate Student Council**  
  - Mr. Michael L. Thompson  
  - Mr. Thomas L. Walden  
  - Apr. 30, 1980  
  - Apr. 30, 1980  
  - Dr. Mildred Fenske

- **Col. of Nursing**  
  - Dr. Sylvia E. Hart  
  - Dec. 31, 1980  
  - Dr. Betty L. Beach

- **School of Social Work**  
  - Dr. Gideon Fryer  
  - Dr. Roger M. Noe  
  - Dec. 31, 1980  
  - Dec. 31, 1981  
  - Dec. 31, 1982  
  - Dr. Mazurkovich

- **UT Space Institute**  
  - Dr. Robert L. Young  
  - Dec. 31, 1980  
  - Dec. 31, 1981  
  - Dec. 31, 1982  
  - Dr. Robert Bonovich
The University of Tennessee

Board of Trustees

From Congressional Districts

Ex Officio Members
His Excellency, The Governor of Tennessee
The Commissioner of Education
The President of the University
The Executive Director, Tennessee Higher Education Commission

Buford Goldstein, DISTRICT TERM EXPIRES
Elizabeth Benton
A. B. Long, Jr., Knoxville
Scott Probasco, Jr., Lookout Mountain
William M. Johnson, Sparta
Marcia A. echols, Nashville
Ben S. Kimbrough, Clarksville
T. O. Lashlee, Humboldt
Tom Elam, Union City
R. Lee Winchester, Memphis

From Anderson, Bedford, Coffee, Franklin, Lincoln, Moore, and Warren Counties TERM EXPIRES
Charlotte Parish June 1, 1988

From Davidson County June 1, 1984
Elaine McReynolds

From Hamilton County June 1, 1987
Paul J. Kinser

From Knox County June 1, 1989
Ann Baker Furrow
James A. Haslam, III

From Shelby County July 1, 1981
Harry W. Laughlin
Marcus J. Stewart

TERM EXPIRES
Wayne Fisher July 1, 1981

TERM EXPIRES
Student Member
Steven Hyers

Officers of the Board
Governor Lamar Alexander, Chairman
Wayne Fisher, Vice Chairman
Edward J. Boling, President
Brodie Baynes, Treasurer
Beauchamp Brogan, Secretary
Carol Bailey, Assistant Secretary

From Weakley County

TERM EXPIRES

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Edward J. Boling, B.S., M.S., Ed.D., President of the University
Joseph E. Johnson, A.B., A.M., Ed.D., Executive Vice President and Vice President for Development
John W. Prados, B.S., M.S., Ph.D., Vice President for Academic Affairs
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Emerson H. Fly, B.S., C.P.A., Vice President for Business and Finance
Charles H. Weaver, B.S., M.S., Ph.D., Vice President for Continuing Education
James C. Hunt, A.B., M.S., M.D., Vice President for Health Affairs
Robert S. Hutchison, B.S., M.B.A., Vice President for Public Service
Beauchamp E. Brogan, B.S., LL.B., J.D., General Counsel, Secretary of Board of Trustees
Andrew J. Kozar, B.S., A.M., Ph.D., Executive Assistant to the President
Brodie Baynes, B.S., C.P.A., Treasurer

UT, Knoxville Administration
Jack E. Reese, A.B., A.M., Ph.D., Chancellor
Luke Ebersole, A.B., A.M., Ph.D., Vice Chancellor for Planning and Administration
Walter R. Herndon, B.S., M.S., Ph.D., Vice Chancellor for Academic Affairs
L. Evans Roth, A.B., M.S., Ph.D., Vice Chancellor for Graduate Studies and Research
Homer S. Fisher, B.S., M.B.A., Vice Chancellor for Business and Finance
Howard F. Aldmon, B.S., A.M., Ed.D., Vice Chancellor for Student Affairs
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Carl O. Thomas, A.B., M.A., Ph.D., Dean for Research
O. Glen Hall, B.S., M.S., Ph.D., Dean of the College of Agriculture
Roy F. Knight, B.A., M.A., M.Ed., Dip. D'Etudes, Dean of the School of Architecture
C. Warren Neel, B.S., M.B.A., D.B.A., Dean of the College of Business Administration
Donald G. Hileman, B.S., M.S., Ph.D., Dean of the College of Communications
William H. Coffield, B.S., M.A., Ph.D., Dean of the College of Education
W. Ken Stair, B.S., M.S., Acting Dean of the College of Engineering
Nancy H. Belck, B.S., M.S., Ph.D., Dean of the College of Home Economics
James Kirby, B.A., LL.M., J.D., Acting Dean of the College of Law
Robert G. Landen, A.B., A.M., Ph.D., Dean of the College of Liberal Arts
Sylvia E. Hart, B.S.N., M.S.N., Ph.D., Dean of the College of Nursing
Hyram Kitchen, M.S., D.V.M., Ph.D., Dean of the College of Veterinary Medicine
Joseph P. Goddard, B.S., M.S., Ed.D., Dean of the Division of Continuing Education
John J. McDow, B.S., M.S., Ph.D., Dean of Admissions (Undergraduate) and Records
### Majors and Degrees Available

<table>
<thead>
<tr>
<th>College of Agriculture</th>
<th>ADMISSION TEST REQUIRED</th>
<th>ADDITIONAL REQUIREMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural Economics</td>
<td>MS, PhD</td>
<td>GRE APT. ADV. GMAT</td>
</tr>
<tr>
<td>Agricultural Engineering</td>
<td>MS, PhD</td>
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<tr>
<td>Agricultural Extension</td>
<td>MS</td>
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<tr>
<td>Agricultural Mechanization</td>
<td>MS</td>
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<tr>
<td>*Animal Science</td>
<td>MS, PhD</td>
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<tr>
<td>Entomology and Plant Pathology</td>
<td>MS</td>
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<tr>
<td>Food Technology and Science</td>
<td>MS</td>
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<tr>
<td>*Forestry</td>
<td>MS</td>
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<tr>
<td>Ornamental Horticulture and Landscape Design</td>
<td>MS</td>
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<tr>
<td>Plant and Soil Science</td>
<td>MS, PhD</td>
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<tr>
<td>Wildlife and Fisheries Science</td>
<td>MS, PhD</td>
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<tr>
<td>*Accounting</td>
<td>MBA, DBA</td>
<td>GRE APT. ADV. GMAT</td>
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<td>*Business Administration</td>
<td>MS, MACT, Ph.D.</td>
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<tr>
<td>*Management Science</td>
<td>PhD</td>
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<tr>
<td>*Statistics</td>
<td>MS</td>
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<tr>
<td>Adult Education</td>
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<td>Agricultural Education</td>
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<tr>
<td>*Art Education</td>
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<td>MS, MACT</td>
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<td>College Student Personnel</td>
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<td>Curriculum</td>
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<td>and Supervision</td>
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<td>Recreation</td>
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<td>Vocational-Technical Education</td>
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<td>*Aerospace Engineering</td>
<td>ME, MS, PhD</td>
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<td>Polymer Engineering</td>
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<tr>
<td>*Child and Family Studies</td>
<td>MS</td>
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<td>*Consumer Studies and Housing: Public Policy</td>
<td>MS</td>
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<td>*Food Science</td>
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<td>*Food Systems Administration</td>
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<td>DEGREE</td>
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<tr>
<td>Home Economics</td>
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<tr>
<td>Interior Design and Housing</td>
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<tr>
<td>Nutrition</td>
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<td>Textiles and Clothing</td>
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<td>Intercollegiate</td>
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<td>Aviation Systems°</td>
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<td>Comparative and Experimental Medicine</td>
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<tr>
<td>Ecology</td>
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<td>Industrial and Organizational Psychology</td>
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<td>Audiology</td>
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<td>French</td>
<td>MA</td>
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<tr>
<td>Geography</td>
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<tr>
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<td>MSSW</td>
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<td>(Knoxville, Memphis, Nashville, Chattanooga)</td>
<td>3 Rating Forms &amp; Dept. Application°</td>
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</table>

*Non-degree and provisional students must obtain permission from the department/program head in order to register for courses in these fields.

°American applicants only.
International applicants only.
Ens applicants only.
EdD applicants only.
PhD applicants only.
Department doctoral option offered under the major of home economics.
Interdisciplinary option offered in each department.
Offered at UT Space Institute.
Forms obtained from department.
The Graduate School

The mission of The University of Tennessee, Knoxville (UTK) is to offer instruction on all levels of higher education, engage in and train for research, and provide instruction on all levels of higher education, The Graduate School provides service, the University and its faculty through research programs, and by public application to the changing needs of society.

Advanced Graduate Work and Research

The University of Tennessee has some obligations not shared in the same degree by other public colleges and universities of the state, although these specialized functions are common to most major state universities and land-grant institutions. For instance, the University must develop and maintain advanced instruction and research in the basic arts and sciences and in professional and occupational areas dependent upon the fundamental fields of learning, especially (but not exclusively) those of substantial importance to the state. It is the business of such a state university to advance the frontiers of knowledge in all areas of human concern, to discover facts previously unknown, to present new theories, and to test hypotheses and theories not previously established. The augmentation of the intellectual heritage of the human race, particularly in basic research, is a major function of this and all other universities.

So far as publicly-supported higher education is concerned, UTK is the center of advanced graduate training and research in Tennessee. As of 1980 the University provides Master's level work in 123 fields of knowledge and doctoral work in 50, enrolling more than 6,700 graduate students.

The search for new knowledge and its application to the changing needs of society is a major aim of UT. In graduate instruction, through research programs, and by public service, the University and its faculty constitute a major resource for contributions to state, national and international problems.

In addition to typical departmental units of administration, numerous interdisciplinary programs, institutes, and centers have been developed in the locations and the scholarly areas needed. Beyond those described below, which are operated through the Office of the Vice Chancellor for Graduate Studies and Research, numerous other organizations exist and are described within the appropriate department or college descriptions.

Energy, Environment, and Resources Center

R. A. Bohm, Acting Director, Ph.D.
Washington (Missouri)

The Energy, Environment, and Resources Center was created to encourage interdisciplinary studies at UT, 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 and environment. It also participates in the Statewide Consumer Education Program, especially in developing materials for the program.

Current research includes environmental and human costs of coal production, utilization of energy, solar energy, energy conservation in buildings and industry, regional solid waste management, resource recovery, and energy education and information.

Transportation Center

Director:
K. W. Heathington, Ph.D., Northwestern, P.E.

Associate Director:
M.S. Bronzini, Ph.D. Pennsylvania State.

Assistant Directors:
D. H. Jones, M.S., Tennessee; P. R. Tutt, M.S. Texas (Austin).

The Transportation Center is a nationally recognized leader in transportation research. The Center utilizes the combined talents of University faculty and students in a research environment that emphasizes an interdisciplinary approach to problem-solving in the transportation of both goods and people.

The Center involves qualified undergraduate and graduate students in a variety of research projects. This support not only provides needed financial assistance to students but also creates the environment for addressing transportation problems in a professional manner.

An important element of the Transportation Center's success is its perspective that continuing education shares an equal partnership with research. Through workshops, seminars, and short courses the Center's staff is involved in such diverse courses as benefit/cost analysis in state rail planning, highway rail grade crossing safety, noise assessment, remote sensing, urban public transportation management, ridesharing, transportation brokerage, urban transportation planning, child passenger safety, traffic engineering, transportation safety, urban transportation modeling, and other areas of transportation interest.

The University of Tennessee

Space Institute

C. H. Weaver, Dean, Ph.D. Wisconsin
A. A. Mason, Associate Dean, Ph.D. Tennessee

The Space Institute was originated to interface University faculty research with the Arnold Engineering Development Center of the United States Air Force. Located at Tullahoma, Tennessee, the Space Institute offers graduate degree programs with majors in Aerospace Engineering, Aviation Systems, Computer Science, Electrical Engineering, Engineering Administration, Engineering Science, Mathematics, Mechanical Engineering, Metallurgical Engineering, and Physics. In addition to the fundamental
ametrically-designated institute for the conduct of research in atmospheric, space, and aerospace sciences, including atmospheric and space sciences, aerospace vehicle design, control and guidance, modern materials and structures, propulsion systems, aircraft noise and sonic boom, flight simulation, avionics, plasmodynamics, flow diagnostics including spectroscopic and electrooptic means, and systems management. Work is also in progress in remote sensing and magnetohydrodynamic and power generation of coal utilization. Course and research work in related areas of environmental pollution control, earth resources, energy conversion, materials and systems simulation are also available. The research personnel and facilities of the institute and those available at the Arnold Center through appropriate contractual arrangements provide an outstanding opportunity for meaningful research in these and other areas. Students who enroll at UTSI must be admitted to the Graduate School of the University of Tennessee, Knoxville. Further information concerning the institute may be obtained from the Dean, The University of Tennessee Space Institute, Tullahoma, Tennessee 37388.

Water Resources Research Center

W. F. Brandes, Director, M.S. Illinois, P.E.

The Water Resources Research Center 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 their research and development programs directed toward water resources research programs addressed to areas of concern to the state; (2) to provide 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 the related sciences of water resources and to encourage the entry of promising students into careers in these fields.

Off-campus

Graduate Centers

Kingsport University Center: UTK offers at Kingsport resident graduate programs in science, engineering, and business at both the Master's and doctoral levels. The program is operated within the policies set 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 materials may be obtained from Marvin K. Goodman, Director, Kingsport University Center, The University of Tennessee, University Boulevard, Kingsport, Tennessee 37660.

Oak Ridge Resident Graduate Program: UTK offers graduate study programs at Oak Ridge, with work leading to Master's degrees in Business Administration with a concentration in management, Industrial Education, and Statistics. The Master's and doctoral degrees are available in engineering, mathematics, and physical and biological sciences. Courses are given in the late afternoons, evenings, and Saturdays, with research facilities provided by and used in cooperation with the Oak Ridge Associated Universities and the University of Tennessee, Oak Ridge Division.

This program is supported under a subcontract with Oak Ridge Associated Universities with principal support coming from Union Carbide Nuclear Division. UT is one of the forty-three colleges and universities which sponsor ORAU, a nonprofit education and research management corporation.

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

Chattanooga Graduate Engineering Program: UTK offers a program of graduate work leading to the Master's degree in the areas of engineering. Courses may be taken at The University of Tennessee at Chattanooga in the late afternoons and evenings. Students who enroll in this program must be admitted to The Graduate School of UTK. Information concerning this program may be obtained from the Director, Chattanooga Graduate Engineering Program, The University of Tennessee at Chattanooga, Chattanooga, Tennessee 37401.

Nashville Graduate Engineering Program: Opportunities for graduate study leading to the degree of Master of Science in Civil Engineering, Engineering Administration, and Industrial Engineering are offered by UTK. Students who enroll in these programs must be admitted to The Graduate School of UTK. Information and application materials may be obtained from the Director, Nashville Graduate Engineering Program, The University of Tennessee at Chattanooga, Chattanooga, Tennessee 37203.

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 to do research in conjunction with the Biology Division of the Oak Ridge National Laboratory.

For complete information concerning the program see page 148.

School of Social Work: UTK offers a fully accredited two-year program leading to the degree of Master of Science in Social Work through the School of Social Work, with programs in Nashville, Knoxville, Memphis, and Chattanooga.

For complete information concerning the program see page 155.

Admission and Registration

Admission to The Graduate School requires a Bachelor's degree with a satisfactory grade point average from a college or university accredited by the appropriate regional accrediting agency. (A minimum grade point average of 2.5 out of a possible 4.0, for example, is considered a satisfactory grade point average. A minimum B average is required for international students. Meeting the minimum admission requirement does not insure acceptance into a degree program since other factors may affect admission in some areas.) An application must be accompanied by the $10 fee (payable to The University of Tennessee).

If permission to enter UT Graduate School is given prior to graduation, this admission is automatically withdrawn if the Bachelor's degree is not awarded before the date of registration.

The file is destroyed after one year if an applicant does not enter Graduate School the quarter in which admission is requested, unless permission is requested and granted to enter in a future quarter. To reapply after a file is destroyed, applicants must submit a new application and fee.

Admission to The Graduate School does not imply admission to candidacy for the degree desired; admission to candidacy must be obtained after entry but at least one full quarter prior to receipt of the Master's degree and three quarters prior to receipt of the doctorate.

Types of Admissions

Admission to a Graduate Degree Program: Master's degree-in addition to meeting the minimum requirements for admission to The Graduate School, applicants at the doctoral level must have demonstrated a potential for superior performance. To be considered are such criteria as performance in prior undergraduate and/or Master's level studies, achievement on aptitude tests for graduate studies, letters of recommendation from professors familiar with the applicant's capabilities, and similar evidences of scholarly achievement. (Refer to description of doctoral programs for specific requirements for admission.)

Non-Degree Admission: Applicants may apply for non-degree status who, for example:

1. do not desire to pursue a degree program;
2. have received an advanced degree;
3. need additional time to fulfill application requirements for a degree program.

In this status, there is no limit to the number of graduate credits which may be accumulated. However, only 18 quarter hours (including hours taken in the provisional status) may be used toward a Master's degree and only if approved by the student's committee.

The graduate application, $10 application fee, and two (2) official transcripts from each institution previously attended are required for consideration as a non-degree student. The minimum requirements are a Bachelor's degree with a 2.5 grade point average on a 4.0
Admission to the non-degree status does not assure admission to a degree program. The student who hopes to enter a degree program will be directed to the appropriate department. Students must maintain a 3.0 grade point average to continue enrollment in this status.

No international student on a non-immigrant visa may enroll in the non-degree status.

Provisional Admission: Applicants may be admitted as provisional students for one quarter (or, one course in each of two quarters) who, for example:

1. desire graduate credit for a limited number of courses;
2. do not meet the minimum grade point average requirements;
3. wish to register for graduate courses while meeting any additional requirements for the non-degree admission.

The student may either submit a score of at least 525 on the Test of English as a Foreign Language (TOEFL), taken within the last two years, or have received a degree from an accredited U.S. institution in order to gain admission.

The application, $10 application fee, and proof of a Bachelor's degree from a college or university accredited by the appropriate regional accrediting agency are required. Copies of official proof are acceptable.

A major area does not have to be declared, but some departments do not permit provisional students to register for graduate courses. (See pages 8-9 for information on restricted programs.) Applicants should contact the Graduate Office or the department concerning registration for specific courses. Permission to register in courses allowed may be obtained from the department or from The Graduate School.

Admission of International Students: The Graduate School will not enroll any student who has not been admitted to a degree program or if desired as a non-degree student. A 3.0 grade point average must be maintained.

Provisional admission does not assure admission to the non-degree or degree program. A student who hopes to enter a degree program will be directed to the appropriate department.

The student who fails to complete provisional admission within the seven-week conditional registration period (see page 17 —Graduate Credit) will NOT be permitted to register again NOR receive a copy of the transcripts showing the course work taken, until all admission requirements are met. No international student on a non-immigrant visa may enroll in the provisional status.

Admission of International Students: The Graduate School can accept only students who have outstanding records. An international student must have the equivalent of at least a B average on undergraduate course work and a B+ on all previous graduate work. On various grading scales, this would indicate:

- 3.0 and 3.5 on 4.0 scale
- 14 and 15 on 20 point scale
- 80.0 from Chinese institutions
- 1st Class or Division from Indian institutions
- Upper 2nd Class Honors on various British systems

Other grading systems will be evaluated upon receipt of transcripts. An international student may apply only for the summer or fall quarters. If a student is transferring to UTK directly after receiving a degree from a U.S. or Canadian institution, an exception may be made to enter the winter or spring quarter if admission to the Graduate School has been granted and financial documentation must be submitted.

Admission Procedures:

1. The student's advisor must approve in advance the student's enrollment in each course.
2. The student may not enroll in a total of more than 15 quarter hours of graduate courses.
3. Approval must be obtained each quarter at registration through The Graduate School.

Eligibility of Seniors: A senior at UTK who needs less than 45 quarter hours to complete the requirements for a Bachelor's degree and has at least a B average (3.0), may take sufficient work for graduate credit to make a total of no more than 15 credit hours per quarter, subject to the approval of The Graduate School. Such approval must be obtained each quarter at registration.

Enrollment of Veterinary Students in Graduate Courses: A student in good standing in the professional (D.V.M.) curriculum of the College of Veterinary Medicine may enroll in UTK graduate courses, without being admitted to The Graduate School, under the following conditions:

1. The student's advisor must approve in advance the student's enrollment in each course.
2. The student may not enroll in a total of more than 15 quarter hours of graduate courses in any one term.
3. Approval must be obtained each quarter at registration through The Graduate School.

Procedures for admission are as follows: (1) complete the "Application for Admission" form (first page of the catalog); if applying for a degree program or if desired as a non-degree student, select a major from those listed on pages 8-9; (2) return the completed application form along with a $10 application fee as soon as possible; (3) request the registrar of all colleges and universities attended to send two official transcripts to The Graduate School (all documents, including transcripts, submitted for admission become the property of the University and will not be returned); (4) apply as a provisional student, submit evidence of the Bachelor's degree; (4) if required, submit scores from the Graduate Record Examination or Graduate Management Admission Test; and (5) request that any reference or rating forms required as part of the application file be sent to The Graduate Office.

Any student who is admitted to a degree program at another institution and who wishes to take courses for transfer to that institution may be admitted on receipt of the Transient Form which may be obtained from The Graduate School. This form must be completed prior to registration and be accompanied by the $10 application fee. A student may take no more than 18 total hours of courses while in transient status.
Examinations

Applicants for admission to many of the programs are required to submit scores from the Graduate Record Examination or the Graduate Management Admission Test. (Refer to pages 6-9 for majors requiring these examinations.) All students whose native language is not English must submit scores from the Test of English as a Foreign Language (TOEFL) unless graduated from an accredited institution in the United States. Each applicant is individually responsible for arrangements for the examination and for transmission of these scores directly from Educational Testing Service to The Graduate School. Application forms may be obtained from Educational Testing Service, Princeton, New Jersey 08540, or from the UTK Graduate School.

The completed application form and examination fee must reach the proper office at the Educational Testing Service approximately one month in advance of the test date (tests are given four to six times each year). Approximately six weeks should be allowed for the examination results to reach the University.

UTK is an approved testing center for all examinations.

Readmission

A student who has not attended The Graduate School at UTK for more than five quarters must apply for readmission. A readmission application should be submitted at least two weeks prior to desired reentry date. A student who has attended another accredited institution since enrollment at the University must submit two official transcripts showing all course work and any degrees earned at that institution. The student will be notified when the application is received and when action has been taken by the department and The Graduate School. If readmission is denied, the student may receive graduate credit for the work taken during the initial quarter; however, future registration will not be permitted until the student is fully readmitted to The Graduate School. Students are urged to reapply well in advance of planned registration.

Registration Procedures

Dates of registration are listed in the University Calendar (front of catalog). Students should report to the Graduate Office to obtain registration materials (scan form and timetable of classes giving details concerning registration procedures) and then should see a department advisor to plan a program and obtain a signature. If admitted as a non-degree or provisional student, permission for registration may be obtained from the department or from The Graduate School.

Registration requires two days. The University holds advanced registration at approximately the middle of a given quarter for the subsequent quarter. Information may be obtained from The Graduate School. If a student participates in advanced registration, the student should obtain the class schedule and pay fees on the first day of registration.

All graduate students, including graduate and teaching assistants, research assistants, and scholarship or fellowship holders, who do not pay their tuition and fees before the established deadline will be charged the late registration fee. Retroactive registration is not permitted.

**Fees, Residency Classification, and Financial Aid**

University Fees

University fees are determined by the Board of Trustees and are subject to change without notice. The general fees in effect for graduate students are as follows:

**APPLICATION FEE:** $10

Each graduate application for admission must be accompanied by a fee of $10 before it will be processed. (Fee not required if: (1) former UTK graduate student; or (2) graduate application fee previously paid at another UT campus).

If a student applies but does not enter graduate school within twelve months after date of requested admission it will be necessary for him or her to resubmit the $10 application fee and application. This fee is not refundable.

**MAINTENANCE FEE (all students):**

- **PER QUARTER $210**
- **TUITION (additional for out-of-state students):**
  - **PER QUARTER $408**
  - *NOTE: In lieu of the above charge for tuition and/or maintenance fee, part-time students may elect to pay fees computed by the quarter hour credit (or audit) as follows:*
    - **In-State $30 per quarter hour or fraction thereof; minimum charge $90.**
    - **Out-of-State $70 per quarter hour or fraction thereof; minimum charge $210.**

**UNIVERSITY PROGRAMS AND SERVICES FEE:**

- **PER QUARTER $25**

All graduate students taking more than 8 quarter hours per quarter will be assessed a University programs and services fee of $25 per quarter. Part-time students taking 8 quarter hours or fewer will be assessed at the rate of $1 per quarter hour or fraction thereof; minimum charge $3.

The fee for the summer quarter will be $18. Part-time students taking 8 quarter hours or fewer will be assessed at the rate of $1 per quarter hour or fraction thereof; minimum charge $3.

Fee for the summer quarter will be $18. Part-time students taking 8 quarter hours or fewer will be assessed at the rate of $1 per quarter hour or fraction thereof; minimum charge $3.

Graduate and teaching assistants, as well as fellowship students who may have waiver of fees (tuition and/or maintenance), must pay the appropriate University Programs and Services Fee.

Students enrolled exclusively in Evening School or at off-campus centers will be exempt from the programs and services fee.

Knoxville campus students taking a course load of 6-8 hours may elect to pay the full programs and services fee. This fee is not refundable.

**LATE REGISTRATION FEE:**

All students are required to have a validated fee receipt to complete the registration procedure. This includes students whose fees are billed, prepaid, or waived. Students who do not complete registration on the regular dates scheduled for this purpose will be charged a late registration fee of $2 up to $55. See the University General Catalog for application of this fee. Doctoral students who must retroactively register for dissertation credit will be charged a late fee of $33 for each quarter of retroactive registration. The payment of fees with a check which is not honored by the bank will incur a service charge of $10 to $45, depending on the date the check is redeemed.

**MUSIC FEE:**

- **One-half-hour lesson per week per quarter:** $20
- **One-hour lesson per week per quarter:** $40

Payable at registration by students receiving individual instruction in music.

**GRADUATION FEE:**

- **Master's degree candidates:** $16
- **Doctoral degree candidates:** $46

There is no additional charge for diploma, binding, or microfilming. The graduation fee is non-refundable and is valid for three quarters after the quarter in which it is paid.

