CAUTION: The course offerings and requirements of the University are continually under examination and revision. This catalog presents the offerings and requirements in effect at the time of publication, but is no guarantee that they will not be changed or revoked. Current information may be obtained from the following sources:

Admission Requirements — Director of Admissions
Course Offerings — Department offering course
Degree Requirements — Office of the Registrar, faculty adviser, head of major department, College Advising Center, or dean of college/school
Fees and Tuition — Office of the Treasurer

EEO/TITLE IX/SECTION 504 STATEMENT
The University of Tennessee, Knoxville does not discriminate on the basis of race, sex, color, religion, national origin, age, handicap, or veteran status in provision of educational opportunities or employment opportunities and benefits. UTK does not discriminate on the basis of sex or handicap in the education programs and activities which it operates, pursuant to the requirements of Title IX of the Education Amendments of 1972, Pub. L. 92-318; and Section 504 of the Rehabilitation Act of 1973, Pub. L. 93-112; respectively. This policy extends to both employment by and admission to the University.
Inquiries concerning Title IX and Section 504 should be directed to the Office of the Vice Chancellor for Planning and Administration, 525 Andy Holt Tower, 974-4391. Charges of violation of the above policy should also be directed to the Office of the Vice Chancellor for Planning and Administration.
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ACADEMIC CALENDAR FOR 1983-84

Summer Quarter 1983

June 13  Orientation-Advising: Freshman and Transfer
June 14  Registration, First or All Terms
June 15  Classes Begin
July 4  Independence Day (No Classes)
July 5  Drop Deadline, First Term
July 19  Classes End, First Term
July 19  Drop Deadline, Full Term
July 15-19  Registration, Second Term
July 20  Classes Begin, Second Term
August 8  Drop Deadline, Second Term
August 22  Classes End
August 24  Commencement

Fall Quarter 1983

September 19  Orientation (Transfer)
September 20  Orientation (Freshman)
September 19-20  Upperclass and Graduate Registration
September 20-21  Freshman and Transfer Registration
September 22  Classes Begin
September 29  Drop Deadline (All Colleges Except Education, Liberal Arts, and Nursing)
October 6  Drop Deadline (Education, Liberal Arts, and Nursing)
October 13  Drop Deadline (First Quarter Undergraduate Students, All Colleges)
October 28  East Tenn. Educ. Assoc. (No Classes)
November 12  Homecoming (No Classes)
November 24-26  Thanksgiving (No Classes)
December 2-6  Final Evaluation Period (Alternative Period)
December 6  Classes End
December 9  Commencement

Winter Quarter 1984

January 3  Orientation
January 3-4  Registration
January 5  Classes Begin
January 12  Drop Deadline (All Colleges Except Education, Liberal Arts, and Nursing)
January 19  Drop Deadline (Education, Liberal Arts, Nursing)
January 26  Drop Deadline (First Quarter Undergraduate Students, All Colleges)
March 10-14  Final Evaluation Period (Alternative Period)
March 14  Classes End
March 16  Commencement

Spring Quarter 1984

March 22  Orientation
March 22-23  Registration
March 26  Classes Begin
April 2  Drop Deadline (All Colleges Except Education, Liberal Arts, and Nursing)
April 9  Drop Deadline (Education, Liberal Arts, Nursing)
April 16  Drop Deadline (First Quarter Undergraduate Students, All Colleges)
April 20-21  Easter
June 1-5  Final Evaluation Period (Alternative Period)
June 5  Classes End
June 8  Commencement

Summer Quarter 1984

June 14  Orientation (Transfer and Freshman)
June 15  Registration, First or All Terms
June 18  Classes Begin
June 21  Drop Deadline, First Term (All Colleges Except Education, Liberal Arts, Nursing)
June 25  Drop Deadline, First Term (Education, Liberal Arts, Nursing)
<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
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</thead>
<tbody>
<tr>
<td>June 25</td>
<td>Drop Deadline, Full Term (All Colleges Except Education, Liberal Arts, Nursing)</td>
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<tr>
<td>June 28</td>
<td>Drop Deadline, First Term (First Quarter Undergraduate Students, All Colleges)</td>
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<tr>
<td>July 2</td>
<td>Drop Deadline, Full Term (Education, Liberal Arts, Nursing)</td>
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<tr>
<td>July 4</td>
<td>Independence Day (No Classes)</td>
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<tr>
<td>July 9</td>
<td>Drop Deadline, Full Term (First Quarter Undergraduate Students, All Colleges)</td>
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<tr>
<td>July 19</td>
<td>Classes End, First Term</td>
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<tr>
<td>July 17-19</td>
<td>Registration, Second Term</td>
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<tr>
<td>July 20</td>
<td>Classes Begin, Second Term</td>
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<tr>
<td>July 24</td>
<td>Drop Deadline, Second Term (All Colleges Except Education, Liberal Arts, Nursing)</td>
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<tr>
<td>July 30</td>
<td>Drop Deadline, Second Term (First Quarter Undergraduate Students, All Colleges)</td>
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<tr>
<td>August 22</td>
<td>Classes End</td>
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<td>September 17</td>
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<td>September 17-18</td>
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<td>Drop Deadline (All Colleges Except Education, Liberal Arts, Nursing)</td>
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<td>Homecoming (No Classes)</td>
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<tr>
<td>November 29</td>
<td>Classes End</td>
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<tr>
<td>November 30</td>
<td>Study Day</td>
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<tr>
<td>December 3-6</td>
<td>Final Evaluation Period (Alternative Period)</td>
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<tr>
<td>December 10</td>
<td>Commencement</td>
</tr>
<tr>
<td>January 3</td>
<td>Orientation</td>
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<tr>
<td>January 3-4</td>
<td>Registration</td>
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<td>March 13-16</td>
<td>Final Evaluation Period (Alternative Period)</td>
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<td>March 19</td>
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<td>Orientation</td>
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<td>June 4-7</td>
<td>Final Evaluation Period (Alternative Period)</td>
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<tr>
<td>June 11</td>
<td>Commencement</td>
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</tbody>
</table>

### Fall Quarter 1984
- **September 17**: Orientation (Transfer)
- **September 18**: Orientation (Freshman)
- **September 17-18**: Upperclass and Graduate Registration
- **September 18-19**: Freshman and Transfer Registration
- **September 20**: Classes Begin
- **September 27**: Drop Deadline (All Colleges Except Education, Liberal Arts, and Nursing)
- **October 4**: Drop Deadline (Education, Liberal Arts, Nursing)
- **October 11**: Drop Deadline (First Quarter Undergraduate Students, All Colleges)
- **October 26**: East Tenn. Educ. Assoc. (No Classes)
- **November 10**: Homecoming (No Classes)
- **November 22-24**: Thanksgiving (No Classes)
- **November 29**: Classes End
- **November 30**: Study Day
- **December 3-6**: Final Evaluation Period (Alternative Period)
- **December 10**: Commencement

### Winter Quarter 1985
- **January 3**: Orientation
- **January 3-4**: Registration
- **January 5**: Classes Begin
- **January 14**: Drop Deadline (All Colleges Except Education, Liberal Arts, and Nursing)
- **January 21**: Drop Deadline (Education, Liberal Arts, Nursing)
- **January 28**: Drop Deadline (First Quarter Undergraduate Students, All Colleges)
- **March 11**: Classes End
- **March 12**: Study Day
- **March 13-16**: Final Evaluation Period (Alternative Period)
- **March 19**: Commencement

### Spring Quarter 1985
- **March 25**: Orientation
- **March 25-26**: Registration
- **March 27**: Classes Begin
- **April 3**: Easter
- **April 5-6**: Drop Deadline (All Colleges Except Education, Liberal Arts, and Nursing)
- **April 12**: Drop Deadline (Education, Liberal Arts, Nursing)
- **April 19**: Drop Deadline (First Quarter Undergraduate Students, All Colleges)
- **June 1**: Classes End
- **June 3**: Study Day
- **June 4-7**: Final Evaluation Period (Alternative Period)
- **June 11**: Commencement

### 1985
- **January 1**: Orientation (Transfer)
- **January 2**: Orientation (Freshman)
- **January 17-18**: Upperclass and Graduate Registration
- **January 18-19**: Freshman and Transfer Registration
- **January 20**: Classes Begin
- **January 27**: Drop Deadline (All Colleges Except Education, Liberal Arts, and Nursing)
- **March 1**: Drop Deadline (Education, Liberal Arts, Nursing)
- **March 8**: Drop Deadline (First Quarter Undergraduate Students, All Colleges)
- **March 25**: Classes End
- **April 1**: Final Evaluation Period (Alternative Period)
- **April 5**: Commencement
THE UNIVERSITY OF TENNESSEE, KNOXVILLE

Administrative Officers
Chancellor, Jack E. Reese, A.B., A.M., PH.D.
Assistant to the Chancellor, Donald R. Eastman Ill, A.B., PH.D.
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Associate Vice Chancellor for Academic Affairs, Hardy Liston, Jr., B.S., M.E.A.
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Vice Chancellor for Business and Finance, Homer S. Fisher, B.S., M.B.A.
Vice Chancellor for Graduate Studies and Research, L. Evans Roth, A.B., M.S., PH.D.
Vice Chancellor for Planning and Administration, Luke Ebersole, A.B., A.M., PH.D.
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Vice Chancellor for Student Affairs, Howard F. Aldmon, B.S., A.M., ED.D.

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Development, Executive Director, Jack E. Williams, B.S.
Finance, Director, Harold B. Whitehead, B.S., CPA
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Public Relations, Director, David H. Lauver, B.S.
Research, Dean, Marla Peterson, B.A., M.A., PH.D.
Student Affairs:
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Intercollegiate Athletics for Women, Director, Gloria S. Ray, B.S., M.S.
Student Developmental Services, Dean, William H. Byas, B.S., M.S., ED.D.
Student Activities, Dean, Philip A. Scheurer, B.A., M.S.
Student Conduct and Orientation, Dean, Charles R. Burchett, B.S., M.A.
Student Counseling Center and Special Services, Director, Richard L. Nash, B.A., M.S., ED.D.
Student Health Service, Administrator, Fred E. Young, Jr., A.B., M.C.

Colleges and Schools
AT KNOXVILLE
Graduate School
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Institute of Agriculture
Dean, College of Agriculture, O. Glen Hall, B.S., M.S., PH.D.

Dean, College of Veterinary Medicine Hyram Kitchen, D.V.M., PH.D.
School of Architecture
Dean, Roy F. Knight, A.B., M. ARCH.
College of Business Administration
Dean, C. Warren Neel, B.S., M.B.A., PH.D.
College of Communications
Dean, Donald G. Hileman, B.S., M.S., PH.D.
Division of Continuing Education
Dean, Joseph P. Goddard, B.S., M.S., ED.D.
College of Education
Dean, William H. Coffield, B.S., M.S., ED.D.
School of Health, Physical Education, and Recreation
Director, Madge M. Phillips, B.S., M.S., PH.D.
College of Engineering
Dean and Director of Engineering Experiment Station, Robert E. C. Weaver, B.S. in CHE., M.S., M.A., PH.D.
College of Home Economics
Dean, Nancy H. Belck, B.S., M.S., PH.D.
College of Law
Dean, Kenneth L. Penegar, A.B., J.D., LL.M.
College of Liberal Arts
Dean, Robert G. Landen, B.A., M.A., PH.D.
School of Library and Information Science
Director, Ann E. Prentice, A.B., M.L.S., D.L.S.
College of Nursing
Dean, Sylvia E. Hart, B.S.N., M.S.N., PH.D.
School of Planning
Director, David A. Johnson, B.A., M.C.P., PH.D.
School of Social Work
Dean, Ben P. Granger, B.A., M.P.A., M.S.S.W., PH.D.
Independent Departments
Air Force Reserve Officers’ Training Corps Professor of Air Science, Robert E. Culton, B.A., M.A., M.S., Colonel, USAF
Army Reserve Officers’ Training Corps Professor of Military Science, Richard W. Griffen, B.S., M.S.E.E., Colonel, USA

AT OAK RIDGE
Oak Ridge Graduate School of Biomedical Sciences
Director, W. E. Barnett, B.S., M.S., PH.D.

AT TULLAHOMA
Space Institute
Dean, Kenneth E. Harwell, B.S.A.E., M.S., Ph.D.

Other Educational and Public Service Units
Division of International Education
Director, Dixon C. Johnson, B.S., M.A., PH.D.
Libraries
Director, Donald R. Hunt, B.A., M.A., M.A.L.S.
The University of Tennessee Board of Trustees

Legal Title: The University of Tennessee
His Excellency, THE GOVERNOR OF TENNESSEE
The Commissioner of Education
The Commissioner of Agriculture
The President of The University
The Executive Director of the Tennessee Higher Education Commission
Ex-Officio

From Congressional Districts

<table>
<thead>
<tr>
<th>District</th>
<th>Service Began</th>
<th>Term Expires</th>
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<tbody>
<tr>
<td>Buford Goldstein, Elizabethton</td>
<td>First 1975</td>
<td>June 1, 1984</td>
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<tr>
<td>A. B. Long, Jr., Knoxville</td>
<td>Second 1977</td>
<td>June 1, 1986</td>
</tr>
<tr>
<td>Scott L. Probasco, Jr., Lookout Mountain</td>
<td>Third 1979</td>
<td>June 1, 1988</td>
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<tr>
<td>William M. Johnson, Sparta</td>
<td>Fourth 1975</td>
<td>June 1, 1987</td>
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<tr>
<td>Marcella Austin Echols, Nashville</td>
<td>Fifth 1979</td>
<td>June 1, 1991</td>
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<tr>
<td>Ben S. Kimbrough, Clarksville</td>
<td>Sixth 1980</td>
<td>June 1, 1990</td>
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<tr>
<td>Turner O. Lashlee, Humboldt</td>
<td>Seventh 1979</td>
<td>June 1, 1988</td>
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<tr>
<td>Tom Elam, Union City</td>
<td>Eighth 1956</td>
<td>June 1, 1987</td>
</tr>
<tr>
<td>R. Lee Winchester, Memphis</td>
<td>Ninth 1975</td>
<td>June 1, 1984</td>
</tr>
</tbody>
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From Anderson, Bedford, Coffee, Franklin, Lincoln, Moore, and Warren Counties

| From Anderson, Bedford, Coffee, Franklin, Lincoln, Moore, and Warren Counties | 1979 | June 1, 1988 |

From Davidson County

| From Davidson County | 1975 | June 1, 1984 |

From Hamilton County

| From Hamilton County | 1969 | June 1, 1987 |

From Knox County

| From Knox County | 1971 | June 1, 1989 |
| James A. Haslam, II | 1980 | June 1, 1989 |

From Shelby County

| From Shelby County | 1981 | June 1, 1990 |
| Sam Cooper | 1981 | June 1, 1990 |
| Jack J. Craddock | 1981 | June 1, 1990 |

From Weakley County

| From Weakley County | 1981 | June 1, 1990 |
| James T. Harrison | 1981 | June 1, 1990 |

Student Member

| Student Member | 1982 | July 1, 1983 |

Officers of the Board

| Officers of the Board | Lamar Alexander, Chairman |
| Ann Furrow, Vice Chairman |
| Edward J. Boling, President |
| A. David Martin, Treasurer |
| Beauchamp E. Brogan, Secretary |
| Linda Logan, Assistant Secretary |

THE UNIVERSITY OF TENNESSEE
Administration and Service

President, Edward J. Boling, B.S., M.S., ED.D.
Executive Vice President and Vice President for Development, Joseph E. Johnson, A.B., A.M., ED.D.
Vice President for Academic Affairs, John W. Prados, B.S., M.S., PH.D.
Vice President for Agriculture, W. W. Armistead, D.V.M., M.S., PH.D.
Vice President for Business and Finance, Emerson H. Fly, B.S., CPA
Vice President for Health Affairs and Chancellor of the Center for Health Sciences, James C. Hunt, A.B., M.S., M.D.
Vice President for Public Service Robert S. Hutchison, B.S., M.B.A.
General Counsel, Beauchamp E. Brogan, B.S., J.D.
Executive Assistant to the President, Andrew J. Kozar, B.S., A.M., PH.D.
Treasurer, A. David Martin, B.S., M.B.A., CPA
Emeriti Administrators:
Emeritus President, Andrew David Holt, A.B., M.S., LL.D., LITT.D., SC.D., PH.D.
Emeritus Vice President for Business and Finance, W. Harold Read, B.S., M.B.A., CPA
Emeritus Vice President for Academic Affairs, Kenneth L. Knickerbocker, A.B., A.M., PH.D.
The University of Tennessee, Knoxville

Main Campus

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Alumni Hall (AH) E-8
Alumni Memorial Auditorium-Gymnasium (GYM) D-10
Andy Holt Avenue Apartments (AD) E-2
Andy Holt Tower (AHT) F-10
Army Reserve Training Center (RA) G-7
Art & Architecture (AA) E-7
Arts & Crafts (Laurel House) (ACH) A-7
Aquatic Center (AQC) F-2
Ayres Hall (A) C-11
Berry Hall (BH) E-12
Black Cultural Center (BCC) C-8
Tom Black Track & Recreation Area (BT) E-5
Clarence Brown Theatre (CBT) D-7
Buehler Hall (BU) C-11
Carousel Theatre (CT) E-7
Carrick Hall (CAH) D-4

Claxton Education Building (C) D-9
Clement Hall (CLH) B-7
Communications & University Extension Bldg. (COM) F-10
Conferences & Non-Credit Programs (CO) C-3
Craft House (CH) B-9
Credit Union (CU) D-6
Dabney Hall (DAB) C-11
Design House (DES) C-7
Dougherty Engineering Bldg. (DO) C-12
Dunford Hall (DUH) C-8
East Stadium Hall (ESH) D-11
Employment Office (EMP) C-4
Estabrook Hall (EST) D-11
Family Life Center (FLC) B-11
Ferris Hall (FH) D-12
Fraternity House (F)

Geology and Geography Bldg. (G&G) C-11
Gibbs Hall (GIB) F-7
Glocker Business Administration Bldg. (G) C-8
Greve Hall (GRH) C-7

Harris Home Economics Bldg. (HE) B-11
Health, Physical Education & Recreation (HPER) E-5
Hearing & Speech Center (H&SC) E-10
Henson Hall (HH) C-8
Hesler Biology Bldg. (H) C-10
Hess Hall (HEH) D-6
Hodges Undergraduate Library (UGL) C-8
Hope College (HO) D-5
Hoskins (Main) Library (LIB) B-10
Humanities & Social Sciences Bldg. (HSS) E-6
Humes Hall (HUM) E-4

Information Booth (I) E-8
International House (IH) A-8

Agricultural Campus

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C.E. Brehm Animal Science Lab (ASL) K-1
Corn-Cotton Bldg. (CC) J-2
Dairy Products Bldg. (DP) J-1
Fiber Research Laboratory (FL) L-4
Tennessee Division of Forestry (FOR) M-4
J.H. McLeod Food Technology Bldg. (FT) J-1
Greenhouses (GH) H-2
McCord Hall (MC) I-1

Morgan Hall (MH) J-2
Plot Barn (PB) K-4
Poultry Diagnostic Laboratory (PO) L-4
Power Plant (PP) I-3
Printing and Supply (PS) M-4
Plant Sciences (Ellington) Hall (PS) K-3
Plant Sciences Annex (PSX) L-3
Spinning Lab (SL) L-4
College of Veterinary Medicine (Clyde York Bldg.) (V) M-2

The University
The University of Tennessee is a multi-campus, multi-purpose system of higher education encompassing all Tennessee. As Tennessee’s State University and Federal Land-Grant Institution, it has been called “the capstone of the state’s educational system.” The institution is owned by the people of Tennessee. In addition to state funds and student fees, the University also receives support from private gifts, research grants and contracts, and federal appropriations.

The central administrative staff consists of the president and six vice presidents who have the responsibility of administering the affairs of the statewide educational organization. Each primary campus is under the direct supervision of a chancellor.

In carrying out its unique responsibilities, The University of Tennessee has a statewide mission beyond the scope of any other institution of higher learning in Tennessee. The University seeks to develop human and material resources of the state through three broad programs: instruction, research, and extension and public service.

Instruction
As the most comprehensive institution in the state’s public education system, the University has the responsibility of providing the people of Tennessee with the educational opportunities they need to become intellectually prepared for responsible and successful citizenship. Students may specialize in a great number of professional and occupational fields, thus helping to fill the state’s needs for trained personnel in medicine, business, law, agriculture, industry, and other vocations essential to the welfare and progress of the citizens of Tennessee.

In addition to fulfilling this traditional role, the University also offers a wide range of quality programs in continuing education which help contribute to the personal and professional growth of students of all ages.

Programs of Study
In student enrollments and the scope of its academic programs, The University of Tennessee ranks among the larger institutions of higher education in the United States. In the fall of 1982, a total of 42,136 students enrolled in the campuses of The University of Tennessee system. This total included 27,041 enrolled at Knoxville and centers; 2,026 at the Center for The Health Sciences (Memphis); 5,525 at Martin; and 7,544 at Chattanooga.

To serve the academic needs of all of those students, the University system offers 178 degree programs at the bachelor's level, 151 at the master's level, and 62 at the doctoral level. The degree programs offered by colleges and schools at the UT Knoxville campus are described in this catalog. Degree programs offered by the Center for the Health Sciences (at Memphis) and at Martin and Chattanooga are described in special catalogs issued from those campuses.

The various colleges, departments, and administrative offices of the University hold membership in more than 60 regional and national education associations. The University as a whole is fully accredited by the Southern Association of Colleges and Schools. Individual colleges and departments are accredited by appropriate professional accrediting agencies.

Colleges and Schools
The University’s colleges and schools offer programs at the primary campuses at Knoxville, Memphis, Martin and Chattanooga. The Knoxville campus also offers programs at Oak Ridge, Tullahoma, Nashville, Chattanooga, Memphis, and Kingsport. These colleges and schools and other academic units are as follows:

UT KNOXVILLE
Graduate School (offering programs leading to the master’s or the doctor’s degree)
College of Agriculture
School of Architecture
College of Business Administration
College of Communications
Division of Continuing Education
College of Education
School of Health, Physical Education, and Recreation
College of Engineering
College of Home Economics
College of Law

College of Arts and Sciences

College of Social Work

College of Veterinary Medicine

At Oak Ridge
Oak Ridge Graduate School of Biomedical Sciences
Oak Ridge Evening School
Oak Ridge Resident Graduate Program

At Tullahoma
Space Institute

At Kingsport
Graduate Center

At Chattanooga
Graduate Engineering Center

UT CENTER FOR THE HEALTH SCIENCES

At Memphis
College of Basic Medical Sciences
College of Community and Allied Health Professions
College of Dentistry
College of Medicine
College of Nursing
College of Pharmacy
Graduate School—Medical Sciences
Other academic units associated with the Center for the Health Sciences

At Knoxville
UT Memorial Research Center and Hospital
Clinical Education Center

UT AT MARTIN
School of Agriculture
School of Business Administration
School of Education
Department of Engineering and Engineering-Technology

School of Home Economics
School of Liberal Arts
Department of Military Science
Department of Nursing
Division of Extended Services

UT AT CHATTANOOGA
College of Arts and Sciences
College of Professional Studies
Engineering Division
Continuing Education and Public Service

Faculty
A highly competent faculty is the most essential quality of a strong institution of
higher education. The University of Tennessee has a distinguished group of faculty members, nationally recognized for scholastic and professional achievements.

The faculty elects a representative body—called the Faculty Senate, which transacts most of its business. The Senate holds those powers and duties delegated to it by the Trustees and by the faculty of the University.

The educational policies of the institution are established by the faculty. It determines the entrance requirements for students, prescribes and defines courses of study, establishes the requirements of degrees, determines rules for the academic guidance of students, and recommends to the administration the candidates for degrees who have completed prescribed courses of study.

Extracurricular Opportunities

In addition to a broad scope of specialized studies, the University offers numerous extracurricular opportunities that contribute to educational development. Students may take part in religious activities, social and cultural programs, and recreational and avocational activities. More than 200 different extracurricular organizations and activities are maintained on the University's Knoxville campus.

Research

As Tennessee's most broadly based institution of higher education, the University has the skilled personnel, the laboratories, and libraries needed for its role as the state's official research center. University research is conducted to find solutions to problems confronting the people of Tennessee and to discover new knowledge leading to greater development of human and material resources.

Funding of sponsored research at the Knoxville campus alone totaled more than $20.2 million in fiscal year 1982. This growth in the dollar value of grants and contracts parallels growth in the quality and diversity of research programs of importance to the Volunteer State and the entire nation. Increased crop yields, improved industrial processes, more effective medical services, and greater citizen understanding of our environment and our society are but a few of the benefits resulting from the practical applications of University research.

Research Organizations

The University's research is strengthened by a number of special organizations, within the colleges and schools, which sponsor and coordinate studies and experimentation in broad areas of investigation. These are:

- Agricultural Experiment Station (with research units at Knoxville, Oak Ridge, and Martin; six branch stations at Crossville, Greeneville, Jackson, Lewisburg, Springfield, and Spring Hill; and five field stations at Grand Junction, Wartburg, Chattanooga, Tullahoma, and Milan).
- Bureau of Educational Research and Service
- Engineering Experiment Station
- Center for Business and Economic Research
- Bureau of Public Administration
- Memorial Research Center and Hospital at Knoxville
- Center for the Health Sciences at Memphis—-all divisions have organized research programs.
- Water Resources Research Center
- The Graduate School—embraces almost all departments in all colleges and is founded upon research; graduate students are required to do research as part of their study programs.

Extension and Public Service

University teaching programs and research findings extend beyond the limits of campuses to reach people in every community and county in Tennessee. Extension and public service programs are part of the work of every University department, and the institution has several large divisions created specifically to promote and coordinate statewide activities to meet the need that can be served by its educational resources. These special divisions are:

- Agricultural Extension Service, specializing in agriculture and home economics, sponsored jointly with the U.S. Department of Agriculture. Agents to assist farmers and homemakers are stationed in every Tennessee county.
- Division of Continuing Education, Knoxville extends academic programs and services from UTK to persons throughout the state through its Evening School, Off-Campus Credit Programs, Workshops and Conferences and Non-Credit Programs. The division cooperates with all other campuses of the University in statewide extension activities.
- Institute for Public Service, which provides a system-wide focal point for the University's programs in the fields of industry, government, and urban development. Units of the Institute are the Municipal Technical Advisory Service, the Grants and Contracts in Human Services, the Center for Industrial Services, the County Technical Assistance Service and the Technical Assistance Center. In addition, the Institute jointly supports with UT Knoxville two specialized research and service units, the Energy, Environment and Resources Center and the Transportation Center.

Physical Facilities of the University

Buildings on the main campus and agriculture campus at Knoxville are shown on the map printed in this catalog. A map of the state showing locations of the University's
academic campuses and other physical facilities is located on page 11. Maps or aerial photographs showing buildings on the Center for the Health Sciences campus at Memphis and the Middle Tennessee campuses are printed in the catalogs issued by those units of the University.

Historical Background

The University of Tennessee traces its origin back to the days when George Washington was President of the United States—back to the days even before Tennessee became a state. In 1794, two years before statehood was achieved, the Legislature of the Federal Territory which later became Tennessee granted a charter to Blount College, the earliest predecessor of the University at Knoxville. Blount College was named in honor of William Blount, Governor of the Territory, and was located near the center of Knoxville's present business district.

With its founding as Blount College, the University is listed as one of the older institutions of higher education in the nation. It was one of the first educational institutions in character, which was unusual for an institution of higher education in that day. The institution has remained non-denominational to the present time and is said to be the oldest such institution west of the Appalachian Divide.

Blount College for a few years admitted women as students, thus becoming the first coeducational college in the United States. In 1807 the institution began to widen the scope of its service area. During that year the institution into a University system, making it a point of re-entry for many. Not all who have completed a program of study or have received a degree may desire to expand their knowledge or prepare for a different vocation and may re-enroll or transfer previous credits to UT.

Thus the University is a point of re-entry into higher education for many. Not all who come here seek a degree. For some, the goal is the attainment of particular skills and the development of certain interests through selected courses. Although the same academic standards apply to all, individual variations in academic background are recognized to the maximum extent possible in admissions procedures. UTK attempts to assist each student in the identification and achievement of realistic academic goals.

Admission to The University of Tennessee, Knoxville

Beyond admission to the University, its own name and reputation, promising the institution a vital role in the progress of the state.

The University is a statewide institution in terms of its physical locations as well as its services. The Center for the Health Sciences, founded in Nashville and taken over by the University in 1879, was moved to Memphis in 1927. The Health Science campus was established in 1900 as a private institution, Hall-Moody Junior College, and it became a part of the University of Tennessee in 1927. The School of Social Work at Nashville became part of the University in 1951. A fourth primary campus was established at Chattanooga in 1969 with the merger of the University with the University of Chattanooga.

The University's agricultural experiment stations were established at Jackson, Spring Hill (Columbia), Springfield, Lewisburg, Crossville, Wartrace, Oak Ridge, Greeneville, and Grand Junction. The agricultural Extension Service, with district offices at Jackson, Nashville, Cookeville, Chattanooga, and Knoxville, has agricultural education leaders and agents in each of Tennessee's 95 counties.

In 1968 the Board of Trustees reorganized the institution into a University system, giving a central administrative staff responsibility for statewide functions of the University. Each primary campus came under the administrative direction of a chancellor.

State Legislatures and Governors of Tennessee, particularly those of the past half century, have shown an active interest in the development of The University of Tennessee. Such support has helped the University broaden and strengthen its efforts to meet the educational, research, and service needs of the people of Tennessee through programs which have earned national and international recognition.

Admission to The University of Tennessee, Knoxville

ADMISSIONS PHILOSOPHY AND GOALS

As the state's largest and most comprehensive university, The University of Tennessee, Knoxville (UTK) seeks to provide high quality educational programs for all students who have the academic ability and motivation to adapt to and profit from a baccalaureate education. Similar opportunities are available at the graduate level, in the Graduate College. While the majority of students at UTK are residents of the State of Tennessee, the university welcomes qualified students from other states and from outside the United States. Students from a variety of cultures and backgrounds are encouraged to apply.

Generally, UTK entering students have:
1. An outstanding record of total academic performance in high school or college;
2. A good past academic record in particular subjects related to fields of interest;
3. A level of motivation and interest sufficient to offset negative aspects of prior academic performance;
4. A change in career goals as an adult, resulting in a need for formal education at the university level;
5. A quality education at the secondary or college level from an institution in another country.

UTK admission policies are designed to reflect sensitivity, flexibility, and quality.

The goals are sensitivity to the diverse needs and life histories of individuals, flexibility in the strategies worked out between a student and the University towards the achievement of individual goals, and quality in the standards and expectations for all involved in the various courses and programs.

Honor's courses and sections and special programs challenge a student who previously has demonstrated outstanding overall academic attainment or skills in a particular subject area. However, experience has shown that many students whose past academic records are average can achieve a high level of attainment. This achievement is of vital importance to the student, the University, and the State. The student's motivation must be sufficiently strong and the University must provide the necessary attention of concerned teachers and advisors. UTK encourages persons whose interests and goals have changed with time. Many adults who have little or no college work find that, after some years in the working world, they are both willing and able to take advantage of the study opportunities provided by a major university such as UTK. Others who have completed a program of study or have received a degree may desire to expand their knowledge or prepare for a different vocation and may re-enroll or transfer previous credits to UTK.

Thus the University is a point of re-entry into higher education for many. Not all who come here seek a degree. For some, the goal is the attainment of particular skills and the development of certain interests through selected courses. Although the same academic standards apply to all, individual variations in academic background are recognized to the maximum extent possible in admissions procedures. UTK attempts to assist each student in the identification and achievement of realistic academic goals.

ADMISSION TO THE UNIVERSITY AND ASSOCIATION WITH A COLLEGE OR SCHOOL

There are two distinct steps in the acceptance of a student by the University. These steps can be separated in time or may occur simultaneously. The initial step is admission to The University of Tennessee,
Knoxville. This admission action occurs only once, unless a student leaves the University for some reason and then returns after a time lapse. The second step involves dual selection:

1. selection by the student of the school or college offering the desired educational program, and
2. acceptance by college or school of those students who have the necessary academic preparation for the programs in the college and who can be adequately accommodated by the available staff, space, etc.

These matching processes occur continuously in most colleges and schools. A student may be admitted to the University, select a particular college, and be accepted into that college all at the same time when all conditions are favorable.

Many students are undecided about a major when they enroll or, perhaps, have not had an opportunity to validate their tentative choices. This is a common situation and should not be a cause of concern. An undergraduate education has many objectives other than that of preparation for a first career. With careful planning, a student can explore alternatives and accomplish some of these objectives with little, if any, loss of time.

All students are initially admitted to The University of Tennessee, Knoxville, on the basis of criteria stated subsequently. Individuals may remain students of UTK as long as they are in good academic standing. Upon graduation, UTK becomes their alma mater, and they become its alumni. Whatever their specific college, a large portion of time (in terms of coursework required for the program, and academic preparation for the programs in the college and who can be adequately accommodated by the available staff, space, etc.) will favor admission actions.

The University

Ideally a University student will determine the college or school of choice and actively work toward association at the earliest possible date.

**Sources of Information for Prospective and New UT Students**

Tables I and II which follow list the most commonly-sought sources of information about admission and related matters at the University of Tennessee, Knoxville.

**Requirements for Admission as a UTK Undergraduate Student**

Anyone interested in attending UTK as an undergraduate student should contact the Admissions Office, 320 Student Services Building, for application forms and information on enrollment. Return of completed forms and transcripts to the Admissions Office results in the formation of an admissions file for each applicant. When a file is complete, an admissions decision is made by personnel in the Admissions Office, and the applicant is notified of the decision by mail.

The contents of a complete admission file for each of the various admission categories is described below and in Table III.

**Freshman Applicants**

For admission purposes, a student is classified as an entering freshman if:

1. there has been no previous college-level credit earned or
2. the total of attempted college-level credit work at an accredited institution has been less than 12 quarter hours.

In addition to the application form, a freshman applicant should:

1. have a transcript of all high school credits sent to the Admissions Office by all high schools attended. At least three units of English must have been completed. A supplemental transcript must be sent by a high school when the initial transcript is submitted to UTK prior to matriculation. For students who have been taken for college credit, the institution(s) granting the credit must be contacted by the student and asked to send a transcript to the UTK Admissions Office. Transcripts carried by the student may be useful in the advising and course selection process, but they are not acceptable in the admissions file.

2. have the score report of the American College Testing Program (ACT) sent by that organization to the Admissions Office. The score report is a necessary part of the application. For students who have taken both the ACT and the Scholastic Aptitude Test (SAT) at the time of application for admission to The University of Tennessee, Knoxville, only the ACT results shall be included in the admissions file.

In considering the admission as University students of freshman applicants who have taken only the SAT, the SAT scores, properly reported to the Admissions Office by the testing body, may be accepted in lieu of the ACT at the discretion of the Director of Admissions. Such students may be required to take the ACT test for the purpose of assisting in placement decisions after being admitted to UTK. ACT scores provide a source of data normally essential to the awarding of scholarships and placement in honors programs and courses.

The University of Tennessee, Knoxville, only

The ACT tests are administered five times a year throughout the country in October, December, February, April, and June. Information concerning the ACT and application forms may be obtained from high school guidance counselors or directly from: American College Testing Programs, P. O. Box 168, Iowa City, Iowa 52240. The test can be taken during either the junior or senior year of high school.

Freshman applicants having a relatively low ACT (or SAT) composite score and/or high school grade point average may be considered for admission by a University Admission Committee (see Table III).

**Advanced Placement Examinations**

Freshmen admitted to UTK may receive credit on the basis of examination scores on the Advanced Placement Examinations offered each May by the College Entrance Examination Board in 13 subject areas. The tests are usually taken by high school students preparing to enter college during their junior or senior year.

Because the material covered by the tests is comparable to introductory courses at the college level, many colleges and universities have granted advanced placement or actual course credit with a letter grade or a "Satisfactory" notation. Scores of 5, 4, and 3 usually provide some credit at the college level.

Departments at UTK which grant advanced placement and/or grades for satisfactory test scores include Art, Biology, Chemistry, English, History, French, Spanish, German, Latin, Mathematics, Music, and Physics. The CEEB sends scores and test books on request to the Director of Admissions at UTK sometime in June or July. Each participating department decides how to grant credit.

Information on can be obtained from the Admissions Office or from the Liberal Arts Advising Center.

**Transfer Applicants**

A student who has attempted 12 quarter hours or more of college coursework at one or more accredited institutions of higher learning must apply for admission as a transfer student. A complete transcript of all work at each institution attended should be sent to those institutions directly to the UTK Admissions Office. Transcripts carried by the student may be useful in the advising and course selection process, but they are not acceptable in the admissions file. Transfer students who have taken neither the ACT nor the SAT are not required to do so. Upon admission to UTK, a student may be classified as a freshman, sophomore, junior, or senior, according to the number of hours passed (see page 31).

Prospective transfers to UTK are encouraged to complete a sequence of related courses rather than transferring a single course from a series. Students at two-year community colleges, particularly within the State of Tennessee, are encouraged to complete the associate degree requirements prior to transfer UT, provided that such action is consistent with their educational goals.
International Student Applicants

All foreign nationals on a non-immigrant visa are classified as international students, whether they are applying to UTK as freshmen, or as transfer students. In addition to the information below, a pamphlet entitled “The University of Tennessee Overseas Applicant Information” is available from the Admissions Office or from the Office of International Student Affairs upon request. In making an application for admission to undergraduate study, each international student is required to provide the following:

1. A completed application for undergraduate admission
2. Authenticated copies of all academic records. These records should describe the courses of instruction in terms of years spent in school and types of subjects mastered, together with grades earned in each subject
3. Evidence of English proficiency according to the following requirements for students whose first language is not English:
   a. Any applicant to the undergraduate program whose first language is not English - with the exception of some transfer students from regionally accredited colleges or universities in the United States (see c below) - must present a “Test of English as a Foreign Language (TOEFL)” score of at least 525 (earned within two years prior to application) before being admitted; final consideration cannot be granted until test results are received by the Director of Admissions.
   b. The University of Tennessee English Placement Test must be taken prior to registration; this test will determine whether the student needs to take more English and, if so, at what level. The English Placement Test grants no credit. Students assigned to special English courses must enroll in the first quarter of attendance, stay continuously enrolled in the assigned courses until completion of all requirements, and should complete the requirements within the first year of continued enrollment at The University of Tennessee, Knoxville.
   c. An undergraduate student whose first language is not English is exempted from taking the UTK English Placement Test and from presenting a TOEFL score of 525 provided the student has satisfied all requirements for freshman composition with a grade of C or better at a college or university in the United States which is accredited by a regional association.
   d. A United States citizen or permanent resident whose first language is not English but who has graduated from a high school in a country whose first language is English, may be admitted under the conditions that apply to United States citizens whose first language is English. Any other United States citizen or permanent resident whose first language is not English must conform to the regulations stated in (a, b and c) above.

4. Applicants from Ghana, Nigeria and Iran are required to make a significant monetary deposit prior to issuance of Form I-20 for student visa. This deposit is credited to tuition and fees. The balance is remitted to the student at the beginning of each quarter in four quarterly installments. Information on these requirements is sent to international student applicants along with the necessary forms upon receipt of a letter of inquiry about admission. Information may also be requested from the Office of International Student Affairs, 201 Alumni Hall.

International students are subject to various enrollment limitation regulations comparable to those affecting U.S. citizens. The Admissions Office will notify any applicant of any applicable regulations in effect at the time of application.

Transient Student Applicants

A transient (temporary) student is one who is actively enrolled in a program at another accredited institution of higher learning but who desires to take courses or attend classes at UTK because of the availability of certain coursework or because of temporary residence in the Knoxville area.

Transient students desiring to continue at UTK for more than one quarter must file an application for admission as a transfer student.

Students desiring to attend UTK on an interim basis for a course must submit, in addition to the application form, (1) a letter of good standing from the institution at which enrolled, and (2) a statement of the objective for enrolling one quarter at UTK. This statement should describe desired UTK courses, or at least the subject areas of coursework to be taken here.

Since academic records will not be available at UTK for transient students, academic advising will be limited to information about courses in which the student enrolls. Such information is obtained from the department offering a course. Use of UTK coursework toward a degree program is a matter to be determined by the home institution, not by UTK. Transient students must have the required background (pre-requisites) and course requirements the same as any other student.

Academic overloads will not be permitted.

Non-Degree Student Applicants

Persons desiring to take courses for credit, but who do not intend to pursue a degree, should apply for non-degree status. Working adults may choose to apply through the University Evening School for convenience. All University admissions requirements apply, and the Admissions Office processes all applications, regardless of intended registration location. Non-degree students are often part-time students, though this is not a requirement. Non-degree students must show evidence of satisfactory preparation for the courses they wish to take. The high school class of a non-degree student must have graduated (otherwise, an early's admission application must be filed). Former University of Tennessee students may not be admitted in this category prior to the receipt of a bachelor's degree.

If there is a change in educational goals leading to interest in a degree program, a non-degree student must meet all previously indicated transfer, admission, or college association requirements for admission at the time of the request. No more than 90 quarter hours of accumulated college credit (from all institutions attended) may be used by a non-degree student in any subsequent degree program at UTK.

Exceptions to Admissions Requirements

University admission requirements for the various categories are thought to be reasonable and consistent with good educational practice. Thus, these requirements are not normally waived or modified for any applicant, except as specifically noted. However, unusual circumstances sometimes exist. If a potential student feels that some part of the requirements for the category sought should not apply as stated, that person should write a letter to the Director of Admissions. The letter should clearly state the specific circumstances prompting the appeal and what changes in the stated requirements are sought. The reply to this letter will indicate whether any exception to the requirements will be made, the reasons for the decision, and will describe any further action which the applicant might take.

Deadlines For Applications

Applications for undergraduate admission and all supporting credentials must be received by the Director of Admissions no later than August 1 for the fall quarter, admission, and no later than three weeks before the start of classes for admission to any other quarter, except as noted below.

Applications for the College of Veterinary Medicine must be received by the Director of Admissions by January 15 for admission into the fall quarter. Applications for the School of Architecture must be received no later than March 1 for admission to the summer and fall quarters. Selection will be made by April 1. November 1 is the deadline for application for the spring quarter; enrollment is closed for the winter quarter. Applications for the College of Nursing must be received by March 1. Selection will be made by April 1; enrollment is closed for the winter and spring quarters.

Applications for the College of Veterinary Medicine must be received no later than March 1 for admission to the summer and fall quarters. Selection will be made by April 1; enrollment is closed for the winter quarter. An applicant who is not accepted may be reconsidered if application is made for a future class.

Formal students who have been dropped from the University for academic deficiency or disciplinary reasons must apply for readmission to the Director of Readmissions no later than six weeks before the start of classes of the quarter the student wishes to enter. Former students in good standing who have not been registered for at least one quarter must (except for summer quarters) apply for readmission no later than three weeks prior to the start of classes.

FEE CLASSIFICATION FOR THE PURPOSE OF PAYING UNIVERSITY FEES AND FOR ADMISSION PURPOSES

Students are classified as in-state or out-of-state for the purpose of paying University
# TABLE I
## CONTACT LIST FOR PROSPECTIVE AND NEW STUDENTS

<table>
<thead>
<tr>
<th>Area of Information or Question</th>
<th>Contact</th>
<th>Telephone</th>
</tr>
</thead>
<tbody>
<tr>
<td>University admission requirements</td>
<td>Admissions Office</td>
<td>(615) 974-2184</td>
</tr>
<tr>
<td>Application forms</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transfer credit evaluation</td>
<td></td>
<td></td>
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<tr>
<td>Residency Classification</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fee information</td>
<td></td>
<td></td>
</tr>
<tr>
<td>International student requirements, services</td>
<td>Admissions Office</td>
<td>(615) 974-3177</td>
</tr>
<tr>
<td></td>
<td>Office of International Students Affairs</td>
<td>201 Alumni Hall</td>
</tr>
<tr>
<td>College association requirements, courses, programs</td>
<td>Refer to Table II</td>
<td></td>
</tr>
<tr>
<td>Veteran’s Affairs</td>
<td>Veteran’s Benefits</td>
<td>(615) 974-2103</td>
</tr>
<tr>
<td>Transcript of previous work at UTK</td>
<td>Registrar—Transcripts</td>
<td>(615) 974-2101</td>
</tr>
<tr>
<td>Financial aid; loans; work-study; student employment; scholarships</td>
<td>Financial Aid Office</td>
<td>(615) 974-3131</td>
</tr>
<tr>
<td>Readmission of former UTK students (absent for one or more quarters except Summer)</td>
<td>Readmissions Office</td>
<td>(615) 974-4379</td>
</tr>
<tr>
<td>Handicapped students’ facilities, programs, services</td>
<td>Dean of Admissions &amp; Records Office</td>
<td>(615) 974-2105</td>
</tr>
<tr>
<td></td>
<td>or Handicapped Student Services</td>
<td>900 Volunteer Boulevard</td>
</tr>
<tr>
<td></td>
<td>305 Student Services Building</td>
<td></td>
</tr>
<tr>
<td>Single student on-campus housing</td>
<td>Single Student Residence Halls</td>
<td>(615) 974-3411</td>
</tr>
<tr>
<td>Married student housing</td>
<td>Married Students Housing</td>
<td>(615) 974-3431</td>
</tr>
<tr>
<td>Off-campus housing opportunities in non-university property</td>
<td>Off-Campus Housing</td>
<td>(615) 974-5276</td>
</tr>
<tr>
<td>General campus information; other telephone numbers</td>
<td>Campus Information Operator</td>
<td>(615) 974-2591</td>
</tr>
<tr>
<td>Evening school schedules, registration</td>
<td>University Evening School</td>
<td>(615) 974-5361</td>
</tr>
<tr>
<td></td>
<td>451 Communications and University Extension Building</td>
<td></td>
</tr>
<tr>
<td>Correspondence courses, CLEP tests</td>
<td>Center for Extended Learning</td>
<td>(615) 974-5135</td>
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<tr>
<td></td>
<td>420 Communications and University Extension Building</td>
<td></td>
</tr>
<tr>
<td>Orientation sessions for new students; tutors; general information</td>
<td>Orientation Office</td>
<td>(615) 974-2435</td>
</tr>
<tr>
<td></td>
<td>412 Student Services Building</td>
<td></td>
</tr>
<tr>
<td>ACT, GED testing; vocational and psychological counseling</td>
<td>Student Counseling Services Center</td>
<td>(615) 974-2196</td>
</tr>
<tr>
<td></td>
<td>900 Volunteer Boulevard</td>
<td></td>
</tr>
<tr>
<td>Graduate programs, courses at UTK</td>
<td>The Graduate School</td>
<td>(615) 974-3251</td>
</tr>
<tr>
<td></td>
<td>218 Student Services Building</td>
<td></td>
</tr>
<tr>
<td>Admission to units of the University of Tennessee Center for Health Sciences in Memphis (refer to Health Sciences Catalog)</td>
<td>Director of Admissions</td>
<td>(901) 528-5500</td>
</tr>
<tr>
<td></td>
<td>The U.T. Center for the Health</td>
<td></td>
</tr>
<tr>
<td></td>
<td>62 South Dunlap Street</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Memphis, TN 38103</td>
<td></td>
</tr>
</tbody>
</table>
### TABLE II
**TERMS COMMONLY USED IN ADMISSION AND REGISTRATION PROCEDURES AT UTK**

<table>
<thead>
<tr>
<th>Term</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Admission</td>
<td>The process of being admitted to UTK as a university student with the opportunity to take classes. (See page 12)</td>
</tr>
<tr>
<td>Association</td>
<td>The process of acceptance of an admitted student into a particular academic degree program of a college or school at UTK. (See page 26)</td>
</tr>
<tr>
<td>Progression</td>
<td>An internal evaluation process in some colleges or degree programs by means of which an associated student’s academic standing is examined to determine if prior work is complete and if the student should proceed towards completion of the remaining degree requirements. The most common evaluation point is at the end of the sophomore year.</td>
</tr>
</tbody>
</table>
| Lower division            | 1. A course normally taken during the freshman and sophomore years. In the UTK courses numbering system, lower division courses carry 1000 and 2000 numbers (see page 31). Credit for lower division courses completed at another institution may be labeled "LD credit."  
2. A term referring to a student's location in the progression of coursework leading to an undergraduate degree and implying freshman or sophomore classification. |
| Upper division            | 1. Courses normally taken during the junior and senior years (3000 and 4000 numbers at UTK). A student taking primarily junior and senior courses is said to be an upper division student. Credit for upper division courses may be labeled "UD credit" on a transfer evaluation.  
2. The state of being classified as a junior or senior. |
<p>| Add deadline              | The latest date in an academic quarter at UTK when a course may be added to a student's class schedule without approval of someone other than the student (exception: when the additional hours produce an academic overload, see page 31). |
| Drop deadline             | The latest date in an academic quarter at UTK for removing a course from a student's official course schedule without approval of someone other than the student (see page 30). |
| Curriculum                | The set of courses offered in a particular degree program. More generally, the courses (in total) offered in a college or university. The plural word is curricula. |
| Prerequisite               | A requirement to be completed (or a level of skill or knowledge to be demonstrated) before enrollment in a course, a degree program, or association with a college. |
| Corequisite                | A course to be taken or a requirement to be fulfilled at the same time as a particular course is being taken. |
| Application deadline      | The date which all documents required for the admissions file of a prospective student must be received by the UTK Admissions Office (see page 26). |
| Admissions file           | The set of documents related to a request for admission to UTK. The set contains the application form and official transcripts of previous work in high school or college and may contain standardized test scores (ACT for freshman applicants), a statement of career objectives, forms for international students, or other information required by the Admissions Office or by a particular college or school. |
| Registration              | The process of officially gaining entrance into one or more courses.                                                                        |
| Orientation               | A meeting (or series of meetings) designed to acquaint a new student with the facilities, policies, sources of information and assistance, and academic and social atmosphere of UTK. |
| Quarter hour              | The unit of academic credit at UTK (see page 28).                                                                                           |
| Semester hour             | A unit of academic credit used in the UT Law College and at many colleges and universities. Three quarter hours is equivalent to two semester hours. |
| Academic load             | The total quarter hours of credit for all courses taken during a specified time—quarter, mini-term, semester.                                 |
| Full-time                 | One who is registered for 12 quarter hours or more during a quarter.                                                                       |
| Quarter                   | The division of the calendar year used in academic scheduling at UTK. A quarter is roughly 3 months in duration. More specifically, courses normally last for approximately 11 weeks. |
| Quality points            | UTK compiles academic performance records through use of a scale assigning 4 &quot;quality points&quot; per quarter hour of credit for an &quot;A&quot; grade ranging to 1 quality point per quarter hour of credit for a &quot;D&quot; grade (see page 28). |</p>
<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade point</td>
<td>An average on the 4-point scale determined by dividing the total accumulated quality points by the corresponding total of quarter hours of credit attempted. Certain grades do not influence this computation (see page 29). High schools have a similar procedure for computing an average on the numerical grading scale (often abbreviated as HSGPA).</td>
</tr>
<tr>
<td>AP exam</td>
<td>An Advanced Placement Examination in a specific subject area available nationally to high school students from the College Entrance Examination Board (CEEB). Obtain information on taking the examination from a high school guidance counselor. Information on UTK course credit for these examinations is available from the Admissions Office. (See page 13.)</td>
</tr>
<tr>
<td>CLEP test</td>
<td>Subject area examination administered by the College Entrance Examination Board. Details and comparisons with the AP exam can be obtained from: The College-Level Examination Program Box 1821 Princeton, NJ 08540 Refer to page 33 for statements on acceptance of CLEP text scores for academic credit at UTK.</td>
</tr>
<tr>
<td>Proficiency exam</td>
<td>A test given to a student admitted to UTK to evaluate knowledge or skills normally acquired through completion of a particular UTK course. Refer to page 33 for details.</td>
</tr>
<tr>
<td>TOEFL test</td>
<td>An internationally-administered examination measuring ability to use the English language. Required of any international student applying to UTK whose native language is not English (see page 14 for exceptions). For information and to make arrangements to take the examination, contact: The Test of English as a Foreign Language Educational Testing Service Princeton, NJ 08540</td>
</tr>
<tr>
<td>English Proficiency Test</td>
<td>A test taken at UTK prior to initial registration (but after admission) by undergraduate international students to determine what English course (if any) must be taken at UTK. This local test is in addition to the minimum TOEFL test requirement. (See page 14.)</td>
</tr>
<tr>
<td>University honors course</td>
<td>A non-departmental enrichment course available (by invitation only) from the College of Liberal Arts (page 215).</td>
</tr>
<tr>
<td>Honors course or section</td>
<td>A version of a regular course reserved for students with superior preparation for that course. See, for example, English honors (p. 205); Chemistry honors (p. 195); Mathematics honors (p. 215); History honors (p. 212).</td>
</tr>
<tr>
<td>Evening school</td>
<td>An administrative unit of UTK’s Division of Continuing Education designed to serve students who work during the major portion of the day (see page 101).</td>
</tr>
<tr>
<td>Major</td>
<td>The principal education interest of a student as represented by one of the curricula offered by the various colleges at UTK. The undergraduate degree may or may not carry the same title as the major. Every student has one or more majors but may or may not have a concentration within a major or be following an option within a major.</td>
</tr>
<tr>
<td>Minor</td>
<td>A secondary subject area interest (to the major) represented by a specified set of hours and/or courses. Differs from “concentration” in that a minor is not a subdivision of the major subject area.</td>
</tr>
<tr>
<td>Concentration</td>
<td>A collection of courses within a major which focus on a particular subject area. The term “concentration” describes the nature of the set of courses; the term “option” designates the mechanism by which a student enters into a particular concentration.</td>
</tr>
<tr>
<td>Option</td>
<td>A concentration of elective courses within a major which emphasizes one aspect of the major, chosen by a student according to his/her interests.</td>
</tr>
<tr>
<td>Accredited</td>
<td>A term applied to a school or specific program which has been recognized by some national or regional organization as meeting certain academic standards for quality and educational environment.</td>
</tr>
<tr>
<td>Admissions Category</td>
<td>Admissions Requirements</td>
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<tr>
<td>--------------------------</td>
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</tr>
<tr>
<td>FRESHMAN</td>
<td>Graduation from an approved high school; submission to UTK of transcript and ACT test results. Applicants whose ACT composite score is below 10 and whose</td>
</tr>
<tr>
<td>In-state</td>
<td>high school GPA is below 2.00 will not be admitted. Others having relatively low scores will be reviewed for admission by a university committee.</td>
</tr>
<tr>
<td>FRESHMAN</td>
<td>Same as for in-state. In addition, applicants from states in the region served by the Southern Association of Colleges and Schools (AR, AL, FL, GA, KY,</td>
</tr>
<tr>
<td>Out-of-State</td>
<td>LA, MS, NC, SC, TX, and VA) must have a high school grade point average at least 2.25 and an ACT composite score at least 18. Applicants from other states</td>
</tr>
<tr>
<td></td>
<td>must have high school grade point average at least 2.25 and ACT composite score at least 20.</td>
</tr>
<tr>
<td>FRESHMAN—GED</td>
<td>Applicant’s high school class must have graduated; must be at least 18 years old; and must have an average standard score of at least 50 on the high school</td>
</tr>
<tr>
<td>Diploma</td>
<td>level General Education Development Test. High School transcript(s) showing all work completed must be submitted.</td>
</tr>
<tr>
<td>FRESHMAN—EARLY</td>
<td>Must have completed junior year in high school, have a high school grade point average of at least 3.50, and have an ACT composite score of 28 or above.</td>
</tr>
<tr>
<td>ADMISSION</td>
<td>Application is subject to review and approval by the Director of Admissions following an interview.</td>
</tr>
<tr>
<td>TRANSFER</td>
<td>At least 12 quarter hours of college credit work attempted at an accredited institution of higher learning; honorable dismissal from all such institutions</td>
</tr>
<tr>
<td>In-State</td>
<td>attended; transfer grade point average of at least 2.00.</td>
</tr>
<tr>
<td>TRANSFER</td>
<td>Same as for in-state transfer applicants except that those applicants desiring college or school association at the time of admission will have the</td>
</tr>
<tr>
<td>Out-of-State</td>
<td>admissions decision made by the College Committee on Admissions.</td>
</tr>
<tr>
<td>INTERNATIONAL</td>
<td>Refer to &quot;International Student Applicants&quot; in text.</td>
</tr>
<tr>
<td>TRANSIENT</td>
<td>Refer to &quot;Transient Student Applicants&quot; in text. One quarter limit in this category at UTK unless special permission is given by the Director of</td>
</tr>
<tr>
<td>NON-DEGREE</td>
<td>May not be a candidate for the bachelor’s degree. Must show satisfactory evidence of preparation for the courses to be taken at UTK; applicant’s high</td>
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<tr>
<td></td>
<td>school class must have graduated (this is not an early admissions category).</td>
</tr>
</tbody>
</table>
## MAJORS, MINORS, CONCENTRATIONS AND TRACKS