**DEFERRED PAYMENT SERVICE FEE:** $5

This fee is applicable when the payment of any part of a student's account is deferred, including accounts which must be billed to outside agencies, organizations, and institutions. This fee is also applicable when any additional charge (out-of-state tuition, music fee, room and board adjustment) is not paid within five regular business days after the date it was incurred.

It is the student's responsibility to take the initiative to pay all University obligations promptly.

**AUDITORS FEE:**

Fees for courses being audited are the same as for courses taken for credit. For fee purposes, non-credit seminars are considered as one-hour courses.

**REFUND OF FEES FOR WITHDRAWAL:**

Withdrawal from school for the quarter following a schedule must be by official notification to the Withdrawal Office, Student Counseling Services Center, 900 Volunteer Boulevard, whether or not fees have been paid, classes have been attended, or the schedule is incomplete. Failure to attend class does not automatically withdraw or drop a student from school or class.

The effective date of withdrawal is the date the Withdrawal Office is notified by completion of the official withdrawal request form. The appropriate percentage of fees will be charged unless this action is completed by the close of the last day designated for regular registration and before the first official day of classes for the quarter. Failure to notify the Withdrawal Office promptly when withdrawing could result in a larger fee assessment. Withdrawal does not cancel fees and charges already incurred.

The drop/add procedure must not be used
to withdraw from school for the quarter.
For a regular academic quarter, withdrawal within 7 calendar days following the first day following regular registration permits a 90 percent fee refund. Withdrawal between 8 and 14 calendar days following regular registration permits a 70 percent fee refund. Withdrawal between 15 and 21 calendar days following regular registration permits a 50 percent fee refund. Withdrawal between 22 and 28 calendar days following regular registration permits a 20 percent fee refund. The above refund policy does not apply to the off-campus Graduate Centers. At the Centers, no refund is made after the first 14 days. Refunds, in accordance with the withdrawal refund policy, will be made after the drop deadline.
Part-time students may pay fees computed at the appropriate quarter-hour rate as indicated above. No charge is made for courses dropped during the first 5 calendar days following regular registration. A 40 percent charge is made for courses dropped between 6 and 21 calendar days following regular registration, and a 100 percent charge is made for courses dropped after 21 days. Students who drop courses are eligible for a refund only if the sum of the charges assessed at the quarter-hour rate for the hours continued plus the percentage assessed for the hours dropped results in an amount less than that paid. A course on a student's schedule is officially dropped and becomes effective on the date that the drop/add slip is processed and recorded by the Admissions and Records Office. Any refund due for dropped courses will be made after the final audit at the end of the quarter.
When a student withdraws, rental charges and other obligations (other than Student Loan Fund notes) owed to the University are satisfied.

Residency Classification for the Purpose of Paying University Fees

Shortly after a student applies to The Graduate School, notification of the receipt of the application, application fee, and residency classification for fee purposes is sent.
If a student has any questions concerning the residency status, he/she should contact the Residency Clerk at the Graduate School.
If a student is classified as out-of-state, but resides in Tennessee, is a full-time employee in the state of Kentucky, Kentucky, elects to attend the University on a part-time basis (6 hours or less), he/she must apply for a waiver of the out-of-state portion of the fees prior to the date of registration each quarter. Forms are available from the Residency Clerk at the Graduate Office.

Rules for Determination of Status.
(1) Every person having his/her domicile in this state shall be classified "in-state" for fee and tuition purposes and for admission purposes.
(2) Every person not having his/her domicile in this state shall be classified "out-of-state" for said purposes.
(3) The domicile of an unemancipated person is that of his/her parent.
(4) The domicile of a married person shall be determined independent of the domicile of the spouse.

Out-of-State Students Who Are Not Required To Pay Out-Of-State Tuition.
(1) An unemancipated, currently enrolled student shall be reclassified out-of-state should his/her parent, having theretofore been domiciled out-of-state, move to the state. However, such student shall not be required to pay out-of-state tuition nor be treated as an out-of-state student for admission purposes so long as his/her enrollment at a public higher educational institution shall be continuous.
(2) An unemancipated person whose parent is not domiciled in this state but is a member of the armed forces and stationed in this state at Fort Campbell, Kentucky, pursuant to military orders shall be classified out-of-state, but shall not be required to pay out-of-state tuition. Such a person, while in continuous attendance toward the degree for which he/she is currently enrolled, shall not be required to pay out-of-state tuition if his/her parent thereafter is transferred on military orders.
(3) Part-time students who are not domiciled in this state but who reside in this state and are employed full-time in the state, or who are stationed at Fort Campbell pursuant to military orders, shall be classified out-of-state but not be required to pay out-of-state tuition. (Students must apply for this status each quarter.)
(4) Military personnel and their spouses stationed in the state of Tennessee who would be classified out-of-state in accordance with other provisions of these regulations will be classified out-of-state but shall not be required to pay out-of-state tuition. This provision shall not apply to military personnel and their spouses who are stationed in this state primarily for educational purposes.

Presumption. Unless the contrary appears from clear and convincing evidence, it shall be presumed that an emancipated person does not acquire domicile in this state while enrolled as a full-time student at any public or private higher educational institution in this state.

Evidence To Be Considered For Establishment of Domicile. If a person asserts that he/she has established domicile in this state, he/she has the burden of proving such assertion. The person is entitled to provide any and all evidence which he/she believes will sustain the burden of proof. The University will consider any and all evidence provided related to such claim of domicile but will not treat any particular type or item of such evidence as conclusive evidence that domicile has or has not been established.

Appeal. The student who wishes to appeal his/her initial residency classification should contact the Residency Clerk in the Graduate Office.

Effective Date for Reclassification. If a student classified out-of-state applies for in-state classification and is subsequently so classified, his/her in-state classification shall be effective as of the date on which reclassification was sought. However, out-of-state tuition will be charged for any quarter or semester during which reclassification is sought and obtained unless application for reclassification is made to the classification officer on or before the last day of regular registration of that quarter or semester.

Academic Common Market

The Academic Common Market is an interstate agreement among Southern states for sharing uncommon programs. Participating states are able to make arrangements for their residents who qualify for admission to enroll in specific programs at UTK on an in-state tuition basis, where these programs are not available in the state of residence.
Cooperating states in the Academic Common Market are Alabama, Arkansas, Florida, Georgia, Louisiana, Maryland, Mississippi, South Carolina, Tennessee, Texas, Virginia and West Virginia. Sixteen doctoral and fifteen Master's programs at UTK are approved by the Academic Common Market for residents of these various states to enroll at in-state tuition rates.
If you are a resident of one of the member states and would like further information, contact the Residency Clerk at the Graduate Office or the Southern Regional Educational Board, 130 Sixth Street, N.W., Atlanta, GA 30313.
**Student Financial Aid**

The University of Tennessee offers a comprehensive program of financial aid for full-time students who would otherwise not be able to attend the University. Through this financial aid program an eligible student may receive one or more types of assistance to help pay college expenses. Financial need is defined as the difference between a family's resources and the total expenses of attending the University. If there is a deficit, the student is considered to be in need of financial assistance. To assist in determining the need for financial aid, UTK utilizes the need analysis system of the College Scholarship Service (CSS). Through the use of the CSS Financial Form the Financial Aid Office determines the amount the parents and students could generally be expected to contribute toward meeting educational expenses. For more detailed information on the determination of need, please refer to the brochure entitled, "Financial Assistance for Students."

** Fellowships and Assistantships**

The Hilton A. Smith Graduate Fellowships for full-time studies at UTK are awarded on the basis of ability and without regard to the financial need of the student. Monthly stipends are provided, and tuition and maintenance fee are paid by the University. Successful applicants need better than an average of 3.2 grade point average and high scores from the Graduate Record Examination or the Graduate Management Admission Test. Application packets are available in the Graduate Office from November 1 through February 1. Completed applications, including all required supporting material, must be submitted to the Assistant Director of Graduate Admissions by February 15. Awards will be announced March 15. Graduate assistantships and additional fellowships are offered through many departments of the University. The stipends usually provide for payment of tuition and maintenance fee by the University. Information concerning these types of assistance may be secured by writing to the head of the department in which the student expects to study.

**Student Loans**

**National Direct Student Loans.** Long-term loans are available primarily through the National Direct Student Loan Program. Proven need for financial assistance determines eligibility. Loan repayment and interest payments on National Direct Student Loans are deferred until after graduation or as long as the individual remains in at least half-time attendance at an accredited institution of higher education in the United States. Repayment may also be deferred for a period of 3 years while the borrower is serving in the Armed Forces, Peace Corps, or Vista. Information concerning these types of assistance may be secured by written request of students seeking part-time employment. The College Work-Study Program is a federal work-study program which provides jobs for students who have financial need and who must earn a part of their educational expenses. Eligible students are placed in jobs with University and private employers with the requests of students seeking part-time employment. Referrals are made in accordance with the student's skills and qualifications. Part-time jobs average from 15 to 20 hours per week.

**Other Assistance**

Guaranteed Student Loans to help meet educational expenses may be available through the federal government or a state guaranteeing agency. Local banks or credit unions can determine participation in the program. To receive the loan, one must be admitted to or in regular full-time attendance in good standing at the University. Interest on such loans is paid by the federal government while the student is in school if the student is eligible for interest benefits. During the repayment period, which begins no less than nine months after graduation or withdrawal from the University, the student pays up to 7 percent simple interest. Total loans outstanding may not exceed $10,000 for a graduate student.

Financial aid is available at most banks and credit unions. In the state of Tennessee, write the Tennessee Student Assistance Corporation, 707 Main Street, Nashville, Tennessee 37206.

**Application Procedures**

Because a student's resources can decrease or increase significantly during an academic year, the University requires each student to apply annually for renewal of financial aid:

1. Complete and submit the Application for Student Financial Aid on or before April 1.
2. Complete and submit a financial statement to the College Scholarship Service approximately three weeks prior to the priority deadlines.

Financial aid programs, policies, and procedures are subject to annual change. Therefore, those interested in applying for financial aid should refer to the current information brochure, "Financial Assistance for Students," distributed by the Financial Aid Office.

Applications for financial aid can be obtained by writing to The Financial Aid Office, 301 Student Services Building, The University of Tennessee, Knoxville, Tennessee 37916.

**Veterans' Benefits**

Students applying for veterans' benefits to assist veterans and widows or children of certain deceased or disabled veterans should contact the Veterans Affairs Office, Room 209, Student Services Building, 974-2103. Full-time benefits are paid by the Veterans Administration on registrations of 9 or more hours in each quarter.

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**General Information**

**Housing**

Single Men and Women: Single graduate students are provided accommodations in both traditional and modern facilities conducive to academic achievement and personal development. Single graduate students have the same priority as other single students and may be assigned to any residence hall. Some units of the residence halls and of the student apartment building have been designed specifically for single graduate students. In Melrose Hall, the graduate section offers community living units for groups of six to ten students with personal responsibility emphasized. The Holt Avenue Apartment Residence Hall accommodates, on a graduate floor, students in groups of four. It is the responsibility of each resident to maintain the apartment to University standards. Further information can be obtained from the Office of Residence Halls, 405 Student Services Building. A limited number of assistant head resident positions are available for single graduate students. The assistant head resident assists the head resident in coordinating and...
supervising operation of the hall. This is a live-in position with part-time responsibilities on a nine-and-a-half month appointment. Further information can be obtained from the Graduate Student Life Halls, 405 Student Services Building.

Married Students: The University has provided excellent apartment facilities in several locations for married students. Information and application for these facilities may be secured from the Office of Housing and Residential Services Building.

Vehicle Operation And Parking

The University of Tennessee endeavors to provide adequate facilities for vehicles being operated by students and staff. However, areas available for parking are necessarily limited. To reduce the traffic congestion within the campus area, large student parking areas are necessarily operated by students and staff. As the needs of disabled students vary, the office seeks to individualize assistance to accommodate them. Further information is available in the Handicapped Student Services brochure and directory.

The University Library

Interpreters for hearing impaired students and readers for sight and other print impaired persons. Also, the office assists with ordering recorded or Braille textbooks. As the needs of disabled students vary, the office seeks to individualize assistance to accommodate them. Further information is available in the Handicapped Student Services brochure and directory.

The University Library

The University of Tennessee, Knoxville Library owns approximately 1,380,000 volumes, more than 2,000,000 manuscripts, 56,000 microfilm reels and 1,100,000 items of other microtext, plus recordings, tapes, United States and United Nations documents, and more than 17,500 periodicals and other serial titles, which are received annually. The library's membership in the Association of Research Libraries reflects the University's emphasis on research and graduate instruction at the doctoral level and the support of the Library's collections of library materials on a permanent basis.

Library holdings in Knoxville are housed in the James D. Hoskins (Main) Library and its four branches: Agriculture-Veterinary Medicine, Science-Engineering, and the John C. Hodges Undergraduate Library.

The Special Collections section in the Main Library is a repository of regional and local materials, Tennesseana, and other specialties, including legislative papers and mementoes of many Tennessee political figures. The Radiation Biology Archives comprises the files of a group of international scientists. Special Collections materials are of particular interest to scholars in the fields of history, political science, social sciences, biological sciences, and the arts.

Interlibrary Services augments the UTK Library research holdings for faculty and graduate students and includes borrowing monographs, obtaining copies of other materials, and providing access to bibliographic services of other institutions, such as computer-based data searches and information retrieval.

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

Computing Center

The University of Tennessee Computing Center (UTCC) provides computing facilities and services for the University's teaching, research, public service, and administrative activities. UCITC maintains close contact with the UTK academic community by supporting research and instructional activities with professional computer staff.

UTCC is principally located in the Stokely Management Center and in Andy Holt Tower. From the Stokely location, UTCC supplies computing services to all campuses in the UT System through job entry facilities located on each campus. At UTK, UTCC maintains seven job entry stations for batch work and eight sites for interactive computer work. UTCC also supports remote job entry stations (card reader/line printer) with the IBM 370/3031-DECSystem-10 combination and CalComp plotters. The IBM 370/3031s run under S/370 with HASP II. The DECsystem-10 runs under TOPS-10. Time sharing features include ATS/360 and Coursewriter III on the 370/3031s, and, APL, FORTAN, BASIC, COBOL, MACRO, and other special purpose application programs on the DECSystem-10.

UTCC publishes a User's Guide which describes the use of the DECSystem-10 and the DECSystem-10 User's Guide which describes the use of the DECSystem-10. The guides are available at the UTK Book and Supply Store. UTCC also publishes a monthly Newsletter which announces systems, equipment and procedural changes and contains other items of interest to users. UTCC maintains a graphics center with four digitizing tablets, a graphics hardcopy unit, and nine terminals, four storage and four refresh. Another digitizing tablet, plotter, and storage terminal are available at SMC M-4.

The University Library

The University of Tennessee, Knoxville Library owns approximately 1,380,000 volumes, more than 2,000,000 manuscripts, 56,000 microfilm reels and 1,100,000 items of other microtext, plus recordings, tapes, United States and United Nations documents, and more than 17,500 periodicals and other serial titles, which are received annually. The library's membership in the Association of Research Libraries reflects the University's emphasis on research and graduate instruction at the doctoral level and the support of the Library's collections of library materials on a permanent basis.

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The Special Collections section in the Main Library is a repository of regional and local materials, Tennesseana, and other specialties, including legislative papers and mementoes of many Tennessee political figures. The Radiation Biology Archives comprises the files of a group of international scientists. Special Collections materials are of particular interest to scholars in the fields of history, political science, social sciences, biological sciences, and the arts.

UTCC periodically offers intensive training seminars of several days duration in computer utilization on the IBM 370/3031s and the DECSystem-10. These seminars are primarily for faculty, staff and graduate students who use or plan to use UTCC facilities. UTCC offers non-credit short courses each quarter in topics such as programming languages and special purpose programs. These courses are announced in the Newsletter and in the UT News section of the UT Daily Beacon.

Computing services can be requested via the request for services form available from the receptionist, 200 Stokely Management Center. All users of UTCC facilities are assigned a consultant to provide user assistance.

Office of International Student Affairs

This office, located at 201 Alumni Hall, assists students from other countries with the many matters that are of particular concern during their stay at UT. International Student Affairs serves as the official University representative in all matters involving immigration authorities, international educational organizations, and foreign governments.

The Office maintains the student's official immigration records and handles questions regarding immigration regulations. It coordinates such projects as a community volunteer program for international students and activities for the use of the IBM 370/3031. The international student's understanding of American life, the office staff serves as advisors on personal and related problems. Orientation programs are held at the beginning of each term, and international students are urged to attend them.
The International House is located near the campus, at 1601 West Clinch Avenue. Provided by UT and operated by the staff of the Office of International Student Affairs, the House is a social and recreational center where domestic and international students meet to relax and discuss matters of mutual interest. The small library at "I" House contains books and periodicals from all over the world. The University facility is open during vacations.

International students applying for admission should write to The Graduate School.

General Regulations of The Graduate School

Responsibilities and Requirements

A graduate student must assume full responsibility for knowledge of rules and regulations of The Graduate School and departmental requirements concerning the individual degree program. A statement on Graduate Students' Rights and Responsibilities is printed on the back of the student's Admission Status Form. Additional copies are available at the Graduate Office. The Graduate School has basic requirements outlined below. Individual colleges and departments may have additional requirements beyond the minimum established by The Graduate School.

Graduate School News

The Graduate School News is published quarterly and is available to all graduate students. Copies may be obtained at any time from the Graduate Office. The News includes calendars, schedules, and new requirements for degrees so that students have access to the latest information, some of which may supersede this catalog.

Advisor/Major Professor

Every graduate student must have an advisor from the major department to approve the student's program before each registration. Many departments assign a temporary advisor to direct the entering student's work during the period in which the student is becoming acquainted with the institution and determining the focus of research interests, and in which the department is forming a judgment concerning the candidate's promise as a scholar. As early as appropriate the student should be assigned a major professor. This professor advises the student about courses, supervises the student's research, and acts as a channel of communication within the major department, to other departments and The Graduate School.

Prerequisites

Graduate work in any program must be preceded by sufficient undergraduate work in the major and related areas so that the department that the student can successfully do graduate work in the chosen field. Individual undergraduate records are examined and recommended by the appropriate department before admission to a graduate program. Questions about program prerequisites should be addressed to the major advisor.

Graduate Credit

No student may receive graduate credit for a course unless properly admitted to The Graduate School. It is expected that students will be so admitted prior to registration for courses carrying graduate credit. In some instances, however, students who appear to meet the criteria for admission are allowed conditional registration for graduate credit after filing an application for admission to The Graduate School and paying the application fee. Transcripts (two official copies) and additional materials required must then be filed with the Graduate Office at once if seeking admission to a degree program or as non-degree. If applying for admission in the provisional status, proof of the Bachelor's degree is the only requirement. The student must be admitted to The Graduate School within seven weeks after the last official day of registration. No future registration will be permitted nor a copy of the transcript obtained until the student is properly admitted.

Explanation of Course Listings

Each course listing in the Graduate Catalog contains information in an abbreviated form. The course number indicates the level at which the course is taught. All 5000-6000 level courses are graduate courses. The 3000-4000 level courses are upper division courses normally available for graduate credit. To receive graduate credit, a student must so indicate on the registration material.

The official course title appears in bold-faced type following the course number. Numbers in parentheses following the course title indicate the quarter hours credit. If the credit is variable, to be determined in consultation with the instructor, the minimum and maximum are shown (2-3). The credit hours are followed by a course description indicating the content to be covered.

Prerequisite courses must be taken prior to the course in question. Corequisite courses may be taken prior to or concurrently with the specific course. Recommended prerequisites should be taken previously but are not mandatory.

Some courses may be repeated for a maximum number of hours allowable toward a degree program. This number is stated for each repeatable course with the exception of Thesis 5000 and Dissertation 6000. Courses may be cross-listed with two or more departments, an arrangement that is indicated by a parenthetical statement. (Same as Psychology 5432). The course description is given only under the primary department.

"SNC only" indicates that the course may be taken only for Satisfactory/No Credit grading. Refer to section on Grades. At the end of most course descriptions is a symbol indicating the quarter or frequency that this course normally is offered.

Recommended Course Loads

Nine to 12 hours is considered to be a full load. Students receiving financial assistance should consult with the department/program head concerning appropriate course loads. The maximum load is 15 hours unless the student has prior approval of The Graduate School, which may allow registration of up to 18 hours if the student has achieved an average of 3.6 or better in at least 9 hours of graduate work. Students may enroll in only one course in a September or December mini-term.

Change of Registration

A student's permanent record card will show all courses for which registration has been completed except those from which the student withdraws during the first 5 consecutive instructional days after the beginning of classes.

Students who fail to attend the first class meeting without prior arrangement with the department may be dropped from the course to make their spaces available to other students. Students have the responsibility to assure that they have been dropped; otherwise, they are liable for a grade of F in the course.

The deadline for change of registration (from credit to audit, audit to credit, graduate to undergraduate, undergraduate to graduate, withdrawal, etc.) is set at midquarter, approximately 35 calendar days after the first day of classes each quarter. A student may change registration from a course at any time up to and including this date by executing a change of registration slip and submitting this to the Graduate Office. The advisor's signature is not required. The instructor is required to add a course two weeks after classes begin and/or to add a course that is closed. If withdrawal from a course or from the University occurs after the first 5 days of classes and before the withdrawal deadline, the grade of W will automatically be entered on the student's record and on the final class roll sent to the instructor in the course.

After the change of registration deadline, a student withdrawing from a course or from the University will receive the grade F, unless the student can demonstrate that the request for withdrawal is based on circumstances beyond the student's control.
To change registration in any way after the deadline, a student must present the request, together with documentary evidence of extenuating circumstances, to The Graduate School. In addition, he/she must complete a change of registration slip and, if appropriate, a Late Withdrawal Questionnaire signed by the instructor(s) and advisor as evidence of their notification of the request. If the request is approved, the Graduate Office will notify the Office of Admissions and Records, which will enter the change on the student’s permanent record.

Grades
Grades in The Graduate School have the following meanings:

A— (4 quality points per quarter hour); indicates above satisfactory work.

B— (3 quality points per quarter hour); indicates satisfactory work.

C— (2 quality points per quarter hour); indicates work of borderline quality. This grade represents work below the standard expected of graduate students and cannot be used in a graduate program.

D— (1 quality point per quarter hour); indicates clearly unsatisfactory work and cannot be used in a graduate program.

F— (no quality point value); indicates extremely unsatisfactory work and cannot be used in a graduate program.

I— (no quality point value); indicates that the student has done satisfactory work in the course, but—because of circumstances beyond control—has been unable to finish all requirements. It is not to be given to enable a student to do additional work to bring up a deficient grade. All incompletes must be removed within two quarters excluding the summer quarter. If a supplementary grade report has not been received in the Graduate Office at the end of the second quarter, the I will be converted to an F. The incomplete will not be counted in the cumulative average until a grade is assigned. No student may graduate with an I on the record.

S/NC— (carries credit hours, but no quality point value). S is equivalent to B or better, and NC means no credit earned. NC grades may be repeated for an S. S/NC grading is allowed only where indicated in the Graduate Catalog. The number of S/NC courses to be allowed in a student’s program of study shall be limited to one-fourth of the course work hours required (excluding thesis or dissertation) in a program. (This would be 9 hours in a 45-hour Master’s thesis program or 12 hours in a 48-hour non-thesis program or 18 hours in a doctoral program of 72 hours excluding dissertation hours.)

S/N is used for courses which culminate in a thesis, dissertation, or preliminary examination. The grade given takes on the value of the S when the thesis or dissertation is accepted by the Graduate School.

Graduate students are required to make an overall minimum grade average of B in courses taken for graduate credit. No graduate student will be allowed to repeat a course for the purpose of raising a grade already received. Transferred work will not be counted in computing the grade average on courses completed in the Graduate School.

Proficiency Examination
A proficiency examination may be given in any academic course offered for graduate credit. To be eligible, a student must be regularly admitted to the Graduate School, and the examination must be recommended by the head of the department offering the course. Students applying for this privilege must present evidence that they have developed the knowledge and abilities expected of graduate students who have taken the same courses. Upon passing such an examination with a minimum grade of B, the student will receive regular graduate credit. A maximum of three graduate courses may be completed by this method. A fee must be paid before administration of each examination. Proficiency examinations may not be used to raise the grade or change the credit in a course previously completed, nor may such an examination be repeated.

English Proficiency
Any student whose native language is not English must present a TOEFL score of at least 525 unless he/she has received a Bachelor’s or Master’s degree from an accredited institution in the United States. The student must also pass an English proficiency examination prior to initial registration. The regulations concerning this examination are described under Admission of International Students.

Law Courses
Law courses are not available for graduate credit; however, a graduate student may be allowed to take up to 6 semester hours of law courses and apply them toward a graduate degree by approval of the College of Law and the student’s major professor. A student enrolled in the DBA program may use 8 semester hours or more of law courses for the supporting area under the arrangement described on page 39. The graduate student must register for the law course during registration. The regulations concerning this examination are described under Admission of International Students.

Auditors
Persons who wish to attend certain classes regularly, without taking examinations or receiving grades or credit, may do so by completing a graduate application, paying the application fee, registering as auditors, and paying regular fees. Auditors are not permitted to participate in class discussions and recitations, or use laboratory equipment and materials.

Correspondence Study
No graduate credit is accepted at UTK for work done by correspondence study at any university.

Transfer Credits
A maximum of 9 quarter hours (6 semester hours) may be transferred into a student’s Master’s program from work taken at accredited institutions. Extension courses at other universities are not applicable. One-half of a student’s program may be transferred from within The University of Tennessee System. Such work must have been taken for graduate credit and passed with a grade of B or better, be part of an otherwise satisfactory graduate program (B average) but not used toward another degree, and be listed on the Admission to Candidacy Form approved by the committee members and the Vice Chancellor for Graduate Studies and Research. Ordinarily, course work from foreign institutions is not transferred since these institutions have not been accredited. This course work must be completed within the six-year period prior to the receipt of the degree. The same rule applies also to the Specialist in Education degree. Courses transferred into a student’s Master’s program may consist of a combination of University of Tennessee System courses and courses from other institutions so long as the total accepted does not exceed one-half the total program requirements, and course work accepted from outside or foreign institutions is not transferred since these institutions have not been accredited. The University of Tennessee System do not exceed 9 quarter hours. Transfer credits will be placed on The University of Tennessee transcript record only after the student has been admitted to candidacy.

Courses taken for graduate credit at another institution and passed with a grade of B or better from a satisfactory graduate program (B average) may be accepted in a student’s doctoral program. The number of hours a student may include will be determined by the doctoral committee. They must be listed on the Admission to Candidacy form and approved by the committee members. Although the hours may be used as part of the requirements for the degree, the courses will not appear on The University of Tennessee transcript record. Official transcripts must be received by The Graduate School directly from appropriate institutions before any transfer of credit will be approved.

Credits accepted in either the Master’s or doctoral program will not affect the minimum residence requirements, nor will the count toward meeting 5000- or 6300-level requirements for an advanced degree.
Revision of Program

A student who wishes to revise a major program of study must complete a "Request for Revision of Graduate Program" form which can be obtained from the Graduate Office. It is necessary to obtain the signature of the head of the department in which admission was previously granted. No signature is needed if a student is requesting a change from non-degree or provisional to a degree program or from one degree to another in the same department.

Time Limit

The time limit for the use of graduate credit toward a Master's degree is six years from the beginning date of the earliest course applied toward the degree. The last 45 hours of credit for the Specialist in Education degree must also be earned within a period of six years prior to the award.

Normally, these time limits may not be extended. However, in exceptional cases, courses taken beyond these periods may be recognized after special examination or other means recommended by the department and given prior approval of the Vice Chancellor for Graduate Studies and Research.

The doctoral program must be completed within a period of five years after passage of the comprehensive examination.

Residence Requirements

There is no residence requirement for any Master's program.

The Specialist in Education Degree requires one quarter of full-time study if the student has a Master's degree. A student without a Master's degree is required to have two consecutive quarters of full-time residence.

The minimum residence for any doctoral degree is one academic year of three consecutive quarters of full-time study (minimum of 9 hours) in the resident graduate program. A student in residence is devoting essentially all energies to graduate study on campus. Part-time enrollment does not count toward this requirement.

Consecutive quarters include the summer quarter.

Theses and Dissertations

All theses and dissertations are submitted to The Graduate School for acceptance. It is the responsibility of the Thesis Consultant to examine the materials and to make sure that they are mechanically accurate and attractively presented, free of technical errors in format, suitable for binding, and that they reflect credit upon the University and its Graduate School. If the thesis or dissertation is accepted, the student must make corrections and submit the materials again.

The student and major professor together submit a recommendation for the University and its Graduate School. If the thesis or dissertation is accepted, the student must make corrections and submit the materials again.

The student and major professor together submit a recommendation for the University and its Graduate School. If the thesis or dissertation is accepted, the student must make corrections and submit the materials again.

Academic Termination

Graduate education requires continuous evaluation of the student. This evaluation includes not only periodic objective evaluations such as the cumulative grade point average, performance on comprehensive examinations, and acceptance of the thesis or dissertation, but also the subjective appraisal by the faculty of the student's progress and potential.

Continuation in a program is determined by the considerations discussed in the Faculty Handbook. The student is responsible to become familiar with the special requirements of his/her department or program.

Appeals Procedure

Normally grievances should be handled at the departmental level through the student's advisor or the department or program head. Further appeal may be made to the Vice Chancellor for Graduate Studies and Research, then to the Graduate Council and then to the Chancellor. The By-Laws of the University (Article V, Section 7) provide that any individual may ultimately appeal to the Board of Trustees, through the President. A copy of the detailed procedure is available in the Graduate Office and in each department.

Requirements for Advanced Degrees

Master's Degrees

Master's degree programs offered in the Graduate School are listed under "Majors and Degrees Available" on pages 8-9. See also chart, page 22, for a summary of procedures for these degrees.

Non-Thesis Programs: Some departments offer optional non-thesis programs for the Master's degree. Departmental announcements indicate whether the option is available.

Course Requirements: A candidate for a Master's degree must present a total minimum credit of 45 quarter hours of approved graduate courses. These courses must be selected from courses numbered 5000 or higher. A student may be registered for a thesis course each quarter work is being pursued on the thesis. If the thesis is not completed during the quarter in which the student registers for the last 3 hours of 5000, the student must be registered for a minimum of 3 hours of 5000 each quarter while actually working on the thesis.
specialization may not be taken for graduate credit as part of the program. At least one-half of the last 45 quarter hours of work, exclusive of the thesis or problems, must be in 5000- or 6000-level courses.

Admission to Candidacy: The Admission to Candidacy form, with appropriate committee members' signatures, is submitted to the Graduate Office for approval by the Vice Chancellor for Graduate Studies and Research. This application is to be submitted within 18 quarter hours after admission to the Ed.S. program. A qualifying examination may be required if the student's Master's degree was earned six or more years prior to admission to the program period. The qualifying examination may be written and/or oral.

Research Requirements: Some departments offer a thesis program while other departments offer a choice between a thesis or non-thesis program. Departmental announcements indicate which option is available.

A. In the non-thesis program, each candidate will study research methods and findings and will demonstrate skill in adapting them to professional needs following guidelines developed by the major department.

B. In the thesis option, a minimum of 9 hours of research credit (5180-5190, and 5200) may be earned in the preparation of an acceptable thesis. If the research is not completed during the first quarter for which the student is registered for 5200, the student must continue to register for this course (minimum of 3 quarter hours) each quarter as long as active work on the thesis continues or until the thesis is accepted by The Graduate School. The thesis is prepared according to the instructions in The Graduate School Thesis and Dissertation Manual. It must be approved by the committee prior to submission and must be accepted by the appropriate date in the quarter the student wishes to graduate.

Final Examination: A non-thesis student must pass a final written examination on all work offered for the degree. The department may or may not follow this examination with an oral examination.

The examination is not merely a re-examination over course work, but it is a test of the candidate's ability to integrate material in the major and related fields, including the work presented in the thesis. This examination, which must be scheduled through the Graduate Office, shall be held at least two weeks before the final date for submission of theses to the Graduate School. The complete thesis, in a form approved by the Vice Chancellor for Graduate Studies and Research, shall be distributed to all committee members at least two weeks before the date of the final oral examination. This examination will be conducted by a committee of not fewer than three faculty members, with the student's major professor as chairperson. (Members of the University faculty may attend the examination.) In case of failure of the final examination, the candidate may not appear for re-examination until the following quarter. The result of the second examination is final.

Final Examination for Non-Thesis Students: A non-thesis student must pass a final oral examination on all work offered for the degree. The department may or may not follow this examination with an oral examination.

Research Requirements: Some departments offer a thesis program while other departments offer a choice between a thesis or non-thesis program. Departmental announcements indicate which option is available.

A. In the non-thesis program, each candidate will study research methods and findings and will demonstrate skill in adapting them to professional needs following guidelines developed by the major department.

B. In the thesis option, a minimum of 9 hours of research credit (5180-5190, and 5200) may be earned in the preparation of an acceptable thesis. If the research is not completed during the first quarter for which the student is registered for 5200, the student must continue to register for this course (minimum of 3 quarter hours) each quarter as long as active work on the thesis continues or until the thesis is accepted by The Graduate School. The thesis is prepared according to the instructions in The Graduate School Thesis and Dissertation Manual. It must be approved by the committee prior to submission and must be accepted by the appropriate date in the quarter the student wishes to graduate.

Final Examination: A non-thesis student must pass a final written examination on all work offered for the degree. The examination is not merely a re-examination over course work, but it is a test of the candidate's ability to integrate material in the major and related fields, including the work presented in the thesis. This examination, which must be scheduled through the Graduate Office, shall be held at least two weeks before the final date for submission of theses to the Graduate School. The complete thesis, in a form approved by the Vice Chancellor for Graduate Studies and Research, shall be distributed to all committee members at least two weeks before the date of the final oral examination. This examination will be conducted by a committee of not fewer than three faculty members, with the student's major professor as chairperson. (Members of the University faculty may attend the examination.) In case of failure of the final examination, the candidate may not appear for re-examination until the following quarter. The result of the second examination is final.

Thesis: The thesis represents a culmination of an original research project completed by the student. The organization, method of presentation, and subject matter of the thesis are important in conveying to others the results of such research. Two copies of the thesis must be submitted to and approved by The Graduate School or before the dates specified by The Graduate School. Each copy of the thesis must include an approval sheet, signed by the members of the committee, which certifies to the Vice Chancellor for Graduate Studies and Research that the candidate has had a personal copy of the thesis and found its contents to be satisfactory. The student should check with the department head concerning additional required copies of the thesis. The thesis must be prepared according to the Graduate School Thesis and Dissertation Manual.

Specialist in Education Degree

The Specialist in Education (Ed.S.) degree is offered in Curriculum and Instruction, Educational Administration and Supervision, Educational Psychology and Guidance, Safety Education and Service, and Vocational-Technical Education.

Admission to the Specialist in Education program is by application for admission to Graduate School, processing and recommendation by the department or area in which the student is majoring, and approval by the Vice Chancellor for Graduate Studies and Research. Students who become candidates for the Ed.S. degree should preferably have a minimum of one year of appropriate work experience. Each department should be contacted to determine its particular admission requirements.

The formulation of the student's program, supervision of program development, recommendation for admission to degree candidacy, direction of research, and qualifying and terminal examinations are executed by a committee of not fewer than three faculty members following guidelines developed by the major department. This committee is appointed by the Vice Chancellor for Graduate Studies and Research upon request from the department head and includes a minimum of two members from the department or area of specialization. See the Graduate Bulletin, page 23, for summary of procedures.

Course Requirements: Each student's program involves a minimum of six quarters of study totaling not less than 90 quarter hours. The last 45 hours of credit must be earned within six years prior to the award.

A student admitted to the program with a Master's degree or appropriate work beyond the Master's degree may have program requirements modified upon recommendation of the student's committee using departmental guidelines and approval of the Vice Chancellor for Graduate Studies and Research. No modifications shall be permitted however, with respect to examination requirements, research requirements, and a minimum of 9 quarter hours of course credit outside the department or area in which the student is working. All graduate course work completed prior to admission and accepted as part of the student's program must be appropriately related to the student's objectives. Credits earned in a Master's degree may meet course requirements in the student's Specialist in Education Program to which they are specifically comparable. Nine hours of work beyond the Master's degree may be transferred from approved institutions and may be used as the student's course requirements. (See Transfer Credits, page 18).

A minimum of 9 quarter hours from fields supporting the student's specialization but outside the department or area is required for each individual program.

Undergraduate courses required for certification at UTK in the student's field of
Education, and Doctor of Business Administration. Doctoral programs are listed under "Majors and Degrees Available" (see pages 8-9). The doctoral degree, the highest in-course degree, is awarded in recognition of distinctive scholarship and the completion of a major research project. The dissertation is a significant contribution to knowledge.

Doctoral programs include a field of specialization and often study in one or more collaborative fields. Collateral study is defined as a minimum of 9 quarter hours of graduate courses in a given area outside of the department of the student's major field. The selection of specific courses will be determined by each student's faculty committee, subject to regulations of The Graduate School and approval by the Vice Chancellor for Graduate Studies and Research. See chart, page 24, for summary of procedures for this degree.

Doctoral Committee: The student's committee is nominated by the student's major professor who serves as the chairperson of the committee, and department head and approved by the Vice Chancellor for Graduate Studies and Research, preferably during the first year of graduate study. This committee shall consist of at least one member from outside the major department. Three of the four members, including the chairperson, must be approved by the Graduate Council to direct doctoral research. This committee has the primary responsibility, subject to Graduate Council policies and special requirements adopted by the faculties of individual areas of study, for the degree work of the student. The committee should plan and must approve all course work, certify the student's mastery of the subject matter of the field of study, direct the research, and recommend the dissertation for approval.

Continuous Registration: Registration for course 6000 is necessary whenever a student is working on the dissertation. A minimum registration of course 6000 is required of all doctoral candidates before the dissertation will be accepted. The student will continuously register for course 6000 (minimum of 3 hours) from the time that the doctoral research is approved, admission to candidacy is accepted, or registration for course 6000 is begun, whichever comes first, including the quarter in which the dissertation is accepted by the Graduate School. (NOTE: Continuous registration is interpreted to include the summer quarter.) If a student must be away from the University during the doctoral study the student may, upon recommendation of the department head and approval of the Vice Chancellor for Graduate Studies and Research, be granted a leave of absence from the requirement for periods not exceeding eight quarters.

Doctoral Examinations: Departments may, at their option, administer diagnostic and/or qualifying examinations in the early stages of the student's doctoral program.

(1) Diagnostic or placement examinations, which may be written and/or oral, may be given to students on admission to the doctoral program to help in the determination of the student's level of preparation, areas of strengths and weaknesses, and general background. Since courses bearing the same title may vary in content when institution to institution, the diagnostic or placement examinations are designed to aid in the selection of courses that the student should take and to determine that the student is adequately prepared to undertake doctoral studies at this University.

(2) Qualifying examinations, which may be written and/or oral, may be given to students about the end of their first year in the doctoral program. Qualifying examinations are designed to test the student's progress, general knowledge of fundamentals of the field, and fitness to continue with the more specialized aspects of the doctoral program. Successful completion of an oral examination is required and oral examination is encouraged. Students should carefully review the written statement which is available from each doctoral degree granting department or program which details the timing, areas covered, grading procedures, and provisions for repeating a failed examination. The comprehensive examination (or the final part of the examination, when parts of the examination are given at different times) is normally taken when the student has completed or nearly completed all required and prescribed requirements. Its successful completion indicates that, in the judgment of the faculty, the doctoral student can think analytically and creatively, has a comprehensive knowledge of the field and the specialty, knows how to use academic resources, and is deemed capable of completing the dissertation. The comprehensive examination must be passed prior to admission to candidacy and at least three quarters prior to the date the degree is to be conferred. Each student is responsible for filing the application for admission to candidacy, which must be signed by the committee members and approved by the Vice Chancellor for Graduate Studies and Research. The student will be notified when admission to candidacy has been approved.

Research Requirements: Research is an essential part of the program of every candidate for the doctoral degree. For the Doctor of Philosophy and Doctor of Business Administration degrees, original research forms the basis for the dissertation.

The program for the Doctor of Education degree requires demonstration of proficiency in at least two types of research techniques. These techniques may include foreign languages, historical research methods, statistics, experimental design, sociological research methods, survey design and analysis, philosophical research methods, or machine data processing. The candidate's faculty committee in consultation with the research techniques to be included in the candidate's program.

Dissertation: The dissertation represents a culmination of an original major research project completed by the student. The organization, methodology, and subject matter of the dissertation are important in conveying to others the results of such major research. A student should be registered for the number of dissertation hours representing the appropriate fraction of effort devoted to this phase of the candidate's program. A minimum registration of 36 quarter hours of study. Some programs require two languages and some none. Language requirements must be met at The University of Tennessee and cannot be transferred from another institution. Refer to the departmental descriptions of each Ph.D. program. The student's faculty committee will determine, with the approval of the chair for Graduate Studies and Research, the specific language (or languages) required. When the student feels adequately prepared to take a language examination, the student should notify the language representative in the department. The appropriate forms to schedule the examination may be obtained from the Graduate Office. The dates and times of the examinations are printed in the Graduate School News.

Satisfactory completion (B grade or better) of an appropriate 3030 course in a language department may be substituted for the actual language examinations. (The student cannot repeat this course if a grade of C or below is received when used in lieu of language examination.)

Admission to Candidacy: A student may be admitted to candidacy after passage of the comprehensive examination, the student has completed the requirements of the language (or languages) required, and maintenance of at least a B average in the courses. (Each doctoral student must plan to take an appropriate number of 6000-level courses, usually a minimum of 9 quarter hours, which are designed expressly for doctoral students at The University of Tennessee, during the program of study. These courses cannot be transferred from another institution.) Admission to candidacy must be secured at least three quarters prior to the date the degree is to be conferred. Each student is responsible for filing the application for admission to candidacy, which must be signed by the committee members and approved by the Vice Chancellor for Graduate Studies and Research. The student will be notified when admission to candidacy has been approved.

Research Requirements: Research is an essential part of the program of every candidate for the doctoral degree. For the Doctor of Philosophy and Doctor of Business Administration degrees, original research forms the basis for the dissertation.

The program for the Doctor of Education degree requires demonstration of proficiency in at least two types of research techniques. These techniques may include foreign languages, historical research methods, statistics, experimental design, sociological research methods, survey design and analysis, philosophical research methods, or machine data processing. The candidate's faculty committee in consultation with the research techniques to be included in the candidate's program.

Dissertation: The dissertation represents a culmination of an original major research project completed by the student. The organization, methodology, and subject matter of the dissertation are important in conveying to others the results of such major research. A student should be registered for the number of dissertation hours representing the appropriate fraction of effort devoted to this phase of the candidate's program. A minimum registration of 36 quarter hours of
The Graduate School

Course 6000 is required of all doctoral candidates before the dissertation will be accepted. The student shall continue to register for course 6000 (minimum of 3 hours) for the entire period during which the person is actually working on research and dissertation, including the quarter in which the dissertation is accepted by The Graduate School. The number of hours registered each quarter should be at full-time levels (12 hours).

Two copies of the dissertation (prepared according to the regulations given in the Graduate School Thesis and Dissertation Manual) must be submitted to and approved by The Graduate School. These copies must include an approval sheet, signed by all members of the faculty committee, which certifies to the Vice Chancellor for Graduate Studies and Research that they have examined the final copy and found that its contents demonstrate scholarly achievement. Doctoral forms and a thesis card are also submitted at this time. The student should check with the department head concerning additional required copies of the dissertation.

Summary of Procedures for Master's Degrees

<table>
<thead>
<tr>
<th>PROCEDURE</th>
<th>UNDER DIRECTION OF</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Admission as a potential candidate (if previously admitted non-degree)</td>
<td>Major departmental advisor and Vice Chancellor for Graduate Studies and Research</td>
<td>Prior to completing 18 hours of course work</td>
</tr>
<tr>
<td>Formation of faculty committee</td>
<td>Major departmental advisor</td>
<td>Prior to application for admission to candidacy</td>
</tr>
<tr>
<td>Submission of application for admission to candidacy (Forms at Graduate Office)</td>
<td>Faculty committee</td>
<td>At least one quarter prior to Graduation*</td>
</tr>
<tr>
<td>Approval of admission to candidacy</td>
<td>Faculty committee and Vice Chancellor for Graduate Studies and Research</td>
<td>Prior to Graduation</td>
</tr>
</tbody>
</table>

GRADUATION REQUIREMENTS

<table>
<thead>
<tr>
<th>PROCEDURE</th>
<th>UNDER DIRECTION OF</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Placement of name on graduation list</td>
<td>Student</td>
<td>Indicate on registration material</td>
</tr>
<tr>
<td>Application for diploma</td>
<td>Graduate Office</td>
<td>Deadline notice available at registration*</td>
</tr>
<tr>
<td>Scheduling of oral or written examination</td>
<td>Major professor, student, and Vice Chancellor for Graduate Studies and Research</td>
<td>Not later than one week prior to oral or written examination*</td>
</tr>
<tr>
<td>Submission of thesis to faculty committee</td>
<td>Faculty committee</td>
<td>At least two weeks prior to oral examination</td>
</tr>
<tr>
<td>Oral examination</td>
<td>Major professor and committee</td>
<td>Not later than two weeks before thesis deadline*</td>
</tr>
<tr>
<td>Removal of incompletes</td>
<td>Instructor of course</td>
<td>Not later than one week before Commencement*</td>
</tr>
<tr>
<td>Submission of final copy of thesis and thesis card</td>
<td>Major professor, candidate's committee, and Vice Chancellor for Graduate Studies and Research</td>
<td>After oral examination and no later than two weeks before Commencement*</td>
</tr>
</tbody>
</table>

*Dates are printed in Graduate School News quarterly.
### Summary of Procedures for Specialist in Education Degrees

<table>
<thead>
<tr>
<th>PROCEDURE</th>
<th>UNDER DIRECTION OF</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Admission as a potential candidate (if previously admitted non-degree)</td>
<td>Major departmental advisor and Vice Chancellor for Graduate Studies and Research</td>
<td>Prior to completing 18 hours of Form</td>
</tr>
<tr>
<td>Formation of faculty committee</td>
<td>Major departmental advisor</td>
<td>Prior to application for admission to candidacy</td>
</tr>
<tr>
<td>Submission of application for admission to candidacy (Forms at Graduate Office)</td>
<td>Faculty committee</td>
<td>At least one quarter prior to graduation*</td>
</tr>
<tr>
<td>Approval of admission to candidacy</td>
<td>Faculty committee and Vice Chancellor for Graduate Studies and Research</td>
<td>Prior to graduation</td>
</tr>
</tbody>
</table>

| GRADUATION REQUIREMENTS                                         |                                                                                |                                                                      |
|----------------------------------------------------------------|                                                                                |                                                                      |
| Placement of name on graduation list                           | Student                                                                        | Indicate on registration material                                   |
| Application for diploma                                       | Graduate Office                                                                  | Deadline notice available at registration*                         |
| Scheduling of oral or written examination                     | Major professor, Vice Chancellor for Graduate Studies and Research, student      | Not later than one week prior to oral or written examination*       |
| Submission of thesis or problems to faculty committee          | Faculty committee                                                               | At least two weeks prior to oral examination                        |
| Oral examination                                              | Major professor and committee                                                   | Not later than two weeks prior to thesis/problems deadline*          |
| Removal of incompletes                                        | Instructor of course                                                            | Not later than one week before Commencement*                        |
| Submission of final copy of thesis and thesis card             | Major professor, candidate's committee, and Vice Chancellor for Graduate Studies and Research | After oral examination and no later than two weeks before Commencement* |

*Dates are printed in Graduate School News quarterly.*
### Summary of Procedures for Doctoral Degrees

<table>
<thead>
<tr>
<th>PROCEDURE</th>
<th>UNDER DIRECTION OF</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>*Appointment of faculty committee</td>
<td>Assistant Dean for Graduate Studies on recommendation of department head</td>
<td>Preferably during the first year of graduate study, but at the latest, prior to admission to candidacy</td>
</tr>
<tr>
<td>*Comprehensive examination</td>
<td>Major department</td>
<td>Prior to admission to candidacy</td>
</tr>
<tr>
<td><em>Foreign Language examination(s)</em>*</td>
<td>Major department and language department jointly</td>
<td>Prior to admission to candidacy</td>
</tr>
<tr>
<td>Submission and approval of application for admission to candidacy (Forms at Graduate Office)</td>
<td>Faculty committee and Vice Chancellor for Graduate Studies and Research</td>
<td>At least three quarters prior to graduation**</td>
</tr>
</tbody>
</table>

### GRADUATION REQUIREMENTS

<table>
<thead>
<tr>
<th>Placement of name on graduation list</th>
<th>Student</th>
<th>Indicate on registration material</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application for diploma</td>
<td>Graduate Office</td>
<td>Deadline notice available at registration**</td>
</tr>
<tr>
<td>Scheduling of oral examination</td>
<td>Faculty committee, student, and Vice Chancellor for Graduate Studies and Research</td>
<td>When approved by faculty committee and at least one week prior to oral examination**</td>
</tr>
<tr>
<td>Submission of dissertation to faculty committee</td>
<td>Faculty committee</td>
<td>At least two weeks prior to oral examination</td>
</tr>
<tr>
<td>Final examination</td>
<td>Faculty committee</td>
<td>Not later than two weeks before dissertation deadline**</td>
</tr>
<tr>
<td>Removal of incompletes</td>
<td>Instructor of course</td>
<td>Not later than one week before Commencement**</td>
</tr>
<tr>
<td>Submission of final copy of dissertation, doctoral forms, and thesis card</td>
<td>Faculty committee and Vice Chancellor for Graduate Studies and Research</td>
<td>After final examination and no later than two weeks before Commencement**</td>
</tr>
</tbody>
</table>

*The order of these items varies with individual programs.*

**Dates are printed in Graduate School News quarterly.

***Not required in some programs.
The Institute of Agriculture traces its history to 1869 when the University was designated as Tennessee's Federal Land-Grant Institution. Under terms of the Federal Land-Grant Act, the University was enabled to offer instruction in agriculture and the mechanic arts for the first time. Since 1869, agricultural programs at the University have been expanded to include research for the development of new knowledge and extension for dissemination of such knowledge to rural people. Thus the Institute of Agriculture has come to include the work of three main divisions: Agricultural Experiment Station, Agricultural Extension Service, and College of Agriculture.

In 1974 the College of Veterinary Medicine was established within the Institute. The college is developing research and graduate programs in veterinary medical sciences in addition to the professional curriculum leading to the degree, Doctor of Veterinary Medicine.

Agricultural Experiment Station

D. M. Gossett, Dean
T. J. Whatley, Associate Dean
J. I. Sewell, Assistant Dean

The Agricultural Experiment Station was established by the University's Board of Trustees on June 6, 1862, 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 investigations of the Station follow a systematic method of gaining and applying knowledge efficiently to the biological, physical, and economic phases of producing, processing, and distributing farm and forest products; to the social and economic aspects of rural living; and to consumer health and nutrition. Both farm and urban populations gain from the accomplishments of the Agricultural Experiment Station. Examples of some of these accomplishments are new and improved varieties of crops, new and better methods of controlling crop and livestock pests, more efficient production of crops and pasture through improved rotation and mechanization, and more efficient feeding and management of livestock.

The program is designed and administered through sixteen subject matter departments located at Knoxville. A number of the staff have teaching responsibilities in addition to their research. To assist in the research program the Station supports a large number of graduate students. To serve Tennessee's diverse agriculture, branch stations are operated at Jackson, Spring Hill, Springfield, Lewisburg, Crossville, Greeneville, and Martin. In addition, field stations are operated at Grand Junction, Milan, Wartburg, Tullahoma, and near Chattanooga. Professional and technical staff are in residence at these locations.

The UT-DOE Comparative Animal Research Laboratory is located about twenty miles west of Knoxville near Oak Ridge, where a program of radiobiological research in the field of agriculture is carried out by the Agricultural Experiment Station under contract to the Department of Energy. The program includes research with farm and laboratory animals, with soils, and in applied radiobotany and plant breeding.

Agricultural Extension Service

M. L. Downen, Dean
T. W. Hinton, Associate Dean
M. F. Clarke, Assistant Dean
B. G. Hicks, Assistant Dean

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

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

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

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

College of Agriculture

O. Glen Hall, Dean

Graduate programs of the College of Agriculture are designed to prepare men and women for positions of leadership in industry, state and federal government, teaching, research, and extension.

The graduate student is expected to demonstrate a thorough knowledge of the subject matter in his/her specialized field of study and its relationship to the sociological, economic, and environmental impact on society. The student must demonstrate the ability to plan, conduct, analyze, and report original research. More importantly, emphasis is given to intellectual growth and to the development of scholarly habits of study, reasoning and analysis to the end that the graduate will continue to grow and develop professionally throughout his/her career.
MASTER OF SCIENCE PROGRAMS

Programs of graduate study leading to the Master of Science degree are offered through all departments in the College of Agriculture. The general rules of the Graduate School apply to all graduate work in the college. The graduate program may be entirely in one major subject or may include subject matter areas related to the major.