### TABLE IV

<table>
<thead>
<tr>
<th>DEPARTMENT (UNIT)</th>
<th>MAJOR</th>
<th>CONCENTRATION/OPTION/TRACK/ETC. WITHIN THE MAJOR</th>
<th>DEGREE</th>
</tr>
</thead>
</table>
| Institute of Agriculture  
College of Agriculture | Agriculture (Interdepartmental Unit) | | |
| Agricultural Biology | Agricultural Business | Bachelor of Science in Agriculture |
| Agricultural Economics and Rural Sociology | Agricultural Economics and Rural Sociology | Bachelor of Science in Agriculture |
| Agricultural Education (Intercollegiate program with the College of Education) | Agricultural Education | Bachelor of Science in Agriculture |
| Agricultural Engineering | Agricultural Engineering | Bachelor of Science in Agricultural Engineering |
| Agricultural Mechanization | a. Business and Industry Option  
b. Production and Processing Option | Bachelor of Science in Agricultural Engineering |
| Agricultural Extension Education | | |
| Animal Science | Animal Science | 1. Animal Science Option  
2. Pre-Veterinary Medicine Option  
3. Animal Science Curriculum with a Pre-Veterinary Option (3-1) | Bachelor of Science in Agriculture |
| Food Technology and Science | Food Technology and Science | Bachelor of Science in Agriculture |
| Forestry, Wildlife, and Fisheries | Forestry | 1. Forest Resource Management Option  
2. Forest Recreation Option  
3. Wood Utilization Option | Bachelor of Science in Forestry |
| Wildlife and Fisheries Science | | Bachelor of Science in Wildlife and Fisheries Science |
| Ornamental Horticulture and Landscape Design | Ornamental Horticulture and Landscape Design | Bachelor of Science in Agriculture |
| Plant and Soil Science | Plant and Soil Science | Bachelor of Science in Agriculture |
| Institute of Agriculture  
College of Veterinary Medicine | Veterinary Medicine-Veterinary Medicine | Doctor of Veterinary Medicine |
| Environmental Practice | | |
| Microbiology-Veterinary Medicine | | |
| Pathobiology | | |
| Rural Practice | | |
| Urban Practice | | |
| Veterinary Medicine (Interdepartmental Unit) | | |
| School of Architecture | School of Architecture | Architectural Design | Bachelor of Architecture |
| | Architecture | Second Baccalaureate Degree Program | Bachelor of Architecture |
| College of Business Administration | Accounting and Business Law | Accounting Management Science Option | Bachelor of Science in Business Administration |

1Minor available for students in other colleges.
<table>
<thead>
<tr>
<th>DEPARTMENT (UNIT)</th>
<th>MAJOR</th>
<th>CONCENTRATION/OPTION/TRACK/ETC. WITHIN THE MAJOR</th>
<th>DEGREE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business Administration (Interdepartmental Unit)</td>
<td>General Business</td>
<td>General Business Management Science Option</td>
<td>Bachelor of Science in Business Administration</td>
</tr>
<tr>
<td></td>
<td>Public Administration</td>
<td></td>
<td>Bachelor of Science in Business Administration</td>
</tr>
<tr>
<td>Economics</td>
<td>Economics</td>
<td></td>
<td>Bachelor of Science in Business Administration</td>
</tr>
<tr>
<td>Finance</td>
<td>Banking</td>
<td></td>
<td>Bachelor of Science in Business Administration</td>
</tr>
<tr>
<td></td>
<td>Finance</td>
<td>Business Finance and Financial Management, Finance Management Science Option, Investments and Security Analysis, Monetary Theory and Policy, Public Finance and Fiscal Policy</td>
<td>Bachelor of Science in Business Administration</td>
</tr>
<tr>
<td></td>
<td>Insurance</td>
<td></td>
<td>Bachelor of Science in Business Administration</td>
</tr>
<tr>
<td></td>
<td>Real Estate and Urban Development</td>
<td>Real Estate and Urban Development Management Science Option</td>
<td>Bachelor of Science in Business Administration</td>
</tr>
<tr>
<td>Management Science Programs</td>
<td>Management</td>
<td>Operations Management, Operations Management/Management Science Option, Personnel Management, Personnel Management/Management Science Option, General Management, General Management/Management Science Option</td>
<td>Bachelor of Science in Business Administration</td>
</tr>
<tr>
<td>Marketing and Transportation</td>
<td>Marketing</td>
<td>Marketing Management Science Option</td>
<td>Bachelor of Science in Business Administration</td>
</tr>
<tr>
<td></td>
<td>Transportation and Logistics</td>
<td></td>
<td>Bachelor of Science in Business Administration</td>
</tr>
<tr>
<td>Office Administration Programs</td>
<td>Business Education (Intercollegiate with the College of Education)</td>
<td>Shorthand, Distributive Education, Bookkeeping and Business Law, Bookkeeping and Data Processing</td>
<td>Bachelor of Science in Business Administration</td>
</tr>
<tr>
<td></td>
<td>Office Administration</td>
<td>Accounting Option, Banking/Finance Option, Bilingual Option, Computer Science Option, Insurance Option, Logistics Option, Managerial Option, Marketing Option, Public Administration/Government Option, Real Estate Option, Secretarial Option, Statistics Option, Transportation Option</td>
<td>Bachelor of Science in Business Administration</td>
</tr>
<tr>
<td>Statistics</td>
<td>Statistics</td>
<td>Statistics Management Science Option</td>
<td>Bachelor of Science in Business Administration</td>
</tr>
<tr>
<td>College of Communications</td>
<td>Advertising</td>
<td></td>
<td>Bachelor of Science in Communications</td>
</tr>
<tr>
<td></td>
<td>Broadcasting</td>
<td>Management Sequence, News and Public Affairs Sequence, Production/Performance Sequence</td>
<td>Bachelor of Science in Communications</td>
</tr>
<tr>
<td>School of Journalism</td>
<td>Journalism</td>
<td>News/Editorial Sequence, Public Relations Sequence (a. Governmental Public Relations, b. Corporate Public Relations, c. Other Areas)</td>
<td>Bachelor of Science in Communications</td>
</tr>
<tr>
<td>College of Education</td>
<td>Art and Music Education</td>
<td>Art Education</td>
<td>Bachelor of Science in Education</td>
</tr>
<tr>
<td>DEPARTMENT (UNIT)</td>
<td>MAJOR</td>
<td>CONCENTRATION/OPTION/TRACK ETC. WITHIN THE MAJOR</td>
<td>DEGREE</td>
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<tr>
<td></td>
<td>Music Education</td>
<td>Vocal Music (Voice Principal) Vocal Music (Piano or Organ Principal) Elementary Music Education (Voice Principal) Elementary Music Education (Piano or Organ Principal) Instrumental Music</td>
<td>Bachelor of Science in Education</td>
</tr>
<tr>
<td>Continuing Higher Education</td>
<td>Elementary Education or Mathematics Education</td>
<td>Joint Elementary-Mathematics Education Certification</td>
<td>Bachelor of Science in Education</td>
</tr>
<tr>
<td>Curriculum and Instruction</td>
<td>Elementary Education</td>
<td>Nursery School—Grade 3 (Intercollegiate with the College of Home Economics)</td>
<td>Bachelor of Science in Education</td>
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<tr>
<td></td>
<td></td>
<td>Option B: Kindergarten through Grade 8 1. Early Childhood Education</td>
<td>Bachelor of Science in Education</td>
</tr>
<tr>
<td>English Education</td>
<td></td>
<td></td>
<td>Bachelor of Science in Education</td>
</tr>
<tr>
<td>Foreign Language Education</td>
<td></td>
<td>Foreign Language Area</td>
<td>Bachelor of Science in Education</td>
</tr>
<tr>
<td>Mathematics Education</td>
<td></td>
<td>Mathematics and Physical Sciences Mathematics and Related Sciences Mathematics and Computer Sciences Mathematics Major with a Minor</td>
<td>Bachelor of Science in Education</td>
</tr>
<tr>
<td>Science Education</td>
<td></td>
<td>1. Area Majors in Science a. Biological Science b. Earth and Environmental Sciences c. Natural Science 2. Subject Majors in Science</td>
<td>Bachelor of Science in Education</td>
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<tr>
<td>Social Science Education</td>
<td></td>
<td>Social Studies</td>
<td>Bachelor of Science in Education</td>
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<td></td>
<td></td>
<td>Specific Subject Major</td>
<td>Bachelor of Science in Education</td>
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<tr>
<td>Educational Administration and Supervision</td>
<td></td>
<td>Psychology Education</td>
<td>Bachelor of Science in Education</td>
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<tr>
<td>Educational Psychology and Guidance</td>
<td></td>
<td>Special Education</td>
<td>Bachelor of Science in Education</td>
</tr>
<tr>
<td>Special Education and Rehabilitation</td>
<td></td>
<td>General Special Education Combined General Special Education and Elementary Education Hearing Impaired a. Specialization in Early Childhood Development b. Specialization in Elementary Education c. Specialization in Secondary Education d. Specialization in Multiple Handicapped Speech and Hearing Partially Seeing</td>
<td>Bachelor of Science in Education</td>
</tr>
<tr>
<td>DEPARTMENT (UNIT)</td>
<td>MAJOR</td>
<td>CONCENTRATION/OPTION/TRACK ETC. WITHIN THE MAJOR</td>
<td>DEGREE</td>
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<tr>
<td>Vocational-Technical Education</td>
<td>Business Education (Intercollegiate with College of Business Administra-</td>
<td>Option 1: Concentration in Trades and Industries</td>
<td>Bachelor of Science in Education</td>
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<td>tion)</td>
<td>Option 2: Concentration in Industrial Arts</td>
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<tr>
<td>School of Health, Physical Education, and Recreation</td>
<td>Health and Safety Education*</td>
<td>Elementary Physical Education (1-9)*</td>
<td>Bachelor of Science in Education</td>
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<td></td>
<td>School Health Education*</td>
<td>Secondary Physical Education (7-12)*</td>
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<td></td>
<td>Physical Education*</td>
<td>Dance*</td>
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<td>Ballet</td>
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<td>Modern</td>
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<td></td>
<td>Recreation</td>
<td></td>
<td>Bachelor of Science in Education</td>
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<td>College of Engineering</td>
<td>Chemical, Metallurgical, and Polymer Engineering</td>
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<td></td>
<td>Chemical Engineering</td>
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<td>Bachelor of Science in Chemical Engineering</td>
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<td></td>
<td>Metallurgical Engineering</td>
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<td>Bachelor of Science in Metallur-</td>
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<td>Civil Engineering</td>
<td>Construction Engineering</td>
<td>gical Engineering</td>
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<td>Environmental Engineering</td>
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<td>Soils Engineering—Materials</td>
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<td>Structural Engineering</td>
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<td>Transportation Engineering</td>
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<td>Electrical Engineering</td>
<td>Bioclectric Engineering</td>
<td>Bachelor of Science in Electrical Engineering</td>
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<td>Computer Engineering</td>
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<td>Electromagnetic Fields and Communications</td>
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<td>Electronics and Instrumentation</td>
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<td>Energy Conversion and Power Systems</td>
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<td>Plasma and Electro-Optics</td>
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<td>Engineering</td>
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<td>Systems and Networks</td>
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<td>Engineering Administration</td>
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<td>Engineering Physics</td>
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<td>Bachelor of Science in Engineering Physics</td>
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<td>Engineering Science and Mechanics</td>
<td>Biomedical Engineering</td>
<td>Bachelor of Science in Enginee-</td>
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<td>Engineering Science</td>
<td>Engineering Analysis and Synthesis</td>
<td>ring Science</td>
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<td>Engineering Materials</td>
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<td>Engineering Mechanics</td>
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<td>Environmental Sciences</td>
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<td>Engineering Studies</td>
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<td></td>
<td>Industrial Engineering</td>
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<td>Bachelor of Science in Industrial Engineering</td>
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<td></td>
<td>Mechanical and Aerospace Engineering</td>
<td>Aerospace</td>
<td>Bachelor of Science in Mecha-</td>
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<td></td>
<td>Mechanical Engineering</td>
<td>Energy</td>
<td>nical Engineering</td>
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<td></td>
<td>Environment</td>
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<td>Machine Design</td>
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<td>Manufacturing</td>
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<td>Propulsion</td>
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<tr>
<td></td>
<td>Aerospace Engineering</td>
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<td>Bachelor of Science in Aerospace Engineering</td>
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<tr>
<td></td>
<td>Nuclear Engineering</td>
<td></td>
<td>Bachelor of Science in Nuclear Engineering</td>
</tr>
</tbody>
</table>

*Minor available.
3Minor available: Driver and Traffic Safety Education.
4Minor available: Coaching.
<table>
<thead>
<tr>
<th>DEPARTMENT (UNIT)</th>
<th>MAJOR</th>
<th>CONCENTRATION/OPTION/TRACK ETC. WITHIN THE MAJOR</th>
<th>DEGREE</th>
</tr>
</thead>
</table>
| College of Home Economics | Child and Family Studies | 1. Early Childhood Development  
2. Human Development and Family Studies  
3. Nursery School—Grade 3 (Intercollegiate with College of Education) | Bachelor of Science in Home Economics |
| Home Economics Education (Intercollegiate) | Home Economics Education | 1. Vocational Home Economics Education  
2. Extension and Community Services | Bachelor of Science in Home Economics |
| Nutrition, and Food Science | Nutrition and Food Sciences | 1. Nutrition and Food Sciences  
2. Coordinated Undergraduate Program in Dietetics (ADA) | Bachelor of Science in Home Economics |
| Tourism, Food and Lodging Administration | Plan A  
Plan B | Bachelor of Science in Tourism, Food and Lodging Administration |
| Textiles, Merchandising and Design | Interior Design and Housing | Bachelor of Science in Interior Design |
| Textiles and Clothing | 1. Merchandising  
2. Textile Science  
3. Apparel and Textiles | Bachelor of Science in Home Economics |
| College of Law | Law | Dual J.D.—M.B.A. Degree Program | Doctor of Jurisprudence |
| College of Liberal Arts** | Anthropology* | Cultural Anthropology  
Physical Anthropology  
Archaeology | Bachelor of Arts |
| Art | Art | Bachelor of Arts |
| Art History | Bachelor of Arts |
| Studio Art | Ceramics  
Graphic Design/Illustration  
Drawing  
Fiber-Fabrics  
Inter-Area  
Painting  
Printmaking  
Sculpture  
Watercolor | Bachelor of Fine Arts |
| Audiology and Speech Pathology | Audiology  
Speech Pathology | Bachelor of Arts |
| Biochemistry* | Biology* | 1. Concentration in Cell Biology  
2. Concentration in Organismal and Systems Biology | Bachelor of Arts |
| Botany | Botany* | Bachelor of Arts |
| Chemistry | Chemistry* | Concentration A  
Concentration B | Bachelor of Arts |
| Classics | Greek* | Bachelor of Arts |
| Latin* | Bachelor of Arts |
| Computer Science | Computer Science* | Bachelor of Arts |

5 Minor available: Business  
*Minor available  
**Business minor available to programs in Bachelor of Arts degree.
<table>
<thead>
<tr>
<th>DEPARTMENT (UNIT)</th>
<th>MAJOR</th>
<th>CONCENTRATION/OPTION/TRACK ETC. WITHIN THE MAJOR</th>
<th>DEGREE</th>
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<tbody>
<tr>
<td>Economics</td>
<td>Economics*</td>
<td>1. Concentration in Literature 2. Concentration in Creative Writing 3. Concentration in English Language 4. Individualized Program 5. Honors Program</td>
<td>Bachelor of Arts</td>
</tr>
<tr>
<td>Geological Sciences</td>
<td>Geology*</td>
<td>Bachelor of Arts</td>
<td></td>
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<tr>
<td>Germanic and Slavic Languages</td>
<td>German* Russian*</td>
<td>Bachelor of Arts</td>
<td></td>
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<tr>
<td>History</td>
<td>History*</td>
<td>Honors in History</td>
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<tr>
<td>Honors Program</td>
<td>Human Services Human Services*</td>
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<td></td>
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<td>Social Work</td>
<td>Bachelor of Science in Social Work</td>
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<tr>
<td>Mathematics</td>
<td>Mathematics*</td>
<td>Honors Program in Mathematics Program 1 Program 2 Program 3A Program 3B Program 4A Program 4B Program 4C Program 5</td>
<td>Bachelor of Arts</td>
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<tr>
<td>Microbiology</td>
<td>Microbiology Medical Technology</td>
<td>Bachelor of Arts</td>
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<tr>
<td>Music</td>
<td>Music Applied Music* Music History and Literature*</td>
<td>Bachelor of Arts</td>
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<td>Philosophy</td>
<td>Philosophy*</td>
<td>Bachelor of Arts</td>
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<tr>
<td>Physics and Astronomy</td>
<td>Physics*</td>
<td>Health Physics</td>
<td>Bachelor of Arts</td>
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<tr>
<td>Physical Sciences*</td>
<td>Political Science*</td>
<td>Standard option Honors in Political Science Public Administration</td>
<td>Bachelor of Arts</td>
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*Minor available.

5Minor available in Women's Studies and Cinema Studies.
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<tr>
<th>DEPARTMENT (UNIT)</th>
<th>MAJOR</th>
<th>CONCENTRATION/OPTION/TRACK/ETC. WITHIN THE MAJOR</th>
<th>DEGREE</th>
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<tbody>
<tr>
<td>Psychology</td>
<td>Psychology*</td>
<td>Concentration in General Psychology, Concentration in Academic Psychology, Honors Program in Psychology</td>
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<td>Pre-Professional Programs</td>
<td>Pre-Professional Programs</td>
<td>Pre-Dental, Pre-Medical, Pre-Medical Technology, Pre-Pharmacy, Pre-Veterinary, Pre-Cytotechnology, Pre-Dental Hygiene, Pre-Histotechnology, Pre-Medical Records Administration, Pre-Nursing, Pre-Physical Therapy, Pre-Optometry, Pre-Radiological Technology</td>
<td>Bachelor of Arts</td>
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<td>Religious Studies</td>
<td>Religious Studies*</td>
<td>Basic Option, Student Initiated Option</td>
<td>Bachelor of Arts</td>
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<tr>
<td>Romance Languages*</td>
<td>French*</td>
<td></td>
<td>Bachelor of Arts</td>
</tr>
<tr>
<td></td>
<td>Italian*</td>
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<tr>
<td></td>
<td>Spanish*</td>
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<td>Bachelor of Arts</td>
</tr>
<tr>
<td>Sociology</td>
<td>Sociology*</td>
<td></td>
<td>Bachelor of Arts</td>
</tr>
<tr>
<td>Speech and Theatre</td>
<td>Speech and Theatre</td>
<td>Concentration in Speech*, Concentration in Theatre*</td>
<td>Bachelor of Arts</td>
</tr>
<tr>
<td>Liberal Arts Intracollegiate (Intercollegiate with the College of Business Administration)</td>
<td>Statistics*</td>
<td></td>
<td>Bachelor of Arts</td>
</tr>
<tr>
<td>Zoology</td>
<td>Zoology*</td>
<td></td>
<td>Bachelor of Arts</td>
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<tr>
<td>Individualized Program</td>
<td>Individualized Program</td>
<td></td>
<td>Bachelor of Arts</td>
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<tr>
<td>College Scholars Program</td>
<td>College Scholars Program</td>
<td></td>
<td>Bachelor of Arts</td>
</tr>
<tr>
<td>College of Nursing</td>
<td>Nursing</td>
<td></td>
<td>Bachelor of Science in Nursing</td>
</tr>
</tbody>
</table>

*Minor available.
5Minor available in Portuguese.
*Minor available to students in College of Education and the College of Liberal Arts.
fees. This classification is also the basis of some University admission requirements. The classification is determined by the information recorded on the application for admission and may be reviewed as the result of submission of a subsequent fee classification questionnaire. Notice of classification is sent back shortly after the student applies to the University.

The determination is made on the basis of the Regulations established by the Board of Trustees, with the intent that all public institutions of higher education in Tennessee apply uniform classification rules. Basically, these Regulations state that (1) students receiving parental support are classified according to parental domicile, and (2) an emancipated student independent of parents may establish in-state classification by producing satisfactory evidence of Tennessee domicile with proof that the move to Tennessee was not primarily for obtaining educational opportunities for themselves, dependents, or spouse. Forms and copies of the Regulations may be obtained from the Office of the Vice Chancellor for Planning and Administration, 525 Andy Holt Tower, 974-4391. Charges for violation of the above policy should also be directed to the Office of the Vice Chancellor for Planning and Administration.

ELDERLY AND DISABLED PERSONS

Persons 60 years of age or older and totally disabled persons who are domiciled in Tennessee may audit courses without payment of course fees if space is available in the individual class. Persons 65 years of age or older and totally disabled persons who are domiciled in Tennessee may enroll in courses for credit at reduced fees. Interested persons should inquire at The University of Tennessee Evening School Office during regular office hours.

FAMILY EDUCATIONAL RIGHTS AND PRIVACY ACT

This Act establishes rules for confidentiality of student records; however, it also provides for basic identification of people at UTK without the consent of the individual. Release of information includes directory information, such as contained in the campus telephone book and sports brochures. Such information includes name, address, telephone number, date of birth, majors of attendance, degree and awards, the most recent educational agency or institution attended, participation in school activities and sports, and weight and height (for special activities).

Public notice of the categories to be contained in a directory is given, and a period of one week is provided during which a student may request that such information not be released.

SOCIAL SECURITY NUMBER USE

The University of Tennessee, Knoxville, requires assignment of an individual student number for identification of each student's record. The University began using the social security number as the student identification number prior to January 1, 1975; therefore, the federal law allows continued use of this number. However, if a student does not desire the social security number to be used, notification to the University must be made at the time of application for admission; a student identification number will be assigned instead. For prompt and accurate retrieval of records and business about their own records, students and alumni must give their student identification number. Student identification numbers, whether a social security number or an assigned number, are used administratively within the University only and are not given to third parties without expressed consent of the student concerned.

STATE BOARD OF EDUCATION

Effective November 1978, the Tennessee State Board of Education requires that all students preparing for a teaching career in Tennessee pass a standardized test of basic skills (mathematics, reading, and language) prior to admission to teacher education programs. The University of Tennessee will administer such tests each quarter to allow students planning to enter teacher education programs to fulfill this certification requirement of the State Board of Education.

College Association
College of Agriculture

The College of Agriculture grants and encourages association at the time of admission. Students who seek College of Agriculture association in candidacy for the Bachelor of Science in Agriculture must offer either of algebra as well as one unit of geometry, or two units of algebra; for the Bachelor of Science in Forestry, the Bachelor of Science in Wildlife and Fisheries Science, and the Bachelor of Science in Agricultural Engineering, two units of algebra, one unit of geometry and one-half unit of trigonometry or equivalent.

Students must have an overall GPA of 2.0 for all previous college work (including UTK) for transfer into the college. Out-of-state students desiring to transfer into certain heavily enrolled programs of the College of Agriculture may be required to have a higher GPA. Students desiring to enroll in Agriculture in conjunction with meeting the requirements for admission to the College of Veterinary Medicine should seek association in the pre-veterinary medicine curriculum offered in the Department of Animal Science.

School of Architecture

The School of Architecture grants and encourages provisional association at the time of admission to the University. The program of the School is carefully designed by stages, and students who are not ready for association at the time of university admission should consult with an Architecture advisor to plan a program that will include early required courses. (This program has limited enrollment with specific entrance requirements as noted below.)

FRESHMAN GUIDELINES:

1. Applicants with an ACT composite score of 27 or above are admitted.

2. Applicants with a total of 55 or above (using the formula of the high school grade point average plus the ACT composite score) are admitted.

3. Applicants with an ACT composite score of 16 or below are refused.

4. Applicants not falling into the above categories are referred to the Architecture Admissions Committee.

TRANSFER GUIDELINES:

Transfer students as well as intercollegiate transfer students are required to have at least a 2.3 grade point average to be considered.

SECOND YEAR ENTRY:

1. Satisfactory completion of first year architectural program with grade point average of at least 2.5. Exceptions may be made by petition only.

2. A personal interview and evaluation of applicant's work by a designated member of the School of Architecture.

3. Application to the School of Architecture no later than June 15 preceding the start of the second year.

SECOND BACCALAUREATE DEGREE PROGRAM

1. Applicants must have a Bachelor's Degree from an accredited college or university with a minimum grade point average of 2.5.

2. Applicants are required to have credit for Math 1840-50 or Math 1550-60 and Physics 2240-50 or their equivalents before beginning the program.

OTHER REQUIREMENTS:

Students must attain an overall 2.3 grade point average by the end of the 48 hours.
alternative educational opportunities. It is expected that students will follow the curriculum prescribed in the CBA portion of the General Catalog and will schedule the courses indicated in the sequence indicated.

Association decisions for entering freshmen or transfers are made at the time of admission to the University on the basis of a request for association with the college. Others who seek association at the lower division level must make application to the Associate Dean for Undergraduate Programs of the College of Business, Room 52, Glocker Business Administration Building.

II. PROGRESSION TO THE UPPER DIVISION LEVEL

The College of Business Administration grants progression to degree candidacy (major) only after completion of 84 hours of coursework. Progression to the major is competitive and is based upon the space available in the college. Factors considered in determining progression are both subjective and objective. Included is consideration of overall grade point average, grades earned in courses required in the lower-division curricula of the College of Business Administration. The standards applied for these criteria may be adjusted from time to time to balance overall demand with faculty resources and space availability. Students seeking to progress in the College of Business Administration to the upper-division level (as a major) must offer the following:

HIGH SCHOOL CREDITS:

(See IA above.)

COLLEGE WORK:

A university student may be granted association with the College of Business Administration and progression as a major after completion of 84 quarter hours of coursework. Included in the 84 hours, a student must have passed with a minimum GPA of 2.00 the number of credit hours indicated in each subject area shown below (or equivalent work as prescribed in the major area desired):

Accounting 2110-20-30 ........................................... 9 quarter hours
Computer Science elective .................................. 3
Economics 2110-20 ........................................... 9
English 1010 or 1011; 1020; 1031 or 1032 ........................... 9
Mathematics 1540-50-60 ..................................... 12
Statistics 2120 .................................................. 3

Students who intend to major in the College of Business Administration should follow closely the stipulated curricula in the first 84 hours.

Students who have completed 84 hours and believe that they have met the minimum standards must apply to the Associate Dean for Undergraduate Programs. This should be done as soon as the stated requirements are met so that the decision on granting association and progression can be reached prior to the registration date for the next quarter. Please note that progression to upper-division association is not automatic for those with lower-division association.

Application must be made by all who seek to progress from the lower-division to the upper-division.

Upper-division course enrollments are determined on a basis which gives first priority to students with College of Business Administration associated CBA majors, minors, and those in other colleges whose major curricula require this work.

PROVISIONAL STATUS:

Students who have completed between 70 and 84 hours of coursework and can meet the conditions for progression to the upper-division by completing the coursework in which they are presently enrolled may request provisional status. Application must be made to the Associate Dean for Undergraduate Programs at least three months prior to the first day of registration for the term in which the student expects to have met the requirements. Those accepted provisionally will be given advanced registration priority for core and other essential courses in the college. However, if they have not met the conditions for progression to the upper-division by the time they have completed 84 hours of coursework, they may be removed from the registration lists at late registration.

College of Communications

Association with the College of Communications may be made at any time. The minimum requirement is that students be in association with the college for the last 45 quarter hours of course work. Those interested in this college should obtain a copy of the Program Planning Guidebook of the College of Communications.

Freshmen associated with the College of Communications are temporarily classified as premajors. They may apply for admission to a major degree program after they pass typing and spelling proficiency tests and complete, with at least a 2.0 cumulative average, the following courses:

English 1011 or 1011; 1020, 1032 (with a minimum grade of C in each course) 12 hours of natural science
History 1510-20
Communications 1110 or 1118
9 hours of foreign language
Sociology 1510

A final decision may be deferred until students complete the core courses in their intended major with a minimum grade of B in one core course and no grade below C in other core courses. Students granted early admission must also meet these standards. Students must pass the college's typing and spelling tests before enrolling in or preregistering for any course in the college other than Communications 1110 or 1118. Students may not enroll in courses numbered 3000 or above in the college (with the exception of Advertising 3000) until they have successfully completed the core courses.

The core courses by major are:

Advertising - Communications 1110 or 1118, Journalism 2215, Advertising 3000
Broadcasting - Journalism 2215, Advertising 3000, Broadcasting 2750
Journalism - Journalism 2215, Journalism 2220, Journalism 2230

Transfer students may apply for association with the College of Communications after they have completed all the premajor requirements including the core courses, and have attained at least a 2.0 average in all work attempted.

College of Education

Application for association with the College of Education may be made at any time. The
minimum requirement is that students be in association with the college for the last 45 quarter hours of coursework. Students desiring to teach, in addition to associating with the College of Education, must also gain admittance to Teacher Education. Applicants are encouraged to begin the multivariate admission process during their first quarter as a full-time student and complete the process by approximately their 60th quarter hour. The specific admission criteria appear in the College of Education section of this catalog.

College of Engineering
Association with the College of Engineering may be undertaken at any time. The minimum requirement is that students be in association with the college for the last 45 quarter hours of coursework.

Mathematics preparation is particularly important for engineering courses. A freshman applying for association with this college must have completed two units of high school algebra, one unit of geometry, and one-half unit of trigonometry. If trigonometry was part of a high school course carrying another name, such credit will also satisfy the trigonometry requirement. Regardless of course title, right-triangle trigonometry and basic trigonometric laws must have been covered in sufficient depth to permit working with vector quantities.

Transfer students must also show adequate mathematical preparation, either through high school courses or through successful completion of college-level math courses utilizing the equivalent subject matter. All international applicants, all out-of-state transfer applicants, and in-state transfer applicants whose transfer GPA is below 2.50 will be reviewed by a College Admissions Committee. Transfer applicants from another UTK unit are screened by the appropriate engineering department head prior to a decision on association.

College of Home Economics
The College of Home Economics grants and encourages association at the time of admission to the University for all programs except Professional Interior Design and the Coordinated Undergraduate Program in Dietetics. The following restricted programs have specific entrance requirements noted below. In all cases, the minimum requirement is that students be in association with the College of Home Economics for at least the last 45 quarter hours of coursework. Students must have an overall GPA of 2.0 in all previous college work for transfer into the College of Home Economics.

PROFESSIONAL INTERIOR DESIGN PROGRAM
1. Automatic admission
a. Freshmen with composite ACT score of 18 and high school cumulative GPA of 2.25 or above.

b. Transfers from other departments and colleges within UTK having a composite ACT score of 18 and high school cumulative GPA of 2.25 or above.

2. Admission by departmental review
a. Transfers not meeting automatic admission criteria: college GPA and high school GPA will be evaluated; composite ACT will be considered if available.

b. Schedule for admission by departmental review
The University

<table>
<thead>
<tr>
<th>Grade</th>
<th>Performance</th>
<th>Quality Points</th>
<th>Per Quarter</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Superior</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>B+</td>
<td>High</td>
<td>3.5</td>
<td>3.5</td>
</tr>
<tr>
<td>B</td>
<td>Good</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>B-</td>
<td>Moderate</td>
<td>2.5</td>
<td>2.5</td>
</tr>
<tr>
<td>C</td>
<td>Average</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>C-</td>
<td>Below Average</td>
<td>1</td>
<td>1</td>
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TEMPORARY GRADES
A student receiving a grade of I or SI should arrange with the teacher to take whatever action is needed to remove the grade at the earliest possible date, and in any event, within two years after the course was attempted. A student need not be enrolled at the University to remove a temporary grade.

I (incomplete) is assigned to a student whose work is satisfactory but who has failed to complete a laboratory, shop, or other parallel exercise. The I carries no quality points and counts as a failure in the computation of grade point average until removed. The grade of I may also be assigned by any faculty member to students who appear to be deficient in their usage of English in the course, but otherwise passing; the grade of I is removed when the Committee on Writing certifies to the instructor that a student has made the necessary improvements.

SI (incomplete) is assigned when the work is satisfactory but when a portion of the course is not completed. The grade is awarded only in courses where S/NC grading has been elected. The grade of SI is not computed in the average.

GRADES THAT DO NOT INFLUENCE GRADE POINT AVERAGE
The following grades carry no quality points, and hours on which these grades are earned are not counted in computing a student's grade point average.

C (credit) indicates that a student needs to complete a course satisfactorily when, taken on an S/NC basis, the grade is satisfactory.

S (satisfactory) is assigned for C or better work when a course is taken on an S/NC grading basis.

General Academic Regulations

Credit Hours, Grades, and Grade Point Average
The basic unit of credit at The University of Tennessee, Knoxville, is the quarter hour. This normally represents one hour of lecture or recitation or two hours of laboratory work per week. Each course at the University carries a number of quarter hours of credit specified in the course description. At the completion of each course, a student will be assigned a grade reflecting the student's performance in the course. Passing grades normally carry with them a certain number of quality points per quarter hour of credit in the course. A student's grade point average is obtained by dividing the total number of quality points the student has accumulated by the total number of quarter hours the student has attempted, not including hours for which grades of N, NC, P, S, SI, and W have been received.

Undergraduate Grades:
A student receiving a grade of A or higher should arrange with the teacher to take whatever action is needed to remove the grade at the earliest possible date, and in any event, within two years after the course was attempted. A student need not be enrolled at the University to remove a temporary grade. A student whose work is satisfactory but who has failed to complete a laboratory, shop, or other parallel exercise. The I carries no quality points and counts as a failure in the computation of grade point average until removed. The grade of I may also be assigned by any faculty member to students who appear to be deficient in their usage of English in the course, but otherwise passing; the grade of I is removed when the Committee on Writing certifies to the instructor that a student has made the necessary improvements. S (incomplete) is assigned when the work is satisfactory but when a portion of the course is not completed. The grade is awarded only in courses where S/NC grading has been elected. The grade of SI is not computed in the average.

GRADE POINT AVERAGE
The following grades carry no quality points, and hours on which these grades are earned are not counted in computing a student's grade point average.

S (satisfactory) is assigned for C or better work when a course is taken on an S/NC grading basis.
W (withdrawal) is assigned in courses from which a student has officially withdrawn.

Regulations concerning withdrawal from courses or from the University appear in a following section of this catalog, entitled "Changes in Registration."

SATISFACTORY/NO CREDIT GRADING SYSTEM

The purpose of this system is to encourage the student to venture beyond the limits of those courses in which the student usually does well and, motivated by intellectual curiosity, explore subject matter in which performance may be somewhat less outstanding than work in preferred subject fields. To this end Satisfactory/No Credit (S/NC) grading has been developed for undergraduate courses (1000-, 2000-, 3000-, and 4000-level courses). Neither grade is counted in a student's grade point average, but, like all other grades, is entered on the permanent record. S is given for C or better work on the traditional grading scale and NC is given for less than C work. The student only receives credit in the course if an S is received. A student may not repeat a course for S/NC if the student received a conventional grade (A, B+, B, C+, C, C, D, F, or f). The instructor of a conventionally graded course will not be informed which student, if any, has elected S/NC grading. If the student elects non-conventional grading, grades of A, B+, B, C+, C, C, D, F, or f will be recorded on the students permanent academic record as S, and D or F as NC. The grade of f for incomplete work will be recorded as an SI, which will not be computed in the average. A student is permitted to change the system of grading in a course through the add deadline. The grade W will be applied in the same manner for either a conventional grading system or S/NC grading. The changing of an S/NC grade to a conventional letter grade or vice versa is not permitted unless a bona fide error is determined by the Registrar.

FRESHMAN ENGLISH

Students are expected to maintain a satisfactory standard of oral and written English throughout their college programs. Any student may be reported by a member of the faculty for examination in English, and, if found deficient by the Committee on Writing, be required to take without credit such further work as the committee may direct. To facilitate the reporting of students deficient in English, faculty members may simply check the column headed "English" on the quarterly grade sheets. A student checked by any faculty member will be required to remedy the deficiency through work in the Writing Laboratory. Remedial work in the laboratory shall be started as soon as possible after the student has been notified of the deficiency and it shall continue until the student's performance in English has been declared satisfactory by the laboratory instructor.

REPEATING COURSES

When a course is repeated the last grade only is counted in computing the grade point average. All grades are entered on the permanent record. A student may not repeat a course more than twice in order to obtain a better grade.

For any student entering the University in summer, spring, or fall, the following policy will be in effect. Unless otherwise specified in the course description, no course may be repeated more than twice, and no course may be repeated in which a grade of C or better has already been earned. Exceptions may be allowed only after written prior permission of the student's faculty advisor or college dean. Each course is counted only once in determining credit hours presented for graduation. For courses taken during the first 45 hours of collegiate study, only the last grade earned in a repeated course will be counted in computing the grade point average. Once a student has completed (passed) 45 quarter hours, all grades and hours in courses subsequently taken will be included in the computation of the grade point average. (Beginning in fall 1984 this policy will be in effect for all undergraduate students.)

GRADUATING SENIOR PRIVILEGES

- A senior who fails one subject during the quarter of intended graduation has the privilege of standing an examination in that subject at the beginning of or during the next quarter, and, if successful passing the degree at the next commencement.
- A senior who has received the grade of I in any subject will, on request to the instructor, be given the opportunity to remove the deficiency before the close of the quarter, but not later than the last day before commencement, providing that successfully passing these courses will make the senior eligible for graduation.

GRADUATE SCHOOL GRADES

Graduate students and undergraduates taking courses for graduate credit are graded as follows:

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

B+— (3.5 quality points per quarter hour); indicates above satisfactory work.

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

C+— (2.5 quality points per quarter hour); indicates work of borderline quality. This grade represents work below the standard expected of graduate students.

C— (2 quality points per quarter hour); indicates work of unsatisfactory quality. This grade represents work below the standard expected of graduate students.

D— (1 quality point per quarter hour); indicates clearly unsatisfactory work and carries no graduate credit.

F— (no quality point value); indicates extremely unsatisfactory work.

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 almost to be given to enable a student to do additional work to bring up a deficient grade. All incompletes must be removed within 2 quarters. If a supplementary grade report has not been received in the Graduate Office one week prior to 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- grades carry 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. S/NC is used for courses which culminate in a thesis, dissertation, or preliminary examination. The NC grades take on the value of the S when the thesis or dissertation is accepted by the Graduate School. 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 (exclusive of the thesis or dissertation) in a program. (This would be 9 hours or 12 hours in a 48-hour non-thesis program or 18 hours in a doctoral program of 72 hours excluding dissertation hours.)

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 Graduate School.

LAW SCHOOL GRADES

Law students are graded on a numerical scale from 0.0 to 4.0. Quality points per quarter hour of credit in a given course are equal to the numerical grade received in the course. Grades of 0.9 and below count as failures. Some courses are graded on an S/NC basis.

REQUIREMENTS FOR ASSOCIATION WITH A DEGREE-GRANTING UNIT

There are presently nine undergraduate degrees-granting academic units on the Knoxville campus:

1. College of Agriculture
2. School of Architecture
3. College of Business Administration
4. College of Communications
5. College of Education
6. College of Engineering
7. College of Home Economics
8. College of Liberal Arts
9. College of Nursing

The College of Law and the College of Veterinary Medicine are not described here, since these units award a professional degree. Descriptions of these colleges, their programs, and admission requirements are found later in this catalog.

In order to become associated with one of these colleges or schools, one must:

1. Be admitted as a University student as previously described;
2. Apply to the desired school or college as outlined in the following sections, either
through the Admissions Office at the time of application for University admission or directly to the college at some later time.

3. Be accepted by the school or college, with all official records reflecting this acceptance.

If high school courses are needed to meet association requirements, the need may be met through non-credit or correspondence courses available through the UTK Evening School or the Center for Extended Learning. Such courses can be taken as a UTK student or prior to admission to the university.

Students admitted to the University on the basis of the GED Test (see Table III) must demonstrate the attainment of any required background knowledge or skill as specified in the association requirements for the desired college. Association requirements may be met through the presentation of high school credits, by the satisfactory completion of a proficiency exam or exams, or by any of the other means open to any student who lacks some college association requirement.

Questions concerning the association requirements and their application should be directed to the offices listed in Table II. These sources can also supply information about the various programs offered. Detailed information is also presented in this catalog on pp. 26-28 and in the various college and school sections.

A listing of degrees, major subject areas, and various options within each college or school is presented in Table IV.

ACADEMIC ADVISING AT UTK

There are many situations during an academic program when a student will find informed academic and career advice helpful. For instance, a great number of students in U.S. colleges and universities change their programs of study at least once during the undergraduate years - sometimes as the result of exposure to vocational possibilities they did not know about when they first enrolled, sometimes through recognition of aptitudes and interests in themselves of which they had been unaware, and sometimes out of the realization that there are aspects of their originally-chosen field for which they are unsuited. The objective of the academic advising system at UTK is to help a student at each stage to define the choices that must be made and to give any needed guidance.

At the time of application for admission to UTK, each student is asked to indicate whether he/she has already identified a preferred college or school. Students who complete the dual selection process at the time of university admission and are accepted in a particular college are assigned an advisor in that college at the time of initial registration for courses. Assignment of advisors is made through the offices listed in Table I or by the major department. College which have limited or competitive enrollment plans normally select interested students only after several quarters at UTK. Advising centers exist in the colleges of Liberal Arts, Business Administration, and Education. Other colleges have a particular office or person who serves as a general advisor, with most advising activity taking place within the various departments.

Students who are admitted as university students but who do not complete association requirements at the same time (regardless of reason) are advised by the College of Liberal Arts Advising Center, 225 Ayres Hall, with the assistance of advisors in other colleges. Advising in this manner does not imply or guarantee association with the College of Liberal Arts. This advising center is the largest and best equipped on campus to serve "university" students. A university student should seek information at every opportunity from the college in which association is desired.

New students at UTK should review carefully the prescribed curricula of the respective degree-granting units and should choose courses in accordance with their college preference (even prior to actual college association). An advisor assists a student in selecting subjects to ensure a well-balanced education and interprets university and college policies and requirements.

However, the student (not the advisor) bears the ultimate responsibility for selecting courses, meeting course prerequisites, and adhering to policies and procedures. In order to encourage the use of advisor-student contacts, UTK requires an advisor-student conference at least once during the academic year. These conferences are held prior to advance registration periods; specific information is available from advising centers, advisors, all colleges, as well as through notices and the campus newspaper.

Part-time students, particularly those registering through Evening School, should establish contact with an advisor in the college with which they are associated or with the Liberal Arts Advising Center prior to association.

Assistance to students with academic problems or questions is provided by course professors, advisors, department heads, and college deans or advising centers. Numerous other sources of academic, career, and personal counseling exist on the UTK campus and are available to admitted students. These are described subsequently in this catalog under the title "Student Affairs and Services."

Handicapped students with special requests should contact Handicapped Student Services, 900 Volunteer Boulevard, (615) 974-0067.

Registration

Dates for orientation and registration are announced to new transfer and freshman students who have been issued. Graduate students are instructed when and how to register upon receipt of their Admission Status. Former students who have been absent from UTK other than the summer term and students who have withdrawn from the previous quarter will receive registration information with their letter of readmission. Law students should consult the Admissions Office, College of Law. Students enrolled in that college and in the College of Veterinary Medicine will be governed by the University's registration date changes unless specified differently by the college. Evening School students should contact the Office of Evening School for registration times.

REQUIREMENTS FOR REGISTRATION OF ADMITTED STUDENTS

Medical History. Though a physical examination is not required, a Medical History Questionnaire is sent to all admitted students and must be completed by the student, parent, or other responsible party who is familiar with the student's medical history.

Such information will facilitate University physicians in providing continuing health care. This form must be returned to the Student Health Service before enrollment.

Participation in Orientation. Beginning freshmen and transfer students are required to attend an orientation session prior to their first registration at the University. Schedules for these programs are mailed to admitted students by the Dean of Student Conduct and Orientation. Orientation programs are designed to help new students become acquainted with opportunities and services at the University and to provide information needed for registration. Students who wish to attend the Evening School should contact the University Evening School for information about registration.

FIRST CLASS MEETING

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.

MAXIMUM HOURS PER QUARTER

Undergraduate students may enroll for a maximum of 19 credit hours each quarter unless a lower maximum is specified by the college or school in which the student is enrolled. Enrollment in more than 19 hours must be approved by the dean of the student's college or school. Graduate students may enroll for a maximum number of 15 credit hours each quarter. Enrollment in more than 15 hours must be approved by the Vice Chancellor for Graduate Studies and Research or the Dean for Graduate Studies. Law and veterinary medicine students may enroll for the maximum number of credit hours each quarter as specified by the respective college.

PREREQUISITE AND COREQUISITE COURSES

It is the responsibility of the student to see that prerequisites and corequisite requirements are met when registering for courses which have such restrictions.

Changes in Registration

ADDING COURSES AND CHANGING SECTIONS

Students may add courses through the eighth calendar day counted from the beginning of classes. This is the add deadline. Because of the nature of some courses, permission of the department head or instructor may be required to add a course after classes begin. Students may also, as departmental policies permit, change section of a course through the eighth day. Students must fill out and submit the appropriate form for section changes in order to receive credit for the course.

DROPPING COURSES

There are three drop deadlines at UTK prior to which students may drop courses. For all undergraduate students in their first quarter of study, the drop deadline is an announced calendar date 22 days after the beginning of classes. After the first quarter of undergraduate study students must observe the following drop deadlines. The general University drop deadline is an announced calendar date 15 days after the beginning of
control. Examples of these circumstances are based on circumstances grade of F in all courses in which the student drops a course will receive the grade of W. After the drop deadlines stated above, any undergraduate or graduate student who drops a course will receive the grade of F unless it can be demonstrated that the request to drop the course is based on circumstances beyond the student's control. Examples of these circumstances are illness or injury (verified by the Student Health Service or private physician), or necessary change in work schedule occurring after the drop deadline (verified by the student's employer). Examples of causes which would not be acceptable for a late drop are improper registration by the student or failing a course.

WITHDRAWING FROM THE UNIVERSITY

All official withdrawals from the University are made through the Student Counseling Services Center. It is important that all students who leave the University before the end of a quarter report their withdrawal to this office. Official withdrawal from the University by evening school students is made through the University evening school. If an undergraduate student officially withdraws from the University before the general drop deadline of 15 days (or 22 days for first quarter undergraduate students) after the beginning of classes, the grade of W will be given in all courses in which the student is currently enrolled. Summer quarter drop deadlines are published in the summer quarter timetable. In cases of withdrawal before the drop deadline, the Student Counseling Services Center or the University evening school will notify the Registrar of the date of withdrawal, who will then inform the instructors that the grade in those courses is automatically W. Graduate students should consult the Graduate Catalog for regulations concerning withdrawal from the University.

Any graduate or undergraduate student who withdraws from the University after the drop deadline of 15 calendar days (or 22 days for first quarter undergraduate students) will receive the grade of F in all courses in which the student is currently enrolled unless it can be demonstrated that the request to withdraw is based on circumstances beyond the student's control. Examples of these circumstances are examples of these circumstances are listed above in the section on dropping courses.

Course Numbers and Levels

Each course offered by the University is identified by the name of the department offering the course and a four-digit course number. These numbers indicate course level, as follows.

<table>
<thead>
<tr>
<th>Course Numbers</th>
<th>Level</th>
<th>Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>0000-0999</td>
<td>Level</td>
<td>Non-credit; preparatory</td>
</tr>
<tr>
<td>1000-2999</td>
<td>Lower division—primarily for freshmen and sophomores.</td>
<td></td>
</tr>
<tr>
<td>3000-4999</td>
<td>Upper division—primarily for juniors and seniors; when taken for graduate credit, the letter &quot;G&quot; will precede the course credit hours on the grade report.</td>
<td></td>
</tr>
<tr>
<td>5000-5999</td>
<td>Graduate; sometimes available for undergraduate credit; when taken for undergraduate credit, the letter &quot;U&quot; will precede the course credit hours on the grade report.</td>
<td></td>
</tr>
<tr>
<td>6000-6999</td>
<td>Advanced graduate; open to graduate students only.</td>
<td></td>
</tr>
<tr>
<td>7000-7999</td>
<td>Law; occasionally open to other qualified students; Veterinary Medicine.</td>
<td></td>
</tr>
</tbody>
</table>

To be eligible for upper-division work a student must normally have attained junior (third-year) status. Some departments, colleges, or schools require approval by the dean of the student's college to enroll in upper-division work. This rule applies to transfers as well as to those who have previously attended the University. A cumulative grade point average of at least 2.00 is required to begin upper-division work.

Classification

Undergraduate, law, and veterinary medicine students are classified according to the chart above, on the basis of quarter hours passed.

To be considered as a full-time undergraduate student in any quarter, a student must be enrolled in 12 quarter hours, including the full summer quarter. Six hours for each separate term of the summer session are required for full-time classification. Audit hours are not considered in the computation.