Both majors and minors are available in Agricultural Economics, Agricultural Engineering, Agricultural Extension, Agricultural Mechanization, Animal Science, Entomology and Plant Pathology, Food Technology and Science, Ornamental Horticulture and Landscape Design, and Plant and Soil Science. Majors only are available in Agricultural Economics, Agricultural Engineering, Agricultural Extension, Animal Science, Crop Science, Entomology, Fish Science, Food Science, Horticulture, Plant and Soil Science, and Fisheries Science, and minors are available in General Agriculture and Rural Sociology. The minor in General Agriculture requires 18 hours of course work. A complete listing of majors and minors is shown on pages 8-9.

For admission to a graduate degree program, the student must have a satisfactory academic average and have completed the following undergraduate requirements:

- 1. 50 hours of course work of which 25 hours must be in the major. The major shall consist of a major and supporting studies in related areas.
- 2. An advisory committee of not less than 3 faculty members will be selected. At least one member in addition to the major professor or Master's committee in consultation with the student and will depend upon the student's background, interests, and professional objectives. For example, a student majoring in Entomology and Plant Pathology may pursue work with an emphasis in the area of plant pathology or economic entomology.

Normally, graduate programs will include the thesis requirement. There is, however, a non-thesis option in the Department of Agricultural Economics and Rural Sociology and the Department of Forestry, Wildlife and Fisheries. The non-thesis option for a major in Agricultural Economics has the following minimum requirements: 48 hours of course work, 9 hours of economic theory, 6 hours in quantitative methods in agricultural economics, statistics, or mathematical economics; final comprehensive written and oral examination.

Requirements of the non-thesis option for the Master of Science degree with a major in Forestry are as follows:

1. 50 hours of course work of which 25 hours must be at the 5000 level or above.
2. An advising committee of not less than 3 faculty members will be selected. At least one member in addition to the major professor will be from the Department of Forestry, Wildlife, and Fisheries. The committee will meet and schedule the student's program during the first quarter in residence.
3. Forestry 5011 (3).
4. 12 hours of course work in the Department of Forestry, Wildlife, and Fisheries at the 5000 level or above, exclusive of Forestry 5011.
5. Final comprehensive written and oral examinations.

DOCTORAL PROGRAMS

Graduate study programs leading to the Doctor of Philosophy degree in animal science, agricultural economics, agricultural engineering, and plant and soil science are offered in the college.

General Graduate School requirements relative to permission, faculty advisory committees, residence, grades, research, and admission to candidacy for degree apply to all doctoral programs. Special departmental requirements are listed in the following paragraphs.

Agricultural Economics and Rural Sociology

Subject Area Requirements: All candidates pursuing the Doctor of Philosophy degree will be required to demonstrate competence in examinations in the following areas:

A. A major area of concentration to be selected from the following:
   1. Agricultural policy
   2. Agricultural marketing and price analysis
   3. Farm management and production economics
   4. Natural resource economics
   5. Rural development

B. The core areas:
   1. Agricultural economics
   2. Economic theory
   3. Mathematical and quantitative methods in agricultural economics

Course Requirements: A minimum of 108 quarter hours credit beyond the Bachelor's degree, exclusive of credit for Master's research, is required in the doctoral program. Of this total, 36 hours in doctoral research and dissertation are required. At least 30 hours of course work shall be in agricultural economics and 15 hours in economics. Excluding the dissertation, a minimum of 21 hours in agricultural economics and 36 hours in agricultural economics and economics combined must be in courses numbered 5000 and above.

Agricultural Engineering

Candidates pursuing the Doctor of Philosophy degree in Agricultural Engineering may specialize in one of the following areas:

1. Agricultural power and machinery
2. Soil and water conservation engineering
3. Agricultural structures
4. Electric power and processing
5. Supporting studies are required in related biological, physical, and engineering sciences and mathematics fundamental to the training of the candidate.

Additional course requirements for the degree are:

1. Minimum of 108 quarter hours credit beyond the Bachelor's degree, exclusive of credit for the Master's thesis. Of this number, students are required to complete a minimum of 36 quarter hours in 6000 Doctoral Research and Dissertation.
2. A minimum of 30 quarter hours credit in courses numbered 5000 and 6000, exclusive of Doctoral Research and Dissertation.
3. Additional specific course requirements for the degree of Doctor of Philosophy in Animal Science include:
   1. Minimum of 108 quarter hours credit in courses beyond the Bachelor's degree, exclusive of credit for the Master's thesis. Of this number, students are required to complete a minimum of 36 quarter hours in 6000 Doctoral Research and Dissertation.
   2. At least 36 quarter hours credit in courses numbered 5000 and 6000, exclusive of Doctoral Research and Dissertation.
   3. A minimum of 24 quarter hours credit must be completed in related fields outside of animal science.

Animal Science

The Department of Animal Science, with support from the Department of Food Technology and Science, offers programs leading to the Doctor of Philosophy degree in the following areas of specialization:

1. Animal nutrition
2. Animal breeding
3. Animal physiology
4. Animal products

Supporting studies are required in related biological and physical sciences fundamental to the training of the candidate.

Additional specific course requirements for the degree of Doctor of Philosophy in Animal Science include:

1. Minimum of 108 quarter hours credit in courses beyond the Bachelor's degree, exclusive of credit for the Master's thesis. Of this number, students are required to complete a minimum of 36 quarter hours in 6000 Doctoral Research and Dissertation.
2. At least 36 quarter hours credit in courses numbered 5000 and 6000, exclusive of Doctoral Research and Dissertation.
3. A minimum of 24 quarter hours credit must be completed in related fields outside of animal science.

Plant and Soil Science

The Department of Plant and Soil Science offers programs leading to the Doctor of Philosophy degree in the following areas of specialization:

1. Soils
2. Plant breeding and genetics
3. Crop physiology and ecology

Supporting studies are required in related sciences fundamental to the training of the candidate.

Some of the specific requirements for the degree are:

1. Minimum of 108 quarter hours credit beyond the Bachelor's degree exclusive of Master's thesis. Of this number, students are required to complete a minimum of 36 quarter hours in 6000 Doctoral Research and Dissertation.
2. Minimum of 30 quarter hours credit in courses numbered 5000 and 6000 exclusive of Doctoral Research and Dissertation.
### Departments of Instruction

#### Agricultural Economics and Rural Sociology

**MAJOR**

**DEGREES**

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

**Professors:**

<table>
<thead>
<tr>
<th>Professor</th>
<th>Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>J. A. Martin (Head)</td>
<td>Agricultural Economics</td>
</tr>
<tr>
<td>M. B. Bueter</td>
<td>Agricultural Economics</td>
</tr>
<tr>
<td>L. R. Brooker</td>
<td>Agricultural Economics</td>
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<tr>
<td>D. F. Florida</td>
<td>Agricultural Economics</td>
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<tr>
<td>W. D. Brown</td>
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<tr>
<td>Ph. D. Iowa</td>
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<tr>
<td>C. L. Cleland</td>
<td>Agricultural Economics</td>
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<tr>
<td>Ph. D. Wisconsin</td>
<td>Agricultural Economics</td>
</tr>
<tr>
<td>L. H. Keller</td>
<td>Agricultural Economics</td>
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<tr>
<td>Ph. D. Kentucky</td>
<td>Agricultural Economics</td>
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<tr>
<td>F. O. Leuthold</td>
<td>Agricultural Economics</td>
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<tr>
<td>Ph. D. Wisconsin</td>
<td>Agricultural Economics</td>
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<tr>
<td>B. R. McManus</td>
<td>Agricultural Economics</td>
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<tr>
<td>Ph. D. Purdue</td>
<td>Agricultural Economics</td>
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<tr>
<td>C. B. S. I. Illinois</td>
<td>Agricultural Economics</td>
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**Associate Professors:**

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<thead>
<tr>
<th>Associate Professor</th>
<th>Department</th>
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<tbody>
<tr>
<td>C. M. Cusakian</td>
<td>Agricultural Economics</td>
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<tr>
<td>Ph. D. Illinois</td>
<td>Agricultural Economics</td>
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<tr>
<td>T. H. Klindt</td>
<td>Agricultural Economics</td>
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<tr>
<td>Ph. D. Kentucky</td>
<td>Agricultural Economics</td>
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<tr>
<td>C. M. McLoone</td>
<td>Agricultural Economics</td>
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<tr>
<td>Ph. D. Clemson</td>
<td>Agricultural Economics</td>
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<tr>
<td>S. D. Mundy</td>
<td>Agricultural Economics</td>
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<tr>
<td>Ph. D. Tennessee</td>
<td>Agricultural Economics</td>
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<tr>
<td>R. H. Orr</td>
<td>Agricultural Economics</td>
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<tr>
<td>Ph. D. Illinois</td>
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<tr>
<td>R. W. Todd</td>
<td>Agricultural Economics</td>
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<tr>
<td>J. D. Tennessee</td>
<td>Agricultural Economics</td>
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<tr>
<td>B. J. Trevena</td>
<td>Agricultural Economics</td>
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<tr>
<td>Ph. D. Tennessee</td>
<td>Agricultural Economics</td>
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<tr>
<td>O. N. Walker</td>
<td>Agricultural Economics</td>
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<tr>
<td>Ph. D. Oklahoma</td>
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**Assistant Professors:**

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<tr>
<td>W. M. Park</td>
<td>Agricultural Economics</td>
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<tr>
<td>Ph. D. Virginia Polytechnic Institute</td>
<td>Agricultural Economics</td>
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<tr>
<td>G. D. Whipple</td>
<td>Agricultural Economics</td>
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<tr>
<td>Ph. D. Washington</td>
<td>Agricultural Economics</td>
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The department has programs for the Doctor of Philosophy degree and the Master of Science degree with a thesis or non-thesis option.

#### Agricultural Economics

**4120 Farm Management (3)** Principles of farm organization and operation; allocating land, labor, and capital; economic and institutional factors; tenure arrangements and use of credit; risks; measures of success. Use and analysis of records; exercises in tract regulation. Prerequisites: 3410 or equivalent. May be repeated. S/NC only. E

**5002 Non-Thesis Graduation Completion (3-15)** Required for the non-thesis student not otherwise registered during any quarter when such a student uses University facilities and/or faculty time before degree completion. Degree requirements may be repeated. S/NC only. E

**5101 Special Problems in Lieu of Thesis (3)** E

**5120 Agricultural Price Analysis (3)** Analysis and interpretation of factors affecting agricultural prices; price trends and cycles; application of economic theory to agricultural production. Prerequisites: 3410 or equivalent. E

**5130 Advanced Agricultural Production Economics (3)** Theory and empirical concepts of agricultural resource allocation problems under conditions of uncertainty. Prerequisite: 4140 or equivalent. E

**5210 Seminar: Agricultural Policies (3)** E

**5220 Seminar: Methodology of Research (3)** E

**5230 Seminar: Adjustments to Industrialization (3)** E

**5310 Research (3)** Special research projects in agricultural economics and rural sociology. Gathering, tabulating and interpreting data and report writing. May be repeated. Maximum 9 hrs. S/NC only. E

**5410 Agricultural Marketing Analysis (3)** Application of tools of economic analysis and measurement to problems at all levels of marketing system for agricultural commodities. Prerequisite: 4630 or equivalent. E

**5420 Advanced Land Economics (3)** Problems in land tenure, land use, and conservation in United States and selected foreign countries. Prerequisite: 4330 or equivalent. E

**5440 The Economics of Agricultural Development (3)** Role of agriculture in economic development; economic nature of traditional agriculture, and analysis of causal forces and structural interdependence of agricultural development under conditions of economic change. Prerequisite: 4240 or consent of instructor. W

**5450 Advanced Rural Sociology (3)** Application of conceptual tools to analyze changing social and economic functions and structure of rural society; sociological concepts to analyze changing social and economic functions and structure. Prerequisites: 4450 or equivalent. E

**5460 Quantitative Methods in Agricultural Economics (3)** Analytical techniques useful in estimation of functions—supply, demand and production—prediction of economic variables. Emphasis on application of multiple regression: model specification, estimation technique using computer and interpretation of results. Prerequisites: Statistics 4310 or Economics 5510 or consent of instructor. W

**5710 Quantitative Methods in Agricultural Economics (3)** Linear programming techniques with empirical applications, made to problems of maximizing profit, minimizing cost, firm growth, transportaton, and location analysis, control, pricing, and inventory problems, game theory, and nonlinear programming. Prerequisites: Economics 4180 or consent of instructor. W

**6000 Doctoral Research and Dissertation (3-15)** E

**5120-30 Seminars in Agricultural Economics (3, 3)** Topics selected from the areas of economic of production, consumption, or distribution in agriculture and related industries and public policies concerned with agriculture and related industries. E

**6210 Agricultural and Rural Transformation Problems (3)** Systematic evaluation of policy and development proposals related to agricultural modernization, food security, and rural living. Decision-making process and useful roles of social scientists. Analysis of current issues in U.S. and developing nations. Prerequisite: Consent of instructor. W

**6410 Agricultural Supply Analysis (3)** Estimating agricultural supply relationships using aggregative time series regression, production functions, linear programming, simulation and firm growth models with emphasis on correspondence between theoretical concepts and model attributes. Prerequisite: 5130 or consent of instructor. W

**6420 Marketing and Resource Use (3)** Institutional settings for research and policy formulation. Analytical tools to measure efficiencies of marketing and resource use. Wastes management in marketing systems to conserve resources and environment. Prerequisite: 5410 or consent of instructor. W

#### Rural Sociology

**3420 Rural Sociology (3)** Nature of rural society; social systems concepts; rural-urban differences; nature of social relations and social systems movement; problems of rural people; tenancy, farm labor, health, services, educational facilities, churches, local government; impact of industrialization. F, W, Sp

**4450 Diffusion of Agricultural Technology (3)** Analysis of diffusion process whereby new technology spreads from scientists to final adopters. Adoption process, communication behavior, mass media, role of professional change agents, opinion leadership, and two-step flow hypothesis. Prerequisite: 3420 or consent of instructor. Sp

**5340 Special Problems (3)** Special topics in rural sociology. Prerequisite: 3420 or consent of instructor. May be repeated. Maximum 9 hrs. S/NC only. E

**5430 Seminar in Rural Sociology (3)** Current rural sociological literature and research; relevance of general sociological theory and methodological technique. Prerequisite: 4450 or equivalent. F

**5450 Advanced Rural Sociology (3)** Application of conceptual tools to analyze changing social and economic functions and structure of rural society; sociological concepts to analyze changing social and economic functions and structure. Prerequisites: 4450 or equivalent. E

**5470 Research Problems in Rural Communities (3)** Emphasis on problems that arise in survey research in rural areas. Sampling procedures, questionnaire construction, interviewer selection, training, control, and legitimization needs. Prerequisite: Undergraduate course in statistics. Sp

**5490 Rural Population Analysis (3)** Analysis of U.S. and world population changes and determinants of fertility, mortality, and migration with emphasis upon changes in rural sector. Prerequisite: Sociology 4110 or equivalent. W

#### Agricultural Engineering

**MAJORS**

**DEGREES**

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

**Professors:**

<table>
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<tr>
<th>Professor</th>
<th>Department</th>
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<tbody>
<tr>
<td>D. H. Luttrell (Head)</td>
<td>Agricultural Engineering</td>
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<tr>
<td>Ph. D. Iowa</td>
<td>Agricultural Engineering</td>
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<tr>
<td>B. L. Bledsoe, Ph. D. Oklahoma State</td>
<td>Agricultural Engineering</td>
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<tr>
<td>P. E. J. J. M.</td>
<td>Agricultural Engineering</td>
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<tr>
<td>Ph. D. Michigan State</td>
<td>Agricultural Engineering</td>
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<tr>
<td>P. E. J. J.</td>
<td>Agricultural Engineering</td>
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<tr>
<td>Ph. D. North Carolina State</td>
<td>Agricultural Engineering</td>
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<td>P. E.</td>
<td>Agricultural Engineering</td>
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**Associate Professors:**

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<th>Associate Professor</th>
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<tr>
<td>Z. A. Henry</td>
<td>Agricultural Engineering</td>
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<tr>
<td>Ph. D. North Carolina State</td>
<td>Agricultural Engineering</td>
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<tr>
<td>C. H.保洁</td>
<td>Agricultural Mechanization</td>
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<tr>
<td>Ph. D. Alabama Institute</td>
<td>Agricultural Mechanization</td>
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<tr>
<td>F. D. Tompkins, Ph. D. Tennessee</td>
<td>Agricultural Mechanization</td>
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<td>P. E.</td>
<td>Agricultural Mechanization</td>
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Institute of Agriculture 27
Agricultural Engineering

4320 Selected Topics in Agricultural Engineering
(3) Develop new topics as required by current trends and problems in agricultural engineering.

4610 Design of Water Control and Waste Utilization Systems (3) Earth dams, irrigation, drainage, land grading, hydraulic transport of wastes, and application of wastes on agricultural land. Prereq: 3610 or consent of instructor. 2 hrs and 1 lab. W

4620 Design of Structures for Production, Processing and Environmental Control (3) Functional planning and structural design of agricultural buildings; emphasis on complete design, structure or systems, functional, structural and environmental aspects. Prereq: 3620. 1 hr and 2 labs. F

4630 Design of Processing and Materials Handling Systems (3) Development of systems and components for integrated agricultural processing considering mass and energy balances, product characteristics, equipment specifications, storage, handling, and economic merit. Prereq: 3630. 1 hr and 2 labs. F

4640 Design of Agricultural Machinery (3) Functional requirements of agricultural machinery, elements of machine component design; synthesis of mechanisms, mechanical and hydraulic drives. Team effort in completing machine design project. Prereq: 3640 or consent of instructor. 1 hr and 2 labs. Sp

5000 Thesis (1-15) E

5240 Environmental Control in Agricultural Structures (3) Engineering analysis of factors related to processes of animal and plant life; basis for development and design of facilities and structures for confined housing of animals, controlled environment for plant growth, and storage facilities for plant and animal products. Prereq: Agricultural Mechanization 3220. Mechanical Engineering 3110 or consent of instructor. 2 hrs and 1 lab. F

5340 Hydrology of Agricultural and Forest Lands (3) Analytical approach to problems involving water surplus, deficiency and time distribution as related to agricultural and forest purposes. Prereq: 3610, introductory hydrology; Forestry 4020, or consent of instructor. 2 hrs and 1 lab. F

5440 Instrumentation in Agricultural Systems (3) Analysis of specific instrumentation needs in agriculture; industry and research problems; principles and design in utilization of specialized instrumentation. Prereq: Agricultural Mechanization 3220. Engineering electronics or consent of instructor. 2 hrs and 1 lab. A

5540 Engineering Properties of Agricultural Materials and Products (3) Fundamental engineering properties of agricultural products and materials related to handling, processing, and utilization. Prereq: Processing and materials handling systems and Extension Science and Mechanics 3311. 2 hrs and 1 lab. Sp

5640 Research Problems in Agricultural Engineering (3) Theoretical and experimental studies relating to current trends in agricultural engineering. May be repeated. Maximum 9 hrs.

5710-20 Similitude in Design and Research (3, 3) Dimensional analysis in development of models; theory and application of models, prediction equations; interpretation of data; applications to machinery, soil and water structures, agricultural buildings, and other agricultural engineering-related problems. Prereq: Agricultural Engineering Science and Mechanics 3310 and 3311. 2 hrs and 1 lab. F; W

6000 Doctoral Research and Dissertation (3-15) E

6110 Seminar (1) Current research and literature review in agricultural engineering. May be repeated. Maximum 3 hrs.

6310 Engineering Systems Analysis in Agriculture (3) Systems approach to design of agricultural engineering equipment and applications to include linear programming, computer applications, statistical evaluations, and feedback control in agricultural problems. Prereq: Prerequisites: Mathematics 4550 or 4710. Coreq: 5710 or 5720. 2 hrs and 1 lab. F

6510 Selected Topics in Agricultural Engineering (3) Lecture, group discussion, and individual study on specialized developments in power and machinery, soil and water, structures, and processing. May be repeated. Maximum 9 hrs. F

Agricultural Mechanization

4160 Agricultural Waste Utilization and Disposal (3) Techniques, equipment, and structures for utilizing, treating, and disposing of agricultural wastes by land spreading, lagooning, and processing. 2 hrs and 1 lab. Sp

4170 Small Engine (3) Concepts and mechanics of small gasoline engines; selection, operation, adjustment, and repair of single cylinder engines. 2 hrs and 1 lab. W

4180 Equipment and Techniques for Application of Agricultural Chemicals (3) Equipment for application of liquid, solid, and gaseous chemicals; system components; operational characteristics; safety considerations; calibration; selection and management; materials handling and disposal methods. 2 hrs and 1 lab. Sp

4210 Agricultural Machinery and Tractors (4) Agricultural machinery and power units; adaptation to agricultural practices; field efficiencies, capacities, adjustment and servicing. Prereq: Mathematics 1550. 3 hrs and 1 lab. W

5000 Thesis (1-15) E

5110 Research Problems in Agricultural Mechanization (3) Research problems related to recent developments and current practices in agricultural mechanization. May be repeated. Maximum 9 hrs.

5210 Electromechanical Systems in Agriculture (3) Integration of electric power, mechanical equipment, structures, and environmental systems in livestock and animal production, crop processing, and materials handling. Prereq: 3220 and 3510.2 hrs and 1 lab. Sp

5410 Agricultural Machinery Systems Analysis (3) Analysis of field machinery; adaptation planning for sequential operations; machinery for unique and alternate production and harvesting systems; operational management. Prereq: 4510.2 hrs and 1 lab. Sp

5610 Selected Topics in Agricultural Mechanization (3) Lecture, group discussion, and individual study on specialized agricultural mechanization developments. May be repeated. Maximum 9 hrs. F

Animal Science

MAJOR

Degree: Animal Science

M.S., Ph.D.

Professors:
R. R. Johnson (Head), Ph.D., Ohio State
K. L. Barth, Ph.D., Rutgers
M. C. Bell, Ph.D., Oklahoma State
A. K. Bireiter (Emeritus), Washington State
C. C. Chamberlain, Ph.D., Iowa State
R. L. Bell (Dean), Ph.D., Iowa State
S. L. Hansard (Emeritus), Ph.D., Florida
H. M. Jamison, Ph.D., Tennessee
R. L. Lidvall, M.S., Tennessee
J. B. McLaren, Ph.D., Auburn
M. G. Marriner, D.V.M., Michigan State
J. B. Montgomery, Ph.D., Wisconsin
R. L. Murphy, Ph.D., Wisconsin
D. M. Martin, Ph.D., Oklahoma State
H. V. Shirley, Ph.D., Illinois
R. R. Shrode, Ph.D., Iowa State
E. W. Swanson, Ph.D., Missouri
R. T. Tugwell, Ph.D., Kansas State
C. E. Wylie (Emeritus), M.S.

Associate Professors:
W. R. Backus, Ph.D., Tennessee
G. Brown, D.V.M., Auburn
A. M. W. T. Butts, Ph.D., Tennessee
H. Elter, D.V.M., Ph.D., Illinois
J. J. Pitcock (Emeritus), Ph.D., Michigan State
J. W. Holloway, Ph.D., Oklahoma State
F. B. Massinup, Ph.D., Kansas State
D. L. Parks, D.V.M., D.V.M., Ph.D., Purdue
M. Sims, Ph.D., Auburn

Assistant Professors:
R. E. Carter, D.V.M., Kansas State
D. C. Doye, D.V.M., Ph.D., Cornell
R. H. Helfman, Ph.D., Maine
H. H. Holmes, Ph.D., California Polytechnic Institute
S. Kostad, D.V.M., Ph.D., Purdue
K. R. Robbids, Ph.D., Illinois
R. Schaub, Ph.D., Washington State
J. D. Smalling, Ph.D., Texas A & M

3210 Anatomy and Physiology of Farm Animals (3) Skeletal and joints, muscular systems, blood and microcirculation, and skin and hair. Fundamental physiology of respiratory, digestive, renal and endocrine systems; demonstrations of physiochemical phenomena. Prerequisites: Biology 120 or Agriculture 1130, 3 hrs and 1 lab. F, W, Sp

3220 Physiology of Reproduction (3) Comparative anatomy and physiology of reproductive systems of birds, domesticated mammals, and some marine animals. Special emphasis on reproduction, fertilization, implantation, prenatal growth, parturition and initiation of lactation; endocrine regulation of reproduc-
4200 Dairy Cattle Production and Management (4) Principles of nutrition, physiology and breeding in a complete dairy cattle management program. Structure of the industry, enterprise establishment; systems of production, production practices, and herd improvement programs. Alternatives in terms of production responses and economic returns. Prereq: Completion of animal science sophomore and junior core courses or consent of instructor. 3 hrs and 1 lab. W

4820 Dairy Cattle Production and Management (4) Principles of nutrition, physiology and breeding in a complete dairy cattle management program. Structure of the industry, enterprise establishment; systems of production, production practices, and herd improvement programs. Alternatives in terms of production responses and economic returns. Prereq: Completion of animal science sophomore and junior core courses or consent of instructor. 3 hrs and 1 lab. W

5344 Ruminant Animal Nutrition (3) Digestive physiology of the ruminant stomach, rumen fermentation, determination of nutrient requirement and feed intake regulation of ruminant animals. Prereq: 3330. F

5410 Genetics of Animal Populations (3) Population and individual, gene and zygotic frequencies; statistical description of populations; principles of population genetics; genetic changes; application to animal breeding. Prereq: 3420 or consent of instructor. 2 hrs and 1 lab. F

5510-20 Advanced Animal Physiology (5, 5) Advanced animal physiology (primarily mammalian physiology). 5510-Membrane neuron, central nervous system, muscular cardia system, and control mechanisms. 5520—Respiratory, renal, gastrointestinal, and reproductive physiology, acid base mechanisms, and metabolism. Should be taken in sequence if both courses are taken. Prereq: General undergraduate anatomy and physiology and Biochemistry 4110 or equivalent consent of instructor. Biochemistry 4120 also recommended. (Same as Zoology 5510-20.) 4 hrs and 1 lab. W, Sp

5710 Methods of Evaluating Experimental Data in Animal Science (3) Interpretation of data from experiments in animal science based upon such statistical procedures as analysis of variance, covariance, linear regression and correlation, and multiple regression. Prereq: Statistics 5211 or equivalent. 2 hrs and 1 lab. W

5720 Design and Interpretation of Experiments in Animal Science (3) Design and interpretation of experiments and principles of experimental design and application to research in animal science analyzing data from experiments with unique and disparate parameters and situations and procedures for use of computers in statistical analyses. Prereq: 5710. 2 hrs and 1 lab. F, W

5910 Seminar (1) Current developments and literature in animal sciences. May be repeated. Maximum 3 hrs. F, W, Sp

6000 Doctoral Research and Dissertation (1-15) E

6150 Topics in Milk Constituents (3) Properties of milk constituents and relationship to milk and dairy products. Sp

6160 Topics in Dairy Microbiology (3) Microbiological problems related to various phases of the dairy industry. W

6211 Advanced Topics in Animal Physiology (1-6) Recent advances and concepts, research techniques and current problems. May be repeated. Maximum 6 hours. E

6220 Environmental Physiology of Farm Animals (3) Environmental factors and measurement; physiological mechanisms of response to environmental factors and measurement; interrelationship of animals and environment in terms of productivity and health. Prereq: Consent of instructor. 2 hrs and 1 lab. W, A

6230 Animal Growth and Development (3) Physiological and nutritional aspects of growth of farm animals; effects of growth rates on physiological and productive functions. Prereq: 5344, 5510, 5520 or consent of instructor. Sp, A

6311 Advanced Topics in Animal Nutrition (1-6) Recent advances and concepts, research techniques and current problems. May be repeated. Maximum 6 hours. E

6322 Advanced Animal Nutrition (3) Chemical composition, digestion, absorption, intermediary metabolism, deficiencies, excesses and interaction of nutrients. Energy; proteins; vitamins; and minerals. Prereq: 5311 or equivalent or consent of instructor. Consent of instructor. Maximum 5 hrs. F, Sp

6411 Advanced Topics in Animal Breeding (1-6) Recent advances and concepts, research techniques, current problems. May be repeated. Maximum 6 hrs. E

6420 Animal Breeding Research Methods and Interpretation of data from experiments in animal breeding studies; least squares adjustment of data; partition of variance; phenotypic, genetic, and environmental correla-
Entomology and Plant Pathology

MAJOR
Entomology and Plant Pathology

DEGREE
M.S.