Teacher Certification

Teacher certification is a responsibility of the College of Education of The University of Tennessee, Knoxville. Students desiring certification must meet general education, professional education, and area of specialization requirements described in the College of Education section of this catalog. In keeping with requirements of the Tennessee Department of Education, programs leading to teacher certification include a nine (9) hour requirement in health or physical education.

Honors Courses

Courses specifically designated as honors courses will be designated "Hon." Individuals selected on the basis of previous academic performance may be enrolled. There is no limit on the number of credits that may be earned in these courses except in the senior readings courses not requiring regular class attendance; these senior readings courses may total not more than nine credit hours toward graduation. In the fields of science offering four-hour courses the total may be 12 hours.

Letters are sent to entering freshmen who qualify for non-departmental honors courses. Students other than freshmen should consult the Director of Special Programs in the College of Liberal Arts concerning other honors courses open to students from all colleges.

Auditing Courses

Students registered for credit courses may enter classes as auditors. Auditors are under no obligation of regular attendance, preparation, recreation, or examination. They receive no credit. They may not take part in laboratory or field work. An auditor course will not be recorded on the permanent record. The student's name will appear on the class role to inform the instructor that the student is properly enrolled as an auditor.

Auditors are required to register and pay fees. Prior to the add deadline, a change from credit to audit or from audit to credit may be made by completing the change of credit to audit form and having it processed at a terminal in Drop/Add. After the add deadline and until the drop deadline, the signatures for a late add must be obtained. ONCE THE DROP DEADLINE HAS PASSED, A CHANGE FROM CREDIT TO AUDIT WILL NOT BE ALLOWED UNLESS THE CONDITIONS FOR A LATE DROP EXIST.

Minimum Class Size

An undergraduate course will not normally be given for fewer than five students except by permission of the Vice Chancellor for Academic Affairs. The University reserves the right to cancel, postpone, or combine when necessary.

Class Attendance and Eligibility Policy

Only students who are properly registered for a course may attend its classes on a regular basis. Any other person in the
Deviation from Catalog Rules

The University offers a petitioning procedure through which students can occasionally gain exceptions to the general rules included in this catalog. It is the direct responsibility of the student who seeks to deviate from the rules to complete the petitioning process. In cases where this might affect the student’s eligibility to enroll in a particular course, the student should begin the petitioning process during the previous quarter and must gain final approval for the petition no later than the add deadline of the quarter involved.

Undergraduate Retention Standards

To be eligible to continue at The University of Tennessee, Knoxville, an undergraduate student must maintain a cumulative grade point average at or above the minimum acceptable level shown in the chart below. There are additional restrictions in individual programs, such as nursing, architecture, interior design, and coordinated undergraduate program in dietetics. The appropriate section of this catalog should be consulted for details on retention standards for these programs.

<table>
<thead>
<tr>
<th>Total Quarter Hours Attempted</th>
<th>Minimum Acceptable Grade Point Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-35.9</td>
<td>1.00</td>
</tr>
<tr>
<td>36-59.9</td>
<td>1.50</td>
</tr>
<tr>
<td>60-83.3</td>
<td>1.80</td>
</tr>
<tr>
<td>84 and above</td>
<td>2.00</td>
</tr>
</tbody>
</table>

A student whose cumulative grade point average falls below the minimum acceptable level in any quarter will be placed on academic probation for the subsequent quarter of enrollment. During the probationary quarter the student must attain the minimum acceptable cumulative average shown above, or a 2.00 average for that quarter, or be dropped from the University.

A student who has been previously dropped and readmitted will be placed on academic probation. Failure to meet the regular University standards of retention during the probationary quarter, or subsequent quarters prior to attaining good standing, will result in the student’s being dropped from the University and being ineligible to make application for readmission for three academic quarters.

A transfer student who has been conditionally admitted and fails to meet the regular University standards of retention during the probationary quarter, or any subsequent quarter before attaining good standing, will be dropped from the University and may not make application for readmission for three academic quarters.

Academic Second Opportunity

An undergraduate student who has been absent from school for at least two calendar years may, following one quarter’s coursework after readmission, petition for Academic Second Opportunity. If granted, all previous academic work completed prior to readmission remains on the permanent record but the grades for such work are not counted in the computation of the grade point average, or in determining good standing. S/N/C credit toward graduation, major requirements, and distribution requirements may be granted for those courses of C or better was earned. At least 90 hours of letter grade must be earned after readmission in order to qualify for graduation with honors. Academic Second Opportunity may be declared only once. All petitions for Academic Second Opportunity must be submitted to the Committee on Readmissions immediately following one quarter’s coursework at UTK.

Readmission

A student in good academic standing who has withdrawn from school or has been absent for a quarter other than the summer quarter must make application for readmission. Application must be made at least three weeks before the start of classes. A student who has been dropped academically must make application for readmission. Readmission is not automatic. Application must be made at least six weeks before the start of classes. The Committee on Readmissions may approve or refuse the application for readmission. Students are strongly encouraged to appear in person before the Committee on Readmissions.

Undergraduate students who in the interval have been enrolled at another accredited college or university must apply for readmission. An official transcript from other institutions attended and an acceptable combined cumulative grade point average are required for readmission.

General Policies

A. Any student who attains a quarterly average of 2.00 may continue in residence at the University, even though the cumulative average does not meet the minimum acceptable level above.

B. Summer quarter is considered a regular academic quarter in satisfying the requirement of compulsory absence due to academic deficiency.

C. Hour quarters attempted are used only for determining the minimum acceptable grade level for the grade point average. Satisfactory/no credit hours are included in hours attempted but excluded in calculating minimum cumulative grade point average requirements for retention.

D. Students who transfer to other accredited colleges or universities and return to The University of Tennessee, Knoxville must submit official transcripts and have an acceptable combined cumulative grade point average before being readmitted to the University.

E. Correspondence courses are open to students regardless of good academic standing. A letter grade must be received at the time of enrollment at the other institution.

F. To register for credit courses in any branch, center, or division of the University controlled by the Knoxville campus (except correspondence courses), a student must meet the admission regulations that govern courses for credit at the Knoxville campus.

G. The Committee on Readmissions will consider the applicant’s total record, including the academic record and other factors which may be expected to influence academic performance. A student will not be readmitted when the record indicates a low probability of success in college work.

H. There will be no tentative readmissions.

I. Students in architecture, nursing, interior design, and coordinated undergraduate program in dietetics are advised to note the special requirements as stated in those sections of this catalog.

Comment: The University of Tennessee, Knoxville, is committed to helping students overcome academic deficiencies. A letter notifying a student of academic probation will be sent about the same time as the quarterly grade report. This letter will advise conferring with the student’s dean before completing registration for the probationary quarter.

General Requirements for a Bachelor’s Degree

To receive a bachelor’s degree from The University of Tennessee, Knoxville, a student must complete all of the requirements listed below. It should be noted that some of the colleges and schools within the University have special requirements above and beyond those stated here, and students are advised to consult the appropriate section of this catalog for any further degree requirements. Each program presented by the candidate for the bachelor’s degree is reviewed and approved for meeting the degree requirements by the Office of the Dean of Admissions and Records.

1. Complete satisfactorily all requirements of the curriculum for which the student is enrolled, as described in the portion of this catalog devoted to the college or school offering the curriculum. Curriculum requirements change frequently, and students should note the caution on the second page of this catalog. A student is allowed to satisfy requirements for a bachelor’s degree under any curriculum in effect during a student’s attendance at UT Knoxville provided the curriculum has been in effect within 10 years of the date of graduation. This does not obligate the University to offer a discontinued course. Programs may be adjusted by the student’s faculty adviser and college dean, in consultation with the Registrar’s Office. A student who transfers to UTK subsequent to prior enrollment at a community college, junior college, or another senior institution may elect the UTK catalog in effect at the time of enrollment at the other institution provided that the student enrolls at UTK within one year after the last period of study at the institution from which the student is transferring.

2. Achieve a cumulative grade point average of at least 2.00 on all college work attempted at all institutions attended.

3. Achieve a grade point average of at least 2.00 in all work attempted at The University of Tennessee.

4. Each student is required to achieve a 2.00 grade point average for his/her senior year. The senior year is interpreted to mean the last forty-five
hours of work earned at UTK (at least three quarters as a minimum). If a student does not pass enough hours per quarter to earn forty-five hours during the last three quarters, then the last four or more quarters may be counted. All courses taken during each quarter considered as the senior year will be used in computing the average.

(5) Complete the last 90 hours of credit offered for the bachelor's degree at an accredited senior college.

(6) Complete the last 45 hours of credit offered for the bachelor's degree in residence at The University of Tennessee, Knoxville. In the College of Agriculture at least 27 quarter hours of upper-division technical agriculture approved by the student's faculty adviser must be completed at The University of Tennessee, Knoxville. Credit for correspondence courses taught by the faculty of the Knoxville campus may be counted as part of this requirement, with the exception of the correspondence credit limitation noted below. Special arrangements for work taken at other University of Tennessee campuses to be counted as part of this requirement must be approved by the dean of the student's major college or school and the Dean of Admissions and Records.

(7) Comply with the state law that one unit of American history at the high school level or nine quarter hours of collegiate work be satisfactorily completed. This requirement is effective for those graduating July 1, 1978, or afterwards. It may be satisfied by completing History 2510-20 (or 2518-28) and History 2511 or 2521. History 3311 or 3321 may be used in lieu of three hours of American history. Students should consult the catalog of enrolment to determine how the nine-hour credit for fulfillment of this requirement is to be included in the individual curricula.

(8) Satisfy all financial obligations (fees or fines) owed to the University.

(9) Pay to the Treasurer's Office a $10.00 graduation fee no later than the beginning of the quarter of graduation.

(10) File an application for a degree with the Office of the Registrar, Room 209 Student Services Building, no later than the eighth day of classes of the quarter of intended graduation. This deadline is imperative in order that all necessary processing can take place toward the degree.

SECOND BACHELOR'S DEGREE

A student who holds a bachelor's degree may receive a second bachelor's degree from The University of Tennessee, Knoxville, by satisfying the following:

(1) Meet all requirements of both degrees, as specified above.

(2) Complete at least 45 quarter hour beyond the first bachelor's degree.

(3) Attend the University for at least three quarters beyond the minimum time required for the first bachelor's degree.

(4) Declare the intention to work for a second bachelor's degree with the Office of Registrar.

Seniors Eligible for Graduate Credit

A senior at The University of Tennessee, Knoxville, who needs 45 quarter hours or less to complete the requirements for a bachelor's degree and has at least a 3.00 grade point average, may take sufficient work for graduate credit to fill out a schedule of 15 hours of combined undergraduate and graduate work per quarter, subject to the approval of each quarter of the Vice Chancellor for Graduate Studies and Research.

Correspondence Work

A student may offer by correspondence as much as one-fourth of the last 90 hours required for the degree sought and have this work count toward the degree. Credit for undergraduate courses in correspondence in the major subjects shall be limited to one-fourth of the total 90 hours required. Correspondence credits are not recognized by the College of Law or—except by prior permission—by the Center for the Health Sciences. Correspondence work in the College of Business Administration is accepted by the College of Business Administration only by prior permission.

All courses taken by correspondence for which the student does not meet the University degree program requirements of the Knoxville campus. Degree credit will not be granted for correspondence courses taken at an institution other than The University of Tennessee by a senior. An equivalent correspondence course is available from The University of Tennessee Center for Extended Learning.

A senior may take only nine hours of the last year's work (the last 45 hours offered for the degree) by correspondence, and this must be taken with The University of Tennessee, Knoxville. If the student is a senior transfer, no work may be taken by correspondence.

Students taking work for teacher's certification purposes should consult the State Department of Education of their respective states concerning the amount of correspondence credit allowed for a teacher's certificate.

Proficiency Examination

A proficiency examination may be given in any academic course offered for undergraduate credit. The University policy is to reserve to departments the decisions as to which courses, if any, cannot be passed by proficiency examinations. However, the University faculty feels that it is a rare course for which mastery cannot be tested by appropriate examination(s).

When applying to a department for a proficiency examination, a student should present evidence of having developed the abilities, knowledge, and attitudes expected of those who have taken the course in question. The giving of the examination must be approved by the head of the department in which the courses work taken. A fee of $10 per course will be paid in advance at the Office of the Registrar.

Subject to the grading policy of the college in which the student is enrolled, and except for courses graded only on an S/NC basis, a student who passes a proficiency examination and who wishes to have the grade recorded may choose to take the grade on the examination (A, B-, B, C+, or C) or take an S. An S gives credit for the course but does not affect the grade point average. If a grade of D or F is made on a proficiency examination, the department is expected to note the attempt but no record of the examination is made on the student's transcript. The maximum credits obtainable through proficiency examination and the use of proficiency examinations to remove the failing grades (also the grade of I) are determined by the department offering the proficiency examination.

Entering international students whose native language is not English are required to take the UTK English Proficiency Examination to determine placement into the appropriate English course. No credit for any English course is awarded through this special examination.

CLEP Credit

When approved by a given department, nationally recognized examinations, such as the appropriate subject examinations of the College Level Examinations Program (CLEP) of the College Entrance Examination Board, may be used as proficiency examinations in one or more courses offered by that department. In such cases the final decision as to whether or not credit is to be given on this basis rests with the department awarding credit, as does the determination of the number of credit hours and the specific courses for which such examinations are to be taken as evidence of acceptable proficiency. The University will charge a fee of $5 for the evaluation of such an examination.

CLEP CREDIT FOR FRESHMAN COMPOSITION

I. Under the two conditions listed below, entering freshmen may be allowed credit in English Composition for the CLEP General Examination in English Composition or for the CLEP Subject Examination in either College Composition or Freshman English, provided that the examination selected include a writing sample.

a) Students entering with a CLEP score of at least 750 on the General or 65 on the Subject Examination (approximately 93rd percentile) and with ACT scores of 25, English and Composite, may take a sophomore English course, preferably Literature of the Western World. If they earn an A in it, they will receive credit for 1010-20-31 with a grade of A; if they earn a B in it, they will receive credit for 1010-20-31, their grade in 1010-20-31 may be either S or B.

b) Students entering with a CLEP score of 700 at least on the General or 60 on the Subject Examination (approximately 84th percentile) and with ACT scores of 25, English and Composite, may take an honor's Freshman English course, preferably Literature of the Western World. If they earn an A in it, they will receive credit for 1010-20-31 with a grade of A; if they earn a B in it, their grade in 1010-20-31 will be either S or B.

II. Students transferring into the University with lower-division credit for any CLEP composition score of at least 550 or 55 may have that credit substituted for the appropriate freshman course(s) provided (a) that they have already passed a sophomore literature course or courses with an average grade of at least B, and (b) that those with less than junior standing pass a sophomore or upper-division English course at the University with a grade of at least B.
Honors Categories for Graduation

The diplomas of graduating seniors show honors categories based on the following scale:

- "honors" 3.00 through 3.39
- "high honors" 3.40 through 3.74
- "highest honors" 3.75 through 4.00

These honors categories are based on a student's cumulative average at the end of the quarter preceding the graduation quarter. The honors category is also based on both the average earned at UT, Knoxville and the combined average on all college work attempted, with the lower of the two averages determining the honors category.

If, at graduation, a student's cumulative grade point average would allow a higher honors category, the student may, upon written request, receive a substitute diploma indicating the higher category. Courses may not be repeated for the purpose of raising an honors category.

Accelerated Program

The University operates on a four-quarter plan, and a majority of its courses, especially at the lower division, are offered every quarter. Through appropriate arrangements of courses and attendance during the summer quarters, students may frequently complete their degree programs in less than four years. A student's faculty adviser should be consulted for assistance in planning an accelerated program.

Advanced Military Service and Air Force Aerospace Studies

Students who elect to enroll in the advanced military courses (junior and senior years) are obligated by written agreement with the government to complete the courses and to accept a commission if tendered.

Special Requirements for Student-Athletes

Student-athletes participating in intercollegiate sports under the provisions of the National Collegiate Athletic Association and the Southeastern Conference, in addition to the University's academic continuation and retention policies, must fulfill the following academic progress requirements for continuation of eligibility to participate in intercollegiate sports:

1. A Freshman who has had no previous college enrollment must, to maintain eligibility for competition during his second and third quarters, pass a minimum of five (5) quarter hours of acceptable degree credit in the quarter preceding his participation in a given sport season.

2. Student-athletes qualifying for eligibility beyond the first year of residence must have satisfactorily completed 36 quarter hours of acceptable degree credit during the term preceding the beginning of the sport season and each subsequent quarter in which the sport season continues.

Degrees

<table>
<thead>
<tr>
<th>AT KNOXVILLE</th>
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<tbody>
<tr>
<td><strong>School</strong></td>
</tr>
<tr>
<td>Bachelor of Science in Agriculture</td>
</tr>
<tr>
<td>Bachelor of Science in Agricultural Engineering</td>
</tr>
<tr>
<td>Bachelor of Science in Forestry</td>
</tr>
<tr>
<td>Bachelor of Science in Wildlife and Fisheries Science</td>
</tr>
<tr>
<td><strong>College of Architecture</strong></td>
</tr>
<tr>
<td>Bachelor of Science in Architecture</td>
</tr>
<tr>
<td>Bachelor of Science in Business Administration</td>
</tr>
<tr>
<td><strong>College of Communications</strong></td>
</tr>
<tr>
<td>Bachelor of Science in Communications</td>
</tr>
<tr>
<td><strong>College of Education</strong></td>
</tr>
<tr>
<td>Bachelor of Science in Education</td>
</tr>
<tr>
<td>School of Health, Physical Education, and Recreation</td>
</tr>
<tr>
<td>Bachelor of Science in Education</td>
</tr>
<tr>
<td><strong>College of Engineering</strong></td>
</tr>
<tr>
<td>Bachelor of Science in Aerospace Engineering</td>
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<tr>
<td>Bachelor of Science in Chemical Engineering</td>
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<tr>
<td>Bachelor of Science in Civil Engineering</td>
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<tr>
<td>Bachelor of Science in Electrical Engineering</td>
</tr>
<tr>
<td>Bachelor of Science in Engineering Physics</td>
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<td>Bachelor of Science in Engineering Science</td>
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<tr>
<td>Bachelor of Science in Industrial Engineering</td>
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<tr>
<td>Bachelor of Science in Mechanical Engineering</td>
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<tr>
<td>Bachelor of Science in Metallurgical Engineering</td>
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<tr>
<td>Bachelor of Science in Nuclear Engineering</td>
</tr>
<tr>
<td><strong>College of Home Economics</strong></td>
</tr>
<tr>
<td>Bachelor of Science in Home Economics</td>
</tr>
<tr>
<td>Bachelor of Science in Interior Design</td>
</tr>
<tr>
<td>Bachelor of Science in Tourism, Food and Lodging Administration</td>
</tr>
<tr>
<td><strong>College of Law</strong></td>
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Activities cards are non-transferable and may not be duplicated. The activity fee is non-refundable.

**MUSIC FEE**
One half-hour lesson per week, per quarter... $20

One half-hour lesson per week, per quarter... $40

Payable by eligible full-time students receiving individual instruction in music.

**GRADUATION FEE**
Bachelor's Degree... $10
Master's Degree... $16
Doctoral Degree (except J.D.)... $51

Payable at the beginning of the quarter in which the candidate is to be graduated. This fee is non-refundable and is valid for only one year beginning the quarter or semester it is paid.

**DELAYED REGISTRATION SERVICE FEE**
Graduated Late Service Fee
Upon receipt of a schedule (full, partial, or incomplete) a student is immediately responsible for payment of fees. Students who preregister for a quarter must pay their fees (or make satisfactory arrangements with the Bursar's Office) on the regular registration dates in order to avoid late payment service charges. Effective the first regular business day following the last regular registration day a graduated late service fee of $2 per day will be charged during the next ensuing five regular business days.

Students who do not preregister but register through the "secondary" registration procedures will be granted two additional days after the final regular registration day to pay their fees before the graduated late service fee begins. Such students will be charged the graduated late service fee beginning with the third regular business day following the last regular registration day. (Minimum charge $6 third day, $8 fourth day, $10 fifth day.)

**ADDITIONAL Late Service Fees**
All students who have not completed registration and paid their appropriate charges (or made satisfactory arrangements with the Bursar's Office) within five regular business days after the last regular registration day will be charged an additional $10 late service fee (total $20).

After 10 regular business days students will be charged a second additional $10 late service fee (total $30) if the student fails to pay fees or make satisfactory arrangements for deferment or waiver within 15 regular business days following the last regular registration date. If the student does not pay fees or make satisfactory arrangements within seven calendar days after the date payment was due. A $10 service fee is applicable to extension accounts and room and board charges which are not paid (or deferment arrangements made) within seven calendar days after the date payment was due.

**REINSTATEMENT SERVICE FEE**... $20

A student withdrawn (or subject to withdrawal) for failure to pay appropriate fees who is reinstated for the quarter will be charged a $20 reinstatement service fee.

**RETURN CHECK SERVICE FEE POLICY**
In the event a check given to the University in payment of fees or charges is returned by the bank, the late registration service fee in effect at the time the check is reissued will be assessed, plus a $10 Return Check Service Fee.
registration and before the first official day of classes of the quarter. Failure to promptly notify the Withdrawal Office when withdrawing will result in a fee assessment of a larger percentage. 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 seven calendar days beginning with the first day following regular registration permits a fee refund of 90 percent. Withdrawal between eight and 14 calendar days following regular registration permits a fee refund of 70 percent. 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 30 percent fee refund. Refunds, in accordance with the regular registration permits 30 percent fee refund.

Percentage. Withdrawal does not cancel fees or registration and before the first official day of classes. The student always has the responsibility of initiating drop/adds. Any refund due for dropped courses will be made after the final audit at the end of the quarter. The above deadlines policy, will be made after the drop deadline.

There is no charge for courses dropped during the first five calendar days following regular registration. Between six and 21 calendar days following regular registration. There is 100 percent charge for courses dropped between the twenty-first day following registration. Students who drop courses are eligible for a refund only if the sum of the charges computed 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 has been processed and recorded at the Registrar's Office. The student reserves the right to correct any error by appropriate additional charges or refunds.

The University reserves the right to correct any error by appropriate additional charges or refunds.

Other Information Regarding Fees
All charges and refunds will be made to the nearest even dollar. All charges are subject to subsequent audit and correction. The University reserves the right to correct any error by appropriate additional charges or refunds.

All students are required to have a validated fee receipt on file before attending the registration procedure. This includes graduate and teaching assistants, staff, and others whose fees may be billed, prepaid, or waived. Delayed registration service fees are also applicable to such students. No student is authorized to attend classes who has not obtained a class schedule from the Office of the Dean of Admissions and Records and a validated fee receipt from the Bursar's Office.

The University is authorized by statute to withhold diplomas, grades, transcripts, and registration privileges on any student until student debts and obligations (other than Student Loan Fund notes which have not matured) owed to the University are satisfied.

Student Health Insurance
The University makes available, by contract with an insurance company, group health insurance expressly for students. The program is designed to supplement the care provided by the campus Student Health Service and provide basic benefits at low group premium rates.

Primary emphasis is placed on hospitalization benefits since in-patient care is not provided on campus. Students not otherwise covered are urged to avail themselves of this or comparable insurance since paying for hospital care is the student DQ's own responsibility.

Information about the insurance is mailed by the company to the student's home and participation is solicited. Enrollment in the plan remains open for a designated period after classes begin. Students wishing to enroll may obtain applications from the Student Health Service. In either case the student applies directly to the Knoxville agent of the insurance company. Enrollment for insurance is not a part of registration for classes.

NOTE: The family health insurance policy should be carefully reviewed since most family policies do not cover the dependent child after a given age, some as early as age nineteen.

Military Deposits:
All students registering for Air Force ROTC courses are required to make a deposit of $55 for each dollar of ROTC courses. This deposit is credited to the student's account. Withdrawals do not cancel fees. The deposit will be returned to the student after completion of the training.

Identification Card
ID cards, issued during registration or anytime during the year to all students, are prepared during registration of the first quarter a student enrolls in the University and are validated quarterly thereafter. These cards are required for many purposes such as use of library facilities, check cashing facilities in the UTK Bookstore, and admission to various athletic, social, and cultural events. These cards are non-transferable and may not be duplicated. A current fee receipt is necessary to obtain a new or replacement ID. IDENTIFICATION CARDS MUST BE CARRIED AT ALL TIMES FOR PURPOSES OF IDENTIFICATION. Lost or stolen cards should be replaced by contacting the Student ID Card Office at Room 344, University Center. There is a minimum charge for replacement or duplicate ID cards.

Arrangement for Banking while at UTK
Banking arrangements can be made with Knoxville banks. Some Knoxville banks require a waiting period of 10 days before honoring withdrawals, if the deposit is a personal check. New students who wish to open a local checking account are encouraged to deposit a certified check or cashier's check unless they can pay initial college expenses by a personal check on a bank account already fully established.

Summer Quarter Fees and Expenses

Fees and expenses for the summer quarter are the same as for the other quarters during the academic year with the exception of the University Programs and Services Fee as noted above.

Although the summer quarter is divided into terms of varying lengths, tuition and fees are assessed at the regular quarter hour rate not to exceed the maximum charge for a complete regular quarter.

The refund policy covering withdrawals and dropped courses for the summer quarter is based on the length of the term for the course(s) dropped. No refund is applicable to term courses dropped later than 14 calendar days after the regular registration day for the course(s) involved.

Estimate of Expenses
The following estimates of the necessary expenses for an academic year are average. Actual expenses vary greatly according to the habits of economy or extravagance of the individual student. The room and meal estimates are averages based on accommodations and 20-meal board plan in University facilities. Estimates for equivalent accommodations and meals elsewhere will usually be somewhat higher.

Undergraduate
Maintenance Fee $833
Program Services Fee 808
Room and Meals 1,803
Books, Supplies, etc. 250

Total for Tennessee
Residents $2,794
Add for Non-Resident Tuition 1,530

$4,324

*Add $156 for Graduate School; add $175 for College of Law; add $759 for Veterinary Medicine.

These figures give a fair idea of average expenses, exclusive of clothing, travel, and pocket money. Expenditures for extracurricular activities are not included in the above.

Housing
The University provides modern resident facilities in order to give students comfortable housing at reasonable cost and with an atmosphere conducive to academic achievement and personal development.

Undergraduate Students
Single freshman students are required to live in University residence halls when space is available unless they commute from the home of their parent or legal guardian. Other single students are encouraged to reside in University facilities.

Housing contracts are a commitment for the academic year, September to June, or for shorter periods if the student enters the University during winter or spring. A Housing Application will be mailed as a part of the Application for Admission. Residence hall assignments for the academic year are made in the late spring and summer. The student must be admitted to the University prior to occupancy. If a student withdraws from the University, the housing contract is canceled in accordance with policies stated in the contract. Students assigned to residence halls on the room and board plan will be given contracts written to include both room and board. A contract for housing signed by a student is binding for the term of the contract and is rigidly enforced by the University.

Additional information pertaining to single student housing may be obtained from the Office of Residence Halls, 405 Student Services Building, The University of Tennessee, Knoxville, Tennessee 37996-0241.

Off-Campus Housing
Students living in off-campus housing are expected to observe the same rules of conduct and standards that
are applicable to all students. The student is responsible for obtaining off-campus housing. The University does not inspect or approve these facilities. Terms and conditions for the rental of off-campus housing are between the student and the landlord. Information and assistance in locating off-campus housing is available in the Off-Campus Housing Office located in the Student Life Center.

Graduate Students. Single graduate students may be assigned to the residence halls or the single student apartments. For information concerning University residence facilities, faculty and students are referred to the appropriate paragraphs above describing Undergraduate Students and Off-Campus Housing.

Married Students. The University has provided modern apartment facilities in several locations for married students with families. In addition, single graduate students are accommodated on a space available basis. Information and application for these facilities may be secured from the Office of Rental Properties, The University of Tennessee, Knoxville, Tennessee 37996-0730.

Food Service Facilities
Excellent University-operated food service facilities have been provided. They are air-conditioned, conveniently located in relation to residence halls, and serve nourishing food at reasonable prices. The University recognizes the educational role that its food service facilities play in student life and group living. The Food Services Department employs a skilled dietetic and management staff to ensure that the student gets the highest quality meal at the lowest possible cost.

Room and board meal arrangements are available. This plan offers the best combination of balanced, nutritious meals, carefully planned and served at a reasonable charge to the student. For students not under the Board Plan, meals can also be obtained from cafeterias operated on a cash basis.

In addition, the Food Services Department offers a charge plan whereby students may charge meals and have the bill rendered to their parents monthly.

For the late evening snack or morning coffee break, popular spots on campus are the delicatessens and grill operations. Students are invited to take advantage of the special "themed" meals offered in the University dining facilities throughout the year.

Student Financial Aid
The University of Tennessee, Knoxville (UTK) offers a comprehensive program of financial aid for students who otherwise would not be able to attend. Through these federal, state, and University programs, an eligible student may receive one or more types of assistance.

Financial need is defined as the difference between a family's resources and the total cost of attendance. As a consequence, the student is considered to be in need of financial assistance. UTK utilizes the need analysis documents of both College Scholarship Service (CSS) and American College Testing (ACT). Through the use of CSS's Financial Aid Form (FAF) or ACT's Family Financial Statement (FFS), the Financial Aid Office determines the amount the student is expected to contribute toward educational expenses. For more detailed information on the determination of need, please refer to the brochure entitled, "Financial Assistance for Students."

UTK has three types of financial aid: scholarships and grants, loans, and part-time employment. These may be awarded individually or in combination according to the needs of the student. For detailed information on application procedures for each aid program, please refer to the brochure, "Financial Assistance for Students."

Deadlines for Applications
Because a student's family resources can change significantly during an academic year, UTK requires each student to apply annually for renewal of financial aid. Students desiring assistance based upon financial need (some scholarships, grants, loans, and employment) must submit either the Financial Aid Form or the Family Financial Statement. Students desiring only scholarships based upon academic merit are not required to complete any application forms. UTK is not able to meet the financial needs of all applicants. Priority in awarding will be given to those students with financial aid files completed by the following dates: March 1 - undergraduate students, April 1 - entering graduate, law, veterinary medicine, transfer, and currently enrolled students.

Scholarships and Grants
Scholarships. The UTK scholarship program is made possible through funds provided by the University, outside foundations, estates, private businesses, civic groups, individuals, and alumni. The majority of these scholarships are coordinated by the Financial Aid Office. Some undergraduate scholarships for currently enrolled students are administered in the various schools and departments.

Most scholarships are awarded to students who demonstrate strong academic achievement and a proven need for assistance. There is, however, an academic merit scholarship program which makes awards based solely on academic achievement. To compete for merit scholarships only, a student must be admitted or currently enrolled by the priority deadline indicated above. An application form or financial statement is not necessary. Academic achievement for entering freshmen students is judged by the applicant's secondary school academic record and scores on the American College Testing Battery (ACT). Academic achievement for currently enrolled and transfer students is judged by the applicant's collegiate cumulative grade point average.

All scholarships, including merit scholarships, are highly competitive; despite the generosity of University friends and alumni, there are not enough funds to provide scholarship aid to all qualified students. Annual stipends range from $100 to $2100. Most scholarships are awarded for one year, with the recipients competing for scholarships each year of enrollment.

High school students should contact their school counselor or principal for information concerning scholarships offered by local individuals, national organizations and other organizations.

Pell Grant. This is a federal grant program for undergraduate students displaying a financial need for funds. Because the Pell Grant is an entitlement program, all students applying for need-based financial aid assistance from the University must apply for this program. Other forms of financial aid will not be awarded to a student until eligibility for the Pell Grant has been determined.

When the program is fully funded, maximum grants are $1,800 and not more than one-half the cost of education. The above regulations and provisions for the Pell Grant Program are correct as of December 1982 and are subject to change by federal legislative action.

Supplemental Educational Opportunity Grant (SEOG). This is a program of direct grants available to undergraduate students with exceptional financial need. Grants must be matched by an equal amount of assistance from other sources, i.e., scholarships, loans, and/or earnings from University part-time employment. An SEOG may not be less than $200 or more than $2,000. The above regulations and provisions of the Supplemental Educational Opportunity Grant are correct as of November 1981 and are subject to change by federal legislative action.

The Tennessee Student Assistance Award is designed to further educational opportunities to residents of the state who demonstrate financial need. The Awards cover one-half of the maintenance fees for fall, winter, and spring quarters. Applicants must submit a copy of their Financial Aid Form/Family Financial Statement to the Tennessee Student Assistance Corporation.

More information may be obtained on this program by writing to the Tennessee Student Assistance Corporation, Capitol Bldg., Suite 9, Nashville, Tennessee 37219.

Student Loans
National Direct Student Loan. Long-term loans are available to students who have a proven need for financial assistance. Loan repayment and interest payments on National Direct Student Loan (NDSL) are deferred until after graduation or as long as the individual remains in half-time attendance at an accredited institution of higher education in the United States. Repayment may be deferred for a period of three (3) years while the borrower is serving in the Armed Forces, Peace Corps, Vista, the U.S. Public Health Service, ACTI, or as a full-time volunteer in a similar tax-exempt service organization, or while (s)he is temporarily, totally disabled or providing care for a spouse who is temporarily, totally disabled. Repayment may be deferred for two years while the borrower is serving an internship required for professional recognition. Interest is 5 percent per year on the unpaid balance. The maximum repayment period is 10 years with the current minimum annual repayment $360 or ten percent of the accumulated loan, whichever is greater. The repayment period may be extended an additional 10 years for borrowers whose income remains low during the repayment period.

If upon graduation the borrower becomes a full-time teacher in a public or non-profit school which is designated by the Secretary as having a high enrollment of low-income families or becomes a teacher of the handicapped, 15 percent of the total principal plus interest is canceled for the first and second year of undergraduate students with the
third and fourth years, and 30 percent for the fifth year. If after graduation the student becomes a staff member in a preschool program which is operated for a period comparable to a full school year, 15 percent of principal plus interest for each year of service. Cancellation for up to 60 percent of the loan will also be given at the rate of 12 percent of the total principal plus interest for each year of service in the Armed Forces in areas of hostility.

An undergraduate may borrow an annual maximum of $1,500 to an accumulated loan of $6,000. Graduate level students may borrow an annual maximum of $3,000 to an accumulated loan of $12,000 (including any amount borrowed as an undergraduate). The above regulations and provisions of the National Direct Student Loan Program are correct as of December 1982 and are subject to change by federal legislative action.

The University of Tennessee Student Loan. Student loans from University sources are available to currently enrolled students with a 2.0 or higher cumulative grade point average. A loan of $250 per quarter to an annual maximum of $1,000 can be extended. One surety or cosigner is required for each loan. The maximum loan available to an accumulated loan of $12,000 (including any amount borrowed as an undergraduate). The above regulations and provisions of the National Direct Student Loan Program are correct as of December 1982 and are subject to change by federal legislative action.

Nursing Student Loan. These loans are available to students who are enrolled or admitted as students in a course of study leading to a baccalaureate degree in nursing and who demonstrate an exceptional financial need. The program provides a long-term loan at a 6 percent interest rate with repayment to begin nine months following termination of a half-time study at an accredited school of nursing. Repayment may be deferred for a period of up to 3 years while the borrower is serving in the Armed Forces, Peace Corps, the National Oceanic and Atmospheric Administration Corps, or the U.S. Public Health Service. The above regulations and provisions of the Nursing Student Loan are correct as of December 1982 and are subject to change by federal legislative action.

Health Professions Student Loan. This loan is available to UTK students who are enrolled or admitted in a course of study leading to a degree of Doctor of Veterinary Medicine. This loan is intended to provide additional financial need. The program provides a long-term, low-interest loan with repayment beginning 12 months following termination of full-time study at an accredited health professions school. Repayment may be deferred for a period up to 3 years while the borrower is serving in the Armed Forces, Peace Corps, the National Oceanic and Atmospheric Administration Corps, or the U.S. Public Health Service or for the purposes of full-time study leading to advanced professional training. Interest is 9 percent per year on the unpaid balance; the maximum repayment is 10 years. However, a minimum monthly payment may be required. Up to 85 percent of the loan will be repaid by the Bureau of Health Personnel Development and Service (BHPDS) if the Veterinary Medicine graduate enters into a contract to serve as a veterinarian in a shortage area designated by BHPDS. The maximum loan available to an individual borrower in an academic year is $2,500 plus 9 percent interest. The above regulations and provisions of the Health Professions Student Loan are correct as of December 1982 and are subject to change by federal legislative action.

Guaranteed Student Loan. This loan from banks, savings and loan associations, or credit unions through a state guaranteeing agency, may be able to assist with meeting educational expenses. Students should contact their local banking institution to determine their participation in the program and for application forms. To receive a loan, the student must be enrolled or admitted in a full-time degree program and be in good standing with the University. Applicants may be required to provide documentation indicating that they have financial need for these funds. Interest on such loans is paid by the federal government while the student is in attendance on at least a half-time basis. The student begins repayment of the amount borrowed plus 9 percent interest per year on the unpaid balance six months following termination of half-time study or graduation. The maximum repayment period is 10 years and the minimum monthly payment is $50. Repayment may be deferred for a period of three years while the borrower is serving in the Armed Forces, Peace Corps, Vista, the U.S. Public Health Service, Action agency programs or as a full-time volunteer in a similar tax-exempt service organization, or while (s)he is temporarily totally disabled or is providing care for a spouse who is temporarily totally disabled; repayment may be deferred for a period of two years while the borrower is serving an internship which is required to receive professional recognition. The maximum amount an undergraduate student may borrow for a 9-month period of enrollment is $2,500 up to an accumulated maximum of $12,500. The maximum amount a graduate student may borrow for a 9-month period of enrollment is $5,000 up to an accumulated maximum of $25,000 (including any amount borrowed as an undergraduate).

Plus-Loan Program. The PLUS Loan Program provides a source of loan funds to the parents of dependent undergraduate students as well as to independent undergraduate and graduate/professional students. The parents can borrow up to $3,000 per year (not to exceed the cost of attendance minus other financial aid) for each dependent undergraduate student. A maximum of $25,000 from PLUS loans. Graduate/professional student loans are entitled to borrow up to $3,000 per year and may also borrow up to $5,000 per year under the GSL provisions; therefore, they may borrow up to a total of $8,000 per year (including need) under GSL and PLUS combined. The cumulative maximum loan amount that can be borrowed by a parent for each dependent undergraduate child is $15,000. Independent undergraduate students may borrow a cumulative maximum of $12,500 (including GSL loans). The cumulative maximum loan for graduate/professional students is $15,000 from PLUS, in addition to a maximum of $25,000 from GSL. The interest rate on PLUS loans is currently 12 percent and there is no federal interest subsidy. Parent borrowers must begin repayment on principal and interest within 60 days of loan disbursement. Student borrowers must begin repayment of interest within 60 days of loan disbursement, but payment on the principal will be deferred until the student is enrolled as a full-time student or no longer qualifies for some other deferment.

Complete information on both loan programs is available at most banks and credit unions. In the state of Tennessee, write the Tennessee Student Assistance Corporation, Capitol B-3 Towers, Suite 9, Nashville, Tennessee 37219.

Health Education Assistance Loan. These loans are available from a banking institution to students enrolled or admitted in a course of study leading to a degree of Doctor of Veterinary Medicine or a doctoral degree in clinical psychology. Students in Veterinary Medicine may borrow an annual maximum of $20,000 up to an accumulated maximum of $80,000. Students in clinical psychology may borrow an annual maximum of $12,500 up to an accumulated maximum of $50,000. The rate of interest may not exceed 12 percent per year and repayment begins nine months following completion of formal training (including accreditation of residency programs) or withdrawal from school. The maximum repayment period is 25 years and the entire loan must be repaid within 33 years of the date of execution of the promissory note. Repayment may be deferred for up to three years while the borrower is serving in the Armed Forces, Peace Corps, Vista, or the National Health Service Corps. Repayment may be deferred for a period of four years while the borrower is engaged in an accredited internship or residency training program. Borrowers may, at any time and without penalty, repay principal or interest or both at any time. Additional information may be obtained by writing HEAL, Post Office Box 23033 L'Enfant Plaza, Washington, D.C. 20024, or contacting the Financial Aid Office.

Student Employment

Two employment programs are administered by the Financial Aid Office to help students find part-time employment.

College Work-Study. This is a federal work 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 on campus where they work approximately 15 hours per week. The rate of pay is at least the federal minimum wage.

**Student Employment Service** operates as a central referral agency. It coordinates listings of part-time employment from both University and private employers with the requests of students seeking part-time employment. Part-time jobs average from 15 to 20 hours of work per week. If part-time employment is a financial necessity to the student with a low grade point average, the student is advised to accept a job requiring fewer hours of work per week.

The University of Tennessee, Knoxville, wishes to express gratitude to the contributors and donors of the following scholarships:
College of Agriculture

The American Society of Agricultural Engineers each year selects an outstanding agricultural engineering student for the ASAE Student Honor Award. Based on scholarship, activity, and community contributions, the award consists of a key and certificate.

The American Society of Agronomy makes available a Certificate of Merit for an outstanding senior in the Department of Plant and Soil Science who has a superior academic record and displays evidence of high potential in this field.

The American Society of Animal Science awards scholarship medals and emblazoned certificates to sophomore, junior, and senior students in the Department of Animal Science who are of good moral character and rank scholastically in the top 10 percent of their class.

The Block and Bridle Club recognizes students in Animal Science who are successful in their academic program, have made unusual contributions to the club's program, and show evidence of leadership in their chosen field.

Jesse David Clett Memorial Scholarship

The Danforth Foundation Inc. provides a fellowship to support two weeks of leadership training at Camp Minwawac on the shores of Lake Michigan for an outstanding agricultural student following the freshman year.

Kentucky-Tennessee Section, Society of American Foresters Scholarship, awarded every third year to the freshman forestry student with the highest scholastic average. The award is in cash and a framed certificate.

M. Jacob Animal Husbandry Award, given by East Tennessee Packing Company.

J. B. Madden Memorial Foundation Fund, established by J. B. Madden family, for prizes in livestock judging competition.

Student-Faculty Council Awards. Each year the College of Student-Faculty Council presents plaques to four seniors, three juniors, and two sophomores in the college judged to be outstanding by the faculty on scholarship, character, and demonstrated leadership ability. Plaques are also presented to the two students in each class with the highest scholastic averages.

Tennessee Poultry Improvement Board Awards. Plaques presented to the two students in each class with the highest scholastic average.

Society of Communications

Advertising Club of St. Louis College Award Citation, given to outstanding man and woman graduating in Department of Advertising.

Alcoa Foundation Scholarship. Given to an outstanding undergraduate planning a career in public relations.

Alcoa Foundation Minority Scholarship. Given to an outstanding undergraduate minority student in the College.

Karl and Madira Bickel Scholarships, Freshman Scholarships up to $1,000. Upperclass Scholarships up to $1,000. Doctoral Scholarships up to $4,000. Open to all students showing academic performance (3.0 or B better), professional promise, and need.

Edward J. Meeman International Communications Fellowships. Up to $1,500 each, to two outstanding graduate students from other countries.

Greater Knoxville Advertising Club Scholarship Fund. Awarded to an undergraduate student in advertising.

Greater Knoxville Ad Club Award, given to outstanding graduate in Department of Advertising.

Maryville-Alcoa Daily Times Scholarship in Advertising. Awarded to juniors or seniors majoring in advertising.

Maryville-Alcoa Daily Times Scholarship in Journalism. Awarded to juniors or seniors majoring in journalism.

Hoyt B. Wooten Award, given by family. Plaque and basic broadcasting library awarded to the outstanding senior in recognition of scholarship and broadcasting achievement.

Journalism Faculty Scholarship. Given to an outstanding major in the College of Journalism.

Myron G. Chambers Scholarships. Given by Scripps-Howard Newspapers. $1,000 total to one or more outstanding undergraduates in the Department of Advertising.

Pen Women of America Scholarship. Given by the Knoxville Branch to an outstanding junior journalism student who has shown promise as a writer.

Frank B. Powers Scholarship. Given by Scripps-Howard Newspapers, to one or more outstanding undergraduates in the Department of Advertising.

Sammie Lynn Puett Award. Given to outstanding student in the public relations sequence in the School of Journalism.

Tom Siler Scholarship. Given by East Tennessee Professional Chapter of The Society of Professional Journalists, Sigma Delta Chi, to an outstanding student in the news-editorial sequence of the School of Journalism.

Society of Professional Journalists Scholarships. The East Tennessee professional chapter of Sigma Delta Chi gives awards to news-editorial journalism or broadcasting news/public affairs majors. Funds are raised by the chapter's annual Front Page Folios and presented in the names of Tom Siler and Escar Thompson, distinguished East Tennessee journalists.

Society of Professional Journalists, Sigma Delta Chi Outstanding Graduate Citation. Certificate given by professional journalism society to outstanding graduate.

Willis C. Tucker Scholarship Award, given by Society of Professional Journalists, Sigma Delta Chi. Silver bowl or key to graduating senior with highest academic average.

College of Education

Knoxville Branch of American Association of University Women Award. Membership to senior women selected on basis of scholarship and leadership qualities.

New Repertory Dance Company Scholarship Fund. Awarded to dance majors.

Pi Lambda Theta Fraternity Scholarship Key, to junior woman showing most outstanding qualities for professional leadership in education, attaining high scholastic average through junior year.

College of Engineering

Albert S. Fry Memorial Scholarship. An annual cash award to a sophomore or junior in civil engineering based on scholarship and activity in the ASCE student chapter.

American Chemical Society. East Tennessee Section of American Chemical Society offers an award each year to an outstanding senior in chemical engineering.

American Institute of Aeronautics and Astronautics. Award of one-year membership made to a branch member whose performance scholarly and in branch activities has been outstanding.
American Institute of Chemical Engineers Professional Award to chemical engineering senior who has contributed most to student chapter. Name engraved on permanent plaque, and certificate.

American Institute of Chemical Engineers Scholastic Award to chemical engineering junior who attained highest scholastic average in first two years. Certificate and handbook.

American Society of Mechanical Engineers. Award and certificate presented each year to a member of the student section for outstanding contribution to the department and the University.

Armour T. Granger Memorial Scholarship. A cash award given jointly by the Department of Civil Engineering and the American Society of Civil Engineers, Tennessee Valley Section, to a senior. Based upon scholarship, need, and activity in the ASCE student chapter.

The Arthur Brownlow Wood Memorial Scholarship Fund. A cash award made annually to one or more outstanding students in engineering.

Association of Textile Industrial Engineers Award. A $500 one-year award based on need, given by the Department of Industrial Engineering to a senior.

Billy J. and Sylvia F. Moore Scholarship Fund. A cash award given to one or more upperclass students majoring in electrical engineering, preferably seniors who have participated in the engineering co-op program. Based on both academic achievement and need.

East Tennessee Chapter of American Institute of Industrial Engineers Award. Award of handbook and plaque to the outstanding senior industrial engineering major.

Electrical Engineering Leadership Award. One or more cash awards may be made annually to juniors or seniors in electrical engineering who have exhibited outstanding leadership ability and have maintained a B average or above.

H. L. Weisberg Memorial Award. An annual award given by the department to an outstanding senior major in engineering science. Letter of recognition, plaque.

J. Mac Tucker Outstanding Senior Award. Recognition by the Society of the American Society of Mechanical Engineers of the outstanding senior in the Department of Mechanical and Aerospace Engineering. Award is based on leadership, scholarship, and service. Name on Plaque.

Jere B. Ford Memorial Scholarship. A minimum award of $1,000 presented annually by the Tennessee Roadbuilders Association to an outstanding civil engineering student.

Joel F. Bailey Award. Recognition by Tau Eta Chapter of Pi Tau Sigma of the student in mechanical and aerospace engineering having the highest grade point average in each calendar year. Name on plaque.

Kimley-Horn Scholarship in Civil Engineering.

Proctor & Gamble Minority Chemical Engineering Scholarship Fund. Awards can be made to minority CHE students who are either U.S. citizens or USA permanent-visa holders.

John Milton Snoddy Scholarship Endowment Fund. Cash award in recognition of scholastic achievement and evidence of high potential as a future civil engineer, to one or more upperclass civil engineering students as selected by the civil engineering faculty.

L. Raymon Shobe Excellence in Engineering Mechanics Award. Given annually to student with outstanding record in engineering mechanics at UTK. Letter, plaque.

Tau Beta Pi Outstanding Senior Award, given by the Tennessee Alpha Chapter. Recognition of a senior in engineering who displays outstanding service, leadership, and scholarship. Name on plaque.

University of Tennessee Book and Supply Store Award. An electronic calculator awarded quarterly.

Chosen by departmental committees in rotation. Given to an upperclass student on the basis of need and demonstrated academic performance.

College of Home Economics

Akima Club Interior Design Scholarship. Awarded to student enrolled in interior design. In-state tuition.


Dorothea H. Barton Scholarship. Awarded to an outstanding junior. Variable.

Jack Daniel Distillery Scholarship. Awarded to student enrolled in the tourism, food and lodging administration program.

Frank and Ruth Liggett DeFries Scholarship. Awarded to a home economics student biannually.

Donelson Home Economists.

General Foods Fellowship. Awarded to home economics doctoral student. $5,000.

Irene Hill Greene and Condon L. Greene Memorial Scholarship. Awarded to student from Anderson County.

Jessie W. Harris Scholarship. Awarded to sophomores, junior, and senior with highest scholastic records.

Holiday Inns, Inc. Tourism, Food & Lodging Scholarship Fund. Awarded to 10 students majoring in the four-year B.B. program. Variable.

Hawkins County Farm Bureau. Awarded to a fresh man from Hawkins County.

Howard Johnson's Scholarship. Awarded to student enrolled in tourism, food and lodging administration program.

Tennessee Howard Johnson's Scholarship. Awarded to student enrolled in the tourism, food and lodging administration program.

Greater Knoxville Hotel-Motel Association Scholarship. Awarded to student enrolled in the tourism, food and lodging administration program.

Memphis Hotel-Motel Association Scholarship. Awarded to student enrolled in the tourism, food and lodging administration program.

Lewisohn Scholarships, endowed by Frederick Lewisohn, Ten. variable.

F. Dwight McDonald Scholarship. Awarded to an entering freshman.

National institute of the Foodservice Industry. Awarded to student enrolled in the tourism, food and lodging administration program.

Omican Nu Sophomore Scholarship Award. Awarded by the home economics honor fraternity.

Roane County Council of Home Demonstration Clubs. Awarded to freshman from Roane County.

Schenley Industries Scholarship. Awarded to student enrolled in the tourism, food and lodging administration program.

Scruggs Restaurant Equipment, Inc., Scholarship. Awarded to student enrolled in tourism, food and lodging administration program.

Standard Textile Scholarship. Awarded to student enrolled in tourism, food and lodging administration program.

Staster Foundation Scholarship. Awarded to hospitality students throughout the United States.

Stouffer Foods Corp. Scholarship.

Chosen by departmental committees in rotation. Given to an upperclass student on the basis of need and demonstrated academic performance.

College of Law

Philo Sherman Bennett Prize, established by the late Philo Sherman Bennett. Awarded to the member of the senior class who makes the most significant contribution toward overall legal scholarship.

Bain-Swigett Poetry Prize, for excellence in writing concerning forms of English poetry.

John M. Allen Mathematics Prize. Medal, to outstanding freshman mathematics student. Prize is determined by competitive examination covering material from the encyclopedia to students receiving the highest grades in each subject.

The University of Tennessee General Scholarships. Awarded to student enrolled in the tourism, food and lodging administration program.

Tennessee Chapter of Future Homemakers of America.

Tennessee Dietetic Association. Awarded to upper-class student enrolled in dietetics program.

Tennessee Rehabilitation Corporation Scholarship. Ten.

Tennessee Restaurant Association Scholarship. Awarded to student enrolled in tourism, food and lodging administration program.

University of Tennessee General Scholarships. Variable.

White Stores Scholarship. Awarded to an entering freshman.

College of Law

Callaghan and Company Prize, A copy of Brown on Personal Property to student who has attained the highest average during the junior year in the College of Law.

The Frank B. Creeksmore Memorial Award has been established by the Creeksmore family and friends in memory of Frank B. Creeksmore, a prominent Knoxville attorney. The award is made annually to a second-year law student on the basis of financial need and promise for the general practice of law in Tennessee.

Herbert L. Davis Memorial Trust Fund. An award to the law student who has the highest scholastic average for the first two years of work in the College of Law.

Knoxville Auxiliary to the Tennessee Bar Association. An award to the law student who has the highest scholastic average in the first year of work in the College of Law.

Lawyers Cooperative Publishing Company and the Bancroft-Whitney Company. Print publishers of American Jurisprudence offer separately bound topics from the encyclopedias to students receiving the highest grades in each subject.

Michie/Babb-Merrill Law Publishing of Charlotte, Virginia. A prize copy of Tennessee Code Annotated to the student who has attained the highest average during three years of study.

Cyril A. Soans Prize. A prize to be awarded for the best paper by a law student on a topic pertaining to the protection or regulation of intellectual property.

The Southern Title Insurance Company Real Property Prize will be offered annually by the Southern Title Insurance Company to that student enrolled in the College of Law who submits the best Memorandum of Law on a topic selected by the Prize Committee of the College of Law faculty.

United States Law Week Award. The editors have established an award consisting of a year's subscription to the Law Week for the member of the senior class who makes the most scholastic progress during the senior year.

West Publishing Company Award. A title selected from its Hornbook Series is offered annually to that member of each of three classes who achieves the highest scholastic average in the class.

West Publishing Company Award. A title selected from Corpus Juris Secundum is offered annually to that member of each of the three classes who has made the most significant contribution toward overall legal scholarship.
mitting best essay discussing principles of free government.

Biology Award, Plaque, to the outstanding biology senior.

Eleanor R. Burke Award, for excellence in expository writing. Founded in honor of the daughter of a former head of the English department.

Captain Robert A. Burke Award, for excellence in English prose fiction. Founded in honor of the son of a former head of the English department, $55.

Chi Omega Prize, given by Pi chapter of sorority. Given to the senior girl majoring in the social sciences, with the greatest proficiency in the subject.

Dorothea and Edgar D. Eaves Outstanding Teaching Award, established by the late Professor Robertson. Given to a student with at least five years of teaching experience who is named the outstanding teacher of the year in his or her group. Award of $50 each year to beginning G.T.A. in mathematics who is named the outstanding teacher of the year in his or her group. One or more awards are made to qualified high school teachers who wish to continue their training in mathematics by attending summer school at UTK.

Arnett A. Elliott Award. Established by the Department of Political Science to honor Arnett A. Elliott and promote scholarship in Political Theory, this Award or Scholarship is given to an undergraduate student with the greatest proficiency in the subject.

Senior Greek Prize, established by friends of the classics. Cash award, to member of senior Greek class showing greatest proficiency in the course.

Maud Calloway Hays Scholarship. Variable scholarship provided by the family of Maud Hays to a sophomore history major with special interest in U.History. History Department Scholarship. Given to a history major with financial need.

John C. Hodges Scholarships. Each year one or more scholarships, supported by the Better English Fund, established by John C. Hodges, are awarded to outstanding English majors. These awards are made at the end of the junior year and carry remission of in-state fees for the senior year of study. Applications are not accepted; selection is made by a departmental committee on the basis of superior academic performance in English.

Italian Studies Award, established by Italian division of Department of Romance Languages. Cash award to outstanding student in upper-division courses in Italian.

Knickrocker Poetry Prize, for excellence in writing English poetry. Founded by the late Stephen L. Mocsary, in honor of a former head of the English department.

Senior of Latin Foundation Prize, established by friends of the classics. Cash award, to member of senior Greek class showing greatest proficiency in the course.

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Maud Calloway Hays Scholarship. Variable scholarship provided by the family of Maud Hays to a sophomore history major with special interest in U.History. History Department Scholarship. Given to a history major with financial need.
Members will be chosen from the undergraduate and graduate students and faculty of the institution.

Omicron Delta Epsilon, honor society in economics for students and faculty. Student members must have a minimum 3.0 overall average.

Omicron Delta Kappa, for junior and senior students.

Omicron Nu, for home economics students. Members are elected from the upper one-fourth of the senior class and upper one-fifth of the junior class, not to exceed 20 percent of any given class.

Order of the Coif, for law students.

Phi Alpha Delta, for law students.

Phi Beta Lambda professional fraternity for students enrolled in the College of Business Administration. Prospective members must be enrolled in at least three hours in the college with a minimum of 2.2 overall average.

Phi Beta Kappa, the oldest national academic honor society for liberal arts juniors and seniors who are candidates for either the Bachelor of Arts or the Bachelor of Science in Chemistry degree. Grade point average varies with number of hours completed; minimum is 3.50. At least 90 hours must have been earned at UTK. Students must have completed the second college year course (or equivalent) in a foreign language. Selection takes place in October and April. For detailed statement of requirements, inquire in Liberal Arts Student Academic Affairs Office, 216 Ayres Hall.

Phi Chi Theta, professional fraternity for women interested in a business career. Any woman student enrolled in the College of Business Administration, or specializing in business and/or economics, being at least a first-year sophomore must have completed 30 hours of college credit with a minimum overall average of 3.0. At least 90 hours must have been earned at UT. To be eligible for membership, members must have a minimum overall average of 3.00.

Phi Delta Kappa, honorary professional fraternity in education connected with approved colleges and universities of graduate rank maintaining schools, colleges, or departments of education; pursuing excellence in service, teaching, and research.

Phi Delta Phi, for law students.

Phi Eta Sigma, for freshmen who have a minimum grade point average of 3.5 the first quarter or first three quarters while carrying a full academic load. All candidates must rank in upper 20 percent of their respective class.

Phi Kappa Phi, broadest of the national honor societies, recognizing all fields of learning. Prospective members must be seniors ranking among the upper 10 percent of their class, with a minimum 3.0 average. Meeting these requirements does not necessarily assure election.

Pi Delta Phi, for French students. Prospective members must have a minimum B-minus average in all French courses taken.

Pi Kappa Lambda, for students in music and music education.

Pi Lambda Theta, a national honor and professional association in education. Open to juniors and seniors with a minimum 3.2 GPA and graduate students with a minimum 3.5 GPA. Membership by invitation.

Pi Sigma Alpha, for political science students and faculty. Student members are elected solely on the basis of scholarship.

Pi Tau Sigma, for mechanical engineering students. Prospective junior members must rank in the upper one-fourth and senior in the upper one-third of their respective mechanical engineering class.

Scabbard and Blade, military science honor society for upperclass students.

Scarabean Senior Society, local society for students and faculty. Membership is by invitation.

Sigma Alpha Iota, a professional music fraternity for women interested in music. Requirement: 2.5 overall average.

Sigma Delta Chi, professional journalism society. Active membership shall be limited to journalism and broadcasting majors having at least a 2.3 overall grade average and having completed at least 45 hours.

Sigma Delta Pi, for Spanish students. Prospective members must have a minimum 3.75 average in all University work and a minimum 3.2 average in Spanish, and must have completed a junior year in Spanish literature or be registered in the last term of such a course.

Sigma Gamma Epsilon, honor society for students in earth sciences. Membership is by invitation, based on scholarship and interest.

Sigma Pi Sigma, physics honors society for upper-class and graduate students, faculty members, and qualified alumni.

Sigma Theta Tau, a national nursing honor society for those students who have demonstrated outstanding scholastic achievement, professional leadership potential, and/or marked achievement in the field of nursing. Undergraduate students having completed at least two quarters for the upper-division curriculum with a 3.0 average are eligible for membership as well as graduate students who have completed one-half the master's program with a 3.25 average.

Sigma Xi, scientific research society for advanced graduate students and faculty. Prospective members must have shown noteworthy achievement as original investigators in the pure or applied science fields. Exceptionally brilliant and promising undergraduate and graduate students may be elected to associate membership.

Tau Beta Pi, national honors society for engineering students. The top one-eighth of the junior engineering class and the top one-fifth of the senior engineering class, scholastically ranked, may be elected. Elections are held in the fall and winter quarters. The organization conducts programs and projects of benefit to students and the University.

Torchbearers epitomize the finest qualities of The University of Tennessee student. Each year the seniors who have contributed the most to the University during their college careers are selected as Torchbearers. Selection is based on scholarship, activities, character, and service.

Xi Sigma Pi, forestry honor society for upperclass and graduate students, faculty members, and persons who have attained a national reputation in forestry. Students must have completed 110 quarter hours of credit, including 15 hours in professional forestry courses. When practical, initiates are selected during the junior year to provide the greatest degree of benefit of active membership.

Student Affairs and Services

Office of the Vice Chancellor for Student Affairs
The Vice Chancellor for Student Affairs coordinates the various offices and departments of the University which offer assistance to students in their education and life beyond the classroom.

Office of Career Planning and Placement Service
This service is engaged in two major activities. The services of the Career Planning Resource Center, on Main Hall, consists of workshops, individual advising, and a reference library which are available to students, alumni, and prospective students. Workshops are designed to help individuals with choosing a major or a career, developing skills in interviewing, job seeking and writing a resume. Certain workshops can be taken for academic credit. Individual career advising is also available from the counselors in the Center.

The Career Planning and Resource Center includes a special comprehensive library of printed and audiovisual materials related to current occupational and employer information, job seeking strategies and techniques.

The Placement Service offers students the following services: on-campus interviews with local, regional and national employers, weekly job listing bulletin, employer literature, job counseling and employer information; "Career Days" for employer exploration and identification; a credential file containing references, grades, and a data card which can be copied and mailed to employers; resume and data card mailings to employers.

For information regarding career planning and resources, call 574-2476. The Placement Office number is 574-5435.

Office of the Dean of Admissions and Records
All matters relating to undergraduate admission to the University and to credit for work at other colleges and universities are administered by the Dean of Admissions and Records. All credit, applications for admission, and inquiries about admissions should be addressed to the Director of Admissions, The University of Tennessee, Knoxville, Tennessee 37996.

Student Financial Aid is also administered under the direction of this office. Information on available financial aid may be obtained by writing the Director of Financial Aid, 115 Student Services Building, The University of Tennessee, Knoxville, Tennessee 37996.

In addition to undergraduate admissions, this office has general administrative responsibilities for academic retention and readmission activities, maintenance of student academic records, certification of completion of requirements for undergraduate degrees, registration procedures, and eligibility for athletic participation. This office also administers relations between students and the Social Security Administration and Veterans' Administration.

Handicapped students may receive special assistance in registering and arrangement of schedules through this office.

Office of the Dean of Special Student Services
This office coordinates those programs designed to assist students with educational and physical handicaps. In addition, it is responsible for the operation of the Lack Cultural Center and the general advisement of minority students. The office also works with academic units in the planning of special programs and services for minority and handicapped students.

Included in this area of operation are the Office of Handicapped Student Services, the Educational Assistance Program, and the Black Cultural Center.

Office of Handicapped Student Services
The Office of Handicapped Student Services provides counseling and academic support services to insure that handicapped students have access to educational opportunities provided at The University of Tennessee. Any

1These regulations do not apply to the College of Law or to the divisions in UT Center for the Health Sciences. For the Law College requirements, see Law College section. For others, see appropriate catalog.
student having a disability which restricts his/her participation in academic life is eligible for services. Services provided include personal and career counseling, interpreters, readers, referral services, and other services designed to meet the student's individual needs.

Assistance is available for making special classroom arrangements. Information regarding transportation and housing is provided. The office serves in a liaison capacity with the Tennessee Division of Vocational Rehabilitation. Registration and other forms of administrative assistance and academic support are provided through the Office of the Dean of Admissions and Records.

Participation in the services program is on a voluntary basis; confidentiality is maintained. Students desiring any services are encouraged to contact the Office of Handicapped Student Services so that any necessary arrangements can be made. The office is located at 900 Volunteer Boulevard. Phone number: 974-6087.

The Educational Assistance Program. The Educational Assistance Program (EAP) is a federally funded project (Special Services for Disadvantaged Students) designed to help freshman and sophomore students who may, because of previous academic weaknesses or disadvantages, have difficulty in achieving academic success during their initial University experience. Administratively it offers specially designed courses in mathematics, biology, English, and educational psychology. The courses function in such a manner that each student receives individual help and is given an opportunity for success. The opportunities include small classes, the availability of the professor for individual help, special help sessions, individual and small-group tutors, self-paced courses, individual academic advising each semester, and both academic and personal counseling services. In addition, the EAP staff attempts to serve as a liaison for the student in any area of University experience in which the student needs help.

The offices of the program are located on the ground floor of the Student Counseling Center at 900 Volunteer Boulevard. Phone number: 974-6087.

Black Cultural Center. The Center represents one effort by the University to promote awareness of the nature of the Black experience and the contribution of Black America to the national past. The Center seeks to fulfill this role through a variety of programs and occasions. Typical of its campus work is sponsorship of Black History Week and the Black Arts Festival. Within the Center itself, exhibits related to the Afro-American past, small group lectures, group study sessions, and a tutorial program aimed especially at minority students are a few of the ongoing activities.

The Center is located at 812 Volunteer Boulevard. All members of the University community are invited to visit this location and utilize the opportunities provided by the Center for increased knowledge about the Black experience.

Office of the Dean of Student Activities. The Office of the Dean of Student Activities Suite, 413 Student Services Building, Circle Park Drive, coordinates all student activities and services. Its area of operation encompasses the University Center, the Student Aquatic Center and Recreational Facilities, Student Publications, and all other extracurricular activities of University students.

Office of the Dean of Sudent Conduct and Orientation. Student Orientation Office. This office is dedicated to helping the new student adjust to the university setting, concerning itself with general, personal, and scholastic difficulties of the student during the first year of enrollment on the Knoxville campus. The office is responsible for the summer orientation program, specifically designed for the fall-quarter new student, as well as orientation programs for freshman and transfer students presented prior to the beginning of each quarter.

Student Conduct Office. This office is concerned with the individual rights and responsibilities of students. The personnel of this office serve as advisers to the student judicial system and, when necessary, initiate appropriate discipline proceedings.

Office of International Student Affairs. This office assists students from other countries with the many matters which are of particular concern to them during their stay in the United States. It also serves as the official University representative for matters involving immigration authorities, international educational organizations, and foreign governments.

The office maintains the overseas students' official records and provides a liaison with the teaching faculty. It coordinates such projects as a community volunteer program and activities for foreign student spouses. To help the overseas student adjust to American life, its professional staff serves as ex officio advisers on personal and academic matters.

Special orientation programs are held at the beginning of each term and foreign students admitted to the University are notified in advance and are urged to arrive in time to attend them.

Non-U.S. students who are applying for Graduate School admission should write to: The Vice Chancellor for Graduate Studies and Research, The University of Tennessee, Knoxville, Tennessee 37996, U.S.A. Persons seeking undergraduate admission should apply to: Director of Admissions, The University of Tennessee, Knoxville, Tennessee 37996, U.S.A. Other specific inquiries or requests for more detailed information may be directed to: Office of International Student Affairs, 201 Alumni Hall, The University of Tennessee, Knoxville, Tennessee 37996, U.S.A.

UNIVERSITY INTERNATIONAL HOUSE. The "International House" is located directly across from the Student Center in the heart of the campus. It is provided by the University and operated by the Office of International Student Affairs as a facility where domestic and foreign students can come together to relax and discuss matters of mutual interest.

International student programs and activities are planned and held at the International House. Students representing various national student groups and associations, along with interested domestic students, staff, and faculty, participate in these activities which are held throughout the year.

University Center. Playing a unique role in the University community, the Carolyn P. Brown Memorial University Center is a central gathering place for students, faculty, and staff as well as campus visitors.

A variety of activities and facilities is available in the Center. The lower level, called "Xanadu," houses automatic bowling lanes, billiard tables, dark room facilities, an arts and crafts area, and a table-games lounge. These facilities are among the best in the nation for student recreational pursuits.

The expansive food service on the ground level provides the finest food available. The entrance of the University Center, the official store for the University. A tobacco and sundries shop at the Stadium Drive entrance is open 10 hours daily. Used and new textbooks are bought and sold on the lower level of the two-level store. In addition to textbooks, a 110,000 paperback store selection, technical and reference books, and numerous study aids are available on this floor. The first floor features a complete stock of engineering, art and school supplies, records, tapes, art prints, posters, and other items for student needs.

Small branch stores are located in Hess Hall, Presidential Court, and Andy Holt Apartments. These stores are open 6 days a week for the student's convenience.

Students benefit indirectly from their patronage of the University Book and Supply Stores since all profits are used to help support the operations and activities of the University Center and Aquatic Center. The main store is the only location on campus where students may cash personal checks.

Office of Recreation. "Fun for Everyone" is the motto of the Office of Recreation; the primary objective is to serve students by offering many activities for their leisure time. Students are encouraged to take maximum advantage of both the program and the facilities.

STUDENT AQUATIC CENTER. The Student Aquatic Center Recreation Complex affords year-round recreation for all
students. Outdoor facilities include an Olympic-size swimming pool with a diving well having two one-meter and two three-meter diving boards, and an Olympic diving tower, with five, seven and one-half, and ten meter platforms; three large areas with grass carpeting and outdoor furniture for sun bathing; tequetball courts; paddleball/handball courts; football and softball fields; parallel and horizontal bars; volleyball and shuffleboard courts; soccer field; 440-yard Tartan track; and a nine-hole putting course cutting green. Sports equipment for these facilities is issued at no charge to the student.

Indoor facilities include an Olympic-size pool with a water polo court and a diving well with one five-meter tower, four one-meter, and three three-meter diving boards. A weight room equipped with a weight machine and stall bars is available. An exercise area in the women's locker room is equipped with exercise machines. Sun lamps and sauna baths are available. Ping pong and billiard tables (slight charge for billiards) are located in the upper lobby along with a TV viewing area.

All facilities of the Student Aquatic Center except swimming are available from 8 a.m. to 9 p.m. Monday through Friday, 8 a.m. to 6 p.m. Saturday, and 12 noon to 6 p.m. on Sunday. The pool is open Monday through Friday 12-9 p.m.; Saturday 12-6 p.m.; Sunday 1-6 p.m.

Facilities of the Student Aquatic Center are available to students upon presentation of their ID card. Faculty and staff may purchase individual or family memberships for a nominal fee.

UT organizations may rent the Student Aquatic Center for swim parties and dances. No credit is given for lanes held during each quarter for the students' enjoyment.

STUDENT INTRAMURAL PROGRAM

The Student Intramural Program is designed for maximum student participation and provides for the competitive advancement of the University community in the actual administration and supervision of the entire activity. The primary basis of competition is league play in which teams participate for the fun of the activity. In addition, there is complete competition there are division tournaments among the league champions to determine Division Champions for Residence Halls, Fraternities, Sororities, and Independents. These Division Champions then compete for the All University Championship. The league activities include basketball, bowling, football, golf, paddleball, racquetball, softball, swimming and diving, tennis, track and field, track relays, tug of war, turkey trot, volleyball, and water polo.

In addition to the team sports competition, open tournaments are held in individual and dual events. In some cases individuals have the option of choosing a class of competition that best characterizes their type of play. Activities are basketball (free throw, one-on-one, three-on-three, supershortshot), billiards, croquet, frisbee, golf, handball, paddleball, racquetball, skateboard, squash, table tennis, tennis, and wrestling.

CO-RECREATION INTRAMURALS

The Intramural Office also offers co-recreational activities. All students, faculty and staff, and their non-student wives, husbands, or friends are eligible to participate. The Co-

Rec activities are organized as an informal fun program, using modified rules so that men and women can participate on an equal basis. The activities are badminton, basketball, bowling, basketball, golf, paddleball, raquetball, softball, table tennis, tennis, volleyball, and water polo.

INTRAMURALS FOR FACULTY AND STAFF

The Intramural Program for Faculty and Staff is designed to provide a wide range of activities for all members of the University community. Activities are organized for both teams and individual participants. Events include badminton, basketball, billiards, bowling, golf, handball, paddleball, racquetball, softball, squash, table tennis, tennis, track, and volleyball.

SPORTS CLUBS

Sports Clubs are organized when students express an interest in a certain activity or because of anticipated needs. The Sports Club Office will assist any student wishing to organize any type of sports club.

The Sports Club Office is located in the Student Aquatic Center, Room 202. The clubs are archery, badminton, baseball, basketball, bowling, equestrian, fencing, field hockey, flying, floor hockey, frisbee, gymnastics, handball, ice hockey, ice skating, jobbing, judo, karate, lacrosse, raquetball, rugby, running, sailing, soccer, skateboard, snow ski, soccer, sports car, synchronized swim, table tennis, trap & skeet, volleyball, water ski, weightlifting, and women's rugby.

FREE PLAY

All recreation areas, Alumni Memorial Gym, and the Physical Education Building are open to students for free play when the areas are not otherwise scheduled. One or both of these facilities is open seven days a week during the school year to offer students an opportunity for physical exercise in their leisure time. Students may check out necessary equipment at each facility upon presentation of their student identification cards. Guest passes are available in the Sports Club Office. All recreation facilities are for the enjoyment of students, faculty, and staff of The University of Tennessee, Knoxville.

Aquatics

The aquatic facilities are designed for year-round entertainment for those who wish to participate in free swimming and diving in one of the most outstanding physical complexes in the United States. The Aquatic Center has indoor and outdoor Olympic-size pools where one can enjoy the fellowship and relaxation that comes with aquatic sports. The pool is open Monday through Friday from 12 to 9 p.m., Saturday from 12 to 6 p.m., and Sunday from 1 to 6 p.m. Students may check out sun lamps and relaxed atmosphere found at poolside. National, regional, and state aquatic events have been held in these facilities during the last 10 years. UT's aquatic program is designed to meet the needs of all students who want to participate in aquatic skilled activities at no extra expense. The programs are informally organized at convenient hours after the school day is completed. These programs vary and provide for a more wholesome and dynamic future.

(1) Skin and scuba diving is offered each quarter with NAUI certification, the most prestigious certification in the country.

Equipment is furnished at no charge—safety vests, weight belts, tanks, regulators, snorkels, masks, and fins. (2) Lifesaving is offered to those students desiring American Red Cross certification. The course is taught each quarter, and books and materials are furnished.

(3) The Water Safety instructor course is offered fall, winter, and spring quarters with Red Cross certification. There is no charge for students, and instruction manuals are provided.

(4) Beginning swimming is offered to students, faculty, and staff during the summer quarter. This course is for those who want to improve their swimming skills or want to learn to swim for the first time.

(5) Beginning diving is offered to students, faculty, and staff during summer quarter. This course teaches coordination and skills on the springboard.

(6) Water survival is offered to students each quarter. This program provides the student with the basic skills and safety measures for prolonged periods in the water and is incorporated in the lifesaving program.

(7) Varsity swim teams practice daily throughout the fall, winter, and spring quarters. Many outstanding meets are scheduled here, and the Vols consistently place high in the NCAA championships.

(8) A handicapped swim program is offered one quarter each year for those students who need specific care in aquatic activities.

(9) Lifeguard School is offered at the Aquatic Center each quarter for specialized training of all lifeguards to be hired.

(10) Beginning swimming, beginning, intermediate, and advanced diving, swimmer, junior lifesaving, and competitive classes are offered to faculty and staff, children, fall and spring quarters. A competitive swimming course is taught winter quarter.

(11) A Swim For Your Life program is offered students, faculty, and staff throughout the whole year. Certificates are kept, and certificates are awarded during certain phases of the program.

(12) A Faculty Women's swim program is offered fall, winter, and spring quarters for faculty and staff women.

(13) Community competitive swimming program are offered each quarter during the student's evening meal hour.

Other offerings include moonlight swim parties, water basketball, water polo, special Carousel showings of aquatic competitive swimming, trapline, and mini-board during supervised activities. The Aquatic Center is available after hours for private and organizational parties, community aquatic programs, etc., for a fee. This facility has been viewed by visitors, professional and non-professional from all parts of the world, who have said it is among the outstanding centers of the United States.

Student Activities Office

An extensive program of extracurricular activities is available at The University of Tennessee, Knoxville, with over 200 student organizations currently functioning. Students
have the opportunity to initiate and develop special interests, plan and administer all-campus programs, participate in governance organizations, and augment the academic offerings by the classroom teachers. Students may participate in departmental clubs and scholastic and professional honorary organizations. The agency charged with the development and administration of the extracurricular program is the Student Activities Office located in the Student Services Building.

WOMEN'S CENTER
The Women's Center is the coordinating unit for women's programs on the Knoxville Campus. It functions as a resource center for all University departments and organizations in the areas of women's programs and activities. The Center's primary objectives are the development of programs for women, the collection of media resources about women, and comprehensive information exchange service regarding women's activities throughout the campus. The Women's Center is located in 301 University Center.

Intercollegiate Athletics for Women
This department is responsible for the organization and operation of women's athletic teams at The University of Tennessee, Knoxville. Presently, there are six varsity teams for women—basketball, cross country, swimming/diving, tennis, volleyball, and track and field.

The program is governed by the Association of Intercollegiate Athletics for Women with teams competing in state, regional, and national tournaments sponsored by this organization. Teams abide by all NCAA rules in regard to scholarships, recruiting, safety, and eligibility.

Any full-time female undergraduate student is eligible to try out. Additional information can be obtained by writing to the Director of Women's Athletics, 115 Stokely Athletics Center.

Student Health Service
Health services provided by the University are available to any student who has paid the health fee (either through paying the full University Programs and Services Fee or, if taking fewer than 9 hours, paying the optional health fee). These out-patient services are available continuously throughout every quarter.

The Health Service has a regular staff of primary physicians, nurses, laboratory and x-ray technicians of Tennessee licensure. Outpatient services in the fields of general practice, internal medicine and psychiatry are available on a full-time basis while specialty consultants in dermatology, surgery, and gynecology are available on campus through referral by a staff physician. Care beyond that provided by the regular staff can be arranged for the student if desired. Those students requiring allergy injections may arrange to receive them at the Clinic.

Virtually all medical services at the campus clinic are provided to eligible students at no additional cost while charges are made for some services such as x-rays, lab tests, and injections received through the evening hours at the Tennessee Memorial Hospital.

The primary clinic at 1818 Andy Holt Avenue maintains scheduled daytime hours Monday through Friday. Emergency care during evenings and weekends is available through the emergency room Student Health Clinic at The University of Tennessee Memorial Hospital except during the breaks after summer and fall quarters. Ambulance and transportation service for the campus is provided by the Campus Police.

Students requiring hospitalization are generally admitted by an appropriate specialist to The University of Tennessee Memorial Hospital unless other arrangements are desired. Since inpatient care is sometimes necessary, it is important for the student to have hospitalization insurance. Student group health insurance is available and may be purchased during a designated period at the beginning of each quarter.

Health Service personnel will cooperate with students and family physicians in ensuring the continuity of quality health care during the university career.

Student Counseling Services Center
The Student Counseling Services Center provides services designed to help students with educational, vocational, personal, and social problems. Professional counselors work with the student in a setting that allows confidential discussion of the student's concerns. The student may concentrate on a specific problem or may work on the general adjustment to academic life. Various groups are employed to meet the developmental needs of the student. These group settings provide the opportunity to share and learn from others and/or improve specific skills. Psychological tests may be used for self-evaluation. Also, an information library is maintained.

The Center also works with the faculty and student personnel staff to develop educational programs and projects to meet the needs of various groups at the University. The Withdrawals Office, located in the Center, handles the withdrawals of all students from the University.

All students, student spouses, and to a limited extent, pre-college students are eligible for counseling and services of the Center.

Appointments for counseling may be made by phone or in person at the Student Counseling Services Center at 900 Volunteer Boulevard.

Student Rights and Responsibilities
By registering in the University, the student neither loses the rights nor escapes the duties of a citizen. Enjoying greater opportunities than the average citizen, the University student has greater responsibilities. Each student's personal life should be conducted in a context of mutual regard for the rights and privileges of others. It is further expected that students will demonstrate respect for the law and for the necessity of orderly conduct in the affairs of the community.

Students are made for being fully acquainted with the University catalog, handbook, and other regulations relating to students and for complying with them in the interest of an orderly and productive community. The student handbook, Hilltopics, is published and distributed annually so that students are aware of the University Standards of Conduct and all disciplinary regulations and procedures.

Since conduct and actions will be measured on an adult standard, students should understand that they assume full responsibility for the consequences of their actions and behavior. The academic community will be judged in large measure by the actions of its members. Therefore, it is incumbent upon students to include the implications for their community in their criteria for determining appropriate behavior.

Failure or refusal to comply with the rules and policies established by the University may subject the offender to disciplinary action up to and including suspension from the University.

Religious Resources
The University, established by a government that recognizes no distinction among religious beliefs, seeks to promote no creed nor to exclude any. However, it will always be diligent in promoting the religious spirit and life of its students.

CHURCH CENTERS
Church centers are maintained on or adjacent to the campus for University students. These are the Baptist Student Center, John XXIII Catholic Center, Presbyterian Student Center, Tyson House (Episcopal), Lutheran Student Center, Wesley Foundation (Methodist), Hillel Foundation, Christian Student Center, and Christian Student Fellowship.

Student Organizations
On the University campus there is a large number of student chapters of professional organizations, special interest clubs, and other extracurricular organizations. These organizations and clubs provide broad opportunities for student participation.

A full listing of all student organizations on the campus will be found in Hilltopics. All of these clubs and organizations are under the general supervision of the Student Activities Office.

Social Fraternities and Sororities
The University has chapters of 26 national social fraternities and 20 national social sororities on its Knoxville campus. Membership in these fraternities and sororities is by invitation only. The Fraternities are:

ACACIA
Alpha Epsilon Pi
Alpha Gamma Rho
Alpha Phi Alpha
Alpha Tau Omega
Beta Theta Pi
Chi Phi
Delta Tau Delta
Delta Upsilon
Farmhouse
Kappa Alpha
Kappa Alpha Psi Colony
Kappa Sigma
Lambda Chi Alpha
Omega Psi Phi Colony
Phi Delta Theta
Phi Gamma Delta
Phi Kappa Psi
Phi Kappa Tau
Phi Sigma Kappa
Pi Kappa Alpha
Pi Kappa Phi
Sigma Alpha Epsilon
Sigma Chi
Sigma Nu
Sigma Phi Epsilon
The Sororities are:
Alpha Chi Omega
Alpha Delta Pi
Alpha Gamma Delta
Alpha Kappa Alpha
Alpha Omicron Pi
Alpha Xi Delta
Chi Omega
Delta Delta Delta
Delta Gamma
Delta Sigma Theta
Delta Zeta
Kappa Alpha Theta
Kappa Delta
Kappa Kappa Gamma
Phi Mu
Pi Beta Phi
Sigma Gamma Rho
Sigma Kappa
Zeta Phi Beta
Zeta Tau Alpha

Other University Services, Organizations, and Cultural Opportunities

Ombudsman Office
Personnel of the Ombudsman Office in the University Center assist students in the resolution of problems encountered with an aspect of the University. The office is open during the regular working day and students are welcome to drop in at their convenience. Problems are treated confidentially and are dealt with expeditiously. This office supplements existing appeals channels and actively seeks better ways for the University to service student needs.

Division of International Education
The Division of International Education, established within the Office of the Vice Chancellor for Academic Affairs, serves as a central point from which the broad range of international and interests throughout the University are strengthened and related to each other. Located in 205 Alumni Hall, the Division of International Education fosters the development, expansion, and continuation of the University's basic commitment to the academic institutions abroad for not much more than the cost of spending a year of study at UTK. Additionally the Division has developed direct exchange linkages with, among others, Universiteit Bonn, the University of Manchester, and International Christian University for identical exchange programs.

A new publication of the Division, supplementing "Fellowships, Scholarships, and Related Opportunities," and "International Experiences: A Planning Guide for UTK Faculty" is "The Directory of UTK Faculty with International Experience and Skills." It lists UTK faculty with recent international experiences and contains information relating to periods abroad such as language skills, project descriptions, and funding obtained.

In addition to the dissemination of information through the University community relative to opportunities for students and faculty to participate in study, research, and other related experiences abroad, the Division supports on-campus international programs, and serves as a major point of contact between the University and other public and private agencies in the U.S.A. and abroad involved in international program development.

Hearing and Speech Services
The Hearing and Speech Center, located at the corner of Yale Avenue and Stadium Drive, offers complete diagnostic and therapeutic services to all University students with hearing and/or speech problems. There is no charge for services to University students.

The Center serves as a community observation and training facility for students majoring in speech and hearing disorders. It also serves as a community Hearing and Speech Center, providing a preschool for children, aural rehabilitation programs for the hearing handicapped, and speech and language therapy for persons of all ages who have been referred to the Center.

Services to the Physically Disabled
Services relating to academic programs for students with physical disabilities, whether permanent or temporary (due to sickness or accident), are coordinated by the Office of the Dean of Admission and Records, 305 Student Services Building. In conjunction with the Office of Handicapped Student Services, the Office of Residence Halls, the Physical Plant Office, the U.T. Bookstore, the Student Activities Office, and academic departments, efforts are made to insure that attendance at The University of Tennessee, Knoxville, is as convenient as possible for students with physical disabilities.

These services include assistance during registration (preregistration, collection of class schedules, payment of fees, drop and add); the securing of special parking permits, elevator keys, tickets for special events; and similar efforts to relieve the special mobility problems of the students. The Physical Plant Office coordinates efforts to eliminate physical barriers to the degree possible, with priority being given to access and facilities for academic buildings.

The Office of the Dean of Admissions and Records assists students in the scheduling of special class sections in order to respond to the particular needs of the physically handicapped.

Vehicle Operation and Parking
The University of Tennessee endeavors to provide adequate traffic control and parking facilities for vehicles being operated by students and staff. Student parking areas are located on the perimeter and throughout the Main Campus and Agriculture Campus; and enroute, buses travel by the perimeter areas near Lake Loudoun Blvd. Faculty and staff parking areas are located throughout the campus. See copy of UTK parking map.

Each person who operates a motor vehicle in connection with attendance or employment at the University must register that vehicle with the Traffic Section of the Security Department. THERE IS NO CHARGE FOR VEHICLE REGISTRATION; however, a parking permit is required for parking on all University lots, streets, parking structures, or leased lots with the following exceptions:

1) Staff and students with current UTK motor vehicle registration stickers on their vehicles may park in any unreserved staff area (except those around residence halls) between the hours of 10 PM and 7 AM, Monday through Friday, and 12 Noon to 7 AM Monday; however, general parking is permitted in student areas around the residence halls from 5 PM to 3 AM. After this time, vehicles without permits for these areas may be towed. This is in effect at all times.

2) Staff and students with current UTK parking permits may park in unreserved staff areas around the academic buildings from 5 PM to 7 AM.

3) Overnight parking is not permitted in the Student Aquatic Center parking area nor in Student Commuter parking areas.

4) At times, certain areas will be reserved for parking for special events, such as athletic events. Parking for these events will be by special parking permit for the specific event.

The University of Tennessee Traffic and Parking Authority determines the traffic and parking policy on the Knoxville Campus. Traffic and parking regulations are published each year, and copies of these regulations are available when students and staff register their vehicles. Additional copies may be obtained from the Traffic Section of the Security Department at 1115 UT Drive or at the Campus Information Center at the entrance to Circle Park.

Cultural Opportunities
Both the University and the surrounding Knoxville area offer varied cultural opportunities. Exhibitions, concerts, festivals, and lectures as well as plays are available throughout the year.

THEATRE
The UT Theatres, under the aegis of the Department of Speech and Theatre, present several series of plays in three adjoining excellently equipped theatres: The Clarence Brown Theatre (600 seats), Theatre (150 seats), and the Carousel Theatre (400 seats). Productions range from prosenium to full arena, and from the most lavish and...
prestigious to the most intimate and experimental. The University Company normally presents five plays per year, the Theatre Student Association between eight and ten. Two plays for children are performed yearly for the area schools, and there also quarterly class projects in directing, readers', theatre, foreign language dramas, etc. The Clarence Brown Theatre, a professional regional theatre resident on campus, presents four productions yearly, usually from the classical repertory.

All University students are welcome to take part in plays staged in these theatres and to participate in all other aspects of play production.

FRANK H. MCLUNG MUSEUM

Officially dedicated in 1963, the McClung Museum is actively involved in the collecting, preservation, and exhibition of objects in the fields of anthropology, archaeology, fine arts, history and natural history. Temporary and permanent exhibits are presented on these subjects. The Eleanor Desnoe Audigier Art Collection exhibition features a selection of originals and copies of art objects from various periods through the turn of the century. The collection was presented to the University by Louis Bailey Audigier in memory of his wife. Archaeological specimens, some as old as 12,000 years, that have been recovered during the University's extensive excavations in the Tennessee River Valley are included in a major exhibit in the Main Gallery. In the Green Memorial Room are exhibits on the history of Knoxville, the University and East Tennessee. Changing temporary Lobby exhibits and other exhibits in the Museum are installed throughout the year.

ART

ART exhibitions of international, national, regional, and local artists and craftsmen are sponsored by the Department of Art in gallery of the Art and Architecture Building.

Arrowmont School of Arts and Crafts, Gatlinburg, Tennessee, displays works by faculty and students during the summer months.

Christmas Art Sale is an annual event sponsored by the Department of Art and held in the Art Gallery of the Museum in early December. Student and faculty and regional artists display modestly priced works for purchase in time for Christmas. Numerous art exhibitions are scheduled in the Art Gallery throughout the year.

Ralph E. Dunford Art Collection and the Marian G. Heard Crafts Collection are housed and exhibited in the University Center. These collections are supplemented each year with purchases made possible through student programs. Acquisitions of quality works by area artists are emphasized by the selection committee.

MUSIC

The Choral Groups consist of concert choir, university chorus, chamber singers, and UT Singers. These choirs are open to all students by audition, except university chorus which does not require auditions.

UT Singers in the Tennessee as the University's "Good Will Ambassadors." Among the many projects of this group are the annual statewide tour each spring and tours abroad on alternate years.

UT Opera Workshop presents three performances yearly. The varied program of operatic music ranges from one-act to complete three-act operas with symphonic accompaniment, and from television opera to selected scenes from the classical repertory. UT Symphony Orchestra plays several concerts on campus yearly as well as serving as orchestra for opera and choral productions.

UT Bands. The band, celebrated as "The Pride of the Southland," presents outstanding entertainment on football Saturdays at both home and out-of-town games.

During winter and spring quarters, the band is divided into two concert groups which tour the South: a variety pep band that performs at basketball games, and the laboratory group which provides valuable training for its members.

Requests for information on scholarships and memberships should be sent to the Director, Pride of the Southland Band.

Fine Arts Presentations, scheduled under the auspices of the Department of Music, consist of a series of Faculty Recitals which feature vocal and instrumental music, Student Recitals presented by upperclass and graduate members of the music department in partial fulfillment of degree requirements, and concerts by the Bands, Symphony Orchestra, Jazz Ensemble, Percussion Ensemble, and small ensembles.

Scottish Rite Masonic Chair of Choral Art brings to the Knoxville area a distinguished conductor and/or composer in the field of choral art who serves as guest lecturer at the University workshop.

The Grace Moore Collection. After the death of opera star Grace Moore, a native of East Tennessee, her family donated to the University a large collection of memorabilia which is viewed by appointment at the Frank H. McClung Museum.

CONCERTS

There are two committees on campus charged with the responsibility of providing the University community with the finest names in popular and cultural programs.

Campus Entertainment Board. This student and staff committee has the exclusive responsibility to sponsor popular entertainment on campus through a major concert series, a mini-concert series, and the much smaller Guest Artist series.

Cultural Attractions Committee. A student, faculty, and staff committee, this group is responsible for presentation of programs in the arts to include dance, music, and theatrical production.

LECTURES

Each quarter the issues Committee presents programs around a current theme. The programs are centered around speakers who are considered experts and represent diverse points of view on the designated topic.

BROADCASTING

WUOT, operating on 91.9 mhz. from Knoxville and WUTC, operating on 88.1 mhz. from Chattanooga, serve the public radio needs and interests of people in East Tennessee with cultural, informational, and educational programs. WUOT broadcasts in stereo with 100,000 watts power and WUTC broadcasts with 50,000 watts power. The stations are on the air 24 hours each day with a classical, fine arts format designed to enrich and improve the quality of life for those within reception range. Programming includes classical, folk, and jazz music; news and public affairs; drama; documentaries; discussion and exposition of current events; and other programs of social significance. WUOT is a member of National Public Radio and the Southern Educational Communication Association radio division. WUTC is an associate member of both organizations. WUOT meets the Corporation for Public Broadcasting criteria for full service operation as a public radio station; WUTC is in process of meeting the criteria.

Annual Faculty Phi Kappa Phi Lectures


Athletics

The University of Tennessee, Knoxville, encourages athletics as a part of its educational program. Men's intercollegiate sports are directed by the Department of Intercollegiate Athletics. George R. Woodruff, Director. Women's intercollegiate sports are administered through the Division of Student Affairs and are under the direction of the Department of Intercollegiate Athletics for Women, Gloria Ray, Director.

There are men's teams in football, basketball, cross country, indoor and outdoor track and field, baseball, swimming, wrestling, tennis, and golf. Intercollegiate games are played according to the rules of the National Collegiate Athletic Association (NCAA) and the Southeastern Conference (SEC). Eligibility for participation is determined by the NCAA, SEC, and the University faculty.

There are women's teams in basketball, swimming, tennis, volleyball, cross-country, and indoor and outdoor track and field.

Intercollegiate varsity games are played according to the rules of the Association of Intercollegiate Athletics for Women (IAAW) and the NCAA. Eligibility for participation is determined by IAAW, NCAA, and the University faculty.

A varied intramural and sports club program is provided for all students. These programs are directed by the Division of Student Affairs and are housed at the Student Athletic Center.

NEYLAND STADIUM

Neyland Stadium, the University's football stadium, was named in memory of the late General Robert R. Neyland, longtime football coach and athletics director, Shields-Watkins Field, the football field, is named in honor of
Traditions

Council for those students and alumni students return to the campus to visit and to Carnicus. The melody of All-Sing, and the spangle and wit of noise and bustle of Homecoming, the lilt and student productions which have become part less serious traditions are three annual all-light hearted as well as serious. Among the leaders to hold their "torch" high, shadowing during the student's campus life. This and heritage of the past and by setting quarterly by students of the College of Law. interested in developments in agriculture. by the College of Agriculture Student-Faculty progress in the engineering field. Engineering to inform students and alumni of students and faculty of the College of

Student Publications

A number of student publications are printed during each school year to serve as services of information to new students, to record the many events of interest to the campus community, and to record the year's activities. The Daily Beacon, a student newspaper, The Volunteer, yearbook on campus activities, and The Phoenix, quarterly literary magazine, are sponsored by The University of Tennessee Student Publications Board. Other student publications are: Sorority Scope, published annually by the Panhellenic Council to provide information about the sororities at the University. The Tennessee Engineer, published by students and faculty of the College of Engineering, to inform students and alumni of progress in the engineering field. The Tennessee Farmer, published quarterly by the College of Agriculture Student-Faculty Council for those students and alumni interested in developments in agriculture. The Tennessee Law Review, published quarterly by students of the College of Law.

Traditions

Traditions play an important part in the life of a University student by recalling the history and heritage of the past and by setting examples for future achievements. For instance, the Volunteer Symbol, spirit of the state and alma mater of new students, to report the many events of interest to the campus community, and to record the year's activities. The Daily Beacon, a student newspaper, The Volunteer, yearbook on campus activities, and The Phoenix, quarterly literary magazine, are sponsored by The University of Tennessee Student Publications Board. Other student publications are: Sorority Scope, published annually by the Interfraternity Council to acquaint male students with the fraternities. The Tennessee Engineer, published by students and faculty of the College of Engineering, to inform students and alumni of progress in the engineering field. The Tennessee Farmer, published quarterly by the College of Agriculture Student-Faculty Council for those students and alumni interested in developments in agriculture. The Tennessee Law Review, published quarterly by students of the College of Law.

The University of Tennessee Press

The University of Tennessee Press is the institution's agency for the publication of scholarly books and monographs, non-fiction works of general and regional interest, and specialized textbooks for Tennessee and the Southeast. Manuscripts are solicited from University personnel and other authors. The Press imprint is controlled by an Editorial Board, to which recommendations are made by the director acting with the counsel of scholarly appraisers, and the books are distributed on a sales basis. The Press office is located in the Communications and University Extension Building.

Student Government Association

Composed of the Student Senate, the Academic Council, and the Graduate Student Council, the Student Government Association is the governing body of the students at UTK. Some objectives of the S.G.A. are to provide a vehicle for student representation and effective student participation in the organization and operation of student life and to promote the recognition of student rights and responsibilities. The president of the student body serves as chairperson of the Student Senate while the vice president administers the student services staff (including the Legislative Interest Group, communications staff program, and voter registration). Student Senate members are elected in the spring quarter to represent geographical areas of the campus as well as various student organizations. The Academic Council and Graduate Student Council representatives are elected from the academic colleges and graduate student programs, respectively. Offices of the S.G.A. are located in room 341 of the University Center.

Building. Technical services of the Publications Service Bureau are offered to all colleges, departments, and other units of the University system needing assistance with publication design, artwork, copyreading, editing, proofreading, and preparing specifications for printers. These services assist University departments in issuing the highest quality of publications possible within their printing budgets.

Learning Research Center

Recognizing that the learning process is exceptionally complex, the University established the Learning Research Center in 1964. Its primary purpose is to encourage faculty members to utilize the results of research in creating arrangements and conditions for learning. The Learning Research Center publishes the Teaching-Learning Issues quarterly which circulates throughout the University system and on other campuses across the nation.

The University of Tennessee Publications

The various colleges, departments, and continuing education units composing the University issue many publications dealing with their educational, research, and public service programs. In addition, several publications are issued on a University-wide basis. The University of Tennessee Press includes General Catalog, Graduate Catalog, Report on Research, Publications, and Creative Achievements, the President's Report, the Library Development Report, and other publications of a record nature. The Torchbearer, issued four times a year, contains news, pictures, and other information about UT's teaching, research, and continuing education activities and is distributed to alumni, faculty and staff, and friends of the University. Other publications on programs of the institution may also be issued on a University-wide basis in response to requests of the various colleges, departments, and continuing education units. All of the publications are for free distribution. University publications are under the general supervision of The University of Tennessee, Knoxville, Publications Committee appointed by the Chancellor of the University. The operating office for this committee is the Publications Service Bureau, located in the Communications and University Extension
The Graduate School

The University of Tennessee, Knoxville, is the official land-grant institution for the State of Tennessee. It is a comprehensive institution offering a wide range of graduate programs leading to the Master's and doctoral degrees. The University offers Master's programs in 116 fields of specialization and doctoral work in 52. Approximately 6,000 graduate students are enrolled, both on and off campus. Administration of graduate student policies and regulations, and associated record keeping, is the responsibility of the Dean for Graduate Studies. Much of the day-to-day administration of graduate study is conducted by department heads or faculty advisers and committees responsible for particular programs. In addition to departmental units, numerous interdisciplinary programs, institutes and centers have been developed on campus and in locations around the state.

The Graduate School brings together faculty and graduate students as a community of scholars with a common interest in creative work and advanced study. Graduate programs are available to students desiring full-time study toward the Master's and doctoral degrees or professional certification, those interested in continuing education for updating and broadening knowledge, and those pursuing postdoctoral research. Traditionally, universities have provided graduate programs primarily for full-time, degree-oriented students. Serving the needs of students engaged full-time in intensive study and pursuit of a degree continues to be a major emphasis of UTK's graduate effort. At the same time, the University employs a variety of modes, traditional and non-traditional, in offering quality programs designed to serve students.

Complete information concerning graduate study at The University of Tennessee, Knoxville, is available in the **Graduate Catalog** published annually. For a copy, write or come to the Graduate Office, 218 Student Services Bldg., The University of Tennessee, Knoxville, TN 37996-0220 or call (615) 974-3251.

### Graduate School of Biomedical Sciences

**W. E. Barnett, Director**
**R. J. Preston, Associate Director**

**Full-Time Faculty**

**Professors:**
- D. Billen, Ph.D., Tennessee
- D. E. Olins, Ph.D., Rockefeller
- M. D. Mamrack, Ph.D., Baylor
- A. L. Olins, Ph.D., New York
- C. T. Hadden, Ph.D., Washington
- E. A. Hies, Ph.D., Notre Dame

**Associate Professor:**
- F. H. Gaertner, Ph.D., Purdue

**Assistant Professor:**
- M. D. Mamrack, Ph.D., Baylor

**Research Associate Professors:**
- A. L. Olins, Ph.D., New York
- C. T. Hadden, Ph.D., Washington
- F. H. Gaertner, Ph.D., Purdue

**Research Assistants:**
- R. J. Preston, Ph.D., Tennessee
- A. E. Hies, Ph.D., Notre Dame

Complete information concerning graduate study at The Graduate School of Biomedical Sciences is published in the **Graduate Catalog**. All inquiries concerning admission should be addressed to: The University of Tennessee—Oak Ridge Graduate School of Biomedical Sciences, Biology Division, ORNL, P.O. Box Y, Oak Ridge, Tennessee 37830.

#### Courses

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<thead>
<tr>
<th>Course Code</th>
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<tr>
<td>5070-80</td>
<td>Physical Chemistry (3,3)</td>
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5170 Molecular Genetics (3)  
5180 Cell Biology I (3)  
5190 Cell Biology II (3)  
5200 Mammalian Physiology (4)  
5230 Biochemical Concepts in Medical Sciences (3)  
5310-20-30-40 Biomedical Sciences Laboratory (3,3,3,3)  
5350 Biomedical Sciences Seminar (1)  
5360 Biomedical Sciences Seminar (1)  
5370 Biomedical Sciences Seminar (1)  
5430-60-90 Graduate Research Participation (3,6,9)  
5510-20-30-40 Special Topics in Biomedical Sciences (3,3,3,3)  
5700 Developmental Biology (3)  
5740 Statistics for Biologists (3)  
5840 Bioorganic Reaction Mechanisms (3)  
5860 Cryobiology (3)  
5940 Classic Experiments in Genetics (3)  
6000 Doctoral Research and Dissertation (3-15)  
6200 Nucleic Acid Chemistry (3)  
6210 Protein Chemistry and Enzyme Mechanisms (3)  
6220 Enzyme Regulation and Kinetics (3)  
6240 Chemistry and Metabolism of Lipids (3)  
6251 Molecular Biology of RNA (3)  
6252 Molecular Biology of DNA (3)  
6270 Viral Carcinogenesis (3)  
6280 Chemical and Physical Carcinogenesis (3)  
6290 Cancer Biology and Biochemistry (3)  
6300 Mutagenesis (3)  
6400 Membrane Biology (3)  
6410 Techniques in Cell Biology (3)  
6450 Immunology (3)
### Majors and Degrees Available

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<th>College of Agriculture</th>
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<tr>
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<td>Agricultural Mechanization</td>
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<tr>
<td>Entomology and Plant Pathology</td>
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<tr>
<td>Food Technology and Science</td>
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<td>PH.D.</td>
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<tr>
<td>Forestry</td>
<td>M.S.</td>
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<tr>
<td>Ornamental Horticulture and Landscape Design</td>
<td>M.S.</td>
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<tr>
<td>Plant and Soil Science</td>
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<td>Wildlife and Fisheries Science</td>
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<td>Economics</td>
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<td>Statistics</td>
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<td>Art Education</td>
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<td>Business Education</td>
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<td>College Student Personnel</td>
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<tr>
<td>Curriculum</td>
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<td>Curriculum and Instruction</td>
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<td>Education</td>
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<td>Educational Psychology</td>
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<td>Educational Psychology and Guidance</td>
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<td>Elementary Education</td>
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<td>Foreign Language Education</td>
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<td>Health Education</td>
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<td>Industrial Education</td>
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<td>Public Health</td>
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<td>Consumer Studies and Housing: Public Policy</td>
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<td>(Memphis, Nashville, and Knoxville)</td>
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<td>Social Work</td>
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Comparative and Experimental Medicine

MAJOR ___________________________ DEGREES
Comparative and Experimental Medicine M.S., PH.D.

Joint Coordinating Committee:
H. Kitchen (Chairperson); C. C. Congdon; J. E. Fuhr; J. M. Holland; J. E. Lawler; R. L. Michel.

The Comparative and Experimental Medicine degree program (M.S. and PH.D.) is jointly administered by the College of Veterinary Medicine, the College of Medicine/Knoxville Unit, and the UTK Graduate School. The graduate program is intended to prepare students for teaching and/or research careers in the health sciences, emphasizing the comparative approach to the study of pathology, immunopathology, aberrant metabolism, oncology, genetic disorders. For complete information, refer to the Graduate Catalog. The UTCHS College of Medicine/Knoxville Unit offers the courses listed below.

Medical Biology

UNDERGRADUATE

4110-20-30 Undergraduate Research Participation (2,2,2) Experience in active biomedical research projects under supervision of faculty. Students may conduct own research projects within designated areas. Prereq: Junior or senior standing; prior consent of faculty member. S/NC grading only.

4210 Introduction to The Study of Cancer (3) Lectures, classroom discussion, and case reports surveying the major topics of oncology. Prereq: Biology 3110-20 or consent of instructor.

4310 Introduction to Hematology (4) Pathophysiology of the blood and the blood forming systems. Lectures, class discussions and demonstrations. Prereq: Upper division biology background to include histology and/or general anatomy.

4430 Clinical Genetics (3) Lecture and discussion of human genetic disorders using case presentations. Prereq: General biology and general genetics background or consent of instructor.