Professors:
C. J. Southard (Head), Ph.D. North Carolina State; J. W. Hilty, Ph.D. Ohio State; L. P. Johnson, Ph.D. Pennsylvania State; C. D. Fiesa, Ph.D. Clemson.

Associate Professors:

Assistant Professors:
E. C. Bernard, Ph.D. Georgia; M. R. McLaughlin, Ph.D. Illinois.

4010 Biology of Soil Microorganisms (4) Morphology, physiology, ecology, and interrelationships of soil microorganisms. Prereq: 3100. 3 hrs and 1 lab.

4020 Forest and Shade Tree Entomology (3) Identification, biology, ecology, and control of forest and shade tree pests. Prereq: 3210 or equivalent. 2 hrs and 1 lab.

5000 Thesis (1-15) E

5010 Research Methods and Instrumentation in Plant Pathology and Entomology (3) Techniques for laboratory, field, and greenhouse research in plant pathology and entomology. 1 hr and 2 labs.

5110 Plant Disease Diagnosis (3) Diagnosis of plant diseases, disease symptoms, causes and control measures. Prereq: 3100.

5210 Insect Diagnostic Clinic (3) Identification of insects and insect damage to crops, livestock and residences. Obtaining of insects and damaged specimens, diagnostic characteristics and control measures. Prereq: 3210 or Zoology 3110.

5210 Plant Parasitic Nematodes (4) Morphology, physiology, taxonomy, and ecology of plant parasitic nematodes. Prereq: 3 hrs biological science or consent of instructor. Same as Zoology 5210. 2 hrs and 1 lab.

5220 Plant Disease Control (3) Basic principles and problems involved in controlling plant diseases. Prereq: 3130.

5230 Field Crop and Vegetables (3) Taxonomy, biology, and control of insects afflicting field and vegetable crops. Prereq: 3210 or equivalent course in applied entomology. 2 hrs and 1 lab.

5240 Plant Virology (4) Symptoms and general biology of virus disease; structure, morphology, replication, transmission, purification, characterization, and classification of plant viruses; serology; pathogenic viroids, mycoplasmas, and viroids. Prereq: 3130 or consent of instructor. 2 hrs and 1 lab.

5250 Medical and Veterinary Entomology (4) Morphology, taxonomy, biology, and control of arthropod parasites, vectors, and vectors of human and animal diseases. Ecology and behavior of vectors in relation to pathogen transmission and control. Prereq: 3210, general entomology, or consent of instructor. 3 hrs and 1 lab.

5260 Insect Pest Management (4) Principles and applications of biological, cultural, genetic, behavior, and chemical methods of control to maintain pest populations below economic threshold levels.

5310 Special Problems in Plant Pathology or Economic Entomology (1-6) Comprehensive individual study of current problems in economic entomology or plant pathology. May be repeated. Maximum 9 hrs.

5410 Seminar (1) Review of literature and current research in plant pathology and economic entomology. May be repeated. Maximum 3 hrs.

Food Technology and Science

MAJOR
Food Technology and Science

DEGREE
M.S.

Professors:
J. T. Miles (Head), Ph.D. Wisconsin; J. L. Collins, Ph.D. Maryland; H. O. Jaynes, Ph.D. Illinois; C. C. Merton, Ph.D. Kansas State; W. W. Overcast, Ph.D. Iowa State.

Associate Professors:
B. J. DeMott, Ph.D. Michigan State; S. L. Jenson, Ph.D. Tennessee.

Assistant Professor:
M. P. Davidson, Ph.D. Washington State.

4000 Seminar (1) Animal Nutrition, breeding, physiology, and techniques. Prereq: 5410 and 5710. 1 hr and 2 labs.

4140 Advanced Topics in Animal Products (1-6) Recent advances and concepts, research techniques, current problems. May be repeated. Maximum 6 hrs. F, W, Sp.

4200 Food Processing I (4) Prevention of deterioration of foods during processing and storage. Prereq: 4810 and Microbiology 3810. 2 hrs and 1 lab.

4210 Food Processing II (4) Physical states of food materials, water, viscosity, colloids, gel, foams, crystals, color. Quantification and changes induced by processing. Prereq: 4000 and Agricultural Mechanization 3510 or consent of instructor. 3 hrs and 1 lab.

4400 Meat Products Manufacturing (3) Prepared meat products. 2 hrs on sausage making and information relating to cost controls, inspection, and meat science. Prereq: 3640 or consent of instructor. 1 hr and 2 labs.

4920 Analysis of Physical Properties of Foods (4) Physical states of food materials, water, viscosity, colloids, gel, foams, crystals, color. Quantification and changes induced by processing. Prereq: 4000 and Agricultural Mechanization 3510 or consent of instructor. 3 hrs and 1 lab.

5000 Thesis (1-15) E

5100 Seminar (1) Reports and discussions of selected topics from research literature. May be repeated. Maximum 3 hrs. F, W, Sp.

5120 Food Color (3) Chemistry of natural food pigments and measurement, notation, and preservation in food. Prereq: Nutrition 3320. 2 hrs and 1 lab.


5140 Food Flavors (3) Food flavor maintenance and improvement. Natural and synthetic compounds in manufacture of foods with predictable consumer acceptance. Technology of flavor manufacturing and preservation. Techniques for determining flavor profile. Prereq: 4210. 2 hrs and 1 lab.

5150 Fats and Oils (3) Application of scientific principles to commercial technology of fats and oils. Prereq: 4130. 2 hrs and 1 lab.

5200 Research (1-5) Research in selected areas. Consent of department head. Credits and hours to be arranged. May be repeated. Maximum 10 hrs. E

5310 Food Products Development (3) Fundamentals of art, science, and technology applied to research, development, and marketing of new food processes and products. Prereq: 4210. 2 hrs and 1 lab.

5320 Food Thermobiology (3) Fundamentals of heat transfer as related to rate of destruction of microorganisms and to rate of loss of food quality through calculation of minimum safe thermal processes for hermetically-sealed packages of foods. Prereq: 4200. 2 hrs and 1 lab.

5420 Advanced Food Quality Assurance (3) Application of current instrumental methods used to control food manufacturing processes. Prereq: 4140. 2 hrs and 1 lab.

5510 Meat Technology (3) Physical and chemical changes that occur during conversion of muscle to meat; the influence these changes have on quality and composition; meat packaging, preservation, and quality control. Prereq: 3640. 2 hrs and 1 lab.

5530 Microorganisms in Food Products (3) Identification of desirable and undesirable microorganisms in food products and relationship to manufacturing operations. Isolation and characterization of microorganisms from food products and plant equipment. Prereq: 4810 or Microbiology 3810. 3 labs.

5540 Microbial Cultures in Foods (3) Physical and chemical environment and metabolism of microorganisms related to cultured foods. Prereq: 4810 and Microbiology 3810. 2 hrs. and 1 lab.

Forestry, Wildlife and Fisheries

MAJORS
Forestry

DEGREES
M.S.

Wildlife and Fisheries Science

M.S.

Other Institutions
**Forestry**

*3200 Forest Environments and Ecology (3) Environments and ecology of forests and associated lands; emphasis on the application of ecological principles to contemporary problems. Prereq: 8 hrs of biology, botany, or zoology.

*3340 Dendrology and Silvics of Woody Angiosperms (3) Classification, nomenclature, identification, and ecological characteristics of the more common woody angiosperms native to North America; native ranges, distribution patterns, and habitat requirements; regeneration requirements and life history, place in succession; ecological significance and commercial importance. Weekly field trips during semester plus one weekend field trip. Prereq: 8 hrs basic biology or botany, 2 hrs and 1 lab.

*3110 Forest Measurements and Biometry (4) Measurements of individuals in animal and plant populations; linear regression; sampling of forest populations; growth and potential production. Prereq: Plant and Soil Science 3610 and Computer Science 1410 or equivalent. 3 hrs and 1 lab.

*3120 Wood Technology (4) Wood properties; identification of commercial woods by macro and micro characteristics. Prereq: 3040, 3050. (3050 may be taken concurrently.) 2 hrs and 2 labs.

*3210 Forest Resource Economics (4) Allocation of forest resources; interaction of economic and institutional systems. Application of economics to forest resource decision making in private and public sector. Prereq: Economics 2120. F


*3230 Principles of Silviculture (3) Influence of site factors on reproduction, growth, development, and character of forest vegetation; classification of forest structures; silvicultural laws. Prereq: 3020, 3030, and Plant and Soil Science 2130. W

*3730 Conservation (3) Forest resources of state, nation, and world; forests in soil and water conservation; wildlife management and recreation; conservation. Prereq: W


4003 Field Methods of Timber Inventory (4) Field measurements of forest trees; timber cruising; determining appropriate sample design for specific purposes; tree and stand growth; site evaluation; field problems. Prereq: 3110 and Agricultural Mechanization 3140. Sp

4004 Forest Practice (3) Management of forest lands by public and private organizations; "multiple-use" concept as it influences management decisions; impact of public pressure for outdoor recreation demands; management prescriptions. Prereq: 4006. S/N/C only. Sp

4006 Silvicultural Methods (4) Methods and application of intermediate and regeneration cuttings; site preparation and thinning, modifications of cutting methods to obtain desired goals and benefits. Prereq: 3320, 4002, 4003. Sp

4020 Forest Watershed Management (3) Water as a forest resource; role of forests in the hydrologic cycle; control of water quantity, quality, and regimen; watershed planning. Prereq: 3320 or consent of instructor. Two overnight field trips. W

4210 Forest Organization and Administration (3) Planning, organizing, and leadership concepts and cases; problem analysis and decision making in forest resource management. Prereq: Consent of instructor. 2 hrs and 1 lab. F

4220 Forest-Resource Management (4) The forest as a system; history of forest management; goals and principles of forest management; forest economics; related disciplines; certification. Prereq: 4210 or equivalent. 3 hrs and 1 lab.

4230 Forest-Resource Management Plans (4) Field problems and case studies in forest-resource management; the forest as a system; management of forest ecosystems; individual trees; development and administration of interpretive services. Possible overnight field trips required. Prereq: 4320 or equivalent. 2 hrs and 1 lab.

4330 Forest Policy (3) History of forestry in United States with emphasis on development of forest resources; current policies influencing development and management of forest resources; brief survey of policy implications of forest resource organizations in public and private sectors. Prereq: 4004. W

4340 Aerial Photography in Forest-Resource Management (3) Use of conventional aerial photographs in forest management; interpretation of detail, aerial inventories, preparation of cover-type maps, uses of other remotely sensed imagery. Prereq: Forestry Organization and Administration 3020. W/Lab.

4420 Forest Tree Improvement (4) Forest tree improvement related to silviculture; nature and purpose of tree improvement and forest genetics; principles of genetic improvement and regeneration of seed orchards; hybridization; selection. Prereq: 4006 or consent of instructor. 2 hrs and 1 lab.

4430 Regional Silviculture of the United States (3) Forest ecosystems; regeneration of important tree species in North America. Factors influencing forest ecosystems; forest management and regeneration; invasion and succession; distribution of ecological communities; silvicultural characteristics of the more important species. Prereq: 4420 or equivalent. 3 hrs and 1 lab.

4530 General Forestry (3) Principles and techniques of forest management; forest law, economics, and social implications. Prereq: 4530 or equivalent. 3 hrs and 1 lab.

5000 Thesis (1-15) E
growth. Prereq: Biology 3130, 8 hrs mathematics, or consent of instructor. 3 hrs and 1 lab or field period. W

4520 Fisheries Management (4) Methods of warm and cold water fisheries management including techniques of biological assessment, public relations, habitat manipulation, and stocking. Prereq: Biology 3130 or consent of instructor. 3 hrs and 1 lab or field period. W

5000 Thesis (1-15) E

5110 Special Problems in Wildlife and Fisheries Science (1-6) May be repeated. Maximum 9 hrs. E

5210 Seminar in Wildlife Conservation (3) Current studies, problems and issues in wildlife agencies and organizations and technical programs. Prereq: 3230 or consent of instructor. W, A

5310 Seminar (1) Current developments in wildlife and fisheries science. Required of each graduate student in residence Winter Quarter. May be repeated. Maximum 2 hrs. S/NC only. W

5400 Advanced Topics in Wildlife Science (3) Recent advances and concepts, research techniques, and analysis of current problems. Prereq: 4450 and 4460 or consent of instructor. May be repeated. Maximum 6 hrs. Sp

5450 Wildlife Diseases (3) Necropy of birds and mammals. Recognition of various diseases and methods of control. Prereq: 3030, 3040, 3610 or 3620, 8 hrs mathematics, or consent of instructor. Maximum 6 hrs. Sp

5460 Predation Ecology (3) Dynamics of terrestrial and vertebrate predator populations in human-altered and natural environments. Principles of predator biology and management. Prereq: 4450 and 4460 or consent of 2 hrs and 1 lab. Sp

5500 Advanced Topics in Fish Science (3) Recent advances and concepts, research techniques and analysis of current problems. Prereq: 4520 or consent of instructor. May be repeated. Maximum 6 hrs. Sp

5550 Fish Physiology (3) Mechanisms of circulation, excretion, osmoregulation, and neuromotor control of these systems in fishes. Pratical applications of fish physiology in water pollution assessment, fish culture, and fish management. Prereq: Consent of instructor. 2 hrs and 1 lab.

**Ornamental Horticulture and Landscape Design**

**MAJOR**

**DEGREE**

M.S.

**Professors:**

D. B. Williams (Head), Ph.D. Pennsylvania State; L. M. Callahan, Ph.D. Rutgers.

Associate Professors:


Assistant Professors:

D. E. Dayton, Ph.D. North Carolina State; W. J. McSorlin, Ph.D. Louisiana State; D. R. West, Ph.D. Nebraska; J. D. Wolf, Ph.D. Auburn.

**5000 Thesis (1-15) E**

5100 Special Problems in Ornamental Horticulture and Landscape Design (3) May be repeated. Maximum 9 hrs. E

5210 Golf Course Design, Development, and Management (4) Principles and applications in design, development, and management of golf courses. Selection and utilization of grass varieties and other plant materials and development of specifications for nutritional, chemical, and mechanical maintenance. Financing, equipment, labor management, and public relations. Prereq: 4220 and consent of instructor. 2 hrs and 2 labs. Sp


5410 Historical Microtechnique (4) Preparation of plant tissue for microscopic examination, paraffin and plastic embedding, microtomy and mounting of sections, and light microscopy. Prereq: General biology or botany; general and organic chemistry; and consent of instructor. 2 hrs and 2 labs. W

**5500 Seminar (1) Current literature and developments in ornamental horticulture and landscape design. May be repeated. Maximum 3 hrs. F, W, Sp

**5610 Advanced Nursery Production (4)** Preparation and growth of Ornamental plants including propagation and containerization; care of young ornamental plants; nutrition of ornamental plants including diagnosis, prevention and correction of mineral deficiencies; propagation methods for container and field grown ornamentals. Prereq: 4150, Plant and Soil Science 3110; Botany 3210 or Plant and Soil Science 3040. 3 hrs and 1 lab. W

*Graduate credit for non-majors only.

**Plant and Soil Science**

**MAJOR**

**DEGREE**

M.S., Ph.D.

**Professors:**

L. F. Fritz, Ph.D. North Carolina State; F. F. Ball, Ph.D. Iowa State; B. V. Conger, Ph.D. Washington State; H. A. Frick, Ph.D. Iowa State; L. M. Josefson (Emeritus), Ph.D. Wisconsin; W. L. Parks, Ph.D. Purdue; H. F. Roberts, Ph.D. Wisconsin; R. L. Joerns, Ph.D. Minnesota; L. N. Stolz, M.S. Kansas State; J. D. Wolf, Ph.D. California (Berkeley); D. H. Swingle (Emeritus), Ph.D. Louisiana State.

Associate Professors:


Assistant Professors:

D. E. Dayton, Ph.D. North Carolina State; W. J. McSorlin, Ph.D. Louisiana State; D. R. West, Ph.D. Nebraska; J. D. Wolf, Ph.D. Auburn.

**3200 Crop Ecology (3)** Crops and environment, geographic location; site, heat, light, water and interplant relationships as basis for judgment of cultural practices used to modify environmental factors. Prereq: 8 hrs biological science. 2 hrs and 1 lab. Sp

**3400 Crop Physiology (3)** Physiology of crop plants; growth phenomena related to crop production; use of general theories of physiology; effects of season, growth regulating substances, functions of light, heat, air, minerals, and water. Prereq: 8 hrs biological science. 2 hrs and 1 lab. W

**3110 Soil Fertility and Fertilizers (3)** Properties of soils in relation to plant nutrient availability and uptake. Methods of soil fertility evaluation and principles of fertilizer use; manufacture and properties of fertilizers. Prereq: 2130. 3 hrs and 1 lab. W

**3120 Grain and Oil Crops (3)** Distribution, improvement, morphology, culture, harvesting, and utilization of corn, small grains, grain sorghum, soybeans and related crops. Prereq: 2130. 8 hrs biological science. 2 hrs and 1 lab. W

**3140 Forage Crops (4)** Characteristics, adaptation, improvement, management, and utilization of grasses and legumes for pastures, hay, and silage. Prereq: 2130. 8 hrs biological science. 3 hrs and 1 lab. F

**3160 Cotton and Tobacco (4)** Characteristics, adaptation, improvement, culture, harvesting, and marketing of cotton and tobacco. Prereq: 2130. 8 hrs biological science. 3 hrs and 1 lab. F

**3180 Fruit Crops Management (4)** Soils, plants, cultivation, development, growth of fruit; scattering of plant materials; pest control, harvesting, packing, storage, and pruning. Prereq: Entomology and Plant Pathology 3130 and 3210. 3 hrs and 1 lab. F

**3220 Soil Management (4)** Soil management for crop production including cropping systems, fertilizer use, and tillage operations for specified soil

*Cyde B. Austin Distinguished Professor.
5000 Thesis (1-15) E
Use of soil surveys. Prereq: 2130. 3 hrs and 1 lab. Sp

5100 Commercial Production of Cool Season Vegetables (3) Characteristics, economic importance, adaptation, and production for fresh and processing markets; emphasis on greens, salad, cole, root, bulb crops, perennials, and Irish potatoes. Prereq: 8 hrs biological science. 2 hrs and 1 lab. F

5350 Commercial Production of Warm Season Vegetables (3) Characteristics, economic importance, adaptation, and production for fresh and processing markets; emphasis on sweet potatoes, beans, tomatoes, pepper, cucurbits, sweet corn, and okra. Need not have 3510 as prereq. Prereq: 8 hrs of biological science. 2 hrs and 1 lab. Sp

5360 Interpretation of Agricultural Research (3) Statistics as applied to agriculture. Statistical methods in interpretation of research results. Pre req: Mathematics 1550. F, W

5710 Advanced Plant Genetics (3) Importance of polyploidy in plants; detailed study of genome relationships, genetic recombination, mutation, heterosis, quantitative inheritance, heritability selection, and self-incompatibility systems in relation to genetic principles. Prereq: Basic genetics or consent of instructor. F, A

5720 Quantitative Genetics (3) Genetic constitution of populations and changes in gene frequency; recognition and measurement of continuous variation; estimation of variable components and genetic advance under different breeding procedures. Prereq: Basic genetics or consent of instructor. W, A

6200 Seminar (1) May be repeated. Maximum 3 hrs.

6300 Special Topics in Plant Breeding (3) May be repeated. Maximum 9 hrs.

6410 Experimental Designs (3) Principles of experimental designs used in agricultural research. Completely randomized, randomized complete block designs, factorial and confounded, lattice designs; and covariance. Pre req: 5310, F, A

6510 Growth Control with Chemicals (3) Character, theories of action and use of auxins, gibberellins, cytokinins and inhibitors. Range of effects on growth. Prereq: Botany 3210 or equivalent. 2 hrs and 1 lab. W

6600 Seminar (1) May be repeated. Maximum 3 hrs.

College of Veterinary Medicine

H. Kitchen, Dean
C. F. Reed, Associate Dean
W. H. Grau, Jr., Associate Dean

The College of Veterinary Medicine, established in 1974, is organized into six academic departments: Animal Sciences (jointly with the College of Agriculture), Environmental Practice, Microbiology (jointly with the College of Liberal Arts), Pathobiology, Rural Practice and Urban Practice. The College administers a professional curriculum leading to the degree of Doctor of Veterinary Medicine (see the General Catalogue and a graduate program involving all departments and leading to the Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees. The instructional program of the College also includes internship and residency training programs in various clinical specialities in the departments of Environmental Practice, Urban Practice, Rural Practice and Pathobiology. (For details write the Director of Residencies and Internships, College of Veterinary Medicine.) 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), Ecology (environmental toxicology), Public Health, and Comparative and Experimental Medicine. (Refer to other sections of this catalog for a full description of these programs.) The majority of the graduate students and graduates who complete their degree at the College of Veterinary Medicine are involved in the Comparative and Experimental Medicine program (see page 63). 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 animals or humans.

Faculty

Environmental Practice

Professor: H. Kitchen, D.V.M., Ph.D. Florida.
Assistant Professor: J. W. Oliver, D.V.M., Ph.D. Purdue.


Rural Practice

Professor: H. Kitchen, D.V.M., Texas A & M.


Pathobiology


Institute of Agriculture


Animal Science/Veterinary Medicine

Professor:
R. R. Johnson (Head), Ph.D. Ohio.

Associate Professors:
R. Schaub, Ph.D. Washington; M. H. Sims, Ph.D. Auburn.

Assistant Professors:

Microbiology

Professors:
A. Brown (Head), Ph.D. Chicago; R. W. Beck, Ph.D. Wisconsin; B. T. Rouse, Ph.D.
Guelph; J. M. Woodward, Ph.D. Kansas.

Associate Professor:

Courses

5010 Comparative Pathology (5) Lectures and lab. Emphasis on pathogenic mechanisms. Comparative aspects considered. Lectures reinforced by lab study of gross, microscopic and ultrastructural lesions. Prereq: Zoology 3060, 3320.

For specific course listings please see College of Agriculture, Department of Animal Science, and College of Liberal Arts, Department of Microbiology.
School of Architecture

Roy F. Knight, Dean
William J. Lauer, Associate Dean

Professors:
- A. G. Anderson, M.Arch. Missouri; M.C. Martin
- A. L. Wharton, B.S. Land Arch. West Virginia
- J. Burin, M Arch., Academy of
- J. A. Kersavage, D.Sc. S. California; School of Architecture

Assistant Professors:
- R. T. Quinn, Ph.D. Lehigh
- W. S. Shell, M.S. Arch. Columbia
- R. M. Kelso, M.S. Fine Arts (Prague)
- A. J. Lester, B. Arch. Pennsylvania State
- F. Grieger, M. Arch. Pennsylvania

Associate Professors:
- S. I. Hankins, Ill, B. Arch. Clemson
- F. Grieger, M. Arch. Pennsylvania
- W. S. Shell, M.S. Arch. Columbia
- J. W. Fortey, P. E.

Assistant Professors:
- G. I. Anderson, M.Arch. Illinois; Missouri State; A. J. Delong, Ph. D.
- R. M. Parkins, J. D. New York
- William J. Lauer, Associate Dean

Independent student projects on topics related to course material. Prereq: 4031 and 4032. Sp

4170 Introduction to Preservation and Restoration (4) History and theory of restoration and preservation. Sp

4175 Technology of Preservation (4) History of technology and materials, methods analysis and dating, techniques of preservation. W

4311 Historic Preservation Laboratory (8) Directed studies for buildings of historical significance. Techniques of preservation; research of historic methods of construction; and studies of viable uses. Rehabilitation, restoration, preservation, and adaptive uses. F, W, Sp


4733 Structural Design for Protection Against Extreme Hazards (4) Probability, risk, human values, insurance. Survey of possible hazards; floods, fire, hurricanes, and tornadoes, earthquakes, nuclear effects, internal and external explosions. Building code and engineered design of steel, masonry, concrete, and wood structures to resist extreme effects. Protective construction for human and system needs. Fire protection engineering, fire phenomena, life safety and analysis, high-rise building fires.


4739 Aesthetics of Engineering Structures (4) Architecture in engineering; theory and utilization of space, design, and materials in large structures. Bridges, exhibition halls, power plants.

4850 Elementary Structural Matrix Methods (4) Introduction to generalized matrix methods of analysis of structures. Review of matrix algebra and vectors; development of member stiffness and flexibility matrices; assembly of structure stiffness and flexibility matrices. Prereq: Consent of instructor. (Same as Civil Engineering 4850 and Engineering Science and Mechanics 4850.) Su

4910 Architectural Photography (4) Photography as a design, research and presentation medium. Emphasis on architectural photography using black and white media. E

4920 Advanced Architectural Photography (4) Application of special photographic techniques with emphasis on color printing and processing. Prereq: Consent of instructor. F, W, Sp


4950 Environment as Code (4) Advanced lecture of graduate students and upper division students. Advanced lecture course of theoretical issues involved in considering environment as a medium of human communication. Codes and nature of coding behavior in animals and humans. Relationship between coding behavior and the organization of the central nervous system. Coding and social behavior. Communication process as a generic model of human environment relations. Hierarchical aspects of environmental communications. Prereq: 2000 or consent of instructor.
the Master of Business Administration. The Arts in College Teaching with a major in Science, the Master of Arts and the Master of offers programs leading to seven advanced
grow in knowledge throughout the student's mind, ability to reason analytically and one's reasoning powers and judgment to
courses descriptive of past practices.
and institutional management.
Graduate programs of the College of Business Administration are designed to prepare men and women to assume
executive, managerial and professional positions in the increasingly complex world of domestic and international business and industry, teaching and research, government and institutional management.
Viewing the business firm as operating in a dynamic, social, political and economic environment which demands leaders capable of dealing with innovation and rapid change, the College places central importance on development of students' thought processes rather than on specialized subject matter and courses descriptive of past practices.
Emphasis is focused on flexibility of mind, receptivity to new ideas, capacity to adapt to rapid changes, vigor and imagination in using the mind, ability to reason analytically and logically and, above all else, inculcation of an irrepressible desire to continue to learn and grow in knowledge throughout the student's life.

Graduate Programs
The College of Business Administration offers programs leading to seven advanced degrees: the Doctor of Business Administration, the Doctor of Philosophy with majors in Economics and in Management Science, the Master of Arts and the Master of Arts in College Teaching with a major in Economics, the Master of Science with majors in Economics and Statistics, the Master of Accountancy in Accounting, and the Master of Business Administration. The Department of Management and the Department of Psychology in the College of Liberal Arts jointly offer an intercollegiate program in Industrial and Organizational Psychology leading to the Master of Science and Doctor of Philosophy degrees. (See page 97). Also, the Department of Management Science offers an intercollegiate program leading to the Master of Science degree. (See page 98).
The two College-wide programs, the MBA and the DBA, are described below.
Descriptions of other degree programs will be found under the appropriate departmental or program headings.
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. Programs in the College of Business Administration available to residents of the states indicated include: DBA (all concentration areas)—West Virginia; MBA (Transportation and Logistics)—Virginia and West Virginia; Industrial and Organizational Psychology (M.S. and Ph.D.)—Alabama, South Carolina, and Virginia. Additional information may be obtained from the Graduate Programs office of this college.

The MBA Program
The MBA program is designed for students with undergraduate degrees in the social and natural sciences, the humanities, and professional fields such as engineering, business, agriculture, and architecture. A full-time student can complete the program in six academic quarters. Those with degrees in business earned at an institution accredited by the American Assembly of Collegiate Schools of Business (AACSB) should be able to complete the program in five quarters.
The complete MBA program with a concentration in management is offered by the regular graduate faculty of the College for part-time students on the Knoxville campus, at Oak Ridge and the Kingsport University Center. The part-time student carries two courses per term in classes scheduled in the evening hours and, like the full-time student, typically is enrolled in each of the four quarters of the year.
The program consists of the MBA core (twelve to nineteen courses depending upon exemptions based on prior studies and/or proficiency examinations) and a concentration/electives block of eight courses. Each course is 3 quarter hours of graduate credit. Thus, the total program may consist of from 60 to 81 quarter hours.
Prerequisites. Upon matriculation, the student must have received a bachelor's degree from a regionally accredited institution, but there are no specific course prerequisites required to begin the program except college level mathematics through at least one course in calculus. Those electing the management science or statistics concentration must have completed two years of college level calculus. Those admitted to the accounting concentration should plan on up to two additional quarters for undergraduate prerequisite courses that are taken during the first year of the program. Although not required, completion of undergraduate courses in certain areas may qualify the student for exemption from some core courses. (See information under "Exemption from Core Courses" on page 37).

MBA Core. The following courses are required in each student's program unless an exemption from one or more courses is granted as provided below under the heading "Exemption from Core Courses." All core courses are 3 credit hours. The core courses are:
Accounting 5010, 5020, 5030; Business Administration 5310; Business Law 5010; Economics 5010, 5020, 5030; Finance 5010, 5020; Management 5010, 5020; Management Science 5010; Marketing 5010, 5020; Mathematics 5052; Office Administration 5050; Statistics 5010, 5020.1

1Accounting 5020 and 5030 are waived for students who complete the concentration in accounting.
2See notation under the heading "MBA Concentration" in the Management Science Program section (page 44).
Prerequisite Relationships of MBA Core Courses

Read across table to identify prerequisites/corequisites for courses listed in left column

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- Prerequisite or corequisite
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*UTK Math 1550, 5051 or equivalent.

Concentration and Electives. An applicant for admission must select a concentration area. However, a change to another area may be requested at any time after entering the program. Among the 8 courses in the concentration/electives block, at least 4 but not more than 6 must be in one of the following concentration areas (for specific courses required in some concentration areas, see departmental sections on following pages):

- Accounting
- Economics
- Finance
- Forest Industries Management
- Governmental Financial Administration Management
- Management Science
- Marketing
- Real Estate and Urban Development
- Statistics
- Transportation and Logistics

The remaining elective courses (2 to 4) must be in fields outside the concentration area, normally selected from MBA courses offered in other departments of the College, and may comprise a second concentration area of 4 courses. Up to 2 courses (6 hours) in this block may be taken outside the College of Business Administration. No more than 3 courses numbered below 5000 may be included in this 8-course block. Courses numbered below 4000 normally are not approved for the MBA program. Before beginning the concentration/electives part of the curriculum the student must have his/her program approved by the appropriate faculty advisor.

Exemption from Core Courses. A student may be exempted from certain core courses on the basis of having recently completed equivalent undergraduate courses in these subjects with grades of C or higher at a regionally accredited institution. "Recently completed" means, for mathematics, completion of the last course or regular use of math tools within three to four years of matriculation, and for other areas within five to six years of matriculation. Courses in this category (and the approximate undergraduate equivalent work) are:

- Accounting 5010 (6 quarter hours, fundamentals of financial accounting)
- Business Law 5010 (6 quarter hours, the legal and social environment of business)
- Economics 5010 (9 quarter hours, principles of economics—macro and micro)
- Mathematics 5052 (12 quarter hours, including college algebra and calculus. See topics included in Mathematics 5051 and 5052)
- Office Administration 5050 (3 quarter hours, introductory course in computer science with programming).

In addition to the above, a graduate of an AACSB accredited undergraduate business program may request exemption from one or both of the core courses in the area of his/her undergraduate major field, provided at least 30 quarter hours (20 semester hours) of course work were completed in the major area more than five years prior to matriculation, and a grade average of 3.0 or higher (on a 4.0 scale) was earned for all courses in the major. Students requesting such an exemption must petition the appropriate department head. The department may require the student to pass a proficiency examination over any course for which exemption is requested. (See page 37).
A minimum of 60 quarter hours of graduate credit is required to earn the degree. If a student qualifies for exemption from a course in addition to those provided for in the two categories described above, whether by proficiency examination or otherwise, an additional elective course approved by the student’s advisor will be included in the student’s curriculum for each such exempted course so as to meet the 60-hour minimum requirement.

Law students holding degrees from foreign institutions normally may not be exempted from taking core courses.

Transfer Credits. Graduate level courses taken at other AACSB accredited institutions that are relevant to the student’s area(s) of concentration and the Assistant Dean for Graduate Programs in the College of Business Administration, signed by the department head, and submitted to the Vice Chancellor for Graduate Studies and Research. To qualify for the degree, the student must achieve a B average (3.00) or above in MBA core courses required in his/her program, a B average in his/her concentration area(s) and a B average or higher in the overall program. In lieu of passing a written comprehensive examination the student must satisfactorily demonstrate his/her ability to analyze and solve multi-functional problems of the administrative processes and policy determination and to integrate the concepts of the various disciplines embodied in the curriculum of the program. The student is tested in these areas in the courses of the MBA core, particularly in the capstone course, Business Administration 5310—Business Policy, as well as in work required in the concentration areas.

Application and Admission. Application materials may be requested from the Graduate Programs Office, College of Business Administration, The University of Tennessee, Knoxville, Tennessee 37916. Applicants whose programs will include Accounting 5010, Economics 5010 and Office Administration 5500 must begin either in the fall or spring term. Those who are exempted from these courses and who are prepared to take Mathematics 5052 may begin either in the fall or winter quarter. There are three rounds of admissions, and decisions for each entry quarter. The application deadlines shown below are the dates when the GMAT must have been taken and all other required documentation must be in the Graduate Business Programs Office. Application materials should be requested well in advance of these dates.

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<th>Administration Period</th>
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For admission to the MBA program, consideration is given to the applicant’s academic record and particular attention to the last two years of undergraduate work and previous graduate studies, to scores on the Graduate Management Admission Test (GMAT) and the Test of English as a Foreign Language (TOEFL) for those whose native language is not English, to work experience and other activities which demonstrate potential for leadership, and recommendations from professors or work supervisors. The admission decision is based on all factors which make up the total application; therefore, there is no automatic cut-off for either grade point averages or GMAT scores.

Dual J.D.—MBA Program

The College of Business Administration and the College of Law offer a coordinated dual program leading to the conferral of both Doctor of Jurisprudence and the Master of Business Administration degrees. Students who have been accepted by both colleges may apply for approval to pursue the dual program, starting in either the fall or winter quarter. The dual program requirements provide a base in both law and business that will enable the student to spearhead educational and professional goals.

Admissions. Applicants for the J.D.—M.B.A. program must make separate application to, and be competitively and independently accepted by, the College of Law for the J.D. degree and the College of Business Administration for the MBA degree, and by the Dual Degree Committee. Students who have been accepted by both colleges may apply for approval to pursue the dual program anytime prior to, or after, matriculation in either or both colleges. Such approval will be granted, provided that dual program studies be started prior to entry into the last 28 semester hours (42 quarter hours) required for the J.D. degree and the last 24 hours quarter required for the MBA degree.

Curriculum. A dual program candidate must satisfy the graduation requirements of each college. Students withdrawing from the dual program before completion of both degrees will not receive credit toward graduation from either college for courses in the other college, except as such courses qualify for credit without regard to the dual program.

The College of Law will award up to 8 semester hours (12 quarter hours) of credit toward the J.D. degree for acceptable performance in a maximum of 12 quarter hours of approved graduate level courses offered by the College of Business Administration. The College of Law will award up to 8 semester hours (12 quarter hours) of credit toward the MBA degree for acceptable performance in a maximum of 12 semester hours (12 quarter hours) of approved courses offered in the College of Law.

Awarding of Grades. For grade recording purposes in the College of Law for graduate business courses and in the College of Business Administration for law school courses, grades awarded are acceptable to either Satisfactory or No Credit and will not be included in the computation of the student’s grade average or class standing in the college where such grades are so converted. The College of Law will award a grade of Satisfactory for a graduate business course in which the student has earned a B grade or higher and a No Credit for any lower grade. The College of Business Administration will award a grade of satisfactory for a law school course in which the student has earned a 2.3 grade or higher and a No Credit for any lower grade. Grades earned in courses of either college may be used on a regular graded basis for any appropriate purpose in the college offering the course.

The DBA Program

The basic objective of the Doctor of Business Administration program is to provide the student with an opportunity to attain the intellectual competence necessary to meet the highest standards for advancement to a professional position in an academic institution, business enterprise or government. The student will develop a sound foundation for expanding knowledge in the student’s chosen area of concentration and will contribute through research to advancement of the state of knowledge in this area. Moreover, the student’s educational experience should develop perspective toward education in business for a manner that will enable the student to spearhead innovation and change in response to needs.

The DBA program is structured around four major areas. First, it recognizes the interdisciplinary thrust of graduate education and provides the student with a sound foundation for expanding the body of knowledge related to business systems and their interactions with other socioeconomic systems and environmental forces. Second, the student’s program is flexible enough to respond to individualized interest and need. The program is formulated within a sound framework to achieve overall objectives. Third, emphasis is placed upon conceptual foundations and analysis of decision-making processes rather than the descriptive aspects of business administration. Fourth, the student does advanced work in the basic disciplines of economic theory, behavioral science and quantitative science to provide the necessary foundations for research.

Foundation Requirements. Although the program is designed for students who have completed an accredited MBA (or equivalent) degree program, those with outstanding undergraduate records in any area may be admitted directly to the DBA program and may, if they desire, earn the MBA degree in a coordinated program of study. Program prerequisites include a course in calculus, a course in statistics, knowledge of computer programming, and intermediate economic theory (micro and macro). See page 37 for MBA degree requirements.

Entering students deficient in any of these facets of the dual program by taking courses in both colleges and qualifying for acceptance in both programs.

Applicants whose programs will include Accounting 5010, Economics 5010 and Office Administration 5500 must begin either in the summer or fall term. Those who are exempted from these courses and who are prepared to take Mathematics 5052 may begin either in the fall or winter quarter. There are three rounds of admissions, and decisions for each entry quarter. The application deadlines shown below are the dates when the GMAT must have been taken and all other required documentation must be in the Graduate Business Programs Office. Application materials should be requested well in advance of these dates.
areas may enroll in courses designed to meet these requirements.

**Course Requirements for the DBA Program.** Each student must demonstrate, by passing appropriate graduate level courses and/or by examination, an understanding of the business functional areas, the basic disciplines underlying the study of business administration, the student's concentration area and a supporting area. Following are the requirements for each area:

- **A. Business Functional Areas.** One graduate level course in each of the following areas must be completed: managerial accounting, financial management, marketing management, organization theory and behavior, and business policy. Students who have earned an MBA degree at an accredited institution may meet these requirements. Others may include appropriate courses in their programs as approved by their academic committees.

- **B. Basic Disciplines.** Each student must demonstrate proficiency in the following areas by completing course work indicated or by passing appropriate examinations:
  - **Economics**: Economics 5110, 5120, 5111, 5121, 5112, 5122.
  - **Behavioral Science**: Management 5110, 5120, 5111, 5121.
  - **Quantitative Science**: 12 quarter hours in one or a combination of two of the following areas: statistics, management science, econometrics, or computer science. Approval of student's committee is required.

- **C. Concentration Area.** This is the focal point of the program and the area in which the student expects to do his/her research and dissertation. A minimum of 24 quarter hours of course work is required, including 9 hours of doctoral seminars taken at this University. A study of research methodology of the discipline is included. Graduate work in the field taken at another institution is considered by the student’s committee in determining additional course work required. Available concentration areas are:
  - Accounting
  - Finance
  - Management
  - Marketing
  - Transportation and Logistics

- **D. Supporting Area.** A minimum of 12 quarter hours of additional work in one of the basic disciplines or a related area in another school or college of the University. The program of study should be arranged with an advisor in the discipline chosen and must be approved by the student's committee.

**Comprehensive Examinations.** Comprehensive written examinations over the concentration and supporting areas are required of each person seeking candidacy for the DBA degree. The concentration area examination is administered in two sessions of approximately four hours each and the supporting area examination in one session of approximately four hours. The examining committee may, if it deems advisable, supplement the written examinations with oral examinations and may accept the results of only an oral examination for a supporting area in the College of Law. Scheduling of comprehensive examinations will be determined by the examining committee in each of the five concentration areas in coordination with the Assistant Dean for Graduate Programs. The committee must designate two periods during the calendar year and announce the dates at least 90 days in advance. A student may sit for examinations in both areas at one examination period or take them in two consecutive periods. A student who fails an examination on the first attempt must repeat the examination over that area at the next examination period, the results of which shall be final.

**Admission to Candidacy.** A student may apply for admission to candidacy for the DBA degree after maintenance of at least a B average in course work, admission to candidacy, completion of comprehensive examinations and acceptance of a research proposal for the dissertation by his/her faculty committee. Admission to candidacy must be approved at least three quarters prior to the date the degree is conferred. (Admission in the fall quarter permits graduation in the following spring quarter.) See sections headed "Doctoral Committee" and "Admission to Candidacy." 

**Application for Admission to Candidacy.** must include a listing of all courses taken in each of the fields required for the degree (business functional areas, basic disciplines, concentration area and supporting area). Graduate courses accepted from other institutions must be included. Under "Other Requirements" indicate date of acceptance of the research proposal by the Faculty committee. The application must be approved by the student’s faculty committee and the Assistant Dean for Graduate Programs in the College of Business Administration before submission to the Vice Chancellor for Graduate Studies and Research.

**Research and Dissertation.** (minimum of 36 quarter hours). The purpose of the segment is to provide the candidate with a research experience that meets the general standards of the profession. The dissertation is supervised by the candidate’s faculty committee, who must certify its completion and acceptability after the candidate’s oral defense of his/her research effort.

Other Requirements. For information concerning program admission requirements, academic performance standards, fellowships and assistantships, and general rules and regulations of the Graduate School, see other parts of the College of Business Administration section and the General Catalog of the Graduate School. Also see "Academic Common Market," page 36.

**Minimum Academic Performance Standards.** A graduate student in the College of Business Administration whose grade point average at any point after 12 hours is below 3.0 shall be placed on probation. A student on probation shall be dropped from the program unless his/her cumulative graduate grade point average is 3.0 or higher at the end of the probationary period. The probationary period is defined as the next 12 quarter hours of course work attempted which is specified in the student’s degree program. Exceptions to this policy may be made only with the approval of the student’s committee for Graduate Programs of The College of Business Administration upon recommendation of the student’s faculty committee.

**Admission Requirements.** General admission requirements for the Graduate School are stated on pages 12-13. MBA and DBA applicants must submit additional information on forms provided by the College of Business Administration. The application for all programs and supporting materials should be submitted at least three months prior to desired entry date.

The College of Business Administration is associated with other leading graduate schools of business as a member of the Graduate Management Admission Council. Fellowships and Assistantships. Information concerning non-service fellowships administered by the Graduate School as well as application blanks may be obtained from the office of the Graduate School. Information on college-administered fellowships is available from the Graduate Programs Office of the College of Business Administration. Assistantships. A limited number of teaching assistantships and assistantships that require from 10 to 20 hours of service per week are available through the departments of the College. Remuneration includes payment of fees and out-of-state tuition as well as a monthly stipend. Awards are generally made on the basis of scholarship and performance on the admission test. Application forms may be obtained in any of the departments or from the office of the Assistant Dean for Graduate Programs. Applications must be received by March 1 for consideration of assistantships to be awarded for the following fall term.
Center for Business and Economic Research
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 has a business community, state government, individuals, and the University through dissemination of various kinds of economic and socioeconomic information and supports the faculty of the College in seeking funding for research projects. Staff members conduct research in regional economics, public finance, and areas related to socioeconomic problems in the region. The Center publishes the results of its own research and that of others 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 periodically the Tennessee Statistical Abstract and quarterly the Survey of Business. The Center is a member of the Association for University Business and Economic Research.

Management Development Programs
The Management Development Programs Department offers a wide variety of programs ranging from two- to three-day public seminars and customized "in-plant" programs to the four-week Tennessee Executive Development Program.

The Tennessee Executive Development Program (TEDP) is designed to provide executive continuing educational opportunities for executives from firms and organizations in Tennessee, the South, and the nation. The major objective of the program is to prepare and develop executives for increasingly higher levels of management responsibility and to sharpen existing executive skills for comprehensive decision making and leadership. Other major aims of the TEDP are to teach the fundamentals of analytical thinking and the use of the decision tools, and to examine the economic, political, technological, and other environmental factors affecting the firm's operations.

The TEDP limits enrollment to thirty-six participants who live on campus for a total of four weeks spread over a three-month period. This arrangement provides executives with extensive opportunities to exchange ideas and operational concepts with contemporaries in other business areas and with TEDP faculty as well.

The faculty for the TEDP consists of senior professors who teach business-related subjects in the University's graduate programs and nationally recognized professors of other institutions. Each participating faculty member has extensive experience in either consultation with or actual operation in business and industry.

Departments of Instruction

Accounting and Business Law
J. E. Kiger (Head), Ph.D. Missouri, C.P.A.

Accounting

MAJOR

DEGREE

Professors:

N. E. Dietrich, Ph.D. Ohio State, C.P.A.;

Associate Professors:

H. C. Herring, III, Ph.D. Alabama, C.P.A.;
G. E. Nichols, Ph.D. Louisiana State, C.P.A.;
J. A. Pesey, M.S. Tennessee, C.P.A., C.M.A.;
J. H. Scheiner, Ph.D. Ohio State, C.P.A.;
W. L. Slagle, Ph.D. Florida, A.I.C.P.;
K. G. Stanga, Ph.D. Louisiana State, C.P.A.;
R. L. Townsend, Ph.D. Texas, C.P.A.

Assistant Professors:

U. D. Gellis, Jr., Ph.D. Massachusetts; M. C. Letsinger, M.S. Tennessee, C.P.A.

THE MASTER OF ACCOUNTANCY PROGRAM

The objective of the Master of Accountancy (M.Acc.) program is to provide persons having an undergraduate accounting background and a high level of ability and motivation with the depth and understanding of accounting which will enhance their probability of success in a career in professional accounting. Moreover, the student's educational experience should develop perspective toward the discipline of accounting in a manner that will enable the student to spearhead innovation and change in response to needs in public accounting, business, industry or government.

Foundation Requirements. Although the program is designed for students who have completed an accredited baccalaureate degree program with a major in Accounting, those with outstanding undergraduate records in any area may earn the M.Acc. degree by completing prerequisites in accounting and by including courses in other business and related disciplines to supplement the applicant's undergraduate background.

Course Requirements for the M.Acc. Program. A student's program encompasses 51 quarter hours of graduate course work. Specifically, the student must complete courses in selected business disciplines and in the areas of accounting as indicated below. Each course is 3 quarter hours of graduate credit.

Business Core (21 quarter hours)^1:

- Economics 5030; Finance 5010; Management 5101; Management Science 5010; Marketing 5010; Statistics 5010, 5020.
- Accounting 5110, 5120, 5210, 5420, 5950.
- Accounting Electives (Select five) (15 quarter hours)^2

MBA Concentration: Accounting.

DBA Concentration: Accounting.

Minimum Course Requirements for MBA Concentration: 5110, 5120, 5210, 5420.

5002 Non-Thesis Graduation Completion (3-15) Required for the non-thesis student not otherwise registered during any semester in which student uses university facilities and/or faculty time before degree is completed. May not be used toward degree requirements. May be repeated. S/N only. E

5010 Financial Accounting (3) Introduction to accounting model of firm and accounting information system. Not available to students with credit for 2110-20 or equivalent. F, Su

5020 Corporate Reporting Problems (3) Analysis of use of financial reports in public firm. Emphasis on internal and external uses of general purpose financial reports. Prereq: 5010 or equivalent. P

5030 Managerial Accounting (3) Analysis of accounting model of firm as vehicle for planning and controlling activities. Attention to development of cost data appropriate to managerial decision models. Prereq: 5020; Economics 5010. Prereq or coreq: Management Science 5010, Statistics 5020. W, Sp

5110 Seminar in Accounting Theory (3) Evolution of accounting theory, concepts underlying financial reporting models, and authoritative accounting literature as each relates to measurement of periodic performance and financial position. Prereq: Consent of department head. May not be taken by students with credit for 4990.

5120 Seminar in Advanced Auditing (3) Theory and concepts underlying the philosophy of auditing as related to current auditing issues. Prereq: 4120 or equivalent.

5130-40 Seminar in Current Accounting Topics (3, 3) Critical in-depth consideration of current issues and developments in accounting literature. Prereq: 4990 or 5110. Must be taken in sequence.

5160 Graduate Internship in Accounting (3) Full-time resident professional employment for one academic quarter involving qualified job experience, written report of responsibilities, and evaluation of student performance. Prereq: Consent of instructor.

5210-20 Seminar in Advanced Managerial Cost Accounting (3, 3) Analysis of current issues and formulation of personal research projects. Topics include cost allocation problems, budgeting, human resource measurement, social cost effects, performance evaluation and responsibility accounting concepts, service industry, cost analysis and allocation of not-for-profit ventures and programs. Prereq: 3230 or 5210. Must be taken in sequence.

5310 Auditing Concepts (3) Concepts and theory of auditing, environment of internal and external auditing, nature of evidence, internal control evaluation, and reporting. Not intended for persons who have credit for auditing course. Prereq: 3130. Prereq or coreq: Statistics 4415, 5630, or equivalent. (May be taken concurrently.)

5320 Advanced Auditing (3) Case-oriented, including audit of specific asset, liability, revenue and expense accounts. Emphasis on reporting, data processing, statistical sampling, and internal auditing. Prereq: 4110 with C or better. (Available only to MBA students who do not have credit for 4120.)

5330 Advanced Income Tax (3) Federal income tax analysis with emphasis on tax planning and research. Prereq: 3120 with C or higher; 3430 with C or higher. (Available only to MBA students who do not have credit for 4430.)
5340 Consolidations and Business Combinations (3) Theory and practice of accounting for integrated business entities—domestic and foreign. Not intended for persons who have credit for a course with a similar content. Prereq: 3130.

5420 Tax Research (3) Development of expertise in tax research utilizing tax service, tax periodicals, legal cases and other available sources. Includes individual research projects. Prereq: 4430 or equivalent.

5430 Tax Planning (3) Advanced study of income tax problems emphasizing alternatives available to minimize tax liability compatible with achieving taxpayer objectives. Prereq: 5420.

5440 Taxation of Estates and Gifts (3) Transfers at death, intestate transfers, life insurance, annuities and employee death benefits, marital and other deductions and exemptions, and estate and gift tax returns. Prereq: 4430 or 5330 and 5420. (Not available to students with credit for 4440.)

5510 Not-for-Profit Accounting (3) Theory and practice of budgetary and fund accounting, financial reporting, measures of output and accomplishment, and financial and performance auditing for non-profit entities. Prereq: 9 hrs of accounting and consent of instructor.

5630 Accounting Systems and EDP Concepts and Controls (3) Analysis of the application of computers in business environment. Analysis, design, implementation, documentation, and control of accounting systems. Conceptual understanding and knowledge of a computer programming language.