GRADUATE

5000 Thesis (1-15)

5080 Graduate Research Participation (3)

5220 Special Topics in Cancer (1-3)

5320 Special Topics in Hematology (1-3)

5330 Biochemistry of Coagulation Fibrinolysis and Hemostasis (2)

5410 Molecular Basis for Metabolic Disease (5)

5420 Special Topics in Metabolic Disease (1-3)

5430 Metabolism of Drugs (2)

6000 Doctoral Research and Dissertation (3-15)

6110 Advanced Topics in Medical Biology (2)

6250 Special Topics in Pathology (1-3)

Engineering Administration

COURSES

5002 Non-Thesis Graduation Completion (3-15)

5900 Project in Engineering Administration (3)

Energy, Environment, and Resources Center

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.

Graduate School of Library and Information Science (620)

Ann E. Prentice, Director

Professors:

Associate Professors:

Assistant Professors:
M. H. Hammerbrook, M.L., South Carolina; J. M. Pemberton, Ph.D. Tennessee; M. S. Stephenson, M.L.S. North Texas State.

The Graduate School of Library and Information Science provides a program leading to the preparation of librarians and information scientists for work in all types of libraries and information centers.

The Undergraduate Program

The undergraduate library education program leads to a minor in the College of Education or the College of Liberal Arts. Students in other colleges may elect a minor in library and information science with the approval of their faculty advisers. The undergraduate minor is planned for the following general types of people: (1) students preparing for positions as school librarians in elementary and secondary schools; (2) teachers who wish to become better acquainted with books and other instructional materials; (3) school administrators who wish to explore the place of the library in the instructional program; (4) prospective candidates for the graduate program in library education; (5) persons seeking a position at the level of Library Associate as described in the manpower policy of the American Library Association.

The minimum requirements for a full-time position as school librarian in the state of Tennessee (both elementary and secondary) can be met through fulfilling the requirements for teacher certification and completion of the following library courses: 3510, 3520, 3530, 4140, 4150, 4270, 4530, and 4750.

The Graduate Program

The goal of the program is to prepare graduates to function effectively in libraries and information centers. For further information, write for a Graduate Catalog.

UNDERGRADUATE

3510 Books and Related Materials for Children (3) Readings based on materials for children in leisure time or classroom activities; criteria for selecting books, magazines, recordings, films and related materials; story-telling and other devices for encouraging reading. Undergraduate credit only. Prereq: Admission to teacher education or junior standing in College of Liberal Arts. (Same as Educ. C & I 13510.)

3520 Books and Related Materials for Young People (3) Basically same approach as 3510, but adapted to needs and interests of adolescents. Undergraduate credit only. Prereq: Admission to teacher education or junior standing in College of Liberal Arts. (Same as Educ. C & I 13520.)

3530 Books and Related Materials for Adults (3) Principles of materials selection, selection aids, annotations, book reviews, evaluation of adult books in various subject areas. Undergraduate credit only. Prereq: Admission to teacher education or junior standing in College of Liberal Arts.

4140 Libraries and Librarianship (3) Librarianship as an occupation: its organization, responsibilities, problems, and prospects.

4150 School Library Administration (3) Objectives, functions, and place of school library; relationship to local and state services; cooperative planning for quarters and materials; evaluation. (Same as Educ. C & I 14150.)

4270 Organization of Library Collections I (6) Acquisitions, cataloging, and maintenance of library collections.

4330 Introduction to Reference Materials (3) Basic information sources and services for all libraries.

4750 Utilization of Instructional Media (3) (Same as Educ. C & I 4750 and Vocational-Technical Education 4750.)

GRADUATE

5000 Thesis (1-15)

5002 Non-Thesis Graduation Completion (3-15)

5110 Problems in Library Science (3)

5120 Problems in Library Science (3)

5170 Problems in Library Science (3)

5190 Research Methods in Library Science (3)

5200 Subject Reference and Bibliography (3)

5230 Sources and Services for the Humanities (3)

5240 Sources and Services for the Social Sciences (3)

5290 Sources and Services for the Natural Sciences (3)

5320 Sources and Services for the Humanities (3)

5340 Organization of Library Collections II (3)

5500 Government Publications I (3)

5520 Government Publications II (3)

5700 Legal Bibliography (3)

5300 Library Management (3)
Graduate School of Radiation Biology (844)

Courses

5000 Thesis (1-15)
5000 Graduate Research Participation (3-9)
5610-20 Foundations of Radiation Biology (4,4)
5780 Radiation Physiology (4)
6000 Doctoral Research and Dissertation (3-15)
6910 Seminar in Radiation Biology (2)

Graduate School of Social Work (905)

Ben P. Granger, Dean
Betty J. Cleckley, Associate Dean
Lou M. Beasley, Branch Director, Nashville
Roger M. Noe, Branch Director, Knoxville
M. Kate Mullins, Branch Director, Memphis

Professors:
B. P. Granger (Dean), Ph.D. Brandeis; M. H. Bloch, M.S. Ohio State; R. C. Bonovich, D.S.W. Washington (St. Louis); G. W. Fryer, Ed.D. Columbia; G. McLarren (Emeritus), M.S.S.W. Tennessee; K. M. McMillan, Ph.D. Chicago; R. M. Noce, D.S.W. Tulane; B. Orchard (Emeritus), M.S.W. Western Reserve; S. W. Spencer (Emeritus), M.S. New York School of Social Work.

Associate Professors:
G. W. Ayres, D.S.W. Tulane; L. M. Beasley, Ph.D. Denver; W. J. Bell, D.S.W. Tulane; J. R. Cates, Ph.D. Michigan; B. J. Cleckley, Ph.D. Brandeis; C. T. Cauthers, D.S.W. Tulane; J. C. Edwards, Ph.D. Southern Illinois (Carbondale); D. M. Feil, Ph.D. Pittsburgh; R. K. Green, J.D. Tennessee; C. F. Hariston, Ph.D. Western Reserve; H. Hayama, D.S.W. Pennsylvania; P. Landon, Ph.D. Denver; E. K. Marshall, Ph.D. St. Louis; A. E. Moses, D.S.W. California (Berkeley); R. B. Rowan, Ph.D. Arizona; P. R. Tate, Ph.D. Brandeis; H. H. Vaught, M.S.S.W. Tennessee; A. R. Wachter, M.S.S.W. Tennessee; C. S. Wilks, Ph.D. St. Louis; P. G. Zarbock, M.S.S.W. Wisconsin.

Assistant Professors:
P. M. Campbell, M.S.S.N. Tennessee; M. Cetingok, Ph.D. Washington; J. Charing, M.S.S.W. Tennessee; J. C. Collier, M.S.W. Tulane; H. P. Coyle, Ph.D. Western Reserve; I. C. Faust, M.S.S.W. Tennessee; A. R. Ford, M.S.W. Atlanta; V. A. Gates, M.S.S.W. Tennessee; W. D. Harrison, Ph.D. Minnesota; J. Jennings, Ph.D. Michigan; D. C. Johnston, M.S.W. California (Berkeley); G. Lowry, M.S.S.W. Tennessee; J. R. Michael, M.S.W. Ohio State; M. P. Strong, M.S.W. Tulane; J. F. Thompson, Ph.D. Rutgers.

The University of Tennessee School of Social Work is a fully accredited two-year graduate professional school, with a program (thesis or non-thesis option) leading to the degree of Master of Science in Social Work. The full two-year curriculum is offered in all three branch locations.

The School also offers a Doctor of Philosophy degree with a major in Social Work. This newly approved Ph.D. program will begin Fall Quarter 1983.

A special bulletin describing the facilities, admission, fees, and degree requirements is obtainable from The School of Social Work, 2014 Lake Ave., Knoxville, Tennessee 37996-3910.

Courses

5000 Thesis (1-15)
5002 Non-Thesis Graduation Completion (3-15)
6910 Seminar in Radiation Biology (2)

Life Sciences

Coordinating Council:

The programs leading to the M.S. and Ph.D. degrees in Life Sciences are interdepartmental and intercollegiate programs which augment the programs of individual departments.

The graduate program in Life Sciences supports studies and research in the following concentrations: animal physiology, cellular and molecular biology, environmental toxicology, ethology, plant physiology/biochemistry, and reproductive and developmental biology.

Students interested in any of these areas should contact either the chairperson or the director of the area of interest. For complete information, refer to the Graduate Catalog.

Graduate School of Planning (782)

D.A. Johnson, Director

Professors:

Assistant Professor:
G. E. Bowen, M.A. George Washington.

Assistant Professors:
D. Arpelt, Ph.D. Cornell; P. Fisher, Ph.D. Florida State; A. Lovel, Ph.D. Missouri.

The Graduate School of Planning offers a two-year graduate course leading to a degree of Master of Science in Planning.

UNDERGRADUATE

4100 Survey of Planning (3) History of city development and of planning with special attention to the U.S. experience in urban and other levels of planning. State of the art, the process, the comprehensive plan, and the implementation devices. Planning issues in society. Not for credit for Master of Science in Planning degree. (Same as Urban Studies 4100.)

GRADUATE

5000 Thesis (1-15)
5002 Non-Thesis Graduation Completion (3-15)
5005 The Planning Process (3)
5040 Communications for Planners I (1)
5045 Communications for Planners II (1)
5050 Communications for Planners III (1)
5100 Theory of Planning (3)
5110 Introduction to Planning (4)
5130 Planning Research Methods I (3)
5135 Planning Research Methods II (3)
5141 Statistics for Planners (4)
5145 Library Research for Planning (1)
5160 Planning and Utilities (3)
5170 Planning for Historic Preservation (3)
5180 Planning Analysis and Forecasting (4)
5230 Urban and Site Design (3)
5235 Urban and Site Design (3-6)
5270 Planning and Transportation (3)
5280 Planning Methods (6)
5300 Regional Planning (3)
5310 State Planning (3)
5340 Implementation (3)
5360 New Towns (2)
5380 Housing (3)
5390 Futures (3)
5410-20-30 Special Topics in Planning (1-3, 1-3, 1-3)
5435 Planning and Government (3)
5440 Planning and Land Use Controls (4)
5455 Urban Revitalization (3)
5460 Planning Administration (2)
5465 Planning and Property Development (3)
5500 Synthesis (9)
5670 Social Planning (2-3)
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<td>5081</td>
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**Space Institute**

Kenneth E. Harwell, Dean
Arthur A. Mason, Associate Dean

**Professors:**
- G. W. Braun (Emeritus), Ph.D. Goettingen; L. W. Crawford, Ph.D. Cincinnati; J. B. Dicks, Jr., Ph.D. Vandebilt; W. F. Donaldson, Ph.D. Texas; W. Frost, Ph.D. Washington; B. H. Goethart (Emeritus), Ph.D. Technical University of Berlin; K. E. Harwell, Ph.D. California Institute of Technology; E. C. Hussebchmann, Ph.D. Texas; M. Kurosaka, Ph.D. California Institute of Technology; A. A. Mason, Ph.D. Tennessee; M. K. Newman (Emeritus), Ph.D. Columbia; T. Paludan, Ph.D. Denver; K. C. Reddy, Ph.D. Indian Institute of Technology (India); F. Shahrokh, Ph.D. Oklahoma; C. H. Weaver (Dean, Space Institute: Vice President for Continuing Education), Ph.D. Wiscolin, P.E.; M. A. Wright, Ph.D. Wallets; J. M. Young, Ph.D. California Institute of Technology; V. C. Wil, Ph.D. California Institute of Technology; R. L. Young, Ph.D. Northwestern, P.E.

**Associate Professors:**

**Assistant Professors:**
- B. Antar, Ph.D. Texas; J. M. Carter, Ph.D. Missouri; J. E. Caruthers, Ph.D. Georgia Institute of Technology; R. D. Joseph, Ph.D. Case Institute of Technology; T. C. Powell, Ph.D. Kentucky; V. K. Smith, III, Ph.D. Georgia Institute of Technology.

*Alumni Distinguished Service Professors*

The Institute is an interdisciplinary institute of graduate study and research offering academic programs leading to the M.S. and Ph.D. degrees in selected areas of engineering and the aerospace and physical sciences. Further information concerning the Institute may be obtained from the Dean, The University of Tennessee Space Institute, Tullahoma, TN 37388.

**Aviation Systems (169)**

The University of Tennessee Space Institute offers a program leading to the Master of Science with a major in aviation systems. The aviation systems program is designed for those who possess bachelor's degrees in engineering or science and who wish to study under a "systems philosophy" toward careers in research and development or administration in various phases pertinent to aviation. The program features 18 quarter hours of major field credit in various aspects of aviation systems, six or more quarter hours of credit in each of the areas of research development and administration, and electives which permit further specialization in other areas.

**Courses**

- 5000 Thesis (1-15)
- 5070 Airports and the Community (3)
- 5080 Collection and Distribution (3)
- 5090 Governmental Policies for Aviation (3)
- 5100 Project in Aviation Systems (3)
- 5210-20 Experimental Flight Mechanics (3,3)
- 5970 Special Topics In Aviation Systems (3)

**Transportation Center**

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

Associate Directors:
- M. S. Bronzini, Ph.D. Pennsylvania State, P.E.
- P. B. Middendorf, Ph.D. Tennessee.

**Water Resources Research Center**

William F. Brandes, P.E., Director

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 pursuing water resources research programs needed by 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 fields relating to water resources and to encourage the entry of promising students into careers in these fields.
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 for the first time to offer instruction in agriculture. This later was expanded to include research for the development of new knowledge and extension for dissemination of such knowledge to rural people. Today, the Institute has four main divisions: College of Agriculture, College of Veterinary Medicine, Agricultural Experiment Station, and Agricultural Extension Service. In addition to agriculture and veterinary medicine, the Institute conducts research and extension programs in home economics.

Agricultural Experiment Station

Dorsey M. Gossett, Dean
Thomas J. Whatley, Associate Dean
John I. Sewell, Assistant Dean

The Agricultural Experiment Station was established in 1887 by an act of Congress known as the Hatch Act. The purpose of the Experiment Station is to promote fundamental and applied research on all problems primarily affecting the people of Tennessee, but also having national and international implications. The research program embraces studies of the productivity of soils, plants, animals, other capital and people and the combination of these resources necessary to maintain a viable agriculture. Specific research projects relate to development of new and improved crop varieties, insect, disease, and weed control methods, cultural and harvesting techniques, and improved genetics, nutrition, physiology, and management of livestock. Other studies deal with various aspects of processing and distributing food and fiber, consumer preferences, food safety and nutritional needs and maintenance of institutions to serve people.

The results of investigations are carried to the clientele in the form of bulletins, circulars, and reports through the Agricultural Extension Service, and the state educational system through the Colleges of Agriculture and Education.

Headquarters as well as the Main Station of the Agricultural Experiment Station are located at Knoxville. Eleven branch stations are located across the state. These stations are essential as research laboratories to test the performance of crop and livestock enterprises grown under different soil, climatic, and environmental conditions. The locations of the Branch Stations are as follows:

- Amos Plantation near Grand Junction includes 18,500 acres (about 10,000 acres in forest). The resources are held in trust by the Hobart Ames Foundation for use by the Institute of Agriculture. Large scale experiments involve forestry, farm management, crop production, and genetics and management of beef cattle and swine.
- Dairy Experiment Station near Lewisburg is operated in cooperation with USDA/SEA/AR. Major emphases are genetics, physiology, nutrition, and management of Jersey cattle. Production, handling and preservation of feed for dairy cattle are also being evaluated along with waste management systems.
- Forestry Experiment Stations and Arboretum at Oak Ridge, Tullahoma, and Wartburg. The 250-acre arboretum at Oak Ridge places emphasis on woody plants. Research in forestry studying genetics, species adaptation, fertilization, and other management practices is under way on the adjoining land. The Cumberland forest consists of two tracts of land in Morgan and Scott counties. Research at this location deals with many of the forest problems in the Cumberlands including strip-mine reclamation. The Highland Rim Forestry Station is located near Tullahoma. Research at this location deals primarily with tree improvement through genetics and also management problems associated with the forest of the Highland Rim.
- Highland Rim Experiment Station near Springfield emphasizes research on field crops and beef cattle. A major thrust is on the development and culture of improved dark-fired tobacco varieties. Other research involves problems associated with other agronomic crops, horticultural crops, forages produced on the Highland Rim, and management of beef cattle.
- Middle Tennessee Experiment Station near Spring Hill is representative of high-phosphate Central Basin soils. Research studies are underway with agronomic crops, vegetables, fruits, ornamental horticulture, beef cattle, and dairy cattle of the Holstein breed.
- Milan Experiment Station is located in West Tennessee. Research emphases are production problems and mechanization of corn, cotton, and soybeans. Minimum tillage and other approaches to reduce soil erosion are a major thrust at this location.
- Plateau Experiment Station near Crossville consists of three farms. Studies with beef cattle, and agronomic and vegetable crops provide information about results to be expected under the cooler, more humid climate and special soil conditions of the Cumberland Plateau.
- Tobacco Experiment Station is located near Greeneville. Extensive research on all phases of burley tobacco is in cooperation with USDA/SEA/AR. In addition, research is underway with beef cattle and other field crops.
- UT Martin—The research farm, adjacent to the UT Martin campus, is used for both research and teaching. The research staff at Martin, jointly employed by the Experiment Station and the School of Agriculture, cooperate with other station personnel in planning and conducting research on field crops, beef cattle, dairy cattle, and swine. Emphasis is on problems of importance to the northwestern part of the state.
- West Tennessee Experiment Station is located at Jackson. Major emphases are all phases of production on agronomic crops produced in the western part of the state. In addition, research deals with problems associated with fruit and vegetable production and dairy production. The USDA/SEA-AR cooperates with research on the soybean cyst nematode.

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Agricultural Extension Service
M. L. Downen, Dean
Troy W. Hinton, Associate Dean
Mildred F. Clarke, Associate Dean
B. G. Hicks, Assistant Dean

The Agricultural Extension Service serves the entire state of Tennessee. This educational service of the Institute of Agriculture is active in every county extending information on agriculture, home economics, and related subjects to farm families and other citizens.

This educational organization was established July 1, 1914, by an act of Congress commonly known as the Smith-Lever Act. Staff members of the Agricultural Extension Service use a wide range of methods—farm and home visits, educational meetings, field demonstrations, publications, and mass media—in providing educational programs for people who do not have the opportunity to enroll in resident courses of instruction at colleges.

Extension staff members develop and carry out programs to meet the specific needs of the residents of their counties. They work with both adults and youth. Educational activities for boys and girls are carried out through 4-H Clubs which are organized in schools and in communities.

County, state, and federal governments cooperate in carrying out the Agricultural Extension Service program. The United States Department of Agriculture, the State of Tennessee, and each county government provide the financial support. Any county which appropriates funds for the program may have an office located there to serve its residents. Most offices are located in county seat towns. Headquarters for the Agricultural Extension Service is at Knoxville and district administrative offices are located in Cookeville, Knoxville, Chattanooga, Nashville, and Jackson.

As a distinct administrative unit of the Institute of Agriculture, the Agricultural Extension Service works closely with the other units of the Institute—the Agricultural Experiment Station, the College of Agriculture, the College of Veterinary Medicine—in providing a total program of research, instruction, and extension for developing the agriculture of the state.

College of Agriculture
O. Glen Hall, Dean

Curricula in Agriculture

Broad opportunities for individuals to prepare for a future in agriculture, forestry, and wildlife and fisheries science are offered in the College of Agriculture. The college provides curricula leading to the degrees of Bachelor of Science in Agriculture, Bachelor of Science in Agricultural Engineering, Bachelor of Science in Forestry, and Bachelor of Science in Wildlife and Fisheries Science.

The professional degree program in agricultural engineering requires strong support from the College of Engineering and is fully accredited by the Accreditation Board for Engineering and Technology. The forestry curriculum is fully accredited by the Society of American Foresters.

A pre-professional curriculum in veterinary medicine is offered in the college. This program is designed to prepare students for admission to the College of Veterinary Medicine located on the Knoxville campus. Students pursuing programs leading to the degree of Bachelor of Science in Agriculture major in one of several specialized areas of agriculture offered in the college. These major areas are ages, agricultural economics and rural sociology, agricultural education, agricultural mechanization, animal science, food technology and science, ornamental horticulture and landscape design, and plant and soil science. Specific courses required for each of these areas are given under the departmental headings in this section of the catalog. A student must complete the curriculum outlined by the department in which the student is majoring in order to receive a degree. In all areas of specialization, particular emphasis is placed upon the sciences as a background for agricultural instruction; other courses are included to provide a liberal education. In all subject matter departments there is the opportunity to select elective courses appropriate to the educational objectives of individual students. The choice of electives in each curriculum should be made with the guidance of the faculty adviser.

All academic and general requirements of the University as stated in the front section of this catalog must be met by agricultural students, and they must complete the requirements in one of the organized curricula. Students transferring into the College of Agriculture from other than the UTK campus must have a grade point average of 2.0. Each curriculum leading to the degree of Bachelor of Science in Agriculture includes the requirements of the basic curriculum for agriculture. For this degree, the minimum requirement is 198 quarter-hour credits. A minimum of 45 hours in agricultural courses is required. For the Bachelor of Science in Forestry and the Bachelor of Science in Wildlife and Fisheries Science, the minimum requirement is 198 quarter-hour credits. For the degree of Bachelor of Science in Agricultural Engineering, the minimum requirement is 199 quarter-hour credits.

The use of transfer credit in technical agriculture appropriate to each organized curriculum will be considered and approved by the adviser of that curriculum and the dean of the College of Agriculture. When desirable, validating or proficiency examinations may be requested to determine competence in an area and to avoid repetition. Such examinations should be taken during the first quarter in residence and must be conducted under the supervision of the head of the department in which the course is offered.

A minimum of 27 quarter hours of upper-division technical agriculture appropriate to a specified major requirement, and approved by the major adviser, is required in residence to fulfill the requirements of baccalaureate degrees offered in the college.

Satisfactory/No Credit Courses

Students may include a maximum of 30 hours in non-directed electives taken on a satisfactory/no credit basis in the total hours required for graduation.

Graduate Study in Agriculture

MAster of sciencE PROGRAMS

Programs of graduate study leading to the Master of Science degree are offered in all departments in the College of Agriculture. See the Graduate Catalog for details.

A Winter Short Term for Agricultural Extension personnel and other professional agricultural workers is held each year during the last half of the winter quarter. Those attending must be accepted by the Graduate School. Students may take three courses and earn nine quarter hours of graduate credit toward the Master of Science degree. A number of courses are offered annually in agricultural extension education and in other departments in the Colleges of Agriculture and Home Economics. Additional information and a five-year schedule of course offerings may be obtained by writing to Professor R. S. Dotson, Head, Department of Agricultural Extension Education, College of Agriculture, Knoxville.

DoCTORAL PROGRAMS

Graduate study programs lead to the Doctor of Philosophy degree in animal sciences, agricultural economics, agricultural engineering, food technology and science, and plant and soil science.

General requirements and policies of the Graduate School of The University of Tennessee relating to the Graduate School, residence, language, research, examination, and admission to candidacy shall apply to these programs and are described in the Graduate Catalog.

Facilities

The College of Agriculture uses the facilities on the agricultural campus, on University farms located near Knoxville, and on the main University campus. On the agricultural campus are found the main agricultural building, Morgan Hall; the Agricultural Engineering Building; McCord Hall; the Dairy Products Building; McLeod Food Technology Building; C. E. Brehm Animal Sciences Building, which includes a large pavilion; Ellington Plant Sciences Building which houses the plant science departments; and greenhouses for teaching and research. The buildings which have been erected recently provide facilities comparable to the best in the country for the departments which they serve.

Four farms adjacent to or within eight miles of the agricultural campus are used both for instructional and experimental purposes. Morgan Farm (80 acres), Cherokee Farm (550 acres), Plant Science Farm (212 acres), and a livestock farm (510 acres) provide excellent field laboratory facilities for instructional programs offered in the College. Cherokee Woodlot (120 acres), the Oak Ridge Forest (2,260 acres), and Ames Plantation (6,000 acres) of forests and excellent facilities for field work in forestry.

Transportation by bus is provided for classes of agricultural students from the agricultural campus to the University farms and to other points of interest where instruction may be given. Transportation by bus is provided between the agricultural campus and the main University campus so that students may make a change between classes without using incovenience.

Satisfactory/No Credit Courses

Students may include a maximum of 30 hours in non-directed electives taken on a
The facilities of the University on the main campus are available to agricultural students. Courses in the basic sciences, business, communications, engineering, etc., are open to agricultural students and are taught on the main University campus.

Selection of Curriculum

Agricultural students who have determined their area of special interest may choose the curriculum most suitable to their needs which they register as freshmen, and an adviser from the department will be assigned for their counseling. It is not necessary, however, that freshman students select their curriculum until the end of the first year. Those who are in doubt will be assigned a special adviser to assist them in exploring agriculture and to guide them in the planning of appropriate courses of study for the freshman year. When they choose a curriculum, an adviser will be assigned from that department.

Students with special interest in science, business, or production technology should consult the adviser about selection of appropriate electives. A foundation for advanced study beyond the baccalaureate degree may be established in any curriculum if appropriate electives are included; also, courses may be elected in any of the curricula leading to the degree of Bachelor of Science in Agriculture, in preparation for employment with the Agricultural Extension Service. For this purpose, both the major-curriculum adviser and the agricultural-extension adviser should be consulted.

A very careful choice of electives enables a student with an above average academic record to complete a double major by satisfying all the requirements in each curriculum. For this purpose, the advisers of each curriculum should be consulted, the dean of the College of Agriculture should be informed, and each adviser should maintain a complete record of the student's progress.

Optional Minors: Agricultural students may have single or multiple minors in agriculture or in other colleges recorded on their transcripts without regard to course overlap among majors and minors. A minor in a department of the College of Agriculture requires a minimum of 24 credit hours in courses numbered 2000 and above with the majority of credits in courses numbered 4000 level. At least 12 of the credit hours required for the minor must be completed at UTK. Specific requirements are listed by each department offering a minor. Minors offered in the College of Agriculture are open to students of other colleges who have the approval of their advisor and department.

Students who transfer to the College of Agriculture from another institution, or from another college in UTK, should consult the dean if in doubt about the curriculum they wish to follow and for assignment to an appropriate adviser. Requests for substitutions or special examinations should be submitted for consideration first quarter of study in the selected curriculum.

BASIC CURRICULUM FOR AGRICULTURE

All students except those majoring in ornamental horticulture and landscape design working for a degree of Bachelor of Science in Agriculture will include in their course of study the following minimum requirements.

The sequence and the selection of courses not specified will be guided by the adviser.

**Agriculture 1110. Introduction to Social Science for Agriculture**

**Agriculture 1120. Introduction to Agricultural Engineering**

**Agriculture 1130. Animal Science for Agriculture**

**Agriculture 1140. Plant Science for Agriculture**

**Agriculture 1150. Food Technology and Science for Agriculture**

**Agricultural Science (courses listed in departmental curricula)**

**English and Communications.** *(English 1010 or 1011; 1020; 1031 or 1032 or 1033, Speech 2511, and 15 hours of 2000 level literature or communications)*

**Mathematics 1400-50-60. (general mathematics)**

**Biological Science.** *(entomology and plant pathology, biology, botany, microbiology, or zoology)*

**Physical Science.** *(Chemistry 1110-20-30 or 1510-20-30 and physics or geology)*

**Social Science and Humanities.** *(Economics 2110; 20 and electives, 12 hours—not more than one area)*

**Other Courses or Electives Hours Specified By Departments**

TOTAL: **198 hours**

This curriculum is designed to prepare students for employment in the rapidly expanding field of agricultural business. Recognition is given to the desire of many college graduates to continue to work with agriculture through many private and public services where major emphasis is in areas other than farm production. This program emphasizes particularly those capacities needed for the management phases of agricultural business. Course offerings in the College of Business Administration have been used freely in this curriculum.

Preparation is given for such work in crops, livestock and poultry marketing, fertilizer and feed business, cooperative business management, agricultural credit agencies, farm real estate and appraisal services, agricultural representatives with banks, public and private market analysis, agricultural journalism, and farm information services utilizing mass communications.

Minor in Agricultural Business consists of 30 credit hours including Economics 2110-20-30, Agricultural Economics 3120 or 3320, Agricultural Economics 4140 or Accounting 2110, selection of one or more courses from Agriculture 4210 or 4610, 12 hours of Agricultural Economics and Rural Sociology electives.

**Freshman**

Agriculture 1110-20; 30-40-50. **20**

**Sophomore**

Agriculture 2110-20; 2210-30; 2510-20; **20**

**Junior**

Agriculture 3110-20; 3210; **30**

**Senior**

Agriculture 4110-20; **30**

TOTAL: **90 hours**

The mathematics 1400-50-60 sequence may be necessary in some courses of study.

The following hours are recommended as possible electives:

Agricultural Science (courses listed in departmental curricula)

**Agricultural Economics**

**Accounting**

**Biological Science**

**Business Administration**

**Computer Science**

**Economics**

**English**

**Engineering**

**Geology**

**History**

**Humanities**

**Management**

**Mathematics**

**Philosophy**

**Physics**

**Psychology**

**Sociology**

**Speech**

**Statistics**

**Transportation**

**Total Credit Hours**

TOTAL: **198 hours**
AGRICULTURAL ECONOMICS AND RURAL
SOCIETY CURRICULUM
Advisers: Professor Martin; Associate Professors Brooker, McLemore, Mundy, Park, and Whipple

This curriculum is designed to provide students with training in the social sciences as well as in the physical and biological sciences and technical agriculture. Recognition is given to the desire of many college graduates to work in agriculture where the major emphasis is in farm production and related areas. Students are prepared for positions such as farm managers, county agricultural agents, managers of farm supply and purchasing firms, agricultural journalists, and farm loan officers. This curriculum also provides the necessary background for graduate work in agricultural economics.

**Freshman**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture 1110-20-30-40-50</td>
<td>20</td>
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<tr>
<td>Biology 1210-20</td>
<td>8</td>
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</tr>
<tr>
<td>English 1010 or 1011; 1020; 1031 or 1033</td>
<td>9</td>
<td>5</td>
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<tr>
<td>Mathematics 1450-50-60 or 1840-50-60</td>
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<td>8</td>
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<tr>
<td><strong>Sophomore</strong></td>
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<tr>
<td>Agricultural economics elective</td>
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<td>Biological sciences elective</td>
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<td>Chemistry 1110-20 or 1510-20 and Physics 1210-20 or Geology 1410-20</td>
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<tr>
<td>Agricultural Economics 3120</td>
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<td>Agricultural economics and rural sociology electives</td>
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<tr>
<td>Economics 3111-12-20 or Economics 3110-20 and 3 hours economics electives</td>
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<td>Non-departmental social science and humanities electives</td>
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<td>Rural Sociology 3420</td>
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<td>Electives</td>
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</table>

**TOTAL: 198 hours**

*One hour must be in PE.*

**Agricultural Engineering**

AGRICULTURAL ENGINEERING CURRICULUM
Advisers: Professors Luttrel, Bledsoe, and Henry. Associate Professors: Tompkins and Wilhelm.

The College of Agriculture, with the cooperation of the College of Engineering, offers a four-year curriculum leading to the degree of Bachelor of Science in Agricultural Engineering. The curriculum is fully accredited by the Accreditation Board For Engineering and Technology. Industry, government agencies, research and testing organizations, and foreign service offer employment opportunities to agricultural engineers.

The minimum requirements for admission include two units of algebra, one unit of geometry, and one-half unit in trigonometry. Students may remove deficiencies by registering for special classes during the first-year fall session.

The curriculum gives training in the fundamentals of engineering applied to problems of agriculture. In the senior year, the comprehensive design of systems and their components is emphasized.

Graduates may pursue careers in design, analysis, or development in the following special areas: agricultural power and machinery, agricultural structures and environment, electric power and processing, soil and water conservation engineering, and food engineering.

The curriculum provides for elective courses which can be taken in the student's area of interest. Students should check with their advisers each quarter regarding the selection of courses.

Students majoring in agricultural engineering are eligible to participate in the Engineering Cooperative Scholarship Program, Engineers' Day Program, and other student activities in the College of Engineering. They are also eligible for selection into Tau Beta Pi and Alpha Zeta. Agricultural engineering majors interested in the Cooperative Engineering Scholarship Program should consult with the head of the Department of Agricultural Engineering.

**Freshman**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
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<tbody>
<tr>
<td>Agriculture 1110-20-30-40-50</td>
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<tr>
<td>Biology 1210-20</td>
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<tr>
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<tr>
<td>Mathematics 1450-50-60 or 1840-50-60</td>
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<td>Biological sciences elective</td>
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<td>Chemistry 1110-20 or 1510-20 and Physics 1210-20 or Geology 1410-20</td>
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<td>Economics 3111-12-20 or Economics 3110-20 and 3 hours economics electives</td>
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<td>Statistics 3110</td>
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<td><strong>Senior</strong></td>
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<tr>
<td>Agricultural Economics 4140, 4320 and 4335</td>
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</table>

**TOTAL: 198 hours**

*An equivalent honor's course.
* If Mathematics ACT is less than 28, take Mathematics 1700 prior to 1840 (see adviser for alternate course schedule).
AGRICULTURAL MECHANIZATION CURRICULUM
Advisers: Professors Luttrell and Bledsoe

The agricultural mechanization curriculum is administered by the Department of Agricultural Engineering and leads to the degree of Bachelor of Science in Agriculture. The curriculum prepares students to apply principles, techniques, and systems of engineering, agricultural science, and business to the broad industry of agriculture. Agricultural mechanization courses encompass power and machinery, electrification and processing, structures and environment, and soil and water conservation. Students, with assistance from their adviser, may structure their program to obtain either a broad or a highly specialized education.

Graduates are employed in industry, government, and educational institutions generally in the areas of management, promotion, sales, and training related to agricultural products, materials, and services.

<table>
<thead>
<tr>
<th>Freshman</th>
<th>Hours Credit</th>
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</thead>
<tbody>
<tr>
<td>Agriculture 1110-20-30-40-50</td>
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<td>Mathematics 1540-50-60</td>
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<tr>
<td>Agricultural Mechanization 2110</td>
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<td>Agricultural Mechanization 2120</td>
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<tr>
<td>Animal Science 2810</td>
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<td>Journalism 2210</td>
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<td>Plant and Soil Science 2120</td>
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<td>Speech 2311</td>
<td>4</td>
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<td>English communications elective</td>
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<td>Junior</td>
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<td>Accounting 2110</td>
<td>3</td>
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<tr>
<td>Entomology and Plant Pathology 2310</td>
<td>4</td>
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<tr>
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<tr>
<td>Agricultural Mechanization 3120-30</td>
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<tr>
<td>Computer Science 1410 or Office Administration 2750</td>
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<td>Microbiology 2910-11</td>
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<tr>
<td>Plant and Soil Science 2320</td>
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<tr>
<td>Social science or humanities electives</td>
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<tr>
<td>Option electives</td>
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<tr>
<td>Electives</td>
<td>9</td>
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<tr>
<td>TOTAL:</td>
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</table>

| Senior | |
| Agricultural Economics 3410 or 3440 or 3610 | 3 |
| Agricultural Economics 4710 | 3 |
| Agricultural Mechanization 4120 | 1 |
| Agricultural Mechanization 4130 | 1 |
| Agricultural Mechanization 4310 | 1 |
| Agricultural Mechanization 4210-20 | 7 |
| Agricultural Extension 3110 | 3 |
| Food Technology and Science 3020 or 3840 or 4410 | 4 |
| Special science or humanities electives | 6 |
| Option electives | 6 |
| Electives | 11 |
| TOTAL: | 198 hours |

**Agricultural Extension Education**
Advisers: Professors Dotson, Dickson and Carter

No formal undergraduate curriculum is offered in agricultural extension education, but undergraduate courses are available as electives in each formal curriculum. Courses are designed to: (1) develop in prospective extension workers and other interested students an understanding of the functions, responsibilities, and techniques of the Cooperative Agricultural Extension Service, and (2) provide prospective extension workers with practical extension work experience in selected training counties. Graduate majors and minors are offered in agricultural extension education. Graduate courses are designed to develop in present extension workers and other interested students those competencies needed for improving the effectiveness of their work. Professor Dotson will give guidance for desired emphasis in agricultural extension education.

**Animal Science**
Advisers: Professors Barth, Lidvall, McLaren, Montgomery, Richardson, Shirley, Shrode; Associate Professors Backus, Hitchcock, Holloway, Masincupp, Robbins; Assistant Professors Heitmann, Katesh, Robbins, and Smalung.

This curriculum is designed to prepare students for leadership careers in livestock and in related industries. Swine, poultry, sheep, dairy, and beef cattle production and management may be involved, providing the opportunity for special or additional training in the dynamic livestock and husbandry technology (production). Through course selection, the student may prepare for general or livestock farming, management, business, or science, or elect the pre-veterinary courses preparatory for specialization. Elective selection permits special training for work with feed companies, meat animal, milk, egg, or poultry production, managerial or marketing groups, other educational agencies, supply and equipment business, agricultural extension services, agricultural communication, public relations, and various organizations associated with agriculture.

Students have the opportunity, through appropriate course selection, to obtain double majors by combining the animal science curriculum with another curriculum. Students majoring in the animal science curriculum may if they desire arrange to minor in various other curricula. The requirements for these minors shall be stipulated by the department supervising that particular curriculum. Students majoring in other curricula may opt to minor in animal science.

A minor in animal science consists of 28 credit hours including 2610, 2810, 3210, 3310, 3410, 3510 and one 3600 course and one 4800 course.

Students outside of the College of Agriculture should add Agriculture 1130-39. Requests for substitution of similar courses in biology or zoology will be considered on an individual basis. It is suggested that the 3600 and 4800 series deal with the same class of living organisms.

**Freshman**

| Hours Credit |
| Agriculture 1110, 1120 | 8 |
| Animal Science 2610, 2810 | 10 |
| Chemistry 1130 or 1530, or 3211-19 or 2230, or Biochemistry 3110, or Nutrition 3110 | 8 |
| Economics 2110-20 or 2130 | 6 |
| Microbiology 2910-11 | 4 |
| Plant and Soil Science 2130 | 3 |
| Physics elective | 4 |
| Speech 2311 and communications elective | 7 |
| Electives | 2 |

**Junior**

Non-animal science agricultural electives | 6 |

Animal science (core requirement: Animal Science 3210, 3220, 3230, 3330, 3410, 3420, 3510) | 24 |

Directed electives—evaluation | 3 |

Communications elective | 2 |

Electives | 9 |

Humanities-social science electives | 6 |

Senior

Non-animal science agricultural electives | 6 |

Animal Science 4910 (core requirement) | 2 |

Directed electives | 27 |

Humanities-social science electives | 27 |

TOTAL: 198 hours

1Or equivalent honors courses.

2Or appropriate experimental adviser.

315 hours must be taken in either the Business and Industry Option or in the Production and Processing Option.

**Agricultural Economics**

<table>
<thead>
<tr>
<th>Credits</th>
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<tbody>
<tr>
<td>1. Special science or humanities electives</td>
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<td>2. Option electives</td>
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<td>3. Electives</td>
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**Agricultural Mechanization**

<table>
<thead>
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<td>1. Special science or humanities electives</td>
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<td>Chemistry 1110-20</td>
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<td>Agriculture 1130</td>
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<td><strong>Second year</strong></td>
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<td>Chemistry 2319-29-39</td>
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<td>Physics 2210-20-29</td>
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<td>Economics 2110</td>
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<td>Speech 2311</td>
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<tr>
<td>Animal Science 2810-34; 2810-4; 3250; and 3300 and 3410</td>
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<td><strong>Third year</strong></td>
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<td>Biochemistry 4110-20</td>
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<td>Microbiology 2100-19</td>
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<td>2120</td>
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<td><strong>Social science electives</strong></td>
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<tr>
<td>Humanities electives</td>
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<td><strong>Animal science</strong> 3420, 3600 level evaluation (3 hrs), 4800 level</td>
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<td>production management (4 hrs)</td>
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</table>

Students with a strong math background may omit Math 1540 and start with 1520 or elect to take the 1840-50 series or 1841-51.

Courses required to meet the minimum of 12 hours of animal science for admission to the veterinary college.

Recommended elective for students with limited or no practical animal experience and required for those attempting to obtain a B.S. in Agriculture with a major in animal science in the regular program and is required for those accepted to UT College of Veterinary Medicine after three years and who wish to obtain the B.S. in Agriculture with a major in animal science after completion of the first year in the College of Veterinary Medicine (See below).

Animal science courses required for the 3 and 1 program to permit the student to receive a B.S. in Agriculture with a major in animal science at the end of the first year in the College of Veterinary Medicine.

For the student accepted at the end of the third year of pre-veterinary medicine and desiring to receive a B.S. in Agriculture with a major in animal science upon successful completion of the first year in The University of Tennessee College of Veterinary Medicine, the following are required, in addition to all of the courses above: Agriculture 1150 or equivalent food technology and science course, Plant and Soil Science 2130, or a mixture outside of animal science 6 hrs. (suggested Agricultural Mechanization 4160, Food Technology and Science 3300, Entomology and Plant Pathology 3210, Plant and Soil Science 3140).

Students wanting to complete pre-vet requirements, but wishing to major in a department other than animal sciences, should consult with the appropriate departmental adviser for a proper selection of electives.

**ANIMAL SCIENCE CURRICULUM WITH A PRE-VETERINARY OPTION**

This program is designed for students accepted by the UT College of Veterinary Medicine after the third undergraduate year who wish to obtain a B.S. in Agriculture with a major in animal science upon completion of the first year in the College of Veterinary Medicine.

The student will need to complete the requirements as established by the College of Veterinary Medicine. In addition, the student needs to complete the courses listed above, including Economics 2110-20 or 2130, and, under electives, complete Agriculture 1150 or equivalent food technology and science course; Plant and Soil Science 2130; agriculture other than animal science, six hours. (suggested: Agriculture Mechanization 4160, Food Technology and Science 3340, Entomology and Plant Pathology 3210, Plant and Soil Science 3140). In addition, the following general requirements must be met in order to meet certain rules of UTK and the College of Agriculture in granting degrees:

1. The last 45 hours of the three-year program must be taken at UTK.
2. At least 18 hours of upper-division technical agriculture must be taken at UTK.
3. The student must complete the first year in the UT College of Veterinary Medicine and with the substitution of appropriate courses from the first year and the completion of a minimum of 198 hours will be granted a B.S. in Agriculture with a major in animal science. It is the student's responsibility to complete the above requirements and to initiate the request for the degree.

**Entomology and Plant Pathology**

Advisers: Professors Southards, Hilty, Pless

No undergraduate curriculum exists in the Dept. of Entomology and Plant Pathology, but a program leading to the Master of Science degree with a major in entomology and plant pathology is available (see Graduate Catalog). Courses in economic entomology, plant pathology, soil microorganisms, and plant parasitic nematodes are available to agricultural students. The department is currently composed of two major disciplines: economic entomology and plant pathology.

The primary objective of offering a major at the graduate level is to provide training in those disciplines which deal with the natural hazards that are the major causes of losses in agricultural production. The training gives such a graduate the foundation necessary for coping with the myriad insect and plant disease problems that constantly threaten Tennessee's dynamic agriculture.

**Food Technology and Science**

Advisers: Professors Miles, Collins, and Jaynes; Associate Professor S. Melton; Assistant Professor Mount.

Food technology and science is the application of the sciences and engineering to the manufacture, preservation, storage, transportation, and consumer use of food products. Processing of raw food materials into consumer products by canning, freezing, dehydrating, fermenting, preserving, etc., is taught with emphasis on basic principles rather than on specific commodity procedures. Therefore, men and women who plan to enter food technology must have an interest in the sciences, particularly chemistry, biology, microbiology, and physics.

This curriculum is designed to prepare students for a professional career in positions in the food industry such as food microbiologist, food chemist, quality evaluation and control supervisor, plant foreman and manager, packing specialist, ingredients specialist, etc. The Model Curriculum of the Institute of Food Technologists was used as a guide in developing this curriculum. A special problem course provides opportunity for practical training in food processing plants and laboratories or federal and state laboratories.

**Freshman**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
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<tbody>
<tr>
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<tr>
<td>Microbiology 3810</td>
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<tr>
<td>Nutrition 3020</td>
<td>3</td>
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<tr>
<td>Plant and Soil Science 3310</td>
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<tr>
<td>Statistics 3310</td>
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<tr>
<td>Humanities-social science electives</td>
<td>3</td>
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<tr>
<td><strong>Senior</strong></td>
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<tr>
<td>Food Technology and Science 4010</td>
<td>3</td>
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</tbody>
</table>
Food Technology and Science 4200, 4300 4810, 4920... 14
Food Science 4010... 3
Electives... 30
TOTAL: 198 hours

Upon completion of the four-year forest resource management curriculum including the recreation option, the degree of Bachelor of Science in Forestry (BSF) is awarded. Minor in Forestry consists of 24 credit hours from any courses having a Forestry designation. Prerequisites will not be waived.

Forestry, Wildlife and Fisheries
Advisor: G. Schneider

The department offers two majors. The major in forestry leads to the degree Bachelor of Science in Forestry and the major in wildlife and fisheries science leads to the degree Bachelor of Science in Wildlife and Fisheries Science. The forestry major has three options, Forest Resource Management Option, Forest Recreation Option, and Wood Utilization Option.

FORESTRY

The profession of forestry is the science, art, and practice of managing and using for human benefit the natural resources which occur on and in association with forest lands. Benefits are derived from the multiple resources of the forest: wood, water, wildlife, recreation, forage, and environmental amenities. Foresters are managers of these resources. Thus, our principal instructional objective is to provide the broad education needed to deal effectively with the complex of forest resources.

FOREST RESOURCE MANAGEMENT OPTION

The Forest Resource Management Option provides an opportunity to obtain an education related to the management of the broad spectrum of woodland resources. In addition to the core of required courses there are about 30 elective credit hours for broad studies of specialized training in one or more areas of forestry. These areas and examples of related fields of study include:

Forest Biology—plant physiology and morphology, ecology, genetics, tree nutrition, and forest pathology.

Forest Business Management—economics, accounting, finance, marketing, management science.

Forest Economics—economics, business administration, social science.

Forest Engineering—mathematics, computer science, photogrammetry.

Forest Inventory—mathematics, statistics, computer science, photogrammetry.

Forest Recreation—natural and social sciences.

Wildlife Management—ecology, zoology, botany.

The University has over 21,000 acres of forest land available for teaching, research, and demonstration. The Tennessee Valley Authority, Great Smoky Mountains National Park, and Cherokee National Forest provide additional land and facilities available to the teaching program. Contained within these areas is a wide variety of tree species and forest types ranging from elements of the boreal forest to southern pines and hardwoods.

Lumber, pulp and paper, and other wood-using industries cooperate in conducting tours and demonstrating industrial processes.

FORRESTER 2010-20-20-30, 4200, 4300, 3240... 17
Electives... 16-25

TOTAL: 198 hours

FOREST RECREATION OPTION

The Forest Recreation Option provides students with opportunities to obtain an education in preparation for professional positions in the planning, development, interpretation, and management of private and public forested lands for recreational purposes. Students are also exposed to the basic philosophy and principles associated with leisure time and the relationship of forest resources to the constructive utilization of leisure time.

Freshman

Botany 1110-20 or Biology 1210-20... 3

English 1010 or 1011; 1020; 1031 or 1032; 1033... 9

Forestry 1620... 3

Forest 3000... 1

Mathematics 1700, 1841-51... 12

Physical 1210 and 1320 or 2210... 220... 4

Speech 2311... 4

Electives... 9

Sophomore

Chemistry 1510-20... 3

Computer Science 1410... 3

Economics 2110-20... 6

Forestry 3040... 1

Forestry 3000... 1

Forest 3050 or Ornamental Horticulture and Landscape Design 3810 or Botany 3030... 3-4

Accounting 2110 or Political Science 3565 or 3566... 3-4

Sociology 1510... 4

Sociology 3130 or 3010 or Rural Sociology 3240 or 3210... 4

Psychology 2500... 4

Plant and Soil Science 2310... 4

Jr. Social 2210... 3

Electives... 3-4

Junior

Forestry 3020, 3110, 3240, 3250, 3220, 4030... 13

Wildlife and Fisheries Science 3230... 3

Plant and Soil Science 3610... 3

Forest 3120 or Entomology and Plant Pathology 3140 or 3120... 3

Agricultural Mechanization 2130... 3

Speech 3011 or 3021 or Journalism 3710... 3

Recreation 3140... 3

Electives... 18

Senior

Forestry 3210, 4210, 4230, 4240, 4230, 20

Planning 4100... 3

Ornamental Horticulture and Landscape Design 4160... 4

Forestry 4450... 3

Electives... 16-21

TOTAL: 198 hours

The wood utilization option trains students for careers in forest products industries such as lumber, furniture, pulp and paper, or wood composites. Coursework is oriented toward the application of wood technology and engineering principles to wood processing. A sound background in basic sciences is required.

Demand for forest products is forecast to increase. This increased demand should continue to provide excellent employment opportunities for forest products graduates.

Freshman

Botany 111020... 3

English 1010 or 1011; 1020; 1031 or 1032; 1033... 9

Forestry 1620, 3000... 4

Mathematics 1840 or 1841; 1850; 1860... 12

Physics 2110-20... 6

Speech 2311... 3

Electives... 9

Sophomore

Chemistry 1510-20-30... 12

Economics 2110-20... 6

Mathematics 2840-50... 8

Basic Engineering 1310, 1410... 6

Statistics 3450-60... 6

Industrial Engineering 3230... 3

Computer Science 1410... 3

Junior

Entomology and Plant Pathology 3140... 4

Forestry 3220, 3220, 3110-20, 3220... 17

Industrial Engineering 3610-20-30, 3430-40... 15

Engineering Graphics 4140-20... 6

Electives... 9

Senior

Industrial Engineering 4060, 4200, 4520... 10

Entomology and Plant Pathology 3210... 4

Forestry 3240, 4500-50-60... 15

Accounting 2210... 3

Technical Electives... 11-17

Electives... 6

TOTAL: 198-204
Ornamental Horticulture and Landscape Design

Adviser: Professor Crater

Human needs go beyond food, clothing, and shelter. We require a degree of control over environment, especially immediate surroundings. Ornamental plants and their uses are recognized as part of the environment, hence a curriculum in ornamental horticulture and landscape design. The four areas of study within this curriculum are floriculture, nursery management, turfgrass management, and landscape design.

The area of floriculture includes the science of producing flowering plants in field and greenhouse, and the art and science of using these plants for the benefit of humans. Opportunities are available as greenhouse managers, floral designers, retail salespersons, garden writers, research workers, and teachers.

Nursery management deals with the growing of trees, shrubs, and other ornamental plants for sale. Skills necessary to be a nursery manager include horticultural knowledge and interpersonal skills. Students in this area are prepared to work in nurseries, garden centers, botanical gardens, and arboreums. They may find opportunities also in research, teaching, writing, sales, and landscape maintenance.

Turfgrass management includes all aspects of growing and caring for turfgrass, whether it be golf greens or home lawns. The increasing number of golf courses and home lawns and the emphasis on better quality make new opportunities for turfgrass managers. Such opportunities include golf course superintendents, park and recreational turf managers, operation of a lawn maintenance business, producer and seller of sod, research, teaching, and sales.

Landscaping means modifying the outdoor environment for the greatest use, comfort, and enjoyment. It not only means the use of trees, shrubs, and other plant material to accomplish this goal, but it also means having an understanding of the requirements for working, recreation, and housing. Emphasis in the area of landscape design is on plant material and design courses. Opportunities in this area include landscape nursery operation, landscape design, garden center operation, allied, sales highway landscaping, park development, research, teaching, and writing.

Minor in Ornamental Horticulture and Landscape Design consists of 27 hours as follows: required courses: 3030, 3110, 3210, 3610, and at least 13 hours of upper-division OHLD electives. Prerequisites will not be waived.

Total: 198 hours

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**Institute of Agriculture**
Agricultural Mechanization 3210, 3020, 3040, and at least 14 elective hours to be taken by electing two (2) courses from Group A and two (2) courses from Group B. 3610 will not be accepted as a course to meet minor requirements.

Each student selecting this major must complete the basic curriculum for agriculture and fulfill the major group requirements. The curriculum in plant and soil science showing the manner in which the required courses may be taken by years is as follows:

**Freshman**
- Agriculture 1110-30-40-50... Hours Credit 16
- Lower-division biological sciences 12
- English 1010 or 1011; 1020; 1031 or 1032 or 1033 9
- Mathematics 1540-50-60 12

**Sophomore**
- Mathematics 110-20-30 or 1510-20-30 12
- Economics 2120-29 6
- Agriculture 1220 4
- Plant and Soil Science 2130 4
- Speech 2311 4
- Physics 1110 4
- English and communications electives 9
- Social science or humanities electives 9
- Junior
  - Social science or humanities electives 3
  - Biological or physical science electives 12
- Entomology and Plant Pathology 3150 12 or 3010 or 4010 4
- Chemistry 2230 or 3211-19 or Nutrition 3110 4
- Animal Science 3310 or 3320 3
- Plant and Soil Science 3220 or 3040 3
- Plant and soil science electives 12
- Non-departmental agricultural electives 4
- Electives 4
- Botany 410 4
- Plant and Soil Science 4910 4
- Plant and Soil Science electives 10
- Electives 35

**TOTAL**: 198 hours

*Or equivalent honors courses.
*Mathematics 1840-50-60 are suggested for students with high mathematics scores.
*Student should consult with departmental adviser for suggested courses.
*Only courses taught outside the College of Agriculture will fulfill this requirement.
*Plant and soil science electives must include at least three courses from Group A and three from Group B listed below. Plant and Soil Science 3610 can be counted in only one of the groups.