5640 Seminar in Accounting Information Systems (3) Literature on accounting information systems and generalized systems analysis and design concepts. Informational needs of other functional areas of business and interfacing of these areas. Prereq: 4630 or equivalent.

5910-20-30 Accounting Seminar (1, 1, 1) Research in accounting and discussion of contemporary issues in practice of accountancy. May be repeated. Admission by consent of department head. S/NC only.

5950 Seminar in Accounting Research (3) Integration of areas of financial, managerial, tax, and auditing, including directed problem-oriented research in selected topics. Prereq: 5110, 5120, 5210, 5420. (Not available to MBA students.)

5990 Individual Research in Accounting (3) Directed research in a topic of mutual interest to student and faculty member. Prereq: Consent of department head. S/NC only.


Business Law

Professors:

5010 Legal and Social Environment of Business (3) Survey of legal and quasi-legal institutions with emphasis on those which have particular significance to business; basic legal notions and principles that pertain to business management. Not available to students with credit for 4110-20 or equivalent. F, W, Su

Business Administration

MAJOR DEGREES Business Administration MBA, DBA

5310 Business Policy (3) Case studies covering policy formation and administration; point of departure—top and middle management, where company-wide objectives are set and departmental policies coordinated; sizing up company’s situation, determining objectives, developing sound policies, organizing and administering personnel to reach company objectives, continuous administrative reappraisal. Enrollment priority given MBA students in last quarter of their program.

Prereq: Admission to MBA core courses. F, W, Su

5410 Business and Its Societal Environment (3) Analysis of current forces and changes in society and interrelation of plans and actions in business firms with environmental factors. Prereq: Consent of instructor.

5610 Seminar in Applied Business Analysis (3) Application of business concepts and analytical skills to problems of small business. Students work in teams under supervision of participating professor. Prereq: Consent of instructor. May be repeated. Maximum 6 hrs.

Business Education

See College of Education

Economics

MAJOR DEGREES Economics M.A., MACT, M.S., Ph.D.

Professors:

Associate Professors:
H. S. Chang, Ph.D. Vanderbilt; E. Glustoff, Ph.D. Stanford; H. H. W. Hwang, Ph.D. University of Maryland; A. Mayhew, Ph.D. Texas; K. E. Phillips, Ph.D. Washington (Seattle); A. M. Schultman, Ph.D. Washington (St. Louis).

Assistant Professors:
D. P. Clark, Ph.D. Michigan State; S. P. Coelen, Ph.D. Syracuse; C. B. Dorm, Ph.D. Massachusetts Institute of Technology; D. L. Kaserman, Ph.D. Florida; N. C. Modeste, Ph.D. Florida; G. E. Schult, Ph.D. Boston; E. D. Wickham (part-time), Ph.D. Rochester.

THE MASTER'S PROGRAM

The minimum requirements for a graduate major in Economics for the Master of Arts and the Master of Science degrees consist of the following: (1) Economics 5111-12 and 5211-22, (2) 9 additional hours in economics at the 4000 level or above, (3) a thesis, or an additional 9 hours in economics at the 5000 level above to be concentrated in one field. Students electing the non-thesis option will be required to pass a final written comprehensive examination.

The requirements for a graduate minor in Economics are as follows: Either (1) 5111-12 and 5211, or (2) 5111 and 5121-22, or (3) with the consent of the head of the economics department, an alternative sequence of 9 hours to meet unusual conditions.

MBA Concentration: As approved by the area MBA faculty advisor.

4000 Special Topics (3) Subject generated course offered at convenience of department upon student request. Subject matter and contents determined by students and instructor with approval of the department head. S/NC only.

5000 Thesis (1-15) E 5002 Non-Thesis Graduation Completion (3-15) E Required for the non-thesis student not otherwise registered during any quarter when such a 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 5011-12 Problems in Lieu of Thesis (3, 3) E 5090 Workshop in Economics (3-9) Special topics in economics education. Not available for credit in any College of Business Administration degree program. Prereq: consent of instructor. May be repeated. Maximum 9 hrs.

6000 Doctoral Research and Dissertation (3-15) E ECONOMIC THEORY

4110 Managerial Economics (3) Application of economic theory to business decision making; emphasis on profit objectives, measurement and forecasting demand, pricing costs, and capital budgeting. Prereq: 2110-20-30.

4130 Business Cycles (3) Fluctuations in income, employment, prices, and output in the economics
Applications of basic concepts in differential and economic ideas from mercantilists through Alfred come and price level determination; applications to tariffist and income-expenditure approaches to inflation of aggregate fluctuations for individual firm. Stabilization (3) Macroeconomic environment of analysis and forecasting of demand, cost analysis, pricing behavior, and optimizing techniques. Prereq: 5110 or equivalent. Prereq: core statistics.

5010 Introduction to Economic Analysis (3) Analytical tools of macro- and microeconomics for students without prior training in economics. Price determination, national income measurement and determination, and banking system. Not available to students with credit for 2110-20-30 or equivalent. F, S

5020 Managerial Economics (3) Application of economic concepts to business decision making. Analysis and forecasting of demand, cost analysis, pricing behavior, and optimizing techniques. Prereq: 5010 or equivalent. Prereq or core: Statistics 5010 or equivalent. F, W

5030 Economic Fluctuations, Forecasting, and Stabilization (3) Macroeconomic environment of the economy to determine output, employment, and prices for economy as a whole. Implications of aggregate fluctuations for individual firm. Role of forecasting techniques and stabilization policies. Prereq: 5010 or equivalent. F, Sp, Su

5110 Fundamentals of Microeconomics (3) Verbal arguments and geometric and algebraic techniques. Theory of demand; consumer behavior and demand theory of production and cost; long and short run theories of profit maximizing in both perfectly competitive and imperfectly competitive environments; theory of derived demand. For students whose major is other than economics. Not available for students with credit for 5111. Prereq: 5120 or equivalent. W

5111-12 Microeconomic Theory I, II (3, 3) Theory of consumer choice and demand; the firm; production and costs; market structures; derived demand and factors of production to welfare maximization; capital theory. Should be taken in consecutive quarters. Prereq: 3110 or equivalent. F, W

5120 Fundamentals of Macroeconomics (3) Deterministic and random aspects of macroeconomy as a whole; relationships between interest rates, price expectations, productivity, and quantity of money. Exposures to saving, investment, and liquidity preference. For students whose major is other than economics. Not available for students with credit for 5111. Prereq: 3120 or equivalent. W

5121-22 Macroeconomic Theory I, II (3, 3) Moneymarket and income-expenditure approaches to income and price level determination; applications to contemporary macroeconomic problems. Should be taken in consecutive quarters. Prereq: 3120 or equivalent. W, Sp

5150 History of Economic Thought (3) Development of economic ideas from mercantilists through Alfred Marshall; emphasis given to classical and neoclassical tradition.

5160-90 Mathematical Methods in Economics (3, 3) Application of basic methods of calculus to integral calculus, difference and differential equations, linear algebra and stochastic models to topics in theory of firm, growth models, game theory, linear programming, and decision making under uncertainty. Prereq: 1 yr of calculus. Sp, F

5170 Public Finance: Revenues (3) Same as Finance 5710. F

5180 Public Finance: Expenditures (3) Same as Finance 5720. W

5740 Seminar in Public Finance (3) Same as Finance 5740. Sp

5810 Financial Markets and Intermediaries (3) Same as Finance 5810. W

5820 Monetary Theory and Policy (3) Same as Finance 5820. F

5830 Commercial Bank Management (3) Same as Finance 5830. F, Sp

5841 Advanced Macroeconomic Theory (3) Topics in macroeconomic theory and policy. Prereq: 5122 or equivalent. Mason 5841.

5190-80 History of Economic Doctrines (3, 3) Important ideas of economic thinkers from Middle Ages to present. W, Sp


6170-20 Seminar: Fiscal Theory and Public Finance (3, 3) Same as Finance 6710-20. INTERNATIONAL TRADE AND ECONOMIC DEVELOPMENT

4230 Problems in International Trade and Economic Development (3) Problems or problem areas of current importance in fields both of international economics and economic development. Prereq: 5210 or 5220. W

4231 The Political Economy of Latin America (3) Description, analysis, and comparison of major economics problems and policies of various Latin American countries. Prereq: 3210 or 3220. W

4232 The Political Economy of Asian Development (3) Description, analysis, and comparison of major economics problems and policies of India, China, and Southeastern Asian countries. W

4260 Economics of Resources and Environmental Policy (3) Economic analysis of environmental policy and allocation of resources. Benefits and costs of development of natural resources and impacts of growth on environment. Prereq: 2130. W

5210 Seminar in International Trade Theory (3) Pure theory of international trade. F

5220 Seminar in Economic Development (3) Economic problems of developing countries. F

5230 Economic History of Europe (3) Nature and functioning of economic systems and policies in history of western civilization; examination of some major issues of method and interpretation. F

5290 Economic History of the U.S. (3) Interpretation of American economic structure and policies from colonial times. W

5610 Location and Regional Development Theory (3) Theory of industrial, agricultural, and residential location; economic basis for land use patterns and centers; examination of regional inequalities and national assistance for regional economic development. W

5620 Methods of Regional Analysis (3) Theory of regional structure and growth. Examination of regional models for impact analysis and economic forecasting. Methods of analysis include regional descriptive statistics, time series analysis, econometric concepts, regional income and product accounts, shift and share analysis, economic base studies, and regional input-output, linear programming, and econometric models. W


6231-32, 6241-42 Seminar in Economic Development (3, 3, 3, 3) Development and application of analytical tools to problems of economic policy faced by developing regions and countries. W, A; Sp

6250 Seminar in European Economic History (3) Selected topics in European economic history. Prereq: Consent of instructor. May be repeated with consent of department. W

6260 Seminar in American Economic History (3) Selected topics in American economic history. Prereq: Consent of instructor. May be repeated with consent of department. Sp

6270 Seminar in Economic History of the Third World (3) Selected topics in economic history of societies other than those of Western Europe and English-speaking North America. Prereq: Consent of instructor. May be repeated with consent of department. F, A

6610 Seminar in Regional Analysis (3) Selected topics in regional economic theory and analysis. May be repeated. Maximum 6 hrs. Sp, A

6620 Regional Economics Workshop (3) Selected topics in applied regional research. Emphasis on student participation in model design and estimation, forecasting, simulation, and mathematical and computer programming. May be repeated. Maximum 6 hrs. Sp, A

6650 Seminar in Environment and Resource Economics (3) Topics in environmental quality, natural resource allocation by private markets, and issues in formulating public policy towards environmental problems. Prereq: Consent of instructor. May be repeated. Maximum 9 hrs. Sp, A

INDUSTRIAL ORGANIZATION

4350 Industrial Organization Analysis (3) Monopoly and competition in the United States economy; market structure, business behavior, and economic performance and interrelationships. Prereq: 9 hrs of introductory economics. W

5340 Seminar in Private Enterprise and Public Policy (3) Structure of economic systems and policies in history of development, and consequences for business conduct and performance; social control of business through antitrust and other government regulation. W

6351-52, 6361-62 Seminar in Industrial Organization (3, 3, 3) 6351-52—Organization of industry in America. Emphasis on empirical and analytical techniques used in investigating structures, conduct, and performance. 6361-62—Public policy in the United States with respect to industrial structure and business conduct; examination, appraisal and proposals for change. Sp, A; W, A

ECONOMICS OF CENTRALLY PLANNED ECONOMIES

5310 Economic Systems (3) Study and appraisal of underlying behavioral, economic, sociopolitical, and other system characteristics. W

6331 Theory and Practice of Economic Planning (3) Leading economic thought, tools of analysis, evaluative and indicative planning. Prereq: Consent of instructor. May be repeated with consent of department. F

ECONOMICS OF LABOR AND MANPOWER

4430 Manpower Problems and Policy (3) Current manpower problems and examination of possible solutions. Problems include unemployment...
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College of Business Administration

inflation, manpower training and education, poverty and economic development for others. Emphasis on analytical basis for understanding manpower problems. Prereq: 2110-20. Sp


MBA Concentrations: Finance; Governmental Financial Administration; Real Estate and Urban Development.

DBA Concentrations: Finance Minimum Course Requirements for MBA Concentrations: Finance—As approved by the area MBA faculty advisor. Governmental Financial Administration—5710, 5720, 5730, 5740; Accounting 5510. Real Estate and Urban Development—Real Estate 5110, 5120, 5130, 5140.

5002 Non-Thesis Graduate Completion (3-15) Required for the non-thesis student not otherwise registered during any quarter when such a student uses university facilities and/or faculty time before degree is completed. Credit cannot be used toward degree requirements. May be repeated. S/N only. E

6000 Doctoral Research and Dissertation (3-15) FINANCE AND INVESTMENTS

5010 Financial Management and Asset Valuation (3) Analysis of decision making in financial management. Process by which a firm is valued; roles of capital; budgeting decision examined under conditions of uncertainty. Alternatives in risk methods. Prereq: Economics 5010; Statistics 5010. Prereq or coreq: Accounting 5020. W, Sp


5120 Quantitative Techniques in Financial Management (3) Applications of mathematics, probability, and statistics to model building and testing in finance. Prereq: 5020; Statistics 5010. F, W

5130 Financial Administration (3) Cases and readings within firm; refined techniques of analysis; optimal financing decisions; capital cost measurement; utilization of capital markets; general corporate financial theory. Prereq: 5020. W, Sp

5140 Seminar: Managerial Finance (3) Applications of theory and quantitative techniques to solution of current problems in managerial finance. Prereq: 5120 or 5130. W

5420-30 Investments (3, 3) Investment decision process. Introduction to portfolio procedure and security prices; financial statement analysis; stock-price valuation models. Must be taken in sequence. W, F, W

5440 Commodity Futures and Stock Options (3) Trading in commodity futures markets and in "put and call" stock options; factors influencing commodity investment and pricing; option valuation models. Prereq: 5420.

5800 Executive-In-Residence Seminar for MBA (3) Practical aspects of financial management and investments. Leading industry, banking, and governmental personnel conduct class. Prereq: Consent of department. Sp

5990 Research in Finance (3) Directed research on topic of mutual interest to the student and staff member. Prereq: 5020. May be repeated. Maximum 6 hrs.

6410 Analysis of Financial Decisions (3) Micro and macroanalysis of financial problems and financial decisions. Sp

6420 Theory of Finance (3) Theory of financial decision making under conditions of certainty and uncertainty. Application of theory of choice to allocation of financial resources over time with reference to financing decisions, investment decisions, and the determinants of the cost of capital. F

6510 Seminar in Financial Management (3) Employment of quantitative techniques in formulation and solution of financial management problems. W

MONEtary POLICY AND FINANCIAL INSTITUTIONS

5810 Financial Markets and Intermediaries (3) Capital formation and allocation of capital in U.S. economy and abroad. Process of saving, partial institutionalization of these savings, investments of financial intermediaries, efficiency of allocation process and effect on economy, and impact of financial institutions on financial markets. (Same as Economics 5810.) W

5820 Monetary Theory and Policy (3) Relationship of money, money supply, interest rates, employment and prices as well as examination of effect of monetary policy on economic activity. Prereq: Economics 5820 or equivalent. (Same as Economics 5820.) F

5830 Commercial Bank Management (3) Bank management decision-making analysis of changes in banking environment and structure; acquisition and management of funds; current banking problems. Prereq: Consent of instructor. (Same as Economics 5830.)

6110-20 Seminar: Monetary Theory (3, 3) Study of money, credit, and liquidity as related to income, interest rates, employment, output, and prices.

6810 Financial Institutions and Markets (3) Theory of financial institutions, market institutions, and analysis of market efficiency.

GOVERNMENTAL FINANCIAL ADMINISTRATION

5710 Public Finance; Revenues (3) Allocative, distributive, and stabilization effects of alternative revenue systems. Prereq or coreq: Economics 5020 or equivalent. (Same as Economics 5710.) F

5720 Public Finance; Expenditures (3) Functions and growth of public sector, public goods, and benefit/cost analysis. Prereq or coreq: Economics 5020 or equivalent. (Same as Economics 5720.) W

5730 Finance Administration of Government (3) Budgeting and cash management in public sector. Prereq: Economics 5020 or consent of instructor. Sp

5740 Seminar in Public Finance (3) Selected topics: public choice, pricing government services, fiscal policy, and fiscal dynamics. Prereq: 5710 or consent of instructor. (Same as Economics 5740.)

6710-20 Seminar: Fiscal Theory and Public Finance (3, 3) Advanced topics in fiscal theory and policy. (Same as Economics 6710-20.)

INSURANCE

5110 Theory of Risk Management (3) (For students with no background in risk and insurance.) Risk management for exposure to incapable risks facing individual and firm. Analysis of risk management techniques with emphasis on insurance as a tool. W

REAL ESTATE AND URBAN DEVELOPMENT

5110 Urban Economic Analysis (3) Urban economic analysis. Land value and use. Analysis of current urban problems in United States. Prereq: Economics 5010 or consent of instructor. F

5120 Real Estate Analysis (3) Analysis of real property investment and appraisal theory. Prereq: Finance 5010 or Planning 5465 or consent of instructor. W

5130 Housing and Urban Land Markets (3) Analysis of housing demand, supply and location. Segregation and housing discrimination. Impact of urban renewal and public policy on housing markets. Prereq: 5110 or consent of instructor. W

5140 Real Estate Investment and Taxation Analysis (3) Analysis of economic factors and institutions which underlie real estate investment decision making. Case method utilized. Prereq: 5120 or consent of instructor. Sp

Management


Associate Professors: F. A. Chamblin, M.B.A. Indiana; O. S. Fowler, Ph.D. Texas; C. W. Neel, Ph.D. Alabama.

Assistant Professors: J. A. Bachmann, Ph.D. Virginia Polytechnic Institute; R. T. Johnson, Ph.D. Georgia; M. C. Rush, Ph.D. Akron; C. R. Wooliam, Ph.D. Texas Tech.

MBA Concentrations: Management; Forest Industries Management.

DBA Concentration: Management. Minimum Course Requirements for MBA Concentrations: Management—As approved by the area faculty advisor. For A.B.A. 5110-20 Seminar: Management—5110, 5120; Forestry 5260, 5270.

1 Alumni Distinguished Service Professor.

2 Alumni Distinguished Service Professor.
Quantitative techniques with systems framework to Operations Management (3) Management concepts of organization theory, organizational behavior and management processes.  

520 Operations Management (3) Management processes of planning, operating and control of production systems, management concepts and quantitative techniques with systems framework to operating problems. Prereq: 5010; Management Science I (3) F, Sp, Su  

5110 Organization Theory (3) Analysis and design of organization structure. F  

5130 Managerial Planning and Control (3) Processes of management planning and controlling with emphasis on corporate strategic planning. Sp  


5170-90-90 Proseminar in Industrial and Organizational Psychology (1-3, 1-3) Readings in industrial and organizational psychology. Available only by prearrangement with supervising faculty member. May be repeated. Maximum 6 hrs. S/N/C or letter grade.  

5210 Personnel Management (3) Analysis and appraisal of the personnel function. F  

5220 Wage and Salary Administration (3) Analysis of problems, programs, and practices. F  

5230 Human Problems in Administration (3) Review and critique of research in industrial human relations. (Same as Psychology 5450.)  

5250-60 Industrial and Organizational Psychology (1-3, 1-3) Readings in industrial and organizational psychology. Available only by prearrangement with supervising faculty member. May be repeated. Maximum 6 hrs. S/N/C or letter grade.  

5280 Independent Study, Project or Research in Management (1-3) Topic of mutual interest to student and faculty member. Available only by prearrangement with supervising faculty member. May be repeated. Maximum 6 hrs. S/N/C or letter grade.  

5320 Management Problems in Industrial Research (3) Basic administrative problems encountered in management of industrial technological research and engineering programs, and comparable programs in which professional personnel predominate. F. A  

530-20 Production Management (3, 3, 3) Quantitative approach to solution of production management problems. Prereq: 5020 or consent of instructor.  

5610-20 Organizational Behavior (3, 3) Behavioral methodology and perspective, including review of empirical behavioral research in organizations. Must be taken in sequence. F, W  

5710 International Business Management (3) Analysis of environment of international business firms and impact of internal and external factors on managerial decisions. Sp  

5810 Energy Management: Theory and Practice (3) Management of energy resources in operating systems; decision criteria, trade-offs, system analysis, energy audits, technical parameters, conservation methods, worldwide energy supply and demand, new energy technologies.  

6000 Doctoral Research and Dissertation (3-15) E  

6110 History of Management Thought (3) Significant historical ideas leading to present state of art of management.  

6120 Advanced Organizational Theory (3) Analysis of functioning of complex organizations: structure, culture, and adaptation.  

6130 Seminar in Contemporary Management Issues (3) Contemporary management policy issues. May be repeated.  

6250-60-70 Seminar in Industrial and Organizational Psychology (3, 3, 3) Advanced problems in industrial psychology. Areas include performance evaluation, executive development, group process, and morale. (Same as Psychology 6250-60-70.)  

6380 Seminar in Industrial and Organizational Psychology (3) (Same as Psychology 6380.)  

6900 Field Work in Industrial and Organizational Psychology (1-15) Supervised practice. One credit hr for each 20 hrs of such practice. Maximum 15 credits. (Same as Psychology 6900.) E  

Management Science  

MAJOR  

Management Science  

DEGREE  

Ph.D.  

Professor: R. G. Garfinkel, Ph.D. Johns Hopkins.  

Associate Professor: R. E. Rosenstiel, Ph.D. Georgia Institute of Technology.  

Management Science Committee: Members of the Management Science faculty and in addition: R. W. Boling, Management; J. S. Bradley, Mathematics; W. L. Church, Civil Engineering; F. Glustoff, Economics; W. J. Morse, Accounting; R. E. Shriver, Finance; C. H. Thigpen, Statistics; M. D. Williams, Computer Science.  

MBA CONCENTRATION  

For students whose MBA concentration area is Management Science, the MBA Core is revised as follows: substitute Management Science 5310 for 5010, Statistics 5110 for 5020, and with approval of student's advisor, substitute Statistics 5120 for 5020. The concentration area must include Management Science 5330 and 5340.  

MASTER OF SCIENCE PROGRAM  

See page 98 for details of the Master of Science program in Management Science.  

THE DOCTORAL PROGRAM  

The Ph.D. program in Management Science is designed to prepare students for management positions, research, and teaching related to the application of mathematical tools in the administration of complex organizations. Three primary objectives of the program are:  

1) to provide management science course work, a thorough knowledge of common Management Science/Operations Research mathematical models and their uses;  

2) to provide sufficient advanced study in a supporting area to qualify the graduate for a joint faculty position in the supporting area and management science. The candidate may choose from the business functional areas (accounting, finance, marketing, production management, and transportation and logistics) or other disciplines, (e.g., computer science, statistics, forestry, ecology, and public administration);  

3) to develop in the student, through course work in mathematics, statistics, and computer science, a high degree of mathematical maturity which will serve the graduate student throughout a life-long career, whether in management, research, or teaching.  

Degree Requirements: General University requirements for the doctoral degree are stated on page 21.  

Course Work. A minimum of 72 quarter hours of course work taken for graduate credit (exclusive of thesis or dissertation) is required. The candidate must complete a minimum of 36 quarter hours at The University of Tennessee, Knoxville, at least 9 of which must be at the 6000 level. Entering students who have completed graduate studies in applicable fields will be granted course credits for work which is equivalent to required courses in the program.  

The program includes approximately 24 to 30 quarter hours of course work in the applied concentration area.  

Qualifying Examinations. The student must demonstrate mastery of probability theory and statistical inference (Statistics 5110-20-30) by passing a written qualifying examination.  

Mastery of 18 to 21 quarter hours in mathematics course work must be demonstrated by passing a written qualifying examination. Topics normally include numerical analysis (either Mathematics 4225, 4245, 4060 and 5055, or Mathematics 5655-65-75) and real analysis (Mathematics 4510-20-30). Other options may be approved. In exceptional circumstances the faculty will consider waiving the mathematics and/or statistics qualifying examinations.  

There is no foreign language requirement. These requirements generally are completed by the end of the first year of the program.  

Comprehensive Examination. Prior to admission to candidacy for the degree, and normally after completion of the second year of the program, the student must pass a written comprehensive examination covering the theory of deterministic and stochastic management science models. Topics included in this examination are determined on an individual basis. Students will be expected to demonstrate an integrative ability that goes beyond simple mastery of course content.  

Research and Dissertation. The student must complete 36 quarter hours of Management Science 6000, Doctoral Research and Dissipation (1-15), the course in which he/she is expected to make a significant contribution to the science. A final oral examination is conducted over the dissertation and such other segments of the program that the doctoral committee deems appropriate. This effort, which is beyond the minimum 72 hours of course work, normally is completed in the third year of the program.  

Prerequisites for Management Science Courses. The Management Science Program is interdisciplinary and students in other degree programs are encouraged to enroll in management science courses. Course prerequisites are designed to indicate the level at which courses are taught. Interested students whose prior course work does not match the prerequisites are encouraged to seek the instructor's guidance and consent to enrollment.  

5000 Thesis (1-15) E  

5002 Non-Thesis Graduation Completion (3-15) E  

Required for the non-thesis student not otherwise registered during any quarter when such a student uses university facilities and/or faculty time before degree is completed. May not be used toward degree requirements. May be repeated. S/N/C only. E  

5010 Quantitative Analysis for Management Decisions (3) Assignment, transportation and game linear programming problems; decision theory.
Marketing and Transportation
G. N. Dicer (Head), DBA Indiana.

Marketing

Professors:
D. W. Cravens, DBA Indiana; E. O. Dille (Emeritus), Ph.D. Ohio State; E. E. Garrison (Emeritus), Math, Ohio State; G. E. Hills, DBA Indiana; R. B. Woodruff, DBA Indiana.

Associate Professors:
D. J. Barnaby, Ph.D. Purdue; E. R. Cadotte, Ph.D. Ohio State; R. L. Jenkins, Ph.D. Ohio State; J. R. McMillan, Ph.D. Ohio State; R. C. Penzenstadler, Ph.D. Cornell; G. D. Sentell, DBA Indiana; R. L. Spilja, Ph.D. Georgia.

Assistant Professors:
F. L. Barbour, Ph.D. Illinois; L. R. Durfee, M.S. Purdue.

MBA Concentration: Marketing.

DBA Concentration: Marketing.

Minimum Course Requirements for MBA Concentration: 5300, 5350, 5400, 5410.

5002 Non-Thesis Graduation Completion (3-15) Required for the "nonthesis" student not otherwise registered during any quarter when such a 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

5010 Marketing and Distribution Management (3) Analysis of current marketing and distribution structure institutions, functions, and marketing problems. Systems concepts and analytical decision process. Prereq: Accounting 5010; Economics 5010. Prereq or coreq: Statistics 5010. F, W, Sp

5300 Marketing Research Applications (3) Advanced design and measurement issues. Prereq: Consent of instructor. A

2001 Special Topics in Marketing Science (3) Prereq: Consent of instructor. May be repeated. Maximum 9 hrs.

6000 Doctoral Research and Dissertation (3-15) E

6110-20-30 Models for Production Systems (3, 3, 3) Seminar providing research practice to enhance professional development of doctoral students. Investigation of existing mathematical models for production processes and opportunities for original research.

6210 Network Flows (3, 3) In-depth treatment of network optimization algorithms including transportation and transshipment; primal-dual and primal base-tree methods; multimodular, multi-terminal, and nonlinear programming. Prereq: 5320, 5360 or equivalent and other special topics on the analysis of multicommodity flow network problems. Prereq: 5310. A or equivalant.

6310 Integer Programming (3) Theoretical and computational aspects of linear programming with integer variables, branch and bound, cutting plane, and group theoretical algorithms. Prereq: 5310 or equivalent.

6410 Large Scale Mathematical Programming (3) Development of solution strategies for linear programming problems that have many constraints, many variables, and/or many constraints on matrix variables. Prereq: 5310 or equivalent.

6510 Nonlinear Optimization (3) Solution of constrained and unconstrained nonlinear optimization problems focusing on algorithms that have performed well in recent practice. Prereq: 5310 or equivalent.

6610 Markovian Decision Models (3) Formulation and solution algorithms for Markov models incorporating decision-making processes. Prereq: 5310 or equivalent.

6620 Queuing Models (3) Application and mathematical analysis of models of congestion. Basic birth-death process models, other Markovian models, non-Markovian models for systems with general service or arrival patterns, priority customers or other classes of customers, queues in series. Prereq: 5330 or Mathematics 4750-80.

6710 Location Models (3) Application of linear, nonlinear, and network optimization techniques to problems of location of new facilities. Prereq: 5310 or equivalent.

6810 Special Topics (3) Prereq: 5310-20-30 and consent of instructor. May be repeated. Maximum 9 hrs.

6910-20-30 Management Science Seminar (1-3, 1-3) Subjects selected from current management science literature. F, W, Sp
Courses numbered below 5000 are not open to Assistant Professors:

Associate Professors:

D. Reese, Ph.D. Iowa; E. R. Smith, Ph.D.

J. Stallard, Program Director

6210 Seminar in Transportation and Logistics

Analysis of major transportation modes and their managerial strategies. Consideration of how social, technological, legal, and financial environment affects top level decision making. Application of general business, marketing, finance, and statistical decision processes to transportation decision making in uncertain environment. F

5220 Logistics Systems Management (3) Development of strategy for management of logistical systems. Emphasis on executive level integration of logistics operations with marketing, production, and other decision areas. Practical applications through a case approach and simulation game. Prereq: Management 5020. W

5510 Urban Transportation Policy (3) Movement of people, goods and information in urbanized areas with special emphasis on formulation of national, state, and local policy. Emphasis on evolving new urban transportation concepts. W

5610 International Transportation Policy (3) Comparative analysis of transport systems in other countries. Analysis of U.S. policy relative to international transportation. Sp

5910 Advanced Law and Regulation (3) Legal rights and responsibilities of shippers and carriers. Analysis of decisions of regulatory commissions, courts, and principles of law arising from these decisions. Sp

5990 Independent Study in Transportation/Logistics (1-5) Directed study in surface and air transportation, national transportation policy, transportation/logistics research developments, or subject of particular interest to student and faculty. May be repeated. Maximum 6 hrs. E

6000 Doctoral Research and Dissertation (3-15) E

6110 Seminar in National Policy (3) Critical analysis of contemporary national transportation policy issues. F

6210 Seminar in Transportation and Logistics Models (3) Analysis of contemporary models and methodologies in transportation and logistics research. Relative emphasis on topical coverage at discretion of instructor. Prereq: Management Science 5010; Statistics 5010 or equivalent. Sp

6220 Research Methodology in Transportation and Logistics (3) Emphasis and design of research in transportation and logistics.

Office Administration

J. Stallard, Program Director

Professors:

E. W. Davis (Emeritus), M.S. New York University; D. Reese, Ph.D. Iowa; E. H. Smith, Ph.D. Ohio State; C. H. Bollinger, M.S. Indiana.

Associate Professors:


Assistant Professors:

P. D. Campbell, M.S. Austin Peay; H. Petree, M.S. Tennessee.

Courses numbered below 5000 are not available for credit in the MBA program.

4310 Business Letter Writing (3) Principles, practices, and mechanics of effective business letters and memos; principles applied by solving communication cases; emphasis placed on letters and memos as major sources of ideas in communications system of the business firm. E

4320 Business Report Writing (3) Basic principles and procedures of originating and disseminating business reports, both formal and informal in style, writing techniques for short and long reports; graphic presentation and interpretation; use of primary and secondary data for reports. E

4420 Advanced Transportation (3) Improvement of ability to present and convey information on a wide variety of topics; emphasis on competencies needed to meet occupational standards. Prereq: Management 5020.

4510 Office Management (3) Strategic and operational planning of office objectives; relating tasks and human resources to objectives; recruiting, selection, training, and development of office staff; directing of office staff through leadership, motivation, communications; measurement of office performance, comparison to standards, and corrective actions; and applications of decision making to the office. Sp

4520 Office Systems (3) Synthesis of systems and subsystems applicable to centralized and decentralized office functions. Emphasis placed on cost analysis in contemporary office environment, technology, and research analysis. Sp

4810-20-30 Problems in Office Administration (1-3, 1-3, 1-3) Subject and title vary each quarter. May be repeated. Maximum 3 hrs for each course.

5011 Problems in Lieu of Thesis (3)

5050 Data Processing in Business (3) Fundamentals of data processing, computer programming and applications, computer system design. (Available only as stated on page 36.) E

Statistics

MAJOR

Degree

Statistics

Professors:

C. C. Thigpen (Head), Ph.D. Virginia Polytechnic Institute; D. S. Chambers, MBA Texas; R. A. McLean, Ph.D. Purdue; J. W. Philpot, Ph.D. Virginia Polytechnic Institute.

Associate Professors:

H. A. Lasater, Ph.D. Rutgers; F. D. Sanders, Ph.D. Texas; D. J. Wheeler, Ph.D. Southern Methodist; M. S. Younger, Ph.D. Virginia Polytechnic Institute.

Assistant Professors:

G. B. Renny, Ph.D. North Carolina State; S. W. Ward, Ph.D. Virginia Polytechnic Institute.

THE MASTER'S PROGRAM

The M.S. program in Statistics is designed to provide students a basic foundation in theoretical and applied statistics for meaningful careers as consulting and practicing statisticians. A candidate should possess an undergraduate degree with a strong background in calculus, but no restrictions are imposed regarding the undergraduate major. The typical Master of Science degree program in Statistics is as follows:


Quarter Hours

Probability theory . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . ...
5211 Elementary Statistics (3) Introductory statistics for graduate students. Probability, sampling distributions, estimation, and hypothesis testing. Emphasis on interpretation and decision making. Not available for credit in any College of Business Administration degree program. F, Su


5610 Special Topics in Statistics (3) Prereq: Consent of instructor. May be repeated. Maximum 9 hrs.

6060 Applied Multivariate Analysis (3) Canonical correlation; discriminant analysis for several groups, and for equal and unequal covariance matrices; principal component analysis; Hotelling's T², multivariate analysis of variance and covariance. Prereq: 1 yr applied statistics including analysis of variance and multiple regression analysis. W

6070 Factor Analysis (3) Principal component analysis and principal factor analysis; estimates of communalities; methods of rotation; interpretation of factors; cluster analysis. Prereq: 6060. Sp

6210 Stochastic Processes II (3) Special analysis, time series, linear and nonlinear systems. Prereq: 5210.
The College of Communications offers two graduate degrees with a major in Communications, the Master of Science (M.S.) degree and the Doctor of Philosophy (Ph.D.) degree. In addition, Communications is available as a minor for students majoring in other departments. Required course work will be selected after discussion with the major advisor and an advisor from the College of Communications.

The M.S. program (professional track) is accredited by the American Council on Education for Journalism. The College is a member of the American Association of Schools and Departments of Journalism and the Broadcast Education Association. The doctoral program in Communications is listed in the Academic Common Market of the Southern Regional Education Board. Students residing in Alabama, Georgia, Kentucky, South Carolina, Virginia, and West Virginia can normally qualify for in-state fee status by applying to the Academic Common Market coordinators in their state capitals.

Master of Science

The Master of Science degree with a major in Communications is offered for students who primarily desire (1) advanced preparation in effective communication for mass media and other fields of applied communications, or (2) a deeper understanding of the communication process and the social role of the mass media. The prospective student who is interested only in acquiring basic skills in journalism, advertising, or broadcasting is advised to consider a second baccalaureate rather than an advanced degree. (Note: There is no M.S. in Journalism or Advertising or Broadcasting at this institution. Students desiring a major in one of these fields must take the B.S. program.)

Applicants must meet admission requirements of the University Graduate School. In addition they must complete the Graduate Record Examination, the California Psychological Inventory, and application forms as required by the College of Communications. All application materials will be screened by an admissions committee authorized by the Graduate Studies Committee of the College of Communications.

New students may be admitted to the program at any time; however, beginning enrollment is limited to the summer and fall quarters each year. Unless necessary materials are received at least six weeks before registration, applications may not be processed in time for admission to full potential candidate status in the first quarter. In these cases, the student may still qualify for non-degree or provisional status.

The student may choose either of two tracks, both leading to the M.S. in Communications and both requiring a thesis:

The academic track is designed for the student who wishes to emphasize advanced study of the theory and effects of communications. A minimum of 45 hours of approved graduate work is required:

- 12 hours of core courses:
  Communications 5100, 5120, 5140 and 6100,
  the first three of which must be taken during the first two quarters of the student's program, except with written approval of the Assistant Dean for Graduate Studies for the College.
  In addition, students who earned their Bachelor's degrees outside the field of Communications will normally be required to add Communications 5130 to their core;
- 24 hours of selected courses within the College, including at least 9 hours at the 5000 level;
- 9 hours of thesis work (Communications 5000).

The professional track is designed for the student who desires the graduate degree but wishes to emphasize a particular professional area, such as advertising, broadcasting, journalism, or public relations. A minimum of 45 hours of approved graduate course work is required:

- 9 hours of core courses:
  Communications 5100, 5120 and 5140, which must be taken during the first two quarters of the student's program, except with written approval of the Assistant Dean for Graduate Studies for the College;
- 15 hours in a major area within the College, including at least 6 hours at the 5000 level;
- 9 hours of thesis work (Communications 5000);
- at least 12 hours in a minor area approved by the major advisor, of which at least 6 hours must be at the 5000 level.

In addition, students with Bachelor's degrees in other cognate areas will be required to complete prerequisites as designated by their advisors. Advising for the professional track will be supervised by the chairperson of the appropriate department of the College. Students who have had no courses in their major areas of concentration may expect to spend six or more full-time quarters in the program.

DOCTOR OF PHILOSOPHY

The Ph.D. degree with a major in Communications is intended to prepare scholars for teaching, research, administration, and service in the field of human communications. The program is interdisciplinary, consisting of a required core curriculum and...
recommended emphasis outside the College in the related social and behavioral sciences. The program is flexible and will accommodate a wide variety of career goals in communications.

The Master's degree is not required for entrance into or the doctoral program. Program planning, however, will permit the Master's degree to be earned if desired. Students lacking academic or professional experience in communications will be required to take prerequisite courses. In general, however, the program may be completed within three academic years of full-time study beyond the Bachelor's degree.

The following are normally minimal requirements for admission to full potential candidate status: (a) a 3.0 (4.0) grade point average in undergraduate studies, or 3.5 for graduate work if applicant holds a Master's degree; (b) above the fifteenth concentration in a cognate minor subject on the Graduate Record Examination; (c) completion of the California Psychological Inventory; (d) endorsement by at least three former teachers or professional colleagues choosing the Ph.D. Admissions Committee; (e) a statement of the applicant's goals and reasons for pursuing the doctorate. Personal interviews with members of the Ph.D. Admissions Committee may be required. Professional experience in some field of communications is a highly desirable criterion for admission.

The following program represents work normally required for an individual with only the Bachelor's degree and no technical competence: (a) prerequisite courses offered by the College of Communications and approved by the major advisor for applicants lacking the requisite professional background; (b) core curriculum: 33 hours of course work; (c) primary concentration in communications: 15-18 hours of course work; (d) secondary concentration in communications: 12 hours of course work; (e) technical competence area in either teaching, research, or administration: 15-18 hours of course work and, for those who lack requisite professional experience, an internship the equivalent of 9 credit hours; (f) research tool: 12 hours of course work, e.g., statistics, foreign language, or computer science; (g) dissertation: 38 hours of Communications 6000.

The following courses represent the required core curriculum (beyond the Bachelor's degree): Communications 5100, 5120, 5140, 6100, 6200. One of the following: Communications 6300, 6310, 6320.

For the teaching or administrative technical competence area a one-week, non-credit computer program course and Statistics 5211, or Sociology 5320 and Statistics 4250; for the research technical competence area: Statistics 5010 and 5020.

Continuing and Higher Education 5450. Two courses in organizational theory from a group approved by the Graduate Studies Committee.

Admission to candidacy must be attained at least three quarters prior to graduation and requires successful completion of a comprehensive examination.

REQUIRED SCHOLASTIC AVERAGE

A student in the College of Communications whose graduate grade point average, not including incomplete grades, is below 3.0 at any time after the end of 12 hours of graduate credit will be placed on probation. A student on probation will be dropped from the program unless his or her cumulative graduate grade point average is 3.0 or higher at the end of the probationary period. The probationary period is defined as the next 12 quarter hours of graduate course work attempted which is specified on the student's degree program. Exceptions to this policy may be made only with the approval of the Assistant Dean for Graduate Studies of the College of Communications upon the recommendation of the student's faculty committee.

Communications Research Center

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

Departments of Instruction

Planned course offerings in the College of Communications for a full calendar year are published in the College newsletter the preceding November. This information is available from the Dean's Office, 302 Communications Building, 974-3031.

Communications

MAJOR

Communications

DEGREES

M.S., Ph.D.

Professors:


Associate Professors:

G. A. Everatt; Ph.D. Iowa; E. F. Shaw, Ph.D. Stanford.

Assistant Professor:

J. P. McKena, Ph.D. Minnesota.

5000 Thesis (1-15) E

5002 Non-Thesis Graduation Completion (3-15) Required for the non-thesis student not otherwise registered during any quarter when such a student uses university facilities and/or faculty time before degree is completed. May not be used toward degree requirements. May be repeated. S/N only. E

5100 Introduction to Graduate Studies (3) Scopes and methods of advanced study in communications. Information sources, literature review methods, scholarly style, thesis and degree requirements, overview of traditional and behavioral research methods. Su, F

5120 Research Methods (3) Communications research, design, and methods. Statistical process, bases for derivation and verification of hypotheses, and basic methods of designing research in communications. Su, F.

5130 Advanced Principles of Mass Communications (3) Prospecting seminars covering all phases of mass communications including history, development and current status of communication industry, principles of broadcasting, and principles of advertising.


5150 Seminar in Communications Issues (3) Contemporary topics in communications. Prereq: 5100 and 5140, or consent of instructor. May be repeated. Maximum 6 hrs.

5970 Independent Study (3) Reading, research, or projects on special topics in communication. On individual basis, under faculty direction, with consent. May be repeated.

6000 Doctoral Research and Dissertation (3-15) E

6100 Seminar in Communications Theory (3) Intensive analysis of selected theories and supporting research data dealing with source, message, media, receiver, or situations variables in process of communication. Prereq: 5140.

6200 Seminar in Communication Topics (3) Identification, presentation and analysis of special issues and problems in communication. Organization and strategy in writing research proposals. Prereq: 5100, 5120, 5140. Recommended prereq: 6100 or consent of instructor.

6300 Survey Research Methods in Communications (3) Survey methods applied to opinion and communications media research problems. Planning, sampling, questionnaire construction, data gathering (personal, mail, and telephone), data processing and interpretation. Attitude measurement and message pretesting applications. Prereq: 5120 or consent of instructor.

6310 Experimental Research Methods in Communications (3) Experimental methods applied to communications research problems. Causal inferences from various research designs. Control, single-factor, and multifactor experimental designs. Lab. and field experiment situations. Prereq: 5120 or consent of instructor. Prereq or coreq: Basic statistics.

6320 Seminar in Historical Research Methods in Communications (3) Materials and methods in historical description of and current status of communication theory and behavior. Prereq: 5100, 5120. Recommended prereq: 5140, 6100. A

Advertising

Professors:

R. Joel (Head), M.A. Wisconsin; A. D. Flatcher, Ph.D. Illinois; D. G. Hileman, Ph.D. Illinois; D. K. Ziegler, Ph.D. Michigan State.

Assistant Professor:


3500 Advertising Copy and Layout (4) Ideas and their translation into persuasive words and pictures. Principles and techniques of copy and layout. Lecture and labs. Prereq: 3000 with grade of "C" or better or consent of instructor. F, W.

4000 Advanced Advertising Copy and Layout (4) Creative strategy and execution of advertisements for mass media. Problems in idea creation for advertising. Lectures and labs. Prereq: 3500 with grade of "C" or better or consent of instructor. F, W.

4360 Advertising Media (3) Media, markets, and audiences. Evaluation of media in relationship to communication needs of advertisers. Prereq: 3000 with grade of "C" or better or consent of instructor. F, W.

4460 Cases and Problems (3) The case approach to the study of advertising problems. Analysis of cam-
4470 Advertising Campaigns (4) Application of theory in planning and execution of campaigns. Management, development, and allocation of budgets. Choice of appeals and approaches; media selection; preparation of advertisements. Prereq: 3000 and 3460 with grade of "C" or better or consent of instructor. W, F

4510 Current Issues in Advertising (3) Current socioeconomic, legal, ethical, and cultural issues in advertising and communication to determine advertising's role in and responsibility toward society. Emphasis on both marketing and behavioral science aspects of advertising. Consideration of creativity, media, management, and research. Extensive individual reading; preparation and delivery of papers. W

4560 Advanced Advertising Research (3) Nature, scope, and application of research including measurement of advertising, media audiences, and evaluation of messages. Prereq: 4460 or consent of instructor.

5110 Creative Projects (3) Creative or problem solving interests related to advertising. Designed for the advanced student who wishes to apply theory and skills to specific problems. Prereq: 4000 and 4460 or consent of instructor. May be repeated. E

5700 Independent Study (3) E

Broadcasting

Professors:

D. W. Holf (Head), Ph.D. Northwestern; H. H. Howard, Ph.D. Ohio.

Associate Professor:

I. G. Simpson, M.S. Syracuse.

Assistant Professors:

F. A. Lester, M. A. Tennessee; M. C. Pounds, M. S. Syracuse; R. A. Sherry, M. A. Tennessee; M. K. Sidel, Ph.D. Northwestern.

Communications Specialist:

J. H. Cari, M. S. Tennessee.

3360 Television and Radio Advertising (3) Principles of successful radio-television advertising; emphasis on media research, rate structure, program evaluation, creativity; television commercials. W, Sp

3550 Radio-Television Writing (3) Theory and techniques of writing broadcasting scripts except news and dramas. Special events, interviews, musical scripts, radio talks, documentaries, and promotion pieces. Prereq: 3000. F, W, Su

4010 Speech for Broadcasting (3) Fundamental broadcast conditions affecting the announcer; pronunciation and oral interpretation of general American English. Speech by broadcast, and foreign pronunciation. Prereq: Speech 2311. F, W

4100 Radio Production (3) Study of radio production, past and present. Familiarization with production tools and techniques. Group and individual production activities. Prereq: 2750 or consent of instructor. Cannot be taken for graduate credit by communications majors. E

4300 Television Production (3) Overview of elements of television production: cameras, sound, lighting, film, videotape recording, optics, and studio techniques, and with the layperson and the professional broadcast student in mind. Prereq: 4020 or consent of instructor. Cannot be taken for graduate credit by communications majors. E

4400 Advanced Television Production (3) A semi-independent course in program origination, producing, directing and performing with orientation to the professional broadcast student. Prereq: 4930 or consent of instructor. Sp

4610 Broadcast News Operation (3) Theory and practice in covering local news and public affairs events for radio and television. Gathering and production of news broadcasts, using tools of broadcast newsroom. Prereq: 3610 and 3670 or consent of instructor. 2 hrs and 1 lab. Sp

4670 Radio-Television Management (3) Business policies and practices of networks and stations. Departmental functions, cost and income figures, sales techniques, promotion, advertising agencies, and governmental regulations. Lectures by commercial broadcasters. Prereq: 2750 or consent of instructor. F, Sp, Su

4680 Broadcast Sales Management (3) Problems and practices of television and radio sales, case studies in sales development, pricing, promotion, and other areas of sales management. Prereq: 2750 or consent of instructor. Sp

5140 Educational Broadcasting (3) Summary, analysis, application, and evaluation of television and radio broadcasting for educational purposes. Prereq: 4460. Sp

5510 Creative Projects (3) For students having specialized broadcasting interests or those who wish extensive directed study in creative writing or production projects. May be repeated. E

5610 Public Affairs Broadcasting (3) News and public affairs function in broadcasting stations and networks, including management, economics, personnel utilization, sources of program materials, ethical and legal aspects. Public affairs program development, particularly press conferences, interviews, and news specials. Prereq: 3610 or consent of instructor. W

5620 Broadcast Law and Regulations (3) Sociopolitical control of broadcasting; effect of laws, regulations, and public policies upon station policies. Emphasis on unique situation of broadcasting as an advertising medium. Prereq: Journalism 4410 or 5210 or consent of instructor. F

5630 Broadcast Documentary Writing (3) Role of documentary in radio and television. Research, writing, and editing of documentary radio and television scripts. Prereq: 4020. W

5650 Radio-Television Program Development (3) Planning basic program structures for broadcasting stations. Historical trends in programming and current programming practices as related to audience requirements, governmental policy, and competitive conditions. Individual studies of program development on both local station and network levels. Prereq: 2750 or consent of instructor. Su, F

5970 Independent Study (3) E

School of Journalism

Professors:

J. A. Crook (Director), Ph.D. Iowa State; J. B. Hacking, Ph.D. Minnesota; B. K. Leiter, Ph.D. Southern Illinois; J. R. Lynn, Ph.D. Southern Illinois; D. N. Nimmo, Ph.D. Vanderbilt.

Associate Professors:


Assistant Professors:

M. L. Kern, M. S. Florida State; J. P. McKenna, Ph. D. Minnesota.

3120 Writing Feature Articles (3) Selection of topics and practices in writing feature articles for newspapers, magazines, and company publications. Prereq: 2220 or consent of instructor. E

3410 Communications Law (3) Statutory law and judicial precedents affecting mass communications media. Libel, contempt of court, invasion of privacy, copyright, broadcasting, advertising and postal regulations. E

3710 Public Relations (3) Theories and principles of public relations. Overview of PR as a management tool of business, government, institutions, and organizations. Cannot be taken for graduate credit by communications majors. E

3720 Advanced Public Relations (3) Preparation of communications materials to gain support from various publics; planning public relations programs. Prereq: 3710. F, Sp

3810 Specialized Publications (3) Editorial and design considerations for specialized publications and small magazines. Prereq: 2220 and 3310 or consent of instructor. W, Sp

3990 Journalism Research Methods (3) Use of social science research methods in journalism with emphasis on survey techniques. Interpretation and communication of research findings to public. W, Sp

4130 Editorial Writing (3) Analysis of editorial policies, practices, pages. Writing of editorials and columns, with emphasis on study and use of rhetoric, style and language. W

4150 Issues in Journalism (3) Topics vary. May be repeated. Maximum 6 hrs.

4310 Reporting Public Affairs (3) Reporting news of courts, politics, and government. State, county and local coverage. Prereq: 2230 and senior standing. F, Sp

4410 Mass Media and Society (3) Roles and responsibilities of mass media in society. Critique of mass media performance. Media codes and controls on the media. E

4420 Newspaper Management (3) Daily and weekly business operations. Developments in newspaper management. Sp

4560 Investigative Reporting (3) Investigative and interpretive reporting of complex or specialized subjects to place news in perspective or to clarify situations. Emphasis on writing for publication. Prereq: 2220. W

4710 Public Relations Cases (3) Case studies and application of public relations principles to problems in business and industry, government, public relations, trades and professions; solving problems in public relations situations. Prereq: 3720. F, Sp

4810 Journalism in the High School (3) Functions and applications of high school journalism. Staff organization, writing and editing techniques, editorial problems, and business management. Su

4910 News and Feature Photography (3) Advanced principles and methods in black-and-white photography. Emphasis on news and feature photography, and picture stories. Prereq: 3910 or consent of instructor.

4950 International Communications (3) Communications of news and opinion among nations and under varying types of political and economic systems; world news organizations, the press as a factor in international affairs; barriers to the flow of information; comparison of world press systems. F

4970 Independent Study (3) May be repeated. Maximum 6 hrs.

5210 Government and the Press (3) Historical and contemporary problems in the relations of executive, judicial, legislative, and regulatory segments of governmental and press. Prereq: 3110 or consent of instructor. W

5250 Public Opinion and Mass Media (3) Nature of public opinion with emphasis on role of press in its formation and how the press in turn is influenced by public opinion. Prereq: 4410 or consent of instructor. F

5510-20-30 Writing and Editing Projects (3, 3, 3) Specialized writing or editing interests, such as agriculture, politics, labor, finance, science, technical as well as general publications. Prereq: 2220 or 2230.

5560 Magazine Article Writing (3) Techniques of writing in-depth articles for mass circulation magazines. Organizing and presenting material. Problems in specialized areas, such as business, science, and agriculture in the humanities. Prereq: 3120 or consent of instructor. Sp

5710 Studies in Public Relations Communications (3) Problems of communication between institutions and organizations and their publics. Case histories and evaluations of programs. Prereq: 3710 or consent of instructor. W

5810 Magazine Editing and Production (3) Analysis of editorial and production problems of general, regional, and specialized publications. Reader interest evaluation, individual editorial projects. Prereq: Consent of instructor.

5950 Communications and International Development (3) Seminar emphasizing mass media in na-