**GROUP A**
- Plant and Soil Science 3110, 3220, 3610, 4110, 4320
- Botany 3210, 3410, 3610, 3810, 3520, 3610, 3710, 4120

**GROUP B**
- Plant and Soil Science 3120, 3410, 3610, 3810, 3520, 3610, 3710, 4120

In addition to the specific courses, students can specialize in areas of their interest by selecting courses from the following groups. These lists are suggestive only. The departmental adviser will guide the student according to the student's individual objective.

**Agriculture**
- Agricultural Economics 4120, 4140, 4330; Agricultural Mechanization 3210, 4210; Animal Sciences 2810, 3410, 3510; Food Technology and Science 3840; Rural Sociology 3420.

**Business**
- Accounting 2110-20; Business Law 4110-20-30; Economics 2130; Finance 3110; Management 3010; Marketing 3110-20; Office Administration 4310-20.

**Science**
- Biology 3110-20-30; Botany 3030, 4310; Chemistry 2140-49, 3210-32; 3219-59; Geology 1410-20-30, Physics 1220-30.

**Credit for Cooperative Work**
A maximum of nine quarter hours of credit may be earned by supervised employment on approved jobs. To receive credit, the student must receive the recommendation of the employer, must present a satisfactory written report, and must receive a passing grade from the University. Employment periods shall be not less than 12 weeks. At least one quarter must be spent in study on the campus between periods of employment. Prerequisites: Junior classification, with grade point average of 2.2 or above, and permission of the department head and the dean of the College of Agriculture to register. Three credit hours each quarter.

**Short Courses and Special Events**
Practical short courses in agriculture are offered for those who desire special training in certain fields. Some of these short courses are held on the Knoxville campus, others at the Buford Ellington 4-H Club Training Center, Milan, Tennessee, or appropriate research stations. The Resident Instruction, Extension and Extension staffs join in teaching these special courses annually, and others are offered to meet immediate needs for special instruction. These are service courses and do not carry college credit.

In-service training or provided special groups, such as the teachers of vocational agriculture, through short-term courses which are offered at convenient locations in the state.

A special occasion known as Varsity Visit is held during the year. Delegates from all Future Farmers of America chapters are invited to spend a day on the agricultural campus with their advisors. Approximately 500 attend and inspect each department of the College.

**Departments of Instruction**
Interdepartmental Offerings

**Agriculture (088)**

1110 Introduction to Social Sciences for Agriculture
- Social sciences as they relate to agriculture—agriculture in the economy; tools of social science analysis applied to agricultural problems; agriculture, its development, relation to man, industry, and government. 4 hrs. and 1 lab.

1120 Introduction to Agricultural Engineering
- Agricultural power and machinery fundamentals, agricultural structures, soil and water conservation controls, and agricultural uses of electricity. 3 hrs. and 1 lab.

1130 Animal Science for Agriculture
- Animals in agriculture: Body systems and development; principles of inheritance, fundamentals of feeding, and function of farm animals. Animal sanitation, animal products, and the relationship to public health. 3 hrs. and 2 labs.

1140 Plant Science for Agriculture
- Plant structure, physiology, heredity, and environment in relation to growth, adaptation, and management of crops. 2 hrs. and 2 labs.

1150 Food Technology and Science in Agriculture
- Utilization, processing, and distribution of food products. 3 hrs. and 1 lab.

4018 Honors: Seminar (3) Selected topics. Offered alternate years. Open to juniors and seniors by invitation.

**GRADUATE**
5120 Teaching Internship in Agriculture (1)

**Departmental Programs**

**Agricultural Economics and Rural Sociology**

Professors:
- J. A. Martin (Head); Ph.D. Minnesota; M. B. Badenhop, Ph.D. Purdue; J. R. Brookier, Ph.D. Florida; C. L. Oetland, Ph.D. Wisconsin; Irving Dubov, Ph.D. California (Berkeley); L. H. Kelber, Ph.D. Kentucky; T. H. Klandt, Ph.D. Kentucky; F. O. Leuthold, Ph.D. Wisconsin; D. L. McLemore, Ph.D. Clemson; R. R. McManus, Ph.D. Purdue; B. H. Penecost; J. D. Tennessee; W. P. Ranney (Emeritus), Ph.D. Minnesota; C. B. Sappington, Ph.D. Illinois; T. J. Whaley, Ph.D. Purdue.

Associate Professors:

Assistant Professors:
- W. M. Park, Ph.D., V.P.I. & S.U.; G. D. Whipple, Ph.D. Washington State.

**Agricultural Economics (047)**

2410 Economics of Food and Rural Resources
- Analysis of contemporary problems and issues of public concern relating to food, agriculture, and rural areas using fundamental economic concepts. Farm income, food prices, world food problems, natural resources, environment, rural development.

3120 Agricultural Prices
- (3) Factors affecting prices in agricultural production/processing/distribution; prices in an enterprise economy, competitive, monopoly, and oligopoly pricing; space, time and price differences; tools to measure price; farm price programs. PreReq: Agriculture 1110 and Economics 2120 or consent of instructor.

3320 Marketing Farm Products
- (3) Survey of the U.S. food and fiber marketing systems; marketing options of farmers and agribusinesses; industry structure in market channels for agricultural products; basic tools to analyze marketing problems. PreReq: Agric. 1110 and Econ. 2120 or consent of instructor.

3410 Farm Business Analysis

3430 Agricultural Law
- (4) Survey of law and application to the farmer, his family, and agricultural industry. Property, contracts, torts, drainage and water rights, landlord-tenant relationships, taxation and insurance, forms of business organization, estate planning, regulatory laws, and other selected topics.

3440 Farm Income Tax Management
- (3) Legal and economic concepts and problems in organizing and managing the farm business within the framework of federal income tax laws. Emphasis is on recognizing problem areas, utilizing tax planning incentives, and avoiding tax traps that may be encountered in organizing the business and operating and transferring the farm. PreReq: Junior standing, 3 hrs.

3510 Commodity Futures Markets
- (3) Futures market as an instrument in marketing of primary industry
<table>
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<tr>
<th>Course Number</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>5120</td>
<td>Agricultural Production Economics II (3)</td>
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<tr>
<td>5210</td>
<td>Seminar: Agricultural Policy (3)</td>
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<tr>
<td>5220</td>
<td>Research Methodology (3)</td>
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<tr>
<td>5230</td>
<td>Seminar: Adjustments to Industrialization (3)</td>
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<td>5310</td>
<td>Research (3)</td>
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<td>5410</td>
<td>Agricultural Marketing Analysis (3)</td>
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<td>5420</td>
<td>Advanced Agricultural Marketing (3)</td>
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<tr>
<td>5440</td>
<td>Economics of Agricultural Development (3)</td>
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<td>5610</td>
<td>Quantitative Methods in Agricultural Economics (3)</td>
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**Rural Sociology (880)**

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<tr>
<th>Course Number</th>
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<tr>
<td>5420</td>
<td>Rural Sociology (3) Nature of rural society; social systems concept; rural-urban differences; nature of social relations; population characteristics and movement; problems of rural people; tenancy, farm labor, health, services, educational facilities, churches, local government; impact of industrialization.</td>
</tr>
<tr>
<td>5430</td>
<td>Special Problems (3)</td>
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<tr>
<td>5450</td>
<td>Advanced Rural Sociology (3)</td>
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<tr>
<td>5470</td>
<td>Research Problems in Rural Communities (3)</td>
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<td>5490</td>
<td>Rural Population Analysis (3)</td>
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**Agricultural Engineering**

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<tr>
<th>Course Number</th>
<th>Course Title</th>
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<tr>
<td>5130</td>
<td>Introductory Agricultural Engineering (3) Basic engineering principles: field of agricultural engineering. 2 hrs. and 1 lab. Prereq: Open only to freshman and sophomore students in agricultural engineering.</td>
</tr>
<tr>
<td>5140 Seminar</td>
<td>Seminar: Presentations, discussions, reports on research techniques. Prereq: Consent of department head.</td>
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<tr>
<td>5360</td>
<td>Soil and Water Conservation Engineering (4) Integration of hydrologic, agronomic, and engineering principles in solving agricultural water management problems involving flood and erosion control, drainage, irrigation, and water quality. Coreq: Plant and Soil Science, 2130; Engr. Sci. and Mech. 3110. 3 hrs. and 1 lab. Graduate credit for non-majors only.</td>
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<tr>
<td>5370</td>
<td>Structures for Production, Environmental Control, and Waste Management (4) Analysis of loads and stresses; design of wood, steel, and concrete members; structural and environmental requirements of facilities for livestock and crop production and storage; physiological requirements; heat loads; insulation; moisture relationships; ventilation and waste management. 3 hrs. and 1 lab. Graduate credit for non-majors only.</td>
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**Agricultural Mechanization (080)**

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<tr>
<th>Course Number</th>
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<tbody>
<tr>
<td>5330</td>
<td>Hydrology of Agricultural and Forest Lands (3)</td>
</tr>
<tr>
<td>5440</td>
<td>Instrumentation in Agricultural Systems (3)</td>
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<tr>
<td>5540</td>
<td>Agricultural Engineering Properties of Agricultural Materials and Products (3)</td>
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<td>5640</td>
<td>Research Problems in Agricultural Engineering (3)</td>
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<td>5710-20</td>
<td>Simultaneous in Design and Research (3,3)</td>
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<td>6000</td>
<td>Doctoral Research and Dissertation</td>
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<tr>
<td>6110 Seminar</td>
<td>Seminar (1)</td>
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<tr>
<td>6130</td>
<td>Engineering Systems Analysis in Agriculture (3)</td>
</tr>
<tr>
<td>6610</td>
<td>Selected Topics Agricultural Engineering (3)</td>
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</tbody>
</table>

**Institute of Agriculture**
leveling; topographic surveying and mapping; area computation. Prereq: Math 1560 or consent of instructor. 1 hr. and 2 labs.

5100 Seminar (1) Presentations, discussions, reports on research techniques. Prereq: Consent of department head.

5110 Agricultural Mechanics (3) Organizing, equipping, and managing school and farm shops; techniques, materials, and procedures in design and construction of shop projects; metal work and welding. 1 hr. and 2 labs.

5120 Forest Surveying (3) Principles, methods and instruments in measurement of horizontal and vertical distances and angles, with emphasis on forest management applications; computation of traverses, areas and volumes; map types, plotting and drafting. Prereq: Math 1841. 2 hrs. and 1 lab.

5140 Forest Surveying and Mapping (3) Use of low-precision methods of instruments including pacing, Abney level, topographic trailer tapes, hand compass, and staff compass. Field measurements, computations and layouts involving random and true lines, traverses, topographic mapping, and forest roads. Prereq: 2140. Ten periods of 6 hrs. per period.

5210 Soil and Water Conservation Facilities (3) Leveling, topographic surveying; planning, construction, and maintenance of drainage, irrigation, and erosion-control systems. Prereq: Math 1550. 2 hrs. and 1 lab.

5220 Agricultural Structures (3) Functional planning of structures; environmental control, construction methods, properties of building materials, and cost estimation. Prereq: Math 1550. 2 hrs. and 1 lab.

5310 Food Engineering Technology (4) Application of basic engineering principles of food processing. Fluid flow, heat transfer, refrigeration, drying evaporation, and materials handling. Prereq: Agriculture 1120 or Physics 1220. 3 hrs. and 1 lab.

5360 Electrical Systems in Agriculture (3) Electrical terms and fundamentals, distribution, wiring practice, governing codes, control, and motors used in agricultural and residential facilities. Prereq: Physics 1220 or Agriculture 1120. 1 hr. and 1 lab.

4120 Seminar (1,1) Presentations, discussions, reports. 4120—Professional development topics. 4120—Industry trip. Prereq: Consent of department head.

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

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

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 measurement; materials handling and disposal methods. 2 hrs. and 1 lab.

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

4220 Special Problems in Agricultural Mechanization (3) Selection, analysis, solution, and report of research problem. May be repeated for maximum of 9 credit hrs. when engaged in approved industry work. Prereq: 2190 or 2140. 3 hrs. and 1 lab.

GRADUATE 5000 Thesis

5110 Research Problems in Agricultural Mechanization (3)

5210 Electro-mechanical systems in Agriculture (3)

5410 Agricultural Machinery System Analysis (3)

5610 Selected Topics in Agricultural Mechanization (3)

Agricultural Extension Education (075)

Professors: R. S. Dickman (Head), Ph.D. Pennsylvania State; L. H. Dickson (Director), Ed.D. Cornell. 

Associate Professor: C. E. Carter, Jr., Ph.D. Ohio State.

3110 Introduction to Agricultural Extension (3) History, philosophy, organization, teaching methods, relationships with other educational agencies.

4110-20 Field Studies (3,3) Supervised work experience with county extension agents in a designated county. For senior and graduate students. Prereq: 3110 and consent of instructor. Requires living off-campus for a specified time.

GRADUATE 5000 Thesis

5100 Special Problems in Agricultural Extension (1-6)

5210 Long-Range Extension Program Planning (3)

5220 Seminar (3)

5320 Evaluation in Programs of Agricultural Extension (3)

5310 History, Philosophy, and Objectives (3)

5320 Volunteer Leadership in Agricultural Extension Programs (3)

5330 Supervision of Agricultural Extension Programs and Personnel (3)

Animal Science (113)

Professors: D. O. Richardson (Head), Ph.D. Ohio State; K. M. Barth, Ph.D. Rutgers; M. C. Bell, Ph.D. Oklahoma State; J. K. Bliener (Emeritus), Ph.D., Ohio State; C. C. Chamberlain (Emeritus), Ph.D. Iowa State; O. G. Hall, (Dean, College of Agriculture) Ph.D. Iowa State; S. S. Hansard (Emeritus), Ph.D. Florida; E. E. Liddell, M.S. Tennessee; J. B. McLaren, Ph.D. Auburn; J. K. Miller, Ph.D. Georgia; J. M. Montgomery, Ph.D. Wisconsin; G. M. Merriman (Emeritus), D.V.M. Michi camp State; R. L. Murphee (Emeritus), Ph.D. Tennessee; H. S. H. Ray, Ph.D. Illinois; R. R. Shroots, Ph.D. Iowa State; E. W. Swanson, Ph.D. Missouri; R. L. Tugwell (Emeritus), Ph.D. Kansas State; C. E. Wylie (Emeritus), A.M. Missouri.


Assistant Professors: W. C. Cullen, Ph.D. Minnesota; R. N. Heitmann, Ph.D. Maine; H. G. Kattan, Ph.D. VIP & SU; K. R. Robbins, Ph.D. Illinois; T. W. Schultz, Ph.D. Tennessee; J. D. Smaling, Ph.D. Texas A & M.


2610 Fundamentals of Food Animal Evaluation (4) Criteria for food animal evaluation; market classes and grades of cattle, poultry and poultry products, lamb and wool, and foreign species; live and objective techniques for evaluation of meat cattle, dairy cattle, poultry, sheep, and swine. 2 hrs. and 2 labs.

2710 Introduction to Biometrical Aspects of Animal Science (3) Biometrical concepts for optimum comprehension of material presented in upper-division animal science courses. Basic ideas in probability as introduction to concept of distributions. Expected values of statistics as measures of probable values. Binomial and normal distributions and their prevalence in biological material. Planning effective experiments. Association or relationship of variables. Assessment of validity of hypotheses. 2 hrs. and 1 lab.

2810 Farm Animal Management Practices (3) Integration of management practices and skills into cattle, horse, sheep, poultry, and swine enterprises. Practices and skills include dehorning, castration, docking, food care, shearing, age determination, identification, preparing for show and sale, vaccinating and immunizing, controlling parasites. Facilities needed in livestock management including buildings, fences, corrals, equipment, space requirements, and restraining devices. 2 hrs. and 1 lab.

2620 Introduction to Light Horses (3) Scope and role of light horse industry; breeds—development, function, and use; unsoundness; tack; introduction to management problems. May not be used by animal science majors to meet graduation requirements. 2 hrs. and 1 lab.

3210 Anatomy and Physiology of Farm Animals (4) Skeletal and joint systems; musculoskeletal and neuromuscular systems; cardiovascular, respiratory, digestive, renal, and endocrine systems; demonstration of physicochemical phenomena. Prereq: Biology 1210 or Agriculture 1150. 3 hrs. and 1 lab.

3220 Physiology of Reproduction (3) Comparative anatomy and physiology of reproductive systems of higher vertebrates; gametogenesis, fertilization, implantation, prenatal growth, parturition, and lactation of lactating animals; endocrine regulation of reproductive phenomena. Prereq: 3210 or consent of instructor. 2 hrs. and 1 lab. (Same as Zoology 3220."

3310 Introduction to Animal Nutrition and Feeding (3) Nutrient utilization, function, and requirements of farm animals; animal foods, nutrient content, and factors affecting feeding value; balancing rations for beef and dairy cattle, sheep, horses, swine, poultry, and laboratory animals. Prereq: 3350. 2 hrs. and 2 labs.

3320 Animal Nutrition (3) Properties, functions, utilization, and deficiency symptoms of essential nutrients; nutritive value determinations and their use. Prereq: Agriculture 1130 and one quarter of organic chemistry.

3350 Feeds and Ration Formulation (4) Feedstuffs, additives, feeding standards, nutrient requirements, and ration formulation for beef and dairy cattle, sheep, horses, swine, poultry, and laboratory animals. Prereq: 3350. 2 hrs. and 2 labs.

3410 Heredity in Animals (3) Basic chromosomal mechanism of heredity with emphasis on Mendelian principles and exceptions such as linkage and cytoplasmic inheritance. Selection and recurrent selection to improve basis of heredity and to quantitative inheritance. Illustrations of principles related to species familiar to agriculture students. Prereq: Agriculture 1130. 2 hrs. and 1 lab.

3420 Principles of Animals Breeding (3) Genetic principles involved in breeding of economic species. Genetic basis of variation. Partitioning of variation according to various kinds of causative differences such as differences in genetic makeup and environment. Selection and commercial-tie line breeding systems and effects on populations. Planning breeding programs. Prereq: 3410 or equivalent. 2 hrs. and 1 lab.

3430 Breeds of Farm Animals (3) Study of evolution and formation of breeds of cattle, horses, poultry, sheep, swine and swine. Breeds, breed development, characteristics, and improvement programs of various breeds. Prospects for purebred industry and impact of crossbreeding on the industry. 2 hrs. and 1 lab.

3510 Animal Hygiene and Sanitation (4) Parasitic, viral, and bacterial organisms in farm animals; immunization; control and protection against disease; veterinary practice; health and nutrition programs. Prereq: Microbiology 2910-11 or 2910-19 or consent of instructor. 3 hrs. and 1 lab.

3520 Avian Diseases (3) Major diseases; characteristics, prevention and control; management prac-
tices and systems for domestic birds, upland game birds and waterfowl. 2 hrs. and 1 lab.


3620 Dairy Cattle Judging and Classification (3) Comparative judging, oral reasons; type classification programs. Economic value of classification ratings. Prereq: 2610 or consent of instructor. 3 labs.

3630 Judging Poultry Products (3) Grading of poultry products according to USDA standards; factors influencing quality. Prereq: 2610 or consent of instructor. 1 hr. and 2 labs.

3640 Horse Selection and Judging (3) Selection, judging, evaluation of soundness and scoring of working and pleasure horses for functional efficiency. Prereq: Consent of instructor. 1 hr. and 2 labs.

3810 Nutrition and Management of Laboratory Animals (3) Principles of feeding, breeding, and handling of animals for use in specific programs; species' requirements, peculiarities, and research for which best fitted; laws governing use and handling of laboratory animals. Prereq: Agriculture 1130 and consent of instructor. 2 hrs. and 1 lab.

4110 Special Problems in Animal Science (1-4) Special research and/or special reports based on supervised independent study or review of literature directed to problems not covered by regular courses. Prereq: Permission of instructor. 1-4 credit hrs.

4210 Physiology of Lactation (3) Development, anatomy, and function of mammary glands; endocrine interactions for mammary development and milk secretion; factors affecting yield and composition of milk. Prereq: 3210.

4220 Avian Physiology (3) Anatomy and physiology of avian species with emphasis on poultry. Prereq: 3210. 2 hrs. and 1 lab.

4230 Applied Reproduction in Farm Animals (3) Application of methods and techniques in collecting, evaluating, processing, and preserving semen, insemination of females, pregnancy determinations, sexing, species' requirements, and parturition. Male and female infertility. Prereq: 3220 and permission of instructor.

4330 Feeding Applications for Farm Animals (3) Design and implementation of feeding principles designed to allow students to discover and explore feeding options available to producers through problem solving. Prereq: 3330. 1 hr. and 2 labs.

4340 Experimental Animal Nutrition Laboratory (2) Laboratory feeding trials to demonstrate the basic animal nutrition concepts including the preparation and feeding of experimental diets. Prereq: 3330. 2 labs.

4610 Advanced Beef Cattle, Dairy Cattle, Horse Poultry, Sheep, and Swine Judging (2) Specialization in judging, evaluation, selection, and presentation of beef cattle, dairy cattle, horses, poultry, sheep, and swine. May not be repeated for credit. Prereq: Consent of instructor. 2 labs.

4810 Beef Cattle Production and Management (4) Integration of principles of nutrition, physiology, and breeding into complete beef cattle management programs. Topics will include structures of industry, enterprise establishment, systems of production, production practices, and herd improvement programs. Alternatives evaluated 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.

4830 Pork Production and Management (4) Integration of principles of selection, nutrition, breeding, physiology, and marketing into complete pork production and management programs. Topics will include structures of industry, enterprise establishment, systems of production, production practices, and herd improvement programs. Alternatives evaluated 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.

4840 Poultry Production and Management (4) Structure of poultry industry; organization and management of poultry enterprises including rearing, housing, feeding, processing, and marketing. Prereq: Completion of animal science sophomore and junior core courses or consent of instructor. 3 hrs. and 1 lab.

4850 Light Horse Production and Management (4) Integration of principles of nutrition, physiology, and breeding into light horse management programs. Topics include structure of industry; systems and practices of production; individual animal and herd improvement programs; tack, equipment, and facilities for both pleasure owners and commercial producers. Alternatives evaluated in terms of pleasure, recreation, and economic returns. Prereq: Completion of animal science sophomore and junior core courses or consent of instructor. 3 hrs. and 1 lab.

4860 Lamb and Wool Production and Management (4) Integration of principles of selection, nutrition, breeding, physiology, and marketing into complete lamb and wool production and management programs. Topics will include structure of industry, enterprise establishment, systems 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.

4910 Seminar (2) Review of literature and presentations on special topics and current research in animal science field. Prereq: Senior standing. 1 hr. and 1 lab.

GRADUATE

5000 Thesis

5011 Problems in Lieu of Thesis (1-6)

5110 Special Problems in Animal Science (1-6)

6210 Endocrine Relations in Animal Production (4)

6230 Advanced Mammalian Reproduction (3)

6240 Advanced Studies of the Secretion of Milk (3)

6311 Analytical Techniques in Animal Nutrition (3)

6322 Advanced Experimental Animal Nutrition (3)

6333 Nonruminant Animal Nutrition (4)

6344 Rumint Animal Nutrition (3)

6410 Genetics of Animal Populations (3)

5510-20 Advanced Animal Physiology (5, 5)

5710 Methods of Evaluating Experimental Data in Animal Science (3)

5720 Design and Interpretation of Experiments in Animal Science (3)

5910 Seminar (1)

6000 Doctoral Research and Dissertation

6211 Advanced Topics in Animal Physiology (1-6)

6220 Environmental Physiology of Farm Animals (3)

6230 Animal Growth and Development (3)

6240 Physiology of the Heart (4)

6311 Advanced Topics in Animal Nutrition (1-6)

6322 Advanced Animal Nutrition (3)

6411 Advanced Topics in Animal Breeding (1-6)

6420 Animal Breeding Research Methods and Interpretation (3)

6910 Seminar (1)

Entomology and Plant Pathology (341)

Professors: J. C. Southards (Head), Ph.D. North Carolina State; J. W. Hilty, Ph.D. Ohio State; L. F. Johnson, Ph.D. Louisiana State; C. D. Pless, Ph.D. Clemson.


3130 Plant Pathology (4) Principles of plant pathology illustrated by diseases of common agricultural crop plants. Prereq: Botany 1120 or Biology 1220. 3 hrs. and 1 lab. (Same as Botany 3130.)

3140 Forest Pathology (4) Etiology, recognition, economic impact, and control of forest tree diseases, including wood decay and other diseases important to urban forestry and forest nurseries. Prereq: Botany 1120 or Biology 1220 or equivalent. 3 hrs. and 1 lab. No credit if 3130 previously taken.

3210 Economic Entomology (4) Structure, life history, habits, and principles of control of important insect pests of farm, garden, orchard, and household. 3 hrs. and 1 lab.

3220 Apiculture (2) Biology of the honey bee, with emphasis on beekeeping equipment and apiary management practices relative to pollination of crops and production of honey and beeswax.

4101 Biology of Soil Microorganisms (4) Morphology and physiology of soil organisms, decomposition of organic matter, chemical transformations, and interactions between soil organisms and higher plants. Prereq: 3130 or introductory microbiology. 3 hrs. and 1 lab. (Same as Microbiology 4011.)

4030 Forest and Shade Tree Entomology (3) Identification, biology, ecology, and control of forest and shade pests. Prereq: 3210 or equivalent. 3 hrs. and 1 lab.

GRADUATE

5000 Thesis

5010 Research Methods and Instrumentation in Plant Pathology and Entomology (3)

5110 Plant Disease Diagnosis (3)

5120 Insect Diagnostic Clinic (3)

5210 Plant Parasitic Nematodes (4)

5220 Plant Disease Control (3)

5250 Field Crop and Vegetable Insects (3)

5240 Plant Virology (4)

5250 Medical and Veterinary Entomology (4)

5260 Insect Pest Management (4)

5310 Special Problems in Entomology (1-6)

5320 Special Problems in Plant Pathology (1-6)

5330 Special Problems in Nematology (1-6)

6410 Seminar (1)

Food Technology and Science (390)

Professors: J. T. Miles (Head), Ph.D. Wisconsin; J. L. Collins, Ph.D. Maryland; T. B. Harrison (Emeritus), M.S.A. Louisiana; J. T. Miles (Head), Ph.D. Wisconsin; J. L. Collins, Ph.D. Maryland; T. B. Harrison (Emeritus), M.S.A. Louisiana; J. W. Hilty, Ph.D. Ohio State; L. F. Johnson, Ph.D. Louisiana State; C. D. Pless, Ph.D. Clemson.

Associate Professors: B. J. Demott, Ph.D. Michigan State; S. L. Melton, Ph.D. Tennessee; R. J. Fleeman, Ph.D. Kansas State.

Assistant Professors: P. M. Davidson, Ph.D. Washington State; F. A. Draughon, Ph.D. Georgia; J. A. Mount, Ph.D. Ohio State.

Instructor: O. G. Sanders, M.S. Tennessee.

2200 Food Processing I (3) Introduction to art and sciences of manufacturing food products. 2 hrs. and 1 lab.

3020 Dairy Products I (4) Procurement, processing, and distribution of fluid milk. Manufacture of frozen and condensed dairy products. 3 hrs. and 1 lab.

3300 Food Laws and Regulations (3) State and federal laws concerning food industry. Organization and operation of regulatory agencies. Food grades and standards. Prereq: Agriculture 1150 or 2200 or equivalent.

3570 Evaluation and Grading Dairy Products (3) Market standards and grades of dairy products with practice in grading milk, ice cream, butter, cheese, and other specialized dairy products. 1 hr. and 2 labs.

3610 Meat Evaluation and Grading (3) Grading standards for quality and quantity and principles of evaluating beef, pork, and lamb. Practice in grading and judging carcasses and cuts. 1 hr. and 2 labs.

3640 Meat Science (3) Processing methods, carcass characteristics of meat animals; slaughter, cutting, curing, freezing, and cookery. 2 hrs. and 1 lab.

4000 Problems in Food Technology (1-4) Research problems in student's area of interest. Required written report. Supervised experience in state or federal laboratories or approved industries encouraged. May be repeated. Maximum 8 credit hrs. Prereq: Consent of department head.

4100 Food Technology and Science Seminar (1-3) Review of literature; oral and written reports. May be repeated for a maximum of 3 credit hrs. Prereq: Junior standing and consent of instructor.

4300 Dairy Products II (4) Principles in the manufacture of butter, cheese, and special dairy products. Prereq: 3020. 3 hrs. and 1 lab.

4310 Food Chemistry I (3) Minerals, fats, oils, and vitamins in food as affected by processing and storage. Prereq: Nutrition 3320 or equivalent. 2 hrs. and 1 lab.

4340 Food Chemistry II (3) Reactions of proteins, lab. age. Prereq: Nutrition 3320 or equivalent. 2 hrs. and 1 lab.

4810 Microbiology in Food Manufacturing (3) Relationshio of growth of common food microorganisms in fermentative and enzymatic changes occurring during processing and manufacturing of foods. Prereq: Microbiology 2510-19 or equivalent. 1 hr. and 2 labs.

4820 Fermented Foods (3) Role of microorganisms in preparing foods with emphasis on development of certain desirable characteristics, flavor, aroma, texture, and keeping quality. Prereq: Microbiology 3610. 2 hrs. and 1 lab.

4840 Meat Products Manufacturing (3) Prepared meat products with emphasis on sausage making and information relating to cost controls, inspection, and meat science. Prereq: 3840 or consent of instructor. 1 hr. and 2 labs.

4820 Analysis of Physical Properties of Foods (4) Physical studies of food materials, water, viscosity, colloids, gels, foams, crystals, color. Quantitation and changes induced by processing. Prereq: Food Technology and Science 4200 and Agricultural Mechanization 3510 or consent of instructor. 3 hrs. and 1 lab.

4940 Advanced Meat Science (3) Qualitative and quantitative characteristics of meat and poultry as related to palatability, cookery, preservation, packaging, and merchandising. Prereq: Food Technology and Science 3640.

GRADUATE

5000 Thesis

5200 Seminar (1)

5120 Food Color (3)

5150 Food Enzymology (3)

5140 Food Flavors (3)

5150 Fats and Oils (3)

5200 Research (1-5)

5310 Food Products Development (3)

5320 Food Thermobiology (3)

5420 Advanced Food Quality Assurance (3)

5510 Meat Technology (3)

5530 Microorganisms Common in Food Products (3)

5540 Microbial Cultures in Foods (3)

6000 Doctoral Research and Dissertation (3)

6010 Advanced Topics in Food Technology and Science (1)

6410 Advanced Food Processing (3)

Forestry, Wildlife and Fisheries

Professors: G. Schneider (Haed), Ph.D. Michigan State; J. W. Barrett (Emeritus), Ph.D. Syracuse; E. R. Buckner, Ph.D. North Carolina State; J. L. Byford, Ph.D. Auburn; H. A. Core (Emeritus), Ph.D. Syracuse; R. W. Dimnick, Ph.D. Wisconsin; M. P. Felton, Ph.D. Georgia; F. W. Woods, Ph.D. Tennessee.


Instructor: E. F. Dougall, Ph.D. Oregon State.

Forestry (396)

1620 Introduction to Forestry (3) History of forestry; establishment, care, protection, and use of forest stands; forest products industries; organization and agencies for establishment of forest policies; forest resources.

3000 Current Events in Renewable Natural Resources (1) Current events influencing forestry, wildlife, and fisheries management. Perspectives from other disciplines and professions which are affected by and which influence forest economics. Prereq: department head. Extended views of natural resources, their allocation and management. Professional development and education for the disciplines of forestry, wildlife and fisheries. 1 hr. may be repeated. Maximum credit 4 hrs. S/NC. (Same as Wildlife and Fisheries Science 3000.)

3000 Forest Environmental and Ecology (3) Environments and ecology of plants and associated lands; emphasis on the application of ecological principles to contemporary problems. Available for graduate credit for non-forestry majors only. Prereq: 8 hrs. of biology, botany, or zoology. 3 hrs.

3040 Dendrology and Silvics of Woody Angiosperms (3) Classification, nomenclature, identification, and silvical 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 scheduled lab period plus one weekend field trip. Available for graduate credit for non-forestry majors only. 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 production. Prereq: Plant and Soil Science 3610 and Computer Science 1410 or equivalent. 3 hrs. and 1 lab. Available for graduate credit for non-forestry majors only.

3120 Wood Technology (4) Wood properties; identification and characteristics of the major North American conifers. Distribution patterns, habitat, and community relationships including classification, life history, regeneration requirements, place in succession, and importance. Available for graduate credit for non-forestry majors only. Prereq: 6 hrs. basic biology or botany. 2 hrs. and 1 lab.

3130 Forest Protection (3) Destructive agencies; fire, insects, diseases; forest and wildlife management; control; prevention and suppression.

3120 Forest Resource Economics (4) Allocation of forest resources via market and institutional systems. Application of economics to forest resource decision making in the private and public sector. Prereq: Economics 2120.

3220 Forest Products and Utilization (3) Harvesting, processing, marketing factors in stand conversion, intermediate and harvest cuts. Prereq: 3120.

3240 Introduction to Forest Recreation (3) Concepts of leisure time in recreation, historical development of forest recreation; forest recreation resources. Development, management, and administration of forest recreation areas and systems.

3250 Ecological Problems of Forest Recreational Land (3) Examination of major forms of ecological impacts occurring on forest recreational lands; emphasis on impact to vegetation, soil, and water quality; consideration of monitoring methods and management alternatives. Weekend field trip is required. Prereq: 3220 or equivalent, or consent of instructor. Plant and Soil Science 2130 recommended. 2 hrs. and 1 lab.

3320 Principles of Silviculture (3) Influence of site factors on growth, development, and character of forest vegetation; classification of forest structure; silvicultural systems. Prereq: 3020 or Biology 2130; 3040; Plant and Soil Science 2130. 3 hrs.

4002 Utilization (3) Wood-using industries; processing of forest products-sawmills, tree-log-lumber grading; pulpwood operations, flooring plants, treating plants; plant layout, flow diagrams. Prereq: 3120.
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.

4004 Forest Practice (3) Management of forest lands by cutting, harvesting, and processing; "multiple-use" concept as it influences management decisions; impact of public pressure for outdoor recreation or management; decision-making management prescriptions. Prereq: 4006. S/NC.

4006 Silvicultural Methods (4) Methods and application of intermediate and regeneration cuttings; site preparation, planting and seeding; modifications of cuttings in respect to afforded goods and benefits. Prereq: 3320, 4002, 4003.

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. 3 hrs. Two overnight field trips.

4110-20-30 Problems in Forestry (1-6, 1-6, 1-6) Special research or individual problems in forestry. Prereq: Senior standing. Total not more than 9 hrs.

4210 Forestry Organization and Administration (3) Planning, organization, and leadership concepts and cases; problem analyses and decision making in forest resources management. Prereq: Senior standing in forestry or wildlife and fisheries science or consent of instructor. 2 hrs. and 1 lab.

4220 Forest Resource Management (4) The forest as an integration of resources; use of historical and current management concepts; the multiple-use concept; valuation of forest resources for decision making and planning; taxation of forest firm. Prereq: 4210.

4230 Forest Resource Management Plans (4) Field problems and case studies in forest-resource management; the forest as a system; management of forest enterprises as a producer of timber, recreational services, watershed services, and wildlife; producing multiple services; preparation of a complete plan based on optimizing forest uses. Prereq: 4210.

4240 Interpreting Forest Resources (3) Principles and techniques of interpreting forest resources; importance of environmental interpretation to management of forest resources; development and administration of interpretative services. Possible overnight field trips required. Prereq: 3320 or equivalent. 2 hrs. and 1 lab.

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

4340 Aerial Photography in Forest-Resource Management (3) Use of conventional aerial photographs in forest-resource management; interpretation of detail, aerial inventories, preparation of cover-type maps, uses of other remotely sensed imagery. Prereq: 3110 or equivalent. 1 hr. and 2 labs.

4420 Forest Tree Improvement (3) Forest tree improvement related to silviculture; nature and purposes of tree improvement and forest genetics; principles of tree cytology and population genetics; importance of seed source, variation, selection of superior pheno-types, and development of seed orchards; hybridization; seed production and seed certification. Prereq: 4006 or consent of instructor. 2 hrs. and 1 lab.

4430 Regional Silviculture of the United States (3) Factors that influence silvicultural management of important tree species in North America. Importance of forests and forestry to a region; physiography, geology, soils, climate and weather, sites and site types, ecology, problems of protection, and silvicultural characteristics of the more important species. Prereq: 4006 or consent of instructor.

4440 Forest Recreation (3) Forest lands as a recreation resource; interrelationships of forest recreation and other management activities; development and management of recreation areas; sociopolitical, economic and political determinants of recreation development and management. Possible overnight field trips required. Prereq: 6 credits in sociology and/or economics. Junior standing, 2 hrs. and 1 lab.

4450 Recreational Behavior in Forest Environment (3) Review of sociological and psychological theories relevant to forest recreation planning, management, and administration. Implications and application of havelor concepts to forest recreation problems, and review of methodologies for assessing recreational behavioral problems. Prereq: Basic understanding of statistical procedures, sociological theory, and psychology or and/or sociology, or consent of instructor. 3 hrs.

4540 Wood Drying and Preservation (3) Concepts of wood drying including wood-moisture relations, specific gravity, moisture content, density, and shrinkage. Discussion of commercial drying practices. Relationship of wood moisture content to attack by wood destroying organisms. Methods and materials used in commercial treating systems. Prerequisites: 3120, Math 1851, Physics 1220 or consent of instructor. 3 hrs.

4545 Seminar in Forest Tree Improvement (3) Forest tree improvement related to silviculture; nature and purposes of tree improvement and forest genetics; principles of tree cytology and population genetics; importance of seed source, variation, selection of superior pheno-types, and development of seed orchards; hybridization; seed production and seed certification. Prereq: 4006 or consent of instructor. 3 hrs. and 1 lab or field period.

GRADUATE

5000 Thesis

5110 Special Problems in Wildlife and Fisheries Science (1-6)

5210 Seminar in Wildlife Conservation (3)

5310 Seminar (1)

5400 Advanced Topics in Wildlife Science (3)

5450 Wildlife Diseases (3)

5460 Predator Ecology (3)

5500 Advanced Topics in Fisheries Science (3)

5550 Fish Physiology (3)

Ornamental Horticulture and Landscape Design (740)

Professors:
G. D. Crane, Ph.D., Ph.D. Ohio State; L. M. Carawan, Ph.D., Ph.D. Rutgers; N. O. Peacock (Emeritus), Ph.D. Michigan State; D. B. Williams, Ph.D. Pennsylvania State.

Associate Professors:

Assistant Professors:
D. T. Kendall, M.A., Louisiana State.

Instructor:
E. L. Abbott, M.S., Tennessee.

2230 Environmental Horticulture (3) An introduction to awareness and appreciation for ornamental plants around and in the home. Design and management of home landscapes including selection, buying, effectively using, planting and caring for trees, shrubs, turfgrass, herbaceous landscape plants and house plants. 3 hrs.

3030 Plant Propagation (3) Physiology, methodology, and environmental requirements for propagation. Prereq: 8 hrs. of biological science. 2 hrs. and 1 lab.

3040 Floral Design (3) Principles and techniques in floral arranging with emphasis on arrangements for home, church, and special occasions. 1 hr. and 2 labs.

3110 Greenhouse Management (3) Factors involved in management of greenhouse for production and research. Structures, soils, pest control measures, heating, ventilating, lighting, water supply, crop succession. Prereq: Junior standing and consent of instructor. 2 hrs. and 1 lab.

3210 Turfgrass Management (4) Practical turf-grass management including selection, identification, and establishment; basic applied fertility programs, mowing and irrigation practices, and thatch control; pest identification and control. Prereq: Plant and Soil Science 2130 and 8 hrs. biological sciences. 3 hrs. and 1 lab.

3310 Professional Practices in Ornamental Horticulture (3) Application of management and marketing practices for greenhouse, nurseries, flower shops, garden centers, plant stores, and landscaping firms. Investigating of practices and the solution of problems as they relate to the students' areas of interest in the establishment and operation of floricultural, nursery, landscape planning and maintenance enterprises, including compliance with governmental regulations and other operational practices specific to the ornamental horticulture industry. 3 hrs.
4320 Specialty Floriculture (3) Specific practices in the production of minor cut flowers and potted plant crops. Production methods for scheduling flowering or vegetative growth of specialty florist crops in controlled environments. Prereq: 3410. 2 hrs. and 1 lab.

4400 Individual Problem Study (1-5) May be repeated to maximum of 10 credit hrs.

4610 Seminar (1) Current problems in ornamental horticulture and landscape design. Prereq: Junior standing and consent of instructor.

GRADUATE

5000 Thesis

5100 Special Problems in Ornamental Horticulture and Landscape Design (3)

5210 Golf Course Design, Development, and Management (4)

5310 Park and Public Grounds Management Systems (4)

5410 Histological Microtechnique (4)

5500 Seminar (1)

Plant and Soil Science (792)

Professors:
L. F. Searle (Head), Ph.D. North Carolina State; F. F. Bell (Emeritus), Ph.D. Iowa State; L. L. Colley, Ph.D. Purdue; B. V. Conger, Ph.D. Washington State; H. A. Fribourg, Ph.D. Iowa State; L. S. Jeffery, Ph.D. North Dakota State; L. M. Josephson (Emeritus), Ph.D. Wisconsin; W. L. Parks, Ph.D. Purdue; B. S. Pickett (Emeritus), Ph.D. Michigan State; J. H. Reynolds, Ph.D. Wisconsin; L. N. Skold (Emeritus), M.S. Kansas State; M. E. Springer (Emeritus), Ph.D. California (Berkeley); H. D. Swingle (Emeritus), Ph.D. Louisiana State.

Associate Professors:

Assistant Professors:
D. E. Deyton, Ph.D. North Carolina State; R. J. Miles, Ph.D. Texas A&M; D. R. West, Ph.D. Nebraska; J. D. Wolf, Ph.D. Auburn.

1 Clyde B. Austin Distinguished Professor

2130 Soils (4) Nature and properties of soils. Physical, chemical, biological processes in soils and their influence on plant growth. Prereq: Chemistry 1120 or 1520 or 1620. 3 hrs. and 1 lab.

3020 Crop Ecology (3) Crops and environment; geographic location, site, heat, light, water, and interplant relationships as a basis for judgment of cultural practices used to modify environmental factors. Prereq: 8 hrs. biological science. 2 hrs. and 1 lab.

3040 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. 2 hrs. and 1 lab. Prereq: 8 hrs. biological science.

3110 Soil Fertility and Fertilizers (4) 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.

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

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.

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.

3180 Fruit Crops Management (4) Soils, planting, cultivation, development of fruit crops; pest control, harvesting, packing, storage and pruning. Prereq: Engr. & Pl. Path. 3210, 3130. 3 hrs. and 1 lab.

3220 Soil Management (4) Soil management for crop production including cropping systems, fertilizer use, and slope operations for specific soil and farming conditions. Prereq: 2130. 3 hrs. and 1 lab.

3250 Soils in Forestry (3) Soils as a medium for tree growth; relation of physical, chemical, and biological properties of soils to forest production. Prereq: 3180. 2 hrs. and 1 lab.

3510 Commercial Production of Cool Season Vegetables (3) Characteristics, economic importance, adaptability, 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.

3520 Commercial Production of Warm Season Vegetables (3) Characteristics, economic importance, adaptability, and production for fresh and processing markets; emphasis on sweet potatoes, beans, tomatoes, pepper, cucurbits, sweet corn, and okra. Prereq: 3510 as prerequisite. Prereq: 8 hrs. of biological science. 2 hrs. and 1 lab.

3610 Interpretation of Agricultural Research (3) Statistics as applied to agriculture. Statistical methods in interpretation of research results. Prereq: Math 1550.

3710 Principles of Weed Science (4) Basic principles of weed science, history, ecology, economic losses, means of control, types of herbicides, and specific recommendations for various crop and non-crop uses. Prereq: 8 hrs. biological science and 3 hrs. organic chemistry. 3 hrs. and 1 lab.

4110 Soil Chemistry (4) Colloidal systems; properties and behavior of colloidal soil materials; relations of chemical properties to plant nutrient availability. Prereq: 2130; Physics 1210. 3 hrs. and 1 lab.

4120 Principles of Crop Breeding (4) Genetic principles and techniques used in crop improvement. Prereq: 8 hrs. biological science or consent of instructor. 3 hrs. and 1 lab.

4250 Agricultural Chemicals and the Environment (4) Characteristics, use, mode of action, degradation, and environmental impact of chemicals used in agriculture; formulation, and related areas with emphasis on agricultural pesticides; environmental safeguards imposed by federal and state regulations on chemical production and use. Prereq: One year biological science and one year chemistry. 3 hrs. and 1 lab.

4370 Soil Formation, Morphology, and Classification (4) Soil formation; properties, distribution, and classification of soils; interpretation of research results. Prereq: 4360. 3 hrs. and 1 lab.

4390 Soil Biology (4) Morphology, structure, and function of soil organisms. Prereq: 4370. 3 hrs. and 1 lab.

4400 Problems in Plant and Soil Science (1-6) Special research or library problems in some phase of plant and soil science. May be repeated. Maximum credit 9 hrs.


GRADUATE

5000 Thesis

5100 Special Problems in Plant and Soil Science (1-6)

5200 Soil-Crop Relationships (3-6)

5240 Soil Productivity and Management (3)

5250 Pedology (4)

5310 Design and Interpretation of Experiments (4)
The College of Veterinary Medicine

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

The College of Veterinary Medicine, established in 1974, offers a professional curriculum leading to the degree Doctor of Veterinary Medicine (D.V.M.). The college offers graduate studies leading to the degree Master of Science (M.S.) and Doctor of Philosophy (Ph.D.). Residency training programs in the various clinical specialties are also offered.

The college is organized into six academic departments: Animal Science (jointly with the College of Agriculture), Environmental Practice, Microbiology (jointly with the College of Liberal Arts), Pathobiology, Rural Practice, and Urban Practice.

Primary objective of the college is to educate veterinarians for private practice. However, the professional curriculum provides an excellent basic medical education, in addition to training in diagnosis, disease prevention, medical treatment, and surgery. Graduates are qualified to pursue careers in many facets of veterinary medicine and related health professions.

Most veterinarians are engaged in private practice. The majority of these are in general practices which deal with the diseases of all kinds of animals. About one-fourth of the veterinarians in the United States are engaged exclusively in pet or companion animal practice. A growing number are concerned with the health problems of zoo animals, laboratory animals, wildlife, and aquatic species.

Veterinarians also find rewarding careers in the U.S. Public Health Service, the U.S. Army and Air Force, and in state, county, or local health agencies. A large number of veterinarians are employed by the U.S. Department of Agriculture and by state departments of agriculture for important work in livestock disease control, meat and poultry inspection, serum and vaccine production, and the protection of our country against the importation of foreign animal diseases.

Excellent opportunities exist for veterinarians interested in research: both research for the direct benefit of animals and research conducted with animals but for the benefit of humans. Such opportunities are available at colleges and universities and with governmental agencies, private research institutions, and biological and pharmaceutical companies.

Facilities

Administrative offices of the College of Veterinary Medicine are located in Morgan Hall on the agricultural campus. The Department of Animal Science is housed in Brehm Animal Sciences Building, also on the agricultural campus, and the Department of Microbiology is located in Walters Life Sciences Building on "The Hill" of the University of Tennessee, Knoxville.

The Veterinary Medicine Building on the agricultural campus houses the Departments of Environmental Practice, Rural Practice, Urban Practice, and Pathobiology. Additionally, the facilities exist hospital, clinics, and the Agriculture/Veterinary Medicine Library are contained within this modern structure of 248,000 gross square feet.

The college has research facilities on Cherokee Farm adjacent to the UT Hospital. Satellite teaching-research facilities are located in Middle and West Tennessee.

Admission Requirements

Admission to the professional program of the College of Veterinary Medicine is limited to that number for which an education of high quality can be provided with the resources available to the college.

To qualify for admission a candidate must have completed at least the following minimum pre-veterinary requirements:

<table>
<thead>
<tr>
<th>Subjects</th>
<th>Minimum Pre-Veterinary Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>English, including speech</td>
<td>12/8</td>
</tr>
<tr>
<td>Humanities</td>
<td>12/8</td>
</tr>
<tr>
<td>Social sciences</td>
<td>12/8</td>
</tr>
<tr>
<td>Mathematics through introductory calculus</td>
<td>8</td>
</tr>
<tr>
<td>Chemistry: general</td>
<td>12/8</td>
</tr>
<tr>
<td>Organic</td>
<td>12</td>
</tr>
<tr>
<td>Biochemistry</td>
<td>16* or 43</td>
</tr>
<tr>
<td>Physics</td>
<td>12/8</td>
</tr>
<tr>
<td>Biology or zoology</td>
<td>12/6</td>
</tr>
<tr>
<td>Microbiology</td>
<td>4/9</td>
</tr>
<tr>
<td>Animal science, including nutrition and</td>
<td>13</td>
</tr>
<tr>
<td>genetics</td>
<td></td>
</tr>
</tbody>
</table>

*Includes history, literature, music or art appreciation, philosophy, religion, or foreign language.

Pre-veterinary requirements may be completed in any accredited college or university which offers courses equivalent to those at The University of Tennessee.

The Colleges of Agriculture and Liberal Arts of The University of Tennessee offer a three-year pre-veterinary curriculum which satisfies all the course requirements for admission to the College of Veterinary Medicine. Students who are admitted to the College of Veterinary Medicine following completion of this pre-veterinary curriculum will receive a Bachelors degree upon completion of the first year (three quarters) of the professional veterinary medicine curriculum.

Admission Procedure

Admission of new students will be for the fall quarter each year with the exception of students from Tennessee. High school seniors must apply through the Tennessee Secondary School Admission Test Program prior to January 15 each year. Students who are not residents of Tennessee are admitted to the College of Veterinary Medicine following completion of the pre-veterinary curriculum and the senior year of a bachelor's degree program.

Those students who are not residents of Tennessee are eligible for either a full scholarship or a partial scholarship. Scholarship information can be obtained from the College of Veterinary Medicine.

Eligible students must complete the Admissions Application for the fall quarter and provide the required documentation. An Honors College application is recommended for students who plan to pursue an Honors degree program.

Extramural Programs

The opportunity to participate in off-campus learning experiences may be available for a limited number of students during the latter half of the first year of the professional curriculum. Selection of an extramural learning experience will require approval by the department concerned and the College of Veterinary Medicine Curriculum Committee.

The extramural program identifies the student as representing the University of Tennessee and not the College of Veterinary Medicine. The extramural program is an integral part of the professional curriculum and is available after completion of the first year of the professional curriculum.

Professional Curriculum

The professional curriculum in veterinary medicine is an 11-academicquarter, year-round program, including summers. The first year (three quarters) consists mostly of pre-clinical subjects such as anatomy, physiology, microbiology, parasitology, and general pathology. The second year (four quarters) includes the study of diseases, their causes, diagnosis, treatment, and prevention. The final calendar year is devoted to intensive training in the solving of animal disease problems, including extensive clinical experience in the teaching hospital. The curriculum also provides for education in the science and art of veterinary medicine and in paramedical subjects such as animal behavior, medical communication, professional ethics, jurisprudence, economics, and practice management.

FIRST YEAR

Fall Quarter

<table>
<thead>
<tr>
<th>Vet. Animal Science 8510</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>115</td>
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</table>

Summer Quarter

<table>
<thead>
<tr>
<th>Vet. Animal Science 8540</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
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</tr>
</tbody>
</table>

Institute of Agriculture 73
Department of Instruction

**Animal Science (114)—Veterinary Medicine**

**Professors:**
- J. D. Smolling, Ph.D. Texas A & M University
- J. A. Corrick, Ph.D. Tennessee
- W. C. Cullen, Ph.D. Wisconsin

**Assistant Professors:**
- J. P. Hitchcock, Ph.D. Michigan State
- J. W. Wylie (Emeritus), A.M. Missouri

**Instructors:**
- C. E. Hansard (Emeritus), Ph.D. Florida
- E. R. Lidvall, M.S. Georgia

**Associate Professors:**
- H. V. Shirley, Ph.D. Illinois
- R. R. Shrode, Ph.D. Indiana

**Assistant Professors:**
- J. M. Jensen, D.V.M. Missouri
- J. C. New, D.V.M. Washington State

**Instructors:**
- F. N. Applehans, D.V.M. Colorado State

**Residents:**

**Free Time - 5 weeks**

**Urban Practice - 8 weeks**

**Rural Practice - 8 weeks**

**Environmental Practice - 8 weeks**

**TOTAL: 88 hours**

**Microbiology (685)—Veterinary Medicine**

**Professors:**
- A. Brown (Head), D.V.M. Illinois
- J. W. Oliver, D.V.M.
- R. W. Beck, Ph.D.

**Associate Professors:**
- D. A. Brian, D.V.M. Michigan State
- G. S. Sayler, Ph.D.

**Assistant Professors:**
- D. A. Berms, Ph.D. Cornell
- R. M. Moore, Ph.D.

**Residents:**
- J. M. Woodward (Emeritus), Ph.D. Kansas
- C. J. Wust, Ph.D. Indiana.

**FREE**

**Clinical Rotations in Environmental Medicine (3)**

**Clinical experience and training in practice of laboratory animal and zoo animal medicine.**
8103 Veterinary Immunology (4) Basic concepts of immunobiology, mechanisms of immune reaction, diagnostic immunology, and the role of the immune response in preserving the integrity of the body as well as in causing disease. 2 hrs. lecture and 2 labs.

8175 Advanced Seminar in Microbiology (1-4) Advanced seminar in various topics in applied microbiology such as serologic diagnosis, clinical immunology.

Pathobiology (742)


Associate Professors: M. D. McCracken, D.V.M. Kansas State, Ph.D. Purdue; R. E. Comedy, D.V.M. Ohio State, Patton, Ph.D. Kentucky.


8700 Basic Pathobiology Rotation (3) Practice and/or demonstrations in laboratory diagnosis including postmortem examination and clinical pathological, parasitological, and microbiological techniques.

8710 Veterinary Pathology (5) Principles of pathology including causes of disease, disturbances of cell growth, inflammation, and neoplasia. 3 hrs. lecture and 2 labs.

8720 Veterinary Parasitology (4) Basic principles of parasitology (protozoology, helminthology, and entomology) and their relation to disease in animals. 3 hrs. of lecture and 1 lab.

8760 Advanced Pathobiology (3) Further training in clinical laboratory diagnostic procedures, and in postmortem examinations.

8770 Special Problems in Pathobiology (2-10) Provides student with opportunity to design and execute research problem. May be repeated.

8775 Advanced Seminar in Urban Practice (1-4) Advanced seminars in various specialty disciplines, such as neurology, cardiology, surgery, ophthalmology.

GRADUATE

5000 Thesis (1-15)

6000 Doctoral Research and Dissertation (3-15)

Urban Practice (986)


8800 Basic Clinical Rotations in Urban Practice (12-16) Introductory clinical training in food animal, equine, ambulatory and herd health practices.

8960 Advanced Clinical Rotations in Rural Practice (3-16) Advanced clinical training in food animal, equine, ambulatory and herd health practices.

8970 Special Problems in Large Animal Medicine, Surgery, and Theriogenology (2-10) Provides students opportunity to emphasize specific career objectives. Prereq: Envir. Pract. 8600. Pathobiology 8700, Rural Prac. 8900, and Urban Prac. 8900. May be repeated.

8975 Advanced Seminar in Rural Practice (1-4) Advanced seminars in various specialty areas such as equine medicine, food animal surgery, clinical toxicology.

GRADUATE

5000 Thesis (1-15)

6000 Doctoral Research and Dissertation (3-15)

Veterinary Medicine (987)

8010 Client Relations and Communication Skills (1) Interpersonal skills as they apply to client relations and communication with clients, companions, and the general public. 1 lab. S/NC.

8310 Introduction to Veterinary Medical Practice (2) Animal species, breed identification, basic care, feeding, restraint, and handling. Introduction to physical diagnosis, interventional techniques, blood sampling, etc. 1-hr. lecture and 1 lab.

8311 Introduction to Veterinary Medical Practice (2) Physical diagnosis, history taking, and client relations; anesthetic principles, agents, and techniques. 1- hr. lecture and 1 lab.

8312 Introduction to Veterinary Medical Practice (3) Basic surgical principles, preparation for surgery, wound healing and suturing; fundamentals of radiology. Correlated with 8320. 2 hrs. lecture and 1 lab.

8320 Medical Science Interaction Laboratory (2) Multidiscipline laboratory designed to provide learning and reinforcement of concepts in the disciplines of veterinary medical practice: differential etiologic, diagnostic, and surgical principles, humane handling of animals, clinical chemistry technique, and introduction to instruments and devices used in physical diagnosis of animals. Correlated with 8320, 8250, 8611 and 8612. 1 lab. and 1 demonstration.

8340 Integumentary System (4) Diseases of integumentary system of animals, with emphasis on laboratory examination, interpretation of pathologic features, diagnosis, and treatment.

8341 Hematopoietic System (3) Pathogenesis, diagnosis, and clinical management of diseases of hematopoietic and lymphoid organs and tissues.

8342 Alimentary Tract (2) Physiological basis, pathology, diagnosis, and treatment of diseases of alimentary tract and digestive organs.

8343 Patterns of Disease (5) Host-agent relationships in diseases of animals. Pathology, laboratory diagnosis, control and public health significance. Principles of epidemiology and their application in the study of diseases in animal populations.

8344 Focal Problems (1) Considers specific diagnostic problems or paramedical subjects important to veterinary medical practice: differential etiologic, diagnostic, and treatment of certain diseases. Also includes problems and their implications for veterinarians of medical jurisprudence and ethics, practice economics, and veterinary history. May be repeated. S/NC.

8350 Reproductive System (6) Diagnosis, therapy, and prevention of those conditions causing a reduction of the reproductive efficiency of domestic animals. Appearance and clinical signs of the mammary gland with emphasis on diagnosis and prevention of mastitis.


8352 Cardiovascular System (3) Pathology, diagnosis, and management of cardiovascular diseases of animals. Emphasizes the anatomic, physiologic, and pharmacologic principles which provide the basis for medical and surgical treatment.

8353 Endocrine, Metabolic and Nutritional Diseases (4) Biochemical and pathophysiologic mechanisms of endocrine, metabolic and nutritional diseases of animals; their diagnosis, therapy and prevention.

8360 Musculoskeletal System I (5) Pathology, diagnosis, and management of musculoskeletal diseases of large animals with emphasis on functional anatomy, radiographic interpretation, surgical proce-
dures and medical therapy applicable to equines and ruminants.

**8362 Veterinary Toxicology (3)** Basic concepts of toxicology with emphasis on the molecular mechanisms and the pathologic and clinical features of animal diseases caused by common toxic agents.

**8363 Public Health (2)** Public health aspects of veterinary medicine and nature of related laws, ordinances, and regulations. Veterinarian's role in the protection of environment, ecology, and quantity and quality of food.

**8364 Animal Dietetics (1)** Applied nutrition of cattle, swine, horses, dogs and cats for the veterinarian. Diets and methods of feeding for both normal and special situations.

**8365 Radiology (3)** Advanced and special techniques in radiology; interpretation and use of radiology in diagnosis of clinical cases in medicine and surgery.

**8366 Respiratory System (4)** The detection and diagnosis of upper and lower respiratory diseases of domestic animals. Includes the pathophysiology and pathology of infectious and noninfectious diseases.

Lectures and laboratories with live and simulated case studies.

**8370 Neurosciences (9)** Normal and abnormal neural structure and function in animals, with emphasis on clinical neurology and neuropathology.

**8371 Visual and Auditory Systems (3)** Methods of examination and treatment of diseases involving eyes and ears of animals, with emphasis on anatomic, physiologic, and pathologic features.

**8372 Comparative Medicine (4)** Diagnosis, prevention, and treatment of diseases of laboratory animals, avian species, and marine mammals seen most commonly by practicing veterinarians.

**8373 Principles of Medicine (3)** Physiologic and pathologic principles underlying mechanisms of disease. Selected examples of human and animal diseases with particular emphasis on recent scientific advances and their effects on veterinary medicine.
School of Architecture

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

The School of Architecture offers a program of professional studies which prepares its graduates for the practice of architecture. While emphasizing knowledge and skills required by architects in guiding the processes of building, the school is especially concerned that its students learn that kind of good judgment which particularly distinguishes the architect from all other professionals who serve the building industry. Therefore, the student is regularly called upon to pay attention to cultural, philosophical and ethical issues that appropriately concern the architect in performance of the art of building. The student is also required to discover and understand the principles by which our physical universe appears to operate in order to know the science of building as fully as possible. It is important for the student to learn the characteristics of the natural environment while learning the physical behavior of materials in structures. Furthermore, the program of the school is concerned with preparing the student to be adaptable to change. An understanding of society is important as we see it developing in sometimes surprising ways. This places special demands upon the professionals. Consequently the program of the School emphasizes the process of learning with the intent of enabling its graduates to adapt to the changing circumstances of our world. How to learn about architecture is as important a matter for the student as learning itself.

Facilities

In the spring of 1981, a new building housing the School of Architecture and shared by the Art Department was completed. The Art and Architecture Building contains all the primary activities of the school. Expressly designed for the school in an open architectural competition, the building has already received widespread recognition and has become one of the models sought out by other schools. The building was designed by the Knoxville architectural firm of McCarty, Bullock, Holsaple, Inc. It contains as its major feature a large interior mall or street. Opening off this large gathering space, which serves as a campus focal point, are amply designed classrooms, a reference library which contains extensive slide collections and other reference materials, computer rooms, faculty offices, lecture rooms, administrative offices, an elaborate darkroom, workshop, and a gallery in which architecture as well as art exhibits are mounted.

The principal library holdings of the school are located in the James D. Hoskins Library, with additional volumes in the Undergraduate Library.

Financial Assistance for Students

A number of $500 sponsorships are made available each year by architectural firms, manufacturers of building materials, and other construction-related industries. These grants are used to cover tuition, books and equipment. Sponsorships are also available through the national headquarters of the American Institute of Architects. Honor students in all the upper four years are eligible for this aid, but it is primarily awarded to students of third-and fourth-year standing.

Lecture Program

Throughout the academic year, the school organizes an extensive series of special lectures by experts in architecture and related subjects. Students are expected to attend regularly and benefit from this opportunity to hear the leading people of the field. The lectures are open to the University community and the public as well.

Included in the series is the ROBERT B. CHURCH MEMORIAL LECTURESHIP. Named for the school's second dean, it has become widely respected in the field as an honor to be appointed to this lectureship. The most prominent architects from around the world are brought to the school with income from the endowment.

Other important lectures are sponsored by the General Shale Corporation and the architectural branch of the Tennessee Valley Authority. Annually in the spring quarter a special program called TAAST is arranged. Within a period of one week the entire school participates in special lectures, seminars, exhibits, and informal gatherings. Featured are discussions by a series of visiting experts. TAAST is a student-organized event.

Publications

Students in the school each year publish a journal of architecture, Portfolio. Continuing several years of excellent publications covering work of the school and current thinking in the field, this journal has become a widely recognized part of the school's participation in the profession.

Foreign Studies Program

Each year the school offers at least two opportunities for foreign study to its students. In cooperation with the Danish International Student Committee a program is regularly offered in Copenhagen taught by outstanding Danish architects and educators. Within the school faculty, a person is assigned responsibility to lead a program in Europe each year at varied locations. These are designed to include visits to prominent new architectural sites and major historic locations.

Studies abroad, which are arranged to include a full quarter's credit for advanced students, include design, history, and theory of architecture.

General Information

Students are advised to consult the University's general requirements as stated in the front section of this catalog as well as the requirements described in the School of Architecture's Student Handbook. Self-advising will not be permitted in the School of Architecture. Students must plan their schedule by consulting with an assigned adviser. Electives will be chosen with the concurrence of the adviser and with full consideration of the necessary prerequisites.

Freshman Association

Requirements

The School of Architecture, being a professional program and having limited resources, has a restricted enrollment based on the following criteria:
will count as hours for graduation, although approval of the dean is 19 hours. Taken by full-time students is 12 hours; the Architecture Academic Standards Committee obtains the consent of the School of colleges to pursue studies in architecture before entering the third-year design courses, holding second-year courses satisfactorily completed (attempted) in order to maintain "full status" in the program. Delinquent students must be made by petition only; (2) Application to the School of Architecture no later than May 1 preceding the start of the second year. Students must maintain an overall 2.3 grade point average by the end of 51 hours. These students will have one quarter to raise the overall GPA to a 2.3 or have minimum 2.3 on each quarter's work until overall average is raised to 2.3. If the GPA is not brought up to a 2.3, the student will be dropped from the program.

Third-Year Prerequisites

Students are required to have all first-and second-year courses satisfactorily completed before entering the third-year design courses, Architecture 3001-02-03. Students who register for a third-year design course holding first- or second-year deficiencies may be required to drop the course at any point during the quarter.

Minor

An undergraduate minor in architecture is offered. Students may take approved electives in other colleges to pursue studies in architecture which are relevant to their major areas of concentration. The minor will consist of not less than 18 hours. Persons interested must obtain the consent of the School of Architecture Academic Standards Committee and Dean of the School of Architecture, who will approve specific programs of study proposed by students.

Course Load

The average course load in any quarter is 16 credit hours. The minimum which may be taken by full-time students is 12 hours; the maximum which may be taken without approval of the dean is 19 hours.

Satisfactory/No Credit Courses

These courses, if successfully completed, will count as hours for graduation, although neither S nor NC grades will be calculated in the student's grade point average. Satisfactory is defined as C or better work on the traditional grading scale, and no credit is defined as less than C. The following regulations apply: (1) S/N/C courses may not count for required courses, except 1 (architecture electives); (2) a student who desires to take a course S/N/C should indicate this intention at the start of registration. A change from S/N/C grading to regular grading or from regular grading to S/N/C will not be permitted beyond the add deadline for each quarter. Exception: students who register for a course S/N/C in a restricted area will be required to change to regular grading when the error is discovered.

Program Description

The curriculum for the Bachelor of Architecture Degree includes a combination of required and elective courses which offer the student both a solid professional program of study and a sound general education. While the majority of the courses are designated as required, students may use the available architecture electives to expand their knowledge of general interest. Academic non-architecture electives allow students to broaden their education in areas of general interest: the humanities, natural sciences, social sciences or arts. All electives are to be taken only with the approval of the student's advisor.

Curricula for Architecture

All students studying for a Bachelor of Architecture degree will include the following requirements in their course of study. Students are not allowed to enroll simultaneously in two design lab courses. For any additional specialized requirements, the student should refer to the Student Handbook of the School of Architecture and the student's advisor.

SERVICE PRACTICUM REQUIREMENT

A three-month, non-credit internship in an architecture or an architectural firm or association is required. This must be evidenced by a letter from the employer indicating type and quality of work or her work reviewed by designated faculty of the school. A GPA of 2.0 in Architecture 1900, 1290, 1390, 3000, 3300 is required along with an overall 2.5 GPA.

Approved Electives List

Approved Electives: First & Second Year Students English 2560-70-80, 2640-50; Philosophy 1710, 2510; History 3740; Classics 3340; Foreign Language: Architecture 2000. The approved electives are Architecture electives.

SECOND DEGREE PROGRAM MINIMUM REQUIREMENTS

First Year

<table>
<thead>
<tr>
<th>Hours Credit</th>
<th>First Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Architecture 1100, 1200, 1300</td>
<td>3 4 3</td>
</tr>
<tr>
<td>Architecture 1101, 1201, 1301</td>
<td>3 4 3</td>
</tr>
<tr>
<td>English 1010 or 1011, 1020, 1031, 1032, or 1033</td>
<td>3 3</td>
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<tr>
<td>Math 1840-50-60 or Math 1550-60, Phil. 2510</td>
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<tr>
<td>History 1510-20</td>
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Second Year

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<td>Architecture 2100, 2200, 2300</td>
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<td>Architecture 2101, 2201, 2301</td>
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<td>Architecture 2114, 2214, 2314</td>
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<td>Architecture 2207, 2307</td>
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<tr>
<td>Physics 2240-50-60</td>
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Third Year

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<tr>
<td>Architecture 3100, 3200, 3300</td>
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<td>Architecture 3107</td>
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<td>Architecture 3114, 3214</td>
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<td>Architecture 3116, 3216, 3316</td>
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<tr>
<td>Architecture 3217, 3317</td>
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<td>Architecture Elective</td>
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Fifth Year

<table>
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<tbody>
<tr>
<td>Architecture 4101, 4200, 4300</td>
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<tr>
<td>Architecture 4101</td>
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<td>Architecture 4213, 4313</td>
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<td>Architecture 4116</td>
<td>4</td>
</tr>
<tr>
<td>Architecture electives</td>
<td>- 3 3</td>
</tr>
</tbody>
</table>

Total: 143 hours

To be admitted to the third year the students must have a grade point average of 2.0 in Architecture 1900, 1290, 1390, 3000, 3300 and an overall 2.5 GPA.

Approved Electives

Approved Electives: First & Second Year Students English 2560-70-80, 2640-50; Philosophy 1710, 2510; History 3740; Classics 3340; Foreign Language: Architecture 2000.

Approved Electives: Fourth & Fifth Year Students 3000-4000 level courses in the following areas: Humanities, Social Sciences, Natural Sciences, U.S. Studies, Foreign Studies.

Faculty


Associate Professors: J. Burin, M. Arch. Academy of Fine Arts (Prague); M. D. Herz, B. Arch. Columbia; R. M. Kelso, M.S. Tennessee; E. W. Martella, B. Arch. California (Berkley); M. S. Moffett, Ph.D. M.I.T.; V. Narancio, M. Arch. Belgrade; R. T. Quinn, Ph.D. Lenigh; J. S. Watson, M. Arch. Pennsylvania.
Assistant Professors:


Lecturers:

A. G. Anderson, M.A. Missouri; M. F. Fowler, B. Arch. North Carolina; M. C. Martin.

1100 Introduction to Architecture (3) Examination of scope and definition of architecture. Imaginative, interpretive, and critical background. Relation to contemporary society, the building industry, and allied design professions. Architectural design as a creative process; orientation to courses and programs of the school. Coreq: 1101.

1101 Design Drawing (3) Principles of design through graphic presentation of field observations. Techniques of freehand sketching and abstract graphic communication applied to local examples of buildings and sites. Exercises related to discussions in 1100. Training introduced which relates development of critical vision with drawing skill and the student's imaginative capabilities. Coreq: 1100.


1202 Second Degree Program: Basic Architecture II (6) Principles of site development and basic approaches to planning and design of buildings in relation to function and context. Prereq: 1190 and 1191: Coreq: 1291.


1301 Structural Types (2) Basic building structural types and approaches to construction and assembly of buildings; post and lintel, frames, slabs, stressed skin, geodetic frames, shells. Introduction to concepts of compression, tension, and bending moment. Properties of basic building materials. Prereq: 1200 and 1201: Coreq: 1300.


2100 Fundamentals of Site Design (4) Projects involving site orientation, climate, energy conservation, access, topography, grading, and drainage. Prereq: 1300 and 1301: Coreq: 2101.

2101 Design in the Environment (2) Introduction to design as an integrative and holistic concept applicable to public and private sites. Review of exemplary approaches in current practice. Prereq: 1300 and 1301: Coreq: 2100.

2114 Computer Applications in Architecture (4) Demonstration of computer use in architecture, including exercises in programming.

2200 Elements of Architecture I (5) Design of small buildings with special consideration for site, interrelation to topographical conditions, space allocation, and structural order. Presentation sketches, constructed drawings, and sketch models. Prereq: 2100 and 2101: Coreq: 2201.

2201 Building Use (2) Introduction to techniques of building programming. Space allocation and balance. Inter-relationship of spaces in terms of use. Examination of user requirements. Typical approaches to entry, access, circulation, and public and private zoning. Diagrammatic presentations and sketches from field observations. Prereq: 2100 and 2101; Coreq: 2200.

2207 Architectural History I (3) Development of architecture from antiquity through the Byzantine period, with consideration for cultural conditions and form of society. Prereq: 1100 and 1101: Coreq: 2207.


2301 Models of Building Form (2) Exemplary building illustrations imaginative manipulation of form in response to spatial and structural requirements. Prereq: 2200 and 2201: Coreq: 2300.

2307 Architectural History II (3) Development of western architecture from the medieval period through the Baroque. Prereq: 2207.


2317 Structural and Mechanical Applications (4) Analysis and selection of structural and mechanical systems for a specific case study to integrate technical information into design. Prereq: 2314 and 2316: Coreq: 3216.

3010 Research Methods for Designers (3) General introduction to variety of research methods and techniques available to designer and appropriate for uncovering basic user requirements during design process. Prereq: 2000.

3930 Behavioral Approaches to Environmental Design (3) Of major concern in the lecture content of this course is the effect of the built environment on human behavior. Particular emphasis will be placed upon the role of environmental factors in human development, learning, adaptation, stress and satisfaction, recreation behavior, and life-cycle functions. Studio problems will explore the design of environments for children and environmental supports for various types of physical disabilities for people of all ages. Prereq: Consent of instructor.

3940 Behavioral Approaches to the Design of Prosthetic Environments (3) Many standard features of the built environment are not equally acceptable to all individuals. In fact, the physical functioning of individuals with various types of physical disability, study of architectural barriers in relation to the physical environment is the primary concern of this lecture content. Studio problems explore design of barrier-free environmental features and design of disability-specific environments and behavioral supports. Prereq: 3930 for non-architecture students.

4000 Service Practicum (0) A non-credit internship for minimum of 3 months duration to be completed prior to fifth year.

4100 Advanced Architectural Design I (6) Large-scale buildings, form, and structures are studied in field of applied image in which makes complex use and context requirements. Prereq: 3930.

4101 Community Form (3) Patterns of community development. Study of selected historical and contemporary examples. Emphasis on satisfaction of basic, urban design issues and exemplary design approaches through lectures, readings, essays, and sketch studies.

4116 Acoustics, Communication and Transportation in Buildings (4) Principles and acoustics are studied for buildings, including spaces for speech and music. Methods of vibration and noise control. Equipment for community communication, transportation. Miscellaneous equipment. Prereq: 3930.

4202 Advanced Architectural Design II (6) Design at community scale, emphasizing attention to patterns of community design in response to use requirements and the physical environment. Consideration for sense of place, energy conservation, land use, access and architectural elements.
sections may be housed in off-campus locations. Prereq: 4100 and 4101.

4213 Professional Practice I (3) Principles and methods of economics and management for architectural offices: project production, cost analysis, budgeting, office and constructive management.

4300 Advanced Architectural Design III (8) Design of prototypical projects in larger community settings, with attention to site character, building designs, and site relationships in a given pattern of comprehensive development. Course sections may be housed in off-campus locations. Prereq: 4200.

4313 Professional Practice II (3) Legal responsibilities of architects; contract documents, contract administration, codes and zoning regulations, liability, and insurance. Prereq: 4213.

4400 Independent Design Studies (6) Individual design projects under faculty direction. May be repeated. Maximum credit 12 hours.

4410 Development and Design (6) Research and design projects conducted in various locations abroad.

4415 Urban Design (6) Appropriate community form and urban design frameworks responding to specific community conditions and aspirations. Off-campus locations.

4420 Architectural Design Innovation (6) Design projects emphasizing investigation of experimental approaches to architectural design. Consideration of new building types, innovative design concepts or alternatives, and methods.

4500 Architecture and Preservation (6) Rehabilitation, restoration, and adaptive uses of existing buildings.

4440 Development and Design (6) Design consequences of feasibility studies, economics, finance, marketability, environmental impact, and social considerations in development of real property.

4445 Design Service in Communities (6) Studies conducted under direction of architect or expert in an allied profession, in service to public service organizations or agencies of government, and public groups. Off-campus locations.

4450 Working Drawings (6) Preparation of detailed working drawings, specifications, and other documents for typical architectural projects.

4460 Energy Efficient Design (6) Architectural design with a focus on energy conservation and detailed consideration of specialized energy conservation techniques.

4480 Structural Innovations (6) Building design with innovative structural configuration and technology. May be repeated. Maximum credit 12 hours.

4481 Architecture-Engineering Laboratory (6) Large scale architectural projects of complex nature and with emphasis on engineering systems. Directed research application of new structural concepts. Consideration of codes, economics, urban design, utility services, environmental controls and construction.

4490 Computer Applications in Architectural Design (6) Architectural design projects employing electronic data processing.

4501 Architectural Programming (3) Emphasis is placed on the development of both formal and physical questions and to identify critical basic issues in design. Examination of information sources and their proper use. Formulation of project requirements. Verbal, written, and diagrammatic presentation illustrating a basic design approach, concept, and method. Preparation for 4502.

4600 Comprehensive Architectural Design Project (6) Emphasizes design of complex buildings with attention to clarity of concept. Search for appropriate form and structure, technical requirements and design of details. Full complement of written and visual presentations which support students' arguments for design concept and its development. Required review by faculty representing all areas of the architecture program. Prereq: 4501.

4731-32 Earthquake Resistant Structure I, II (4, 4) Analysis and design of structures to resist earthquake effects. Earthquake phenomena. Vibration of single degree structural systems. Response and damage. Introduction to dynamic analysis of structures. Instrumentation and structural response. Frame and shear wall behavior. Groundstructure interaction. Prereq: Consent of instructor. (Same as Civil Eng. 4731-32)

4801 American Architecture I (3) Development of North American architecture from arrival of immigrants in 1607 until 1680.

4802 American Architecture II (3) Stylistic periods from the Gothic Revival through the nineteenth century.


4804 The International Style (3) Architecture of the International style 1922-1952 with antecedents and influences.

4805 Indigenous Architecture (3) Study of worldwide "anonymous" architecture reliant upon climatic conditions, availability of materials, and economic level of people. Emphasis on prehistoric structures through twentieth century vernacular.

4806 History of Architectural Technology (3) Building materials and construction techniques from antiquity to the present.

4807 Tennessee Architecture (3) History of settlement and building in the state.

4809 Literature of Architecture (3) Survey of architectural writing. Relationship between literature and design.

4810 Aesthetics in Architecture (3) Philosophies of art underlying the practice of architecture.

4811 Special Topics in History, Theory and Criticism (1-4) Special topics in history-related subjects. May be repeated. Maximum credit 6 hours.

4812 East European Architecture (3) Twentieth century architecture in Russia, Czechoslovakia, Poland, Hungary, East Germany, Rumania, Bulgaria, Yugoslavia.

4813 Medieval Architecture (3) History of architecture from the decline of Rome to the beginning of the Renaissance.

4814 Forms of Utopia (3) Ideas and architectural expressions of Utopian movements.

4815 Criticism Seminar (3) Theories, function, and techniques of architectural criticism.

4816 Architects in Social Criticism (3) Writings which illustrate technological, political, and anthropological assumptions of some nineteenth and twentieth century architects.

4817 Architecture since 1945 (3) Recent architectural developments and views of the future.

4820 Special Topics in Architecture (1-4) Individual projects under faculty direction. Credit adjusted to project complexity and level of effort. May be repeated. Maximum credit 6 hours.

4821 Design Methods (3) Application of general systems theory and other methods to architectural design. Research, systems, resonance and method considered.

4825 Current Issues in Architecture (3) Review of emerging trends and current design issues. May be repeated. Maximum credit 6 hours.

4830 Introduction to Preservation (3) History and principles of architectural preservation and restoration.

4831 Preservation Technology (3) Techniques of preservation: dating, methods of analysis, history of materials and technology used in old buildings.

4832 Descriptive Analysis of Historic Buildings (3) Identification and analysis of characteristic elements of buildings from various architectural periods, with emphasis on American architecture. Survey techniques.

4833 Preservation Law (3) Legal aspects of conservation activity.

4840 Project Management (3) Principles, methods, and application of project management to the total building process. Project manager, his function, responsibilities, and activities investigated through case studies, job history reviews, and project simulation.

4841 Construction Management (3) Principles, methods, and application of construction management to the total building process. Construction manager function, responsibilities, and activities investigated through case studies, job history reviews, and project simulation.

4842 Professional Services (3) Marketing of architectural practice by study of cases, theories, public relations procedures, and understanding sales of architectural services, both basic and comprehensive.

4843 Contract Documents (3) Analysis and theory of contract documents by application of production techniques and procedures.

4844 Advanced Contracts (3) Study of contractual problems relating to architect, owner, contractor, and subcontractor.

4845 Codes and Zoning (3) Theory, review, and research of city, county, state, region, and national codes and zoning. History and development of fire safety and building codes; history and development of zoning. Explorations of architect's responsibilities as related to specific project application.

4846 Cost Analysis (3) Methods and theories of estimating project cost and building cost with reference to present techniques. Research in new techniques of cost analysis.

4847 Specifications (3) Theory, analysis, and methods of specifications. Emphasis placed on development and research of specifications.

4849 Supervision (3) Theories, methods, and site study of job inspection during construction phase and construction administration.

4850 Elementary Structural Matrix Methods (4) Introduction to the generalized matrix methods of analysis of structures. Review of matrix algebra and vectors; development of member stiffness and flexibility matrices; assembly of structural stiffness and flexibility matrices. Prereq: Consent of instructor. (Same as Civil Eng. 4850 and Engineering Science and Mechanics 4853.)


4862 Fire Protection in Structures (3) Characteristics of fires in buildings. Fire codes, building evacuation, sprinklers and other fire protection systems, emergency power and lighting, and fire resistant materials and construction.

4863-64-65 Advanced Mechanical and Electrical Systems (3,3,3) In-depth analysis and innovative concepts in design of heating, ventilating, air conditioning, lighting and electrical distribution systems in buildings. Prereq: 3316.

4870 Architectural Photography (3) Photography as a design, research, and presentation medium. Emphasis on architectural photography using black and white media.

4871 Advanced Architectural Photography (3) Application of special photographic techniques with emphasis on color printing and processing. Prereq: Consent of instructor.


4881-82 Advanced Structural Design I, II (3,3,3) In-depth analysis and innovative concepts in design of heating, ventilating, air conditioning, lighting and electrical distribution systems in buildings. Prereq: 3316.

4891 Architectural Graphics (3) Specialized and sophisticated techniques of architectural presentation. Rendered perspectives and color.

4892-93 Advanced Structural Design I, II (4,4) Analysis, and design of basic building structures. Structural and constructional aspects of building, including structur-
4883-84 Advanced Architectural Structures I, II (3, 3) Philosophy of structural design in relation to materials and form. Advanced mathematical and experimental analysis of structures, including use of computer programs. Prereq: 4891 or equivalent.

4887 Structural Design for Protection Against Extreme Hazards (3) 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 and wood structures to resist extreme effects. Protective construction for human needs. Fire protection engineering, fire phenomena, life safety analysis, high-rise building fires.


4891 Computer-aided Design (3) Survey of computer applications in architecture, with special emphasis on structural calculations. Prereq: 2114.

4892 Architectural Computer Graphics (3) Survey of architectural applications of computer graphics; program planning and implementation. Prereq: 2114.


4894 Advanced Design of Concrete Buildings (3) Precast and on-site concrete construction and maintenance, foundations, floor and wall systems. Domes and shell roofs. Prereq: 4891 or equivalent.

4900 Aspects of Urban Environment (4) Interdisciplinary course in urban problems. Prereq: Consent of one of the instructors. (Same as Urban Studies 4900).

4940 Proxemics (4) Seminar for graduate students and upper-division students. Introduction to proxemic research. Definition of proxemic variables. Proxemic notation exercises. Analysis of etic data and the identification of emic categories. Observer bias and methods and bias reduction. Members of seminar required to design, conduct, and present original proxemic research. Prereq: 2000 or consent of instructor.

College of Business Administration

C. Warren Neel, Dean
Roger L. Jenkins, Associate Dean for Graduate Programs
John R. Moore, Associate Dean for Undergraduate Programs
Richard C. Reizenstein, Associate Dean for Management Development Programs
Gerald D. Santell, Acting Director, Management Development Programs
David A. Hake, Director, Center for Business and Economic Research

The College of Business Administration seeks to prepare men and women for positions as executives and specialists in business. Seeing the business firm as operating in a dynamic social, political, and economic environment, the college has four functions with respect to its purpose: (a) to offer its students the firm base of liberal education consistent with that possessed by all educated people; (b) to present to its students business-oriented instruction in professional fields so that they may understand the business process as a whole and the function of specific areas of business in particular; (c) to associate closely with other colleges of the University in order to enrich the understanding of its students by offering an opportunity to learn from psychology, sociology, and other areas related to the behavior of people; (d) to develop in its students the ability to see their four years in the college as the initial step to a lifetime commitment to personal growth and intellectual maturity through continuing education.

The college centers its teaching, subject matter, and research activity around two themes: the manager as a planner, decision maker, implementer, and controller of operations in a business firm; and the manager as an analyst of and an adapter to the larger social, economic, and political environment in which the firm exists.

The college has one goal: to have each student leave school with a reasonably articulate and coherent, though flexible and ever-developing, personal philosophy of business; an understanding of the scientific, ever-changing technological world; and a firm awareness of their social responsibility as a future executive and enlightened wielder of power.

The nationally recognized body which accredits programs in business administration is the American Assembly of Collegiate Schools of Business (AACSB). The college has been a member of AACSB since 1941, and both its undergraduate and graduate programs are fully accredited.

Association and Progression
Students wishing to receive a degree in business administration must seek association with the College. Details of the requirements for association are found on page 27 of this catalog.

Student Advising Center
The College of Business Administration maintains a Student Advising Center. The center is staffed with full-time academic advisers to assist the freshman and sophomore students on an individual basis with their programs. Junior and senior students are assigned to advisers from the faculty of the student's selected major. The objective of working with students individually is to assist them with their personal needs for academic information and to prepare them for self-sufficiency in responding to their questions and concerns.

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 serves the business community, state government, individuals, and the University through dissemination of information, and aids the faculty in preparing research proposals. Staff members conduct research in regional economics, public finance, demography, and related socio-economic problems. The center publishes results of its research and that of others, in monograph form, so that significant developments in the various business disciplines can achieve widespread exposure. In addition, the center staff does contract research on business and economic problems for governmental organizations and private industry. As periodicals, the center publishes the Tennessee Statistical Abstract and the Survey of Business.

The center is a member of the Southeastern Economic Analysis Conference and the Association for University Business and Economic Research.

Management Development Programs Department
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 University of Tennessee Executive Development Program.

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

The TEDP limits enrollment; participants live on campus for a total of four weeks spread over a three-month period. The fall Executive Seminar brings participants and spouses of all TEDP classes back to campus for sessions on relevant topics and current key issues. The Executive Seminar offers a continuing opportunity for personal growth and professional development. 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 as well as nationally recognized professors from other institutions. Each participating faculty member has substantive experience in other or concurrent operations in business and industry. The TEDP faculty is augmented by outstanding practitioners in their fields of business and industry.

**Cooperative Program in Business**

The College of Business Administration offers qualified students who have completed at least one year of work at the University and whose grades conform to the standards set by the college the opportunity to participate in the Cooperative Program in Business. This program, under the direction of a coordinator, combines classroom study with practical experience. Effort is made to place students in jobs which offer maximum educational and financial advantages. Students alternate quarterly between work in business or industry and study at the University.

The Cooperative Program gives the student an opportunity for practical experience, develops a sense of responsibility and cooperation, by rotation, creates greater interest and incentive in studies, enables earning part of expenses, and may lead to permanent employment after graduation.

The student may earn a maximum of nine hours of elective credit for field work but must do a satisfactory job as determined by the employer and coordinator, including reports covering job experiences.

All students interested in the program are referred to the Center for Extended Learning, Student Services Building.

**Preparation for Teaching**

Students desiring to teach business, economics, or distributive subjects in the secondary schools of Tennessee may follow majors in accounting, office administration, or distributive subjects in the colleges or universities are available as well.

**Business Minor for Non-Business Majors**

Students who are non-business majors, but who wish to attain a minor in business, must successfully complete 21 hours of the following required courses: Accounting 2110-20-30, Economics 2110-20-30, and Statistics 2100. Also, 15 hours of upper-division business electives must be taken at UTK. Not more than six upper-division hours of accounting, economics, or statistics may be used for this minor. Students are responsible for meeting prerequisites listed for any upper-division courses taken in a particular concentration. Acceptance of the minor must have approval of the student’s college of enrollment. Minors are unavailable to College of Business Administration students.

**Course Load**

The normal course load for a quarter is 15-17 hours. The maximum number of hours which may be taken by a freshman is 18. Other students may take 19. In unusual circumstances permission to carry a course load in excess of these maximums may be granted by the Associate Dean for Undergraduate Programs in Business Administration.

**Requirements for All Curricula**

In order to qualify for the Bachelor of Science in Business Administration degree, a student must have been accepted for association with the College at the upper division level and must complete the curriculum outlined by the major department. Where no course number is indicated or where a choice is allowed, the student will fulfill the requirements identified in specified courses. Where electives are provided, the courses taken must meet the approval of the adviser. Non-departmental electives are considered as courses outside the student’s major department. No more than 42 hours are permitted in any one subject area.

A maximum of 30 credit hours of unconventional grading (S/NC, P/F, P, etc.) courses may be applied to the total credit hours required for a degree of Bachelor of Science in Business Administration. Such credit hours may be used to meet only the requirements identified in the curriculum as "non-business electives," "non-departmental electives," "business and/or non-business electives," and "business electives."

A Management Science Option is available for students with facility and interests in mathematical applications to business. See page 87.

**ENGLISH REQUIREMENT**

The English requirement can be fulfilled by any eight-hour sequence (any eight-hour sequence plus any additional four hours of natural science for the business education curriculum) in any of the following fields: astronomy, biology, botany, chemistry, geology, or physics.

**SOCIAL SCIENCE REQUIREMENT**

The social science requirement can be fulfilled by selecting from the following courses: Anthropology 2510-20-30; Geography 1610-20, 2110-20-30; History 1510-20 (1518-28), 1610-20, 1950-60, 2510-20 (2518-28); Honors 1135; Human Services 2690; Philosophy 1510-20, 2310, 2510-20; Political Science 2020, 2510-20 (2518-28); Psychology 2500 (2518), 2530-40; Religious Studies 2610 (2611), 2620; and Sociology 1510-20 (1518-28) and 2511 or 2521 as part of the 16 hours of social sciences.

**COMPUTER SCIENCE REQUIREMENT**

A computer programming course satisfies this requirement: Computer Science 1410 or Office Administration 2750 is recommended.

**Accounting**

The curriculum provides preparation for professional accounting careers in public accounting, industry, and government. Graduates are eligible for the CPA examination in Tennessee.

Transfer Students: A minimum of 30 quarter hours of required upper-division College of Business Administration courses must be completed in residence at The University of Tennessee, Knoxville. These courses must include a minimum of 15 hours of accounting courses numbered 3000 or above and must include at least 10 hours of upper-division accounting credit. Transfer students with nine quarter hours of introductory accounting will receive six hours of credit in Accounting 2110-20 and three hours of lower division accounting credit.

**Hours Credit**

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<tr>
<th>Freshman</th>
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<th>NATURAL SCIENCE REQUIREMENT</th>
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Business Administration 4430 - 3
Finance 4110-20 - 3
Business Administration 4430 - 3
Mathematics 1540-50-60 or 1840-50-60 - 4 4 4

Business Education

This major is offered in cooperation with the Department of Vocational-Technical Education in the College of Education. The program meets requirements for certification in business subjects as approved by the State Department of Education. At least a C average must be made in each endorsement area in business for which a student is to be recommended. Additional information is available from Dr. Betty J. Brown, Business Education Coordinator.

Freshman

English 1010 or 1011; 1020; 1031 or 1032 or 1033 - 3 3 3
Mathematics 1540-50-60 or 1840-50-60 - 4 4 4

Sophomore

English electives - 4 4 4
Accounting 2110-20-30 - 3 3 3
Economics electives - 3 3 3

Junior

English literature elective - 3 3 3
Accounting 2110-20-30 - 3 3 3
Economics electives - 3 3 3

Senior

English literature elective - 3 3 3
Accounting 2110-20-30 - 3 3 3
Economics electives - 3 3 3

Total: 188 hours

See Requirements for All Curricula.

Transfer Students: A minimum of 30 quarter hours of required upper-division College of Business Administration courses must be completed in residence at The University of Tennessee, Knoxville. These must include a minimum of 12 hours of finance courses.

Business Administration

See Requirements for All Curricula.
Transfer Students: A minimum of 30 quarter hours of required upper-division College of Business Administration courses must be completed in residence at The University of Tennessee, Knoxville. These must include a minimum of 12 hours of accounting, economics, and finance courses.

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**ACCOUNTING ELECTIVES**

- Business Administration 4430
- Business Law 4110-20
- Economics 4440
- Finance 4110, 4800*
- Office Administration 4320
- Business electives
- Finance electives
- Insurance 4740-50
- Business or non-business electives

TOTAL: 187 hours

*See Requirements for All Curricula.

**To be taken when topic is insurance.**

### Management

This major is designed for students interested in management. All students complete a set of courses designed to provide a basic understanding of management of businesses and also complete one of the following concentrations:

- Operations Management—designed for students who wish to prepare for careers in operations in manufacturing and service industries, including the specific fields of materials management, scheduling and control, work measurement, quality assurance, and supervision.
- General Management—designed for students who wish to prepare for careers in personnel management, including the specialized fields of employment, wage and salary administration, job evaluation, training, and human resources management.

Graduation requirements include at least 15 hours of management courses completed in residence at The University of Tennessee, Knoxville. These must include at least 15 hours of management courses including 4210, 4230, 4460.

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<th>Hours Credit</th>
<th>Freshman</th>
<th>Sophomore</th>
<th>Junior</th>
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<td>English 1010 or 1011; 1020; 1031 or 1032 or 1033</td>
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<td>Math 1540-50-60 or 1840-50-60</td>
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<td>Natural science electives</td>
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<td>Business Administration 4430</td>
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<td>Economics 2110</td>
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<td>Accounting electives</td>
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<td>Math 1540-50-60 or 1840-50-60</td>
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<td>Natural science electives</td>
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<td>Business Administration 4430</td>
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<tr>
<td>Economics 2110</td>
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<tr>
<td>Accounting electives</td>
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</tr>
<tr>
<td>Total</td>
<td>12 - 12</td>
<td>12 - 12</td>
<td>24 - 24</td>
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</table>

**TOTAL: 187 hours**

*See Requirements for All Curricula.

**Operations Management electives**

- Management Science 2100-20
- Computer science elective
- Statistics 2100
- Computer science elective
- Total 18 - 18

**Operations and Personnel Concentrations**

- Management Science 2100-20
- Computer science elective
- Total 3 - 3

**Operations Concentration**

- Business Administration 3110, 3210, 4460
- Business Administration 3120-30
- Total 3 - 3

**Personnel Concentration**

- Business Administration 3110, 3210, 4460
- Business Administration 3120-30
- Total 3 - 3

**General Concentration**

- Business Administration 3110, 3210, 4460
- Business Administration 3120-30
- Total 3 - 3

**Non-business electives**

- Business Administration 4430
- Business Law 4110-20
- Economics 4440
- Finance 4110, 4800*
- Office Administration 4320
- Business electives
- Finance electives
- Insurance 4740-50
- Business or non-business electives

TOTAL: 187 hours

*See Requirements for All Curricula.

**General Concentration electives**

- Management Science 2100-20
- Computer science elective
- Total 3 - 3

**Personnel Concentration electives**

- Management Science 2100-20
- Computer science elective
- Total 3 - 3

**General Concentration electives**

- Management Science 2100-20
- Computer science elective
- Total 3 - 3

**Marketing**

This major is designed to prepare students for careers with companies engaged in the marketing of consumer and industrial goods and their distribution by manufacturers, wholesalers, and retailers. The curriculum trains students for positions in sales, advertising, promotion, research, and marketing management. The integrated sequence of courses enables students to obtain broad training in the analysis of marketing decision problems.

Transfer Students: A minimum of 30 quarter hours of required upper-division College of Business Administration courses must be completed in residence at The University of Tennessee, Knoxville. These must include the following required marketing courses: 3210, 4210, 4510, 4650, 4710.

**Freshman**

- English 1010-20; 1031 or 1032 or 1033 | 3 - 3 | 3 - 3 | 3 - 3 |
- Mathematics 1540-50-60 or 1840-50-60 | 4 - 4 | 4 - 4 | - |
- Natural science electives | - | - | - |
- Business Administration 4430 | 3 | 3 | - |
- Economics 2110 | 3 | 3 | - |
- Accounting electives | - | - | - |
- Total | 18 - 18 | 18 - 18 | 36 - 36 |

**Sophomore**

- English 1010-20; 1031 or 1032 or 1033 | 3 - 3 | 3 - 3 | 3 - 3 |
- Mathematics 1540-50-60 or 1840-50-60 | 4 - 4 | 4 - 4 | - |
- Natural science electives | - | - | - |
- Business Administration 4430 | 3 | 3 | - |
- Economics 2110 | 3 | 3 | - |
- Accounting electives | - | - | - |
- Total | 12 - 12 | 12 - 12 | 24 - 24 |

**Junior**

- Accounting 2110-20 | 3 | 3 | - |
- Accounting 2120-30 | 3 | 3 | - |
- Accounting 2130 | 3 | 3 | - |
- Accounting 2140 | 3 | 3 | - |
- Total | 6 - 6 | 6 - 6 | 12 - 12 |
### Office Administration

Students entering the field of office administration may choose a specialized program to prepare for supervisory, administrative, or managerial positions in the office. Each major in office administration may meet certification requirements by taking the appropriate education courses in consultation with the faculty adviser.

Each major in office administration will select an option area of 12 hours from one of these areas: accounting, banking, bilingual, computer science, insurance, logistics, marketing, management, political science, real estate, secretarial, and transportation.

Transfer Students: To graduate with a major in office administration, a minimum of 30 quarter hours of required upper-division College of Business Administration courses must be completed in residence at The University of Tennessee, Knoxville. These must include 12 hours from courses in psychology and sociology.

### Real Estate and Urban Development

This major is designed for students who are interested in the many fields of business and government where real estate is of significance. Such fields include real estate brokerage, appraising, taxation, law, property management, real estate development, mortgage lending and mortgage banking, construction, government loan guarantees, and insurance.

Transfer Students: A minimum of 30 quarter hours of required upper-division College of Business Administration courses must be completed in residence at The University of Tennessee, Knoxville. These must include a minimum of 12 hours of real estate and urban development courses.
in solving management problems, in response to this growing demand, the College of Business Administration has established a Management Science Option which is available to qualified students who wish to prepare themselves for careers involving this type of work.

The Management Science Option is designed for students who have demonstrated a high level of ability in mathematics and who are interested in applying this ability toward solving management problems. The Management Science Option is available to students majoring in accounting, finance, general business, industrial management, marketing, personnel management, real estate and urban development, statistics, and transportation.

Accounting M.S.O.

Transfer students with nine quarter hours of introductory accounting will receive six hours of credit in Accounting 2110-20 and three hours of lower-division accounting credit. These students must take as one of their technical electives an upper-division course approved by the accounting department advisor, and it must not be an accounting course.

Transfer Students: An option in Accounting M.S.O. requires a minimum of 30 quarter hours of required upper-division College of Business Administration courses which must be completed in residence at The University of Tennessee, Knoxville. These must include a minimum of 15 hours of accounting courses numbered 3000 or above and must include Accounting 4110, 4630, and either 4140 or 4430.

Management Science Option

The increasing use of electronic computers and modern management methods in industry and the business community has created a rapidly growing demand for persons capable of using mathematics, statistics, and computer methods for the use of quantitative techniques

<table>
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<tr>
<th>Hours Credit</th>
<th>Freshman</th>
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<td>3 3 3</td>
<td>English 1010 or 1011; 1020; 1031 or 1032 or 1033</td>
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<td>Mathematics 1540-50-60 or 1840-50-60</td>
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<td>3 3 3</td>
<td>Statistics 2110-20-30</td>
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<td>3</td>
<td>Management Science 2110-20-30</td>
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<td>Economics 2110-20-30</td>
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<td>Economics 2110-20</td>
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<td>Management Science 2110-20-30</td>
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<tr>
<td>3 3 3</td>
<td>Mathematics 2840-50-60</td>
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| 4 4 4        | Management Science 3150 ...
| 3 3 3        | Computer Science 3150 ...
| 3            | Junior |
| 3 3 3        | Finance 3510, 3520-30 |
| 3 3 3        | Management 3010, 3110 |
| 3            | Statistics 3110 or 3220 |
| 3 3 3        | Management 3110-30 |
| 3 3 3        | Economics 3450, 3460, 3550 |
| 3            | Statistics 3450-40 |
| 3 3 3        | Accounting 3110-20 |
| 3 3 3        | Management 3110-20 |
| 3 3 3        | Finance 3130-20 |
| 3 3 3        | Finance 3150-20 |
| 3 3 3        | Management 3010, 3110 |
| 3 3 3        | Senior |
| 3            | Statistics 3550, 3650 |
| 3 3 3        | Accounting 3430, 4110 |
| 3 3 3        | Accounting 4140 or 4430 |
| 3 3 3        | Statistics 4415 |
| 3 3 3        | Accounting 4510, 4630 |
| 3 3 3        | Management 4110, 4210 |
| 3 3 3        | Management 4610-20 |
| 3 3 3        | Administration 4430 |
| 3 3 3        | Non-departmental business elective |
| 3            | 2Technical electives |
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| 3            | 2Technical electives |
| 3            | 2Techni}
Management M.S.O.

Hours Credit | I | II | III
--- | --- | --- | ---
English 1010 or 1011; 1020; 1031 or 1022 or 1032 | 3 | 3 | 3
Mathematics 1840-50 | 4 | 4 | 4
Natural science electives | 4 | 4 | 4
Social science electives | 4 | 4 | 4
Business and/or non-business elective | 6 | 6 | 6
TOTAL: 187 hours

1See Requirements for All Curricula.

Accounting 2110-20-30
Business and/or non-business elective
TOTAL: 187 hours

Economics 2110-20-30
Mathematics 2110
Non-business elective
Sophomore
English electives
Speech 2311
Accounting 2110-20
Mathematics 2640-50-60
Natural science electives
Social science electives
Economics 2110
Non-business elective
Sophomore
English electives
Speech 2311
Accounting 2110-20
Mathematics 2640-50-60
Economics 2120-30
Management Science 2110
Social science elective
Non-business elective
Senior
Accounting 3210
Accounting 3110 or 3220 or 3430
Computer Science 3150
Economics 3110
Economics 3120 or 3210 or 3340 or 3140
Finance 3120-30
Finance 3510
Marketing 3210
Marketing 3410
Marketing 4510
Statistics 3550
Transportation 3110
Senior
Business Administration 4430
Business Law 4110-20
Management 4610-20
Marketing 4650
Business electives (9 hours from Marketing 4140, 4150, 4250, 4560, 4608, 4618-28, Transportation 4720, Business Administration 4610)
Marketing 4710
Transportation 3115
Business and/or non-business elective
Non-departmental elective
TOTAL: 187 hours

1See Requirements for All Curricula.

It is strongly recommended that marketing majors select as many of their electives as possible from courses in psychology and sociology.

Real Estate and Urban Development M.S.O.

Hours Credit | I | II | III
--- | --- | --- | ---
English 1010 or 1011; 1020; 1031 or 1022 or 1032 | 3 | 3 | 3
Math 1840-50-60 | 4 | 4 | 4
Natural science electives | 4 | 4 | 4
Social science electives | 4 | 4 | 4
Business and/or non-business elective | 6 | 6 | 6
TOTAL: 187 hours

1See Requirements for All Curricula.

Marketing Transfer Students: An option in Marketing M.S.O. requires a minimum of 30 quarter hours of required upper-division College of Business Administration courses which must be completed in residence at The University of Tennessee, Knoxville. These must include the following required marketing courses: 3120, 4210, 4510, 4650, 4710.

Freshman
English 1010 or 1011; 1020; 1031 or 1022 or 1032 | 3 | 3 | 3
Mathematics 1840-50 | 4 | 4 | 4
Natural science electives | 4 | 4 | 4
Social science electives | 4 | 4 | 4
Non-business elective | 6 | 6 | 6
Sophomore
Accounting 2110-20
Economics 2110-20 | 3 | 3 | 3
Statistics 2010-20-30
TOTAL: 187 hours

1See Requirements for All Curricula.

Statistics M.S.O.

Hours Credit | I | II | III
--- | --- | --- | ---
English 1010 or 1011; 1020; 1031 or 1022 or 1032 | 3 | 3 | 3
Mathematics 1840-50-60 | 4 | 4 | 4
Natural science electives | 4 | 4 | 4
Economics 2110-20-30
Social science electives | 4 | 4 | 4
Non-business elective | 6 | 6 | 6
Junior
Accounting 3210
Accounting 3110 or 3220 or 3430
Computer Science 3150
Economics 3110
Economics 3120 or 3210 or 3340 or 3140
Finance 3120-30
Finance 3510
Marketing 3210
Marketing 3410
Marketing 4510
Statistics 3550
Transportation 3110
Senior
Business Administration 4430
Business Law 4110-20
Management 4610-20
Marketing 4650
Business electives (9 hours from Marketing 4140, 4150, 4250, 4560, 4608, 4618-28, Transportation 4720, Business Administration 4610)
Marketing 4710
Transportation 3115
Business and/or non-business elective
Non-departmental elective
TOTAL: 187 hours

1See Requirements for All Curricula.

Graduate Studies

The College of Business Administration offers advanced programs in economics leading to the Master of Arts, the Master of Science, and the Doctor of Philosophy degrees. The Master of Business Administration degree program is offered in the fields of accounting, economics, finance, forest industries management, management, management science, marketing, statistics, and transportation and logistics. The Master of Accountancy is offered in accounting. The Doctor of Business Administration degree program is offered in the fields of accounting, finance, management, marketing, and transportation and logistics. Advanced programs in management science lead to the M.S. and the Ph.D. degrees. The M.S. degree in management science is also available. The M.S. and the Ph.D. degrees are granted in industrial and organizational psychology jointly with the Department of Psychology. This college and the College of Law offer a coordinated dual program leading to the conferral of both the Doctor of Jurisprudence and the Master of Business Administration degrees. See the Graduate Catalog for detailed information.

Students applying for the MBA, M.Acc., and DBA programs are required to take the Graduate Management Admission Test (GMAT). Applicants for the M.A., M.S., and Ph.D. programs may take either the GMAT or the Graduate Record Examination (GRE). Applicants whose native language is other than English must submit results of the Test of English as a Foreign Language (TOEFL) unless a degree has been earned at an accredited U.S. institution attended by the applicant for four academic years within five years prior to date of application. Scheduled dates and locations for taking these examinations may be obtained from Educational Testing Service, P. O. Box 966, Princeton, New Jersey 08540, and from most colleges and universities.

Application requirements vary with different graduate programs. Inquiries should be addressed to the Associate Dean for
Graduate Programs, College of Business Administration, The University of Tennessee, Knoxville, Tennessee 37996-0570.  

Departments of Instruction  

Accounting and Business Law  

Professors:  

Associate Professors:  

Assistant Professors:  

Distinguished Lecturer:  
F. B. Wolfe, B.S. Virginia Polytechnic.  

Accounting (009)  

5110-20 Fundamentals of Accounting (3, 3) Introductory to accounting theory and practice with emphasis on preparation, reporting, and analysis of financial information. Prereq. to all other courses in accounting except for engineering majors. Courses must be passed in sequence. Prereq. For 2110, Math 1550 or equivalent.  

2130 Survey of Managerial Cost Accounting (3) User-oriented survey of managerial cost accounting topics designed as a terminal course. Topics include product costing, cost behavior analysis for decision making, standard costing, and budgeting. Prereq. 2120.  

3110-20-30 Intermediate Financial Accounting (3, 3, 3) In-depth study of theory, principles, and procedures related to the valuation of assets, liabilities and equities; measurement of periodic income, and preparation of financial statements. Prereq. for 2120 for 3110: 3110 with a grade of C or better for 3120; and 3120 with a grade of C or better for 3130.  

3210-20-30 Managerial Cost Accounting (3, 3, 3) An in-depth analysis of the use of cost data for external reporting, and internal planning and control. Special topics include product costing, budgeting, performance evaluation, and the role of cost data in decision models. Prereq. for 3210: 2120 and Mathematics 1560 or 1860. Credit not given for both 2130 and 3210. Prereq. for 3230: 3210 and Statistics 2100 or 3450. Prereq. for 3230: 3220 with a grade of C or better and Statistics 3220 or 3460.  


3510 Not-for-Profit Accounting (3) Theory and practice of budgeting, financial and managerial accounting and reporting, planning-programming-budgeting, and auditing for not-for-profit entities. Prereq. 2510 or equivalent.  

4110 Principles of Auditing (3) Role of auditing in society, professional auditing standards, auditor's legal responsibility, internal control, use of statistical sampling, audit evidence, and reporting. Prereq. 3130 with a grade of C or better; Computer Science 3910. Prereq or coreq; Statistics 3410.  

4118 Honors: Principles of Auditing (3) Introductory course in auditing designed for increased enrichment of student with superior ability and interest. Prereq. Same as for 4110 and consent of department head. Substitutes for Accounting 4110 in student's program.  

4120 Advanced Auditing (3) Case-oriented course including audit of specific asset, liability, revenue, and expense accounts, with emphasis on reporting, data processing, statistical sampling, and internal auditing. Prereq. 4110 with grade of C or better.  

4140-50 Advanced Financial Accounting (3, 3) Analysis of issues and alternatives in advanced problem areas including business combinations, partnership, foreign operations, segment reporting, price level and current value accounting, interim reporting, pensions, leases, and selected other current topics. Courses not required to be taken in sequence. Prereq. for either: 5130 with a grade of C or better.  

4148 Honors: Accounting for Business Combinations (3) Designed for increased enrichment of student with superior ability and interest. Prereq. Same as for 4140 and consent of department head. Substitutes for Accounting 4140 in student's program.  

4158 Honors: Advanced Accounting (3) Designed for increased enrichment of student with superior ability and interest. Prereq. Same as for 4150 and consent of department head. Substitutes for Accounting 4150 in student's program.  

4430 Advanced Federal Taxes (3) Fundamental problems of federal taxation with emphasis on alternatives available for reporting taxable income. Prereq. 3130 and 3430.  

4438 Honors: Advanced Federal Taxes (3) Designed for increased enrichment of student with superior ability and interest. Prereq. Same as for 4430 and consent of department head. Substitutes for Accounting 4430 in student's program.  

4440 Taxation of Estates and Gifts (3) Topics include transfers at death, inter vivos transfers, life insurance, annuities and employee death benefits, marital and other deductions and exemptions, and estate and gift tax returns. Prereq. 4430.  


4638 Honors: Analysis and Design of Information Systems (3) Designed for increased enrichment of student with superior ability and interest. Prereq. Same as for 4630 and consent of department head. Substitutes for Accounting 4430 in student's program.  

4990 Accounting Theory (3) Theory and conceptual framework underlying measurement of income and financial position as related to the resolution of key reporting problems. Prereq. 3130 with grade of C or better.  

GRADUATE  

See page 68 for information on graduate programs.  

5002 Non-Thesis Graduation Completion (3-15)  

5010 Financial Accounting (3)  

5020 Corporate Reporting Problems (3)  

5030 Managerial Accounting (3)  

5110 Seminar in Accounting Theory (3)  

5120 Seminar in Advanced Auditing (3)  

5130 Selected Topics-Current Accounting Practice (3)  

5140 Selected Topics-Current Accounting Theory (3)  

5160 Graduate Internship in Accounting (3)  

5210 Seminar in Advanced Managerial Cost Accounting (3)  

5220 Budgetary Planning and Control Systems (3)  

5310 Auditing Concepts (3)  

5320 Advanced Auditing (3)  

5330 Advanced Income Tax (3)  

5340 Consolidations and Business Combinations (3)  

5420 Tax Research (3)  

5430 Tax Planning (3)  

5440 Taxation of Estates and Gifts (3)  

5510 Not-for-Profit Accounting (3)  

5630 Accounting Systems and EDP Concepts and Control (3)  

5640 Seminar in Accounting Information Systems (3)  

5950 Seminar in Accounting Research (3)  

5990 Individual Research in Accounting (3)  

6000 Doctoral Dissertation and Research  

6110-20-30 Doctoral Seminar in Accounting (3, 3, 3)  

Business Law (216)  

4110 Environmental Business Law (3) Principles of law comprising legal environment appropriate to common business transactions. Strongly integrated with basic political and economic concepts. Review of U.S. legal system and business-related law.  

4120 Law of Business Organizations and Regulation (3) General principles of law as these pertain to business and partnerships and corporations, affect taxation, and treat agencies regulating business. Prereq. 4110.  

4130 Administrative Regulation of Business (3) Analysis, nature and scope of which business operations are controlled by administrative agencies operating at federal, state, and local levels. Includes nature of administrative agencies, jurisdiction, administrative procedures, and significant laws administered by such agencies. Prereq. 4120.  

4330 Business Law (3) Fundamentals of business law designed for professional examination required for licensing or certification in fields of public accounting, certified public accounting, chartered property and casualty underwriters, chartered life underwriters, and certified professional secretary.  

GRADUATE  

5010 Legal and Social Environment of Business (3)  

5130 Administrative Regulation of Business (3)  

Economics (283)  

Professors:  
P. D. Cluett (Head), Ph.D. California (Berkeley); R. L. Bowley, Ph.D. Texas; S. L. Carroll, Ph.D. Harvard; W. E. Cole Ph.D. Texas; G. R. Feiwel1, Ph.D. McGill; C. B. Garrison, Ph.D. Kentucky; J. F. Holly (Emeritus), Ph.D. Clark; H. E. Jensen, Ph.D. Texas; F. Y. Lee, Ph.D. Michigan State; A. Mayhew, Ph.D. Texas; J. R. Moore (Associate Dean), Ph.D. Cornell; W. C. Neale, Ph.D. London School of Economics; G. A. Splva, Jr., Ph.D. Texas.  

Associate Professors:  
H. S. Chang, Ph.D. Vanderbuilt, E. Glustoff, Ph.D. Stanford; H. W. Herzog, Jr., Ph.D. Maryland; D. L. Kaserman, Ph.D. Florida; K. E. Phillips, Ph.D. Washington (Seattle); A. M. Schollmann, Ph.D. Washington (St. Louis).  

Assistant Professors:  
P. D. Clark, Ph.D. Michigan State; R. A. Hofler, Ph.D. University of North Carolina (Chapel Hill); J. W. Mayo, Ph.D. Washington (St. Louis); K. J. Murphy, Ph.D. M. C. Anderson; H. L. Thompson, Ph.D. Houston; E. D. Wicklum, (part-time) Ph.D. Rochester.  

1Alumni Distinguished Service Professor.  

Requirements for a major in economics consist of: (1) Economics 2110, 2120, and 2130 with a grade of C or better.
2130 or equivalent honors courses; and (2) a minimum of 33 additional hours in upper-division economics courses. Economics 2110 (or 3111 and 3112) and 3120 are required as a part of the upper-division work and should be taken as early as feasible in the upper-division program as possible.

2001 Current Economics Problems (3) Discussion of selected economic policies and events. Several topics including controversial problems of current or continuing interest will be considered. Emphasis will be on non-technical treatment. Designed for non-economics and non-College of Business Administration majors. May not be used for degree requirements in business administration and may not be substituted for Economics 2110 or 2120 or 2130.

2110-20-30 Introductory Economics (3, 3, 3) 2110—Basic economic concepts introduced through study of evolution of modern capitalism and the ideas of major economists; organization of the U.S. Economy: 2120—Macroeconomics; national income, money and banking, employment, inflation. 2130—Microeconomics: supply and demand, competition, monopoly. Prereq: 2110 for both 2120 and 2130. Third-quarter standing required for admission to 2110.

2118-28-38 Honors: Introductory Economics (3, 3, 3) Honors course designed for students of superior ability and interest. Entrance into 2118 requires a B average. Students admitted will be on basis of high school record, American College Testing Program scores, and grade record during the fall and spring terms of the year. Grade of B or better in 2118 is necessary for entrance into 2128. An A or B in 2128 automatically gives credit for 2130 also, with same grade. Grade of B or better in 2128 must be taken in order to receive nine hours' credit.

3110 Intermediate Micro Theory (3) Allocation of resources and price determination; market demand, production, cost, and supply, distribution. Students may not receive credit for both 3110 and 3111. Prereq: 2110, 2120.


3120 Intermediate Macro Theory (3) Aggregate demand, output, and level of employment; price level, inflation, and deflation; economic growth. Prereq: 2110, 2120.


3230 Regional Economics (3) Overview of regional differences in natural, agricultural, urban, and industrial location; the economic basis for land use patterns and central places; regional structure, growth, and development and their relationship to national assistance for regional economic development. Prereq: 2120 and 2130.

3240 Economic History of the United States (3) Historical developments in agriculture, industry, commerce, and transportation, together with changes in governmental economic policy. Prereq: 2110-20.

3250 Economic History of Europe (3) Beginnings of capitalism in medieval Europe, expansion of Europe and dominance of mercantilism in early modern times, mechanization of industry, changes in agricultural organization, and the importance of commercialization in the 19th century; two world wars and their economic consequences. Prereq: 2110-20.

3310 Comparative Economic Systems (3) Description and analysis of economic goals, institutions and policies in different countries with emphasis on alternative organizational principles and structure. Systems examined will include soviet-type economies. Prereq: 2110-20-30.

3340 Government and Business I (3) Microeconomic objectives and alternative public policies for their achievement; prevention of monopoly and concentration through direct regulation of business performance. Prereq: 2130.

3341 Government and Business II (3) Topics in antitrust policy, direct regulation, and other forms of social control; regulating information, product, and employment practices, and government-business relations; selected cases. Prereq: 3340.

3410 Principles of Labor Economics I (3) Supply of and demand for labor; market wage determination, application of analysis to issues such as minimum wage laws, discrimination, unemployment, inflation, collective bargaining, income distribution and human resources policy. Prereq: 2120-30.


4000 Special Topics (3) Student-generated course offered at convenience of department upon student initiative. Subject matter and contents determined by students and instructor with approval of department. Prerequisites determined after each term based on time and content offered. Numerical grade is given to law students. May be repeated for credit.

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

4130 Business Cycles (3) Fluctuations in income, employment, prices, and output in the economic system; subjects discussed are historical facts concerning booms and depressions, statistical methods for analyzing business fluctuations, theoretical explanations of cycles, and policies that have been proposed to combat them. Prereq: 3120 or consent of instructor.

4150 History of Economic Thought (3) Development of economic thought, tools of analysis, and economics as a social science, together with an analysis of socioeconomic conditions which influenced this development. Prereq: 3340 through 3366. Prereq: 2110, 2120, 2130, and consent of instructor.

4170-80 Introduction to Mathematical Economics (3, 3) Application of mathematical methods in theoretical study of micro and macro economic phenomena. Designed for undergraduate students who have limited training in analytic geometry and calculus. Must be taken in sequence. Prereq: Economics 3110 and Mathematics 1840-50, or equivalent.

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: 2110 to 3220.

4231 The Political Economy of Latin America (3) Description, analysis, and comparison of major economic problems and policies of various Latin American countries. Prereq: 3230.

4232 The Political Economy of Asian Development (3) Description, analysis, and comparison of major economic problems and policies of India, China, and Southeast Asia. Prereq: 3230.

4233 The Political Economy of the Soviet Union and Eastern Europe (3) Analysis of the major economic strategies, policies, and problems of the Soviet Union and Eastern Europe. Prereq: 3250.

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.


4420 Economics of Human Resources (3) Analysis of current problems in human resource development and examination of policies aimed at their solution. Problems discussed may include unemployment, education and training, poverty and income redistribution, discrimination based on sex or ethnicity, or others. Prereq: 3410.


5990 Independent Study (1-4) Offers qualified student opportunity to pursue topics or projects of special interest. Prereq: Senior standing, 3.0 GPA in economics courses, and consent of instructor. May be repeated. Maximum total credit 4 hrs.

GRADUATE

See page 88 for information on graduate programs.

Economic Theory

5010 Introduction to Economic Analysis (3)

5020 Managerial Economics (3)

5030 Economic Fluctuations, Forecasting, and Stabilization (3)

5090 Workshop in Economics (3-9)

5110 Fundamentals of Microeconomics (3)

5111-12 Microeconomic Theory I, II (3, 3)

5120 Fundamentals of Macroeconomics (3)

5121-22 Macroeconomic Theory I, II (3, 3)

5150 History of Economic Thought (3)

5180-90 Mathematical Methods in Economics (3, 3)

5510 Quantitative Methods in Economic Research (3)

5520 Introduction to Econometrics (3)

5710 Public Finance: Revenues (3)

5720 Public Finance: Expenditures (3)

5740 Seminar in Public Finance (3)

5810 Financial Markets and Intermediaries (3)

5820 Monetary Theory and Policy (3)

5830 Commercial Bank Management (3)

5111 Advanced Microeconomic Theory (3)

6121 Advanced Macroeconomic Theory (3)

6150-60 History of Economic Doctrines (3, 3)

6170-80-90 Econometric Methods (3, 3, 3)

6170-20 Seminar: Fiscal Theory and Public Finance (3, 3)

International Trade and Development
Finance (349)

3120-30 Business Finance (3, 3) Principles of financial management. Analysis of demand for funds, internal and external supplies of funds, and their costs to the firm. Prereq: 3120 for 3120.

3510 Money and Banking (3) Nature and functions of money and credit; analysis of monetary and credit systems; money creating role of commercial banks and the Federal Reserve Systems.

4110 Investment Analysis (3) Theory of investment value of various types of securities and options. Prereq: 3130 and Statistics 3220 or 4310 or 3110.


4190 Topics in Investments (3) Portfolio management policies of institutions, efficient market hypotheses and evidence, options and commodities. Prereq: 4120.

4150-60 Evolution and Function of Financial Institutions (3) Financial system of the United States; emphasis on historical role and functions of financial institutions.

4350-60 Public Finance (3, 3) Public expenditures, federal and state revenue systems, financial administration, budgeting, and public debt management.

4370 State and Local Finance (3) Emphasis on revenue systems and division of tax sources.


4510 Monetary Theory and Policy (3) Role of money in the economy. Emphasis upon factors that affect demand for the supply of money, Evaluation of current policy.

4520 Commercial Banking (3) Operations of commercial banks; emphasis on asset and liability management. Prereq: 3110.


4660 Problems in Financial Management (3) Financial decision-making, a case approach. Prereq: 4650.

4800 Business Executive in Residence (3) Develops practical areas of finance curriculum. Leading financial executives, bankers, insurance executives, and realtors will conduct classes. May be repeated. Maximum credit 6 hrs. Prereq: Consent of department.

4990 Senior Seminar (3) Intensive investigation of specific topic in student's area of concentration. Taken last quarter of senior year. Required of all students majoring in finance, or real estate.

GRADUATE

See page 88 for information on graduate programs.

5002 Non-Thesis Graduation Completion (3-15)

5011-12 Problems in Lieu of Thesis (3, 3)

5910-20-30 Economics Seminar (1, 1, 1)

6000 Doctoral Dissertation and Research

Finance

Professors: D. S. kidwell (area Coordinator), 1 Ph.D. Oregon; L. P. Anderson, Ph.D. Wisconsin; R. A. Bohm, Ph.D. Washington (St. Louis); W. W. Dotterweich, Ph.D. Pennsylvania; E. W. Lambert, Jr., Ph.D. Alabama; G. C. Philippatos, 2 Ph.D. New York; R. E. Shrieves, Ph.D. California (Los Angeles); K. E. Quinney, Ph.D. Kentucky; C. P. White (Emeritus), Ph.D. Pennsylvania.

Associate Professors: A. L. Auxier, Ph.D. Iowa; W. F. Fox, Ph.D. Ohio State; J. C. Golden, DBA George Washington; W. C. Goodley, Ph.D. Wisconsin; J. M. Waschowicz, Jr., Ph.D. Illinois (Urbana).


1Bout National Bank Professor of Finance
2C. H. Butcher, Jr. Professor of Banking and Finance

Prerequisites: Accounting 2110-20-30, Economics 2110-20-30, and Statistics 2100 for all courses offered in the finance department except Insurance 3020.

5730 Finance Administration of Government (3)

5740 Seminar in Public Finance (3)

5800 Executive-in-Residence Seminar for M.B.A. (3)

5810 Financial Markets and Intermediaries (3)

5820 Monetary Theory and Policy (3)

5830 Commercial Bank Management (3)

5919-20-30 Finance Seminar (1, 1, 1)

5990 Research in Finance (3)

6000 Doctoral Dissertation and Research

6110-20 Seminar in Monetary Theory (3, 3)

6410-20 Seminar in Theory of Finance (3, 3)

6510 Seminar in Financial Management (3)

6520 Seminar in Capital Markets (3)

6710-20 Seminar: Fiscal Theory and Public Finance (3, 3)

6810 Financial Institutions and Markets (3)

Insurance (580)

3020 Introduction to Risk and Insurance (3) Consumer-oriented view of risks faced by individuals and business. Methods of risk management, with particular emphasis on life, property, and casualty insurance.

3220 Business Risk Management (3) Principles of risk bearing and risk analysis, economics of risk and insurance.

4710 Life Insurance and Estate Planning (3) Coordination of life and health insurance with protection, conservation, and distribution of estate assets.

4720 Employee Benefit Plans (3) Plan design, cost factors, and funding media for employee benefits, including business life insurance, group insurance, pensions, profit sharing, and other forms of deferred compensation.

4740-50 Property-Casualty Insurance Planning (3, 3) Property and casualty contracts and forms and their application to business and personal risks. Must be taken in sequence.

GRADUATE

5110 Theory of Risk Management (3)

Real Estate and Urban Development (849)

2610 Introduction to Real Estate (3) Basic concepts, tools, and analysis of real estate. May not be used for degree requirements in business administration.

3610 Principles of Real Estate and Urban Development (3) Introduction to real estate value. Prereq: Economics 3110.

3615 Real Estate Appraisals (3) Theory and practices of determining real estate value. Prereq: 3610.

3630 Real Estate Finance (3) Institutional and governmental procedures and techniques for financing real estate transactions. Prereq: 3610.

4120 Urban Growth and Land Use (3) Analysis of urban growth processes and land use patterns. Prereq: 3610.

4130 Problems of Urban Development (3) Current problems of land use and urban developments. Prereq: 3610.

4640 Management and Development of Real Property (3) Real estate investment analysis and taxation. Prereq: 3650.

4810 Analytical Methods in Real Estate (3) Applications of regression, correlation, and computer-based models to real estate investment decisions. Prereq: 3615 and Statistics 4310.
GRADUATE

5002 Non-Thesis Graduation Completion (3-15)
5110 Urban Economic Analysis (3)
5120 Real Estate Analysis (3)
5130 Housing and Urban Land Markets (3)
5140 Real Estate Investment and Taxation Analysis (3)

Management

Professors:
H. D. Dowhurst (Head), Ph.D. Texas; R. W. Boling, Ph.D. Stanford; M. E. Gordon, Ph.D. California (Berkeley); H. W. Horry, Ph.D. Michigan; A. H. Keally (Emeritus), MBA Pennsylvania; J. M. Larsen, Jr., Ph.D. Purdue; S. K. Reed, Ph.D. Edinburgh; S. C. Vance (Emeritus), Ph.D. Pennsylvania; G. H. Whitlock, Ph.D. Tennessee; M. S. Worthen, Ph.D. Minnesota.

Associate Professors:
F. A. Chamblin (Emeritus), MBA Indiana; O. S. Fowler, Ph.D. Georgia; R. C. Maddox, Ph.D. Texas; C. W. Neil (Dean), Ph.D. Alabama; M. C. Rush, Ph.D. Akron.

Assistant Professors:
K. C. Gilbert, Ph.D. Tennessee; R. T. Ladd, Ph.D. Georgia; G. B. Roberts. MBA Georgia State.

*Alumni Distinguished Service Professor.

Management (825)

Junior standing is prerequisite to all management courses.

3010 Principles of Management (3) Analysis of basic management functions of planning, organization, and controlling.
3110 Production Management (3) Analysis of production function. Prereq: Statistics 2100 or 3450. Not available for management majors with concentrations in operations or personnel.
3111 Operations Management (3) Analysis and synthesis of concepts and techniques for decision making in the operations function. Integration of the operations function with other business functions. Prereq: Management Science 2110-20. Cannot be taken for credit by students who have credit for Management 3110.
3330 Experiences in Organizational Behavior (3) General concepts and personal experience, interpersonal and organizational communication, practice and evaluation.
3460 Personnel and Human Resources Management (3) Processes of effective planning for recruitment, selection, development, and maintenance of human resources. Emphasizes universality of personnel function. Not available for management majors. Cannot be taken for credit by students who have credit for Management 4460.
4210 Managerial Strategy and Tactics Applications (3) A general business simulation is used for information processing to provide experience in organization and analysis of managerial data. Emphasizes on skills related to oral and written justification of results. Prereq: Senior standing or consent of instructor.
4230 International Business Management (3) Analysis of factors significant to the manager in international business activities.
4320 Organization Structure and Behavior (3) Structure and behavior in organization: models, concepts, and problems.
4410 Operations Control (3) Analysis of the operations control function: Techniques of short-term forecasting; material and capacity requirements planning; integration of scheduling and operations flows into the total operations function. Prereq: 3111.
4420 Advanced Industrial Problems (3) Cases in production management. Prereq: 15 hrs. in major including 4410.
4460 Organizational-Industrial Psychology (3) An analytical and empirical approach to the analysis of organizational tools and knowledge to organizations. Prereq: Statistics 3110 or (Statistics 3310 with consent of Instructor). Cannot be taken for credit by students who have credit for Management 3480. (Same as Psychology 4460.)
4470 Job Analysis and Evaluation (3) Job evaluation as basis for control of wages and salaries. Prereq: 4460.
4520 Evaluation of Personnel Programs (3) Methodologies for evaluation in personnel management and selection. Prereq: 3110.
4530 Personnel Problems Seminar (3) Case problems in personnel analyzed, applying experimental method and conclusions from personnel research as reported in professional journals. Prereq: 4460-70; Statistics 3110.
4610-20 Management Science (3, 3) Applications of mathematical and statistical techniques to problems of production management. Prereq: 30 hours of mathematics and statistics, and consent of instructor.
4710 Enterprise Planning and Control (3) Concepts and techniques for enterprise planning and control in business firm. Prerequisite: Mathematical programming and computer sciences. Emphasis on formal long-range strategic planning in changing environment. Team project to develop long-range plan for hypothetical enterprise.
4801-02-03 Readings and Research in Personnel Management (1, 2, 3) Prereq: 4460, Statistics 4510, and consent of instructor.

GRADUATE

See page 88 for information on graduate programs.

5000 Thesis
5002 Non-Thesis Graduation Completion (3-15)
5010 Quantitative Analysis for Management Decisions (3)
5310-20-30 Management Science Methods (3, 3, 3)
5335 Mathematical Programming Computational Systems (2)
5340 Application of Management Science Methods (3)
5810 Special Topics in Management Science (3)
5910 Management Science Problems (1-6)
6000 Doctoral Research and Dissertation
6110-20-30 Models for Production Systems (3, 3, 3)
6210-20 Network Flows (3, 3)
6310 Integer Programming (3)
6410 Large Scale Mathematical Programming (3)
6510 Nonlinear Optimization (3)
6610 Markovian Decision Processes (3)
6620 Queuing Models (3)
6710 Location Models (3)
6810 Special Topics (3)
6910-20 Management Science Seminar (1-3, 1-3, 1-3)

Marketing and Transportation

Professors:

Associate Professors:
E. R. Cadotta, Ph.D. Ohio State; J. H. Foggin, Ph.D. Indiana; R. L. Jenkins (Associate Dean), Ph.D. Ohio State; J. R. McMillan, Ph.D. Ohio State; R. C. Reizenstein (Associate Dean), Ph.D. Cornell; G. D. Sontell, DBA Indiana; R. L. Spiro, Ph.D. Georgia.
Marketing (632)

Economics 2110-20-30 or the equivalent are prerequisite to all courses in Marketing: Marketing 3110-20 or the equivalent are prerequisite to all 4000 level marketing courses.


3120 Marketing Management (3) Analysis of marketing management. Identifying market opportunities, planning marketing program, and implementing competitive strategies. Prereq: 3110.

3210 Marketing Systems (3) Macromarketing systems approach from viewpoint of decision maker. Examination of inputs, outputs, organizations, and goals of marketing systems. Consideration of comparative marketing systems. Prereq: 3110. Prereq. or coreq: 3120.

4140 Marketing Communications I (3) Examination of firm's personal communications function. Managing sales force; including personal selling concepts. Particular emphasis on role of sales organization in marketing program.

4150 Marketing Communications II (3) Mass communications theories and concepts. Advertising and its relationship to marketing program of firm.

4210 Buyer Behavior (3) Industrial and ultimate consumer purchasing behavior. Theories underlying buying decision processes. Marketing management and pivotal concepts in behavioral sciences.

4230 International Marketing (3) Management of international marketing activities of the firm. Marketing strategies in international business. Prereq: 3110. Prereq. or coreq: Business Administration 3110 or consent of instructor.

4310 Retailing Management (3) Structure and environment of retailing and its relationship to other parts of the economy. Research and decision making in selected areas of store management.

4440 Environmental Issues in Marketing (3) Environmental forces which serve as constraints on business decision maker. Emphasis is placed upon current issues and social and ethical implications of marketing decisions.

4510 Marketing Information Planning (3) Planning and obtaining information for marketing decision making. Information sources, data collection process, methods of analysis, and interpretation procedures are integrated to serve the decision maker. Prereq: Statistics 3110 or 3220 or 4250.

4650 Market Opportunity Analysis (3) Developing understanding of various approaches available for evaluating opportunity that may exist within a market. Emphasis on relationship between analysis of markets and marketing decision making. Topics covered will include basic consumer behavior concepts, alternative sources of market information, information analysis techniques, interpretation of marketing information, and forecasting. Prereq: 4510.

4710 Marketing Decisions and Strategies (3) Pragmatic orientation to application of advanced, analytical concepts and skills within marketing environment. Emphasis on integration of knowledge from the component areas of marketing into cohesive, well-organized marketing program. Prereq: 24 hrs. of marketing including 4210, 4510 and 4650 or consent of instructor. Course should be taken as close to graduation as possible.

4808 Honors: Executive-in-Residence Seminar (3) Student interaction with top-level marketing executives is used as a primary vehicle to show how conceptual knowledge in marketing is applied in the business world in a major marketing subject area (e.g., promotion, consumer behavior, marketing strategy, etc.) Prereq: Marketing 3210, 4210, 4510, and consent of instructor. 4650 is a recommended but not required prerequisite.

4818-28 Honors: Marketing (3, 3) Marketing trends and developments. Advanced marketing theory and application. Can be substituted by eligible students for other courses in marketing with consent of department. Prereq: Consent of department.

GRADUATE

See page 88 for information on graduate programs.

5002 Non-Thesis Graduation Completion (3-15)

5010 Marketing and Distribution Management (3)

5020 Marketing Strategy and Decision Making (3)

5210 Sales Force Management (3)

5220 Promotion Management (3)

5310 Marketing Systems Planning (3)

5320 Analysis and Design of Marketing Systems (3)

5330 Buyer Behavior Analysis for Marketing (3)

5400 Analyzing Market Opportunity for Marketing Decisions (3)

5410 Advanced Marketing Strategy (3)

5450 International Marketing Management (3)

5900 Research in Marketing (3)

6000 Doctoral Dissertation and Research

6050 Theoretical Foundations of Marketing (3)

6100 Design and Measurement in Marketing Research (3)

6180 Marketing Research Applications (3)

6200 Buyer Behavior (3)

6250 Selected Problems in Consumer Behavior (3)

6300 Marketing Decision Models (3)

6380 Current Topics in Marketing (3)

Transportation (981)

Nine quarter hours in general economics are prerequisite to all courses in transportation. Transportation 3110-15 or consent of instructor are prerequisite to all courses numbered above 4000.

3110 Introduction to Transportation (3) Survey of the demands faced by society upon the nation's transportation system and the problems facing carriers and government in meeting these demands.

3115 Introduction to Logistics (3) Business logistics as a functional area within the firm. Discussion of logistics management and their interrelationships. Prereq: 3110, Statistics 2100.

3210 Traffic Management (3) Problems and opportunities in shipper's utilization of carrier services with emphasis on classification and tariff systems analysis; rate determination and selection procedures. Prereq or coreq: 3115.

4410-15 Surface Transportation (3, 3) Analysis of organizational structures, operational characteristics, and management policies of railroads, motor carriers, and domestic barge lines. Courses should be taken in numerical sequence.

4420 Air Transportation (3) Analysis of economic characteristics, regulatory provisions, and organizational patterns of commercial aviation.

4510 Urban Transportation (3) Analysis of economic characteristics, regulatory provisions, and management of transportation firms operating in urban areas.

4610 Carrier Pricing Strategy (3) Historical development of carrier pricing systems and analysis of current strategy.

4620 Carrier Management Seminar (3) Senior seminar in applications of management decision making in transportation. Prereq: Minimum of 18 hours in transportation/logistics. Transportation 4410-15 recommended.

4720 Logistics Systems Management Seminar (3) Senior seminar in development of business logistics strategy and the management of logistical systems. Course approach includes case studies, lectures, and computer simulation. Prereq: 3115, Management Science 2110.

4730 Transportation and Logistics Research (3) Identification and analysis of methods of research in transportation and business logistics. Application of quantitative techniques, model building, and simulation to solution of problems. Prereq: 4720.

4810-15 International Transportation and Logistics (3, 3) Introduction to ocean shipping and international air service, import-export traffic management, international distribution strategy, government policy, discussion of transportation systems in other countries. Courses must be taken in sequence. Prereq or coreq: Business Administration 3110 or consent of instructor.

4820 Current Topics in Transportation and Logistics (3) Seminar designed to study specific current problem areas in transportation and distribution. Topic announced prior to offering. May be repeated once for credit. Prereq: Consent of instructor.

4830 Supervised Readings in Transportation and Logistics (3) Directly readings and research on subject of mutual interest to student and staff member. Prereq: Senior standing with minimum of 18 hours of transportation.

4910 Carrier Liability and Claims (3) Rights and liabilities of carriers, consignors and consignees; claim procedures and claim prevention.

4920 Transportation Law and Procedures (5) Analysis of Interstate Commerce Act and related statutes, practices, and procedures before regulatory agencies.

4930 Transportation Policy (3) Analysis of regulatory, promotional and planning policies of federal, state, and local governmental units.

GRADUATE

See page 88 for information on graduate programs.

5002 Non-Thesis Graduation Completion (3-15)

5010 Survey of Transportation and Logistics (3)

5110 Theory and Functions of Economic Regulation (3)

5120 Management and the Pricing Problem (3)

5130 Carrier Transportation Management (3)

5220 Logistics Systems Management (3)

5510 Urban Transportation Policy (2)

5810 International Transportation Policy (3)

5910 Advanced Law and Regulation (3)

5990 Independent Study in Transportation/Logistics (3)

6000 Doctoral Dissertation and Research

6110 National Transportation Policy (3)

6210 Seminar in Transportation and Logistics Models (3)

6220 Research Methodology in Transportation and Logistics (3)

Office Administration (735)

Professors: G. L. Duffus, Ph.D., Purdue; D. Reese, Ph.D., Iowa; E. R. Smith, Ph.D., Ohio State; G. A. Wagner (Emeritus), M.S., Indiana.

Assistant Professor: A. Wagoner (Emeritus), M.S. Indiana.

Undergraduate: J. J. Stallard (Program Director), Ph.D., Ohio State; D. Reese, Ph.D., Iowa; E. R. Smith, Ph.D., Ohio State; G. A. Wagner (Emeritus), M.S., Indiana.

Assistant Professor: L. E. Wagoner (Emeritus), M.S. Indiana.
2110 Beginning Typewriting (3) Development of typewriting skills, straight-copy speed stressed. Introduction to lettering, tabulations, and manuscripts. For students with no previous training or with one-half unit of high school credit. Students with one unit of high school typewriting may not receive credit for 2110.

2130 Advanced Typewriting (3) Building of advanced skills in speed and production typewriting; keyboarding. Prereq: One unit of high school typewriting or minimum grade of C in 2110.

2180 Word Processing (3) Introductory understanding of word-processing concepts and how they fit into an information-processing network. Some hands-on experience with magnetic typewriters and dictating equipment. Prereq: Minimum grade of C in 2150 and sophomore standing.

2310 Beginning Shorthand (3) Theory of a shorthand system; development of dictation and transcription skills. For students with no previous shorthand training and who want a typist's working knowledge of shorthand. Prereq: One unit of high school typing or minimum grade of C in 2110 or equivalent.

2320 Intermediate Shorthand (3) Development of dictation and transcription skills; students with one year of high school shorthand will enter this course. Prereq: Minimum grade of C in both 2130 and 2310 or their equivalent.

2750 Electronic Data Processing (3) Development of skill in FORTRAN programming with special emphasis on business applications. Prereq: Mathematics 1560 or 1860 equivalent. Cannot receive credit if credit has been received in Computer Science 1410.

3100 Survey of Administrative Services (3) Study of administrative services in modern office that support administrative management. Includes purchasing and maintaining variety of office equipment, methods for training equipment users, supervision, and information dissemination.

3180 Word Processing Management (3) Develops ability to recognize when and how to use word processing to meet organization's needs. Study of management and control of word processing systems. Hands-on experience in word processing. Prereq: 2110 with minimum grade of C or proficiency and 2750.

3310 Records Management (3) Application of systematic analysis and scientific control of business records from their creation through processing, maintenance, protection, and final disposition; management of records correlation, handling quantity, quality, and cost of records; emphasis on computerized file maintenance. Prereq: 2110 with a minimum grade of C or proficiency and 2320.

4310 Business Letter Writing (3) Principles, practices, and mechanics of effective business letters and memoranda; principles applied by solving communicative problems. Emphasis placed on letters and memos as initial sources of ideas in communications system of the business firm.

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 in reports.

4410 Advanced Shorthand and Transcription (3) Improvement of ability to take dictation and transcribe mailable copy. Prereq: 2320 or equivalent.

4420 Advanced Transcription (3) Improvement of ability to transcribe mailable copy from dictation of a wide variety of sources in accordance with the rules and procedures related to the many procedures and competencies needed to meet occupational standards. Prereq: 4410.

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

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.

4640 Seminar (3) Integration of knowledge and skills acquired in previous courses in office administration. Emphasis on techniques and problem solving, and decision making in office management, and synthesizing previous learning. Taken as a capstone experience during senior year. Prereq: 3110, 3180, and 3310, 4510 or 4520.

4650 Practicum (3) Development of office supervisory competencies in supervised work experience; minimum of 15 hours a week of paid work experience in position with office supervisor or management person; assignment to a position consistent with student's career goals. Prereq: 3110, 3180, and 3310, 4510 or 4520 coreq: 4640. Students may be exempt from practicum if they have had one year of full-time equivalent work experience consistent with their career goals. S/NC.

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

GRADUATE

5011 Problems in Lieu of Thesis (3)

5050 Data Processing in Business (3)

Statistics (962)

Professors: C. C. Thrippen (Head), Ph.D., Virginia Polytechnic; R. A. McLean, Ph.D., Purdue, Ph.D., Virginia Polytechnic.

Associate Professors: H. A. Lasater, Ph.D., Rutgers; R. G. O'Brien, Ph.D., University of North Carolina (Chapel Hill); R. D. Sanders, Ph.D., Texas; M. S. Younger, Ph.D., Virginia Polytechnic.

Assistant Professors: G. B. Ranney, Ph.D., North Carolina State (Raleigh); S. W. Ward, Ph.D. Virginia Polytechnic.

Undergraduate courses numbered 4000 and above presuppose familiarity with the basic probability distributions in statistics and with the general concepts of statistical estimation and hypothesis testing. Students intending to take 2100 and one additional undergraduate course are advised to select the former from among 3000-level courses.

2100 Probability and Statistics (3) Elementary theory of probability, frequency and density functions; expected values and variances; fundamental concepts of statistical inference. Cannot be taken for credit by students who have credit for 3450. Prereq: Mathemat ics 1560 or 3450.

3310 Regression and Correlation Methods (3) Methods of linear and multiple-linear regression and correlation; nonparametric measures of association. Cannot be taken for credit by students who have credit for 3410. Prereq: 2100 or 3450.

3410 Sampling Methods Useful for Surveys (3) Expository treatment of various types of probability sampling methods illustratively developed. Emphasis on procedures for selection of sample and calculation of estimates of parameters. Not available for credit to students with credit for 4415. Prereq: 2100 or 3450.

3450 Statistics for Engineering (3) Survey of statistical methods, with special application for engineering students, frequency distributions, selected sampling distributions, some tests of significance. Cannot be taken for credit concurrently with 2100. Prereq: Mathematics 2540.

3460 Statistics for Engineering (3) Continuation of 3450 with emphasis on chi-square statistic, analysis of variance, and multiple regression analysis. Prereq: 3450, Mathematics 2850.


4250 Nonparametric Methods (3) Measures of association, two-sample tests, analysis of variance with randomized, paired and multiple comparisons in preference testing; questionnaire evaluation.

4310 Regression Analysis (3) Linear regression and correlation, multiple regression, stepwise methods, polynomial regression, use of dummy variables. Use of standard regression computer programs. Elementary theory and applications.

4410 Design of Experiments (3) Principles and procedures for experimental design. Randomization, choice of size and number of experimental units, utilization of blocking arrangements, interpretation of experimental data.

4415 Sampling Techniques and Theory (3) Procedures used in probability sampling for a variety of arrangements of statistical universes and development of estimators and standard errors associated with sampling schemes. Some properties of estimators. Determination of sample size. Not available for credit to students with credit for 3410.

4750 Statistical Problems in Business (3) Case study course of statistical problems in variety of business areas. Prereq: 15 hours in statistics and consent of instructor.

GRADUATE

Prerequisites for a major: Mathematics 2840-50-60, Statistics 3450 or equivalent.

5002 Non-Thesis Graduation Completion (3-15)

5010 Probability and Statistical Inference (3)

5020 Statistical Methods (3)

5060-60-70 Statistical Analysis for the Behavior Sciences (3, 3, 3)

5110 Introduction to Probability Theory (3)

5120-30 Theory of Statistical Inference (3)

5210 Stochastic Processes (3)

5211 Elementary Statistics (3)

5250-60-70 Applied Statistics for Engineering and Natural Sciences (3, 3, 3)

5610 Special Topics in Statistics (3)

6060 Applied Multivariate Analysis (3)

6070 Factor Analysis (3)

6210 Stochastic Processes II (3)

Interdepartmental Unit

Business Administration (205)

1110 Business Administration (3) Introduction to business. Not open to students with more than 3 credit hrs. of economics.
3110 Introduction to International Business (3) A survey of the strategic implications of conducting business operations in an international context. Emphasis on the analysis of relevant cross-national environments including cultural, political, economic and legal characteristics. Prereq: Economics 2120 or consent of instructor.

4430 Business Policy (3) Analysis of business problems and managerial decision making through case study method and written reports. Prereq: Core requirements except Business Law (see page 63) and senior standing. Open only to students who have been admitted to the Upper-Division programs of the College of Business Administration.

4610 Seminar in Small Business Assistance (3) Application of classroom learning to problems of small business in the community. Student is given opportunity to apply business concepts and develop analytical skills. Upon completion of selected readings relevant to small or minority enterprise, students are assigned a project on basis of interest, ability, and experience. Students work in teams under supervision of a participating professor within the College of Business Administration. Approval for enrollment must be secured from instructor. May be repeated. Maximum credit 9 hours.

GRADUATE

See page 68 for information on graduate programs.

5310 Business Policy (3)

5410 Business and Its Societal Environment (3)

5610 Seminar in Applied Business Analysis (3)

Center for Business and Economic Research

STAFF

D. A. Hake (Director), Research Associate Professor, Ph.D. Tennessee
J. J. Kirchenstein, Assistant Director, M.S. Tennessee
K. E. Quindry, Research Professor, Ph.D. Kentucky
W. F. Fox, Research Associate Professor, Ph.D. Ohio State
R. A. Hoffer, Research Assistant Professor, Ph.D. North Carolina
J. W. Mayo, Research Assistant Professor, Ph.D. Washington University (St. Louis)
P. A. Price, Research Associate, B.S. Tennessee
P. D. Postma, Research Assistant Professor, Ph.D. Tennessee
N. C. Schoening, Research Associate, M.S. Ohio State
College of Communications

Donald G. Hillman, Dean
Paul G. Ashdown, Assistant Dean for Undergraduate Studies
Herbert H. Howard, Assistant Dean for Graduate Studies and Research

Communication has become increasingly significant in today's complex society. The growth of specialization, the widening gaps among segments of society, and the inescapable nature of world conflict point up the need for a greater understanding of communication processes and for the education of young men and women capable of perceptive understanding of the communications media.

The College of Communications offers programs designed to acquaint students with the nature of communication and to prepare them for professional work in a variety of communications fields. The college is comprised of the School of Journalism and the Departments of Advertising and Broadcasting. The curricula of these three academic divisions have a common base of courses beyond which choices will permit the student to develop special interests.

The American Council on Education for Journalism has accredited the Advertising, News-Editorial, Public Relations and Professional Master's programs. The college is a member of the American Association of Schools and Departments of Journalism and the Broadcast Education Association.

Association Requirements

Association with the College of Communications may take place at any time. At least 45 quarter hours in residence in the college are required for a degree. Those interested in this college should obtain a copy of the Planning Guidebook of the College of Communications.

Freshmen associated with the College of Communications are temporarily classified as premajors. They may apply to a major degree program after they pass typing and spelling proficiency tests and complete, with at least a 2.0 cumulative average, the following courses:

- English 1010 or 1011; 1020; 1032 (with a minimum grade of C in each course).
- 12 hours of natural science
- History 1510-20
- Communications 1110 or 1118
- 9 hours of foreign language, or approved electives if two years of high school language credit are presented.
- Sociology 1510

A final decision may be deferred until students complete the core courses in their intended major with a minimum grade of B in one core course and no grade below C in other core courses. Students granted early admission must also meet these standards. Students must pass the college's typing and spelling tests before enrolling in or preregistering for any course in the college other than Communications 1110 or 1118. Students may not enroll in courses numbered 3000 or above in the college (with the exception of Advertising 3000) until they have successfully completed the core courses. The core courses by major are:

- Advertising — Communications 1110 or 1118, Journalism 2215, Advertising 3000
- Broadcasting — Journalism 2215, Advertising 3000, Broadcasting 2750
- Journalism — Journalism 2215, Journalism 2220, Journalism 2230

Transfer students may apply for association with the College of Communications after they have completed all the premajor requirements including the core courses and attained at least a 2.0 average in all work attempted.

Curriculum

The college curriculum offers academic majors in advertising, broadcasting, journalism, and public relations. Through core introductory courses, students receive a basic view of the nature of communications.

The freedom of electives provided within the programs permits students to develop specialized interests in a variety of fields. In consultation with an adviser, they may plan individual programs leading to newspaper, magazine, radio, television, public relations, or advertising work. They may prepare for careers in agricultural or industrial journalism. They may select related courses to develop a specialty in writing news of science, government, and business. Others may elect courses to prepare themselves as writers on foods, fashions, and home interests, or they may combine training in communications with work in secretarial science.

Students in other divisions of the University may take certain courses for training in effective communication or for an understanding of the social role of the mass media.

Students who have completed the basic courses in the college may earn practicum credit for professional work in the field. Approval of the adviser and the departmental head must be obtained before such work is begun.

Upper Division

Consent of instructor is prerequisite for all 3000 and 4000-level courses, with the exception of Advertising 3000, in the College of Communications.

Satisfactory/No Credit Option

The purpose of this option is to encourage students to venture beyond those courses in which they usually do well and, motivated by their own intellectual curiosity, to explore subject matter in which performance may be somewhat less outstanding than work in preferred subject fields.

This option applies only to general elective courses. No course that is a part of the specific requirements of the College of Communications or the student's major department can be taken under this option. For example, social science, humanities, and speech electives required by the various departments cannot be taken under this option.

Courses earning a "satisfactory" grade will count as hours for graduation but not for calculating the grade point average. A student who wishes to take a S/NC course must indicate this at the time of registration. Under no circumstances may the student change from S/NC to regular credit or from regular credit to S/NC after the deadline for adding courses.

Course Load

The maximum number of hours an undergraduate can take without special...
permission is 17 hours. Permission to take 18 or more hours must be obtained from either the dean or the assistant dean for undergraduate studies with the recommendation of the student's adviser and department chairman or school director.

**Cooperative Program**

The college, in cooperation with the University-wide Undergraduate Cooperative Education Program, has developed a cooperative program in the media, advertising and public relations agencies, and the communications departments of business organizations where interested students might combine their education with a productive work experience. At present, only a limited number of such opportunities are available. Although other arrangements can be made, a student will enter the program only after completing one or two quarters at the University. A student will alternate with another student, with one working full-time for the employer for one quarter while the other person is in school, etc. The typical program is arranged for a fifteen-period, with the student spending the final three quarters of the senior year on campus.

The Cooperative Program gives the student an opportunity to gain practical experience. It also helps to develop a sense of responsibility and cooperation, creates greater interest and incentive in academic studies and provides part of the student's expenses. It also may lead to permanent employment after graduation. Interested students should contact the Dean's office during their first quarter on campus.

**The Edward J. Meeman Distinguished Professorship**

As a result of a $200,000 grant to the Meeman Foundation, outstanding journalists and journalism educators are brought to the campus as distinguished professors. The professorship is named for the late editor of The Memphis Press-Scimitar and founding editor of The Knoxville News, which later became the News-Sentinel. Kelly Leiter, former columnist, feature writer and assistant city editor of The Chicago Daily News and the Indianapolis News, is the first permanent fulltime faculty member to hold the position.

Turner Catledge, former executive editor of The New York Times, and John Hohenberg, longtime administrator of the Pulitzer Prizes and outstanding teacher at the Columbia University Graduate School of Journalism, have held this professorship.

**Equipment and Facilities**

The Communications and Extension Building provides extensive facilities for communications instruction. The college has laboratories with special equipment for instruction in writing, editing, photography, advertising, and broadcasting. In addition, advanced students gain experience through summer internships or through the University's general program of publishing and broadcasting. The Communications and Public Relations, campus publications such as the Daily Beacon, and the college radio station WUTK provide practice for communications majors. The Tennessee Press Association and Tennessee High School Press Association, centered at the University, present opportunities for special work and study.

### Requirements for Graduation

The Bachelor of Science in Communications is awarded to majors who complete a total of 114 hours prescribed under departmental requirements listed below. At least 140 of these hours must be taken in courses other than the major and related communications fields. At least 27 of the hours in the major must be taken at The University of Tennessee, Knoxville. Normally, no more than 22 transfer credits in the major will be applied to the 194 hours. Journalism 2210 is the only course in the college that may be taken by correspondence.

**AMERICAN HISTORY**

Students lacking a high school credit of American history must take nine quarter hours of American history in addition to history 1510-20. Those hours may be applied to the general electives requirement.

**FOREIGN LANGUAGES**

One year of foreign language on the college level is required unless two units of high school credit are presented in which case students may substitute eight or nine hours of courses listed below by majors.

Advertising and broadcasting majors may substitute the following courses (unless otherwise required in the student's major):

- Anthropology 2510-20-30; Geography 1810-20, or 2110-20-30; Mathematics 1540-50, or 1640-50; Philosophy 1510-20-30, or 3111-21-41; Psychology 2500, 2530, 2540, Religious Studies 2610-11-12.

**Journalism majors** in the news-editorial sequence must take either Mathematics 1540-50-60 or Accounting 2110-20-30.

**Journalism majors** in the public relations sequence may substitute any of the courses listed above for the advertising and broadcast majors (unless otherwise required in the sequence) and in addition may substitute any of the following courses: Art 1810-25, any Black Studies course; Music 1210-20; Theatre 1310 and any Women's Studies course.

The student may also fulfill the requirement with a foreign language.

### Undergraduate Curriculum

#### Advertising

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Hours</th>
<th>Credit</th>
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<tbody>
<tr>
<td>English 1010-20, 1032</td>
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<tr>
<td>Natural science electives</td>
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<td>12</td>
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<tr>
<td>History 1510-20</td>
<td>6</td>
<td></td>
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<tr>
<td>Foreign language electives</td>
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<td>9</td>
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<tr>
<td>Sociology 1510</td>
<td>4</td>
<td></td>
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<tr>
<td>Communications 1110 or 1118</td>
<td>3</td>
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<tr>
<td>Economics 2110-20</td>
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#### Sophomore

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<td>Sociology 1520</td>
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<td>Economics 2130</td>
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<tr>
<td>Mathematics 1540-50</td>
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<tr>
<td>Marketing 3110-20</td>
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<tr>
<td>Psychology 2530</td>
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<tr>
<td>Journalism 2215</td>
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<tr>
<td>Art 2516</td>
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<td>Political science 2510</td>
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<td>Anthropology electives</td>
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<tr>
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<td>Advertising 4000</td>
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<td>Journalism 3310</td>
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<tr>
<td>Mathematics 3000</td>
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<td>Marketing 4120</td>
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<td>Professional courses</td>
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<td>General electives</td>
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<td>Senior</td>
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<td>Advertising 4360</td>
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<td>Advertising 4460-70</td>
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<td>Computer Science 3010</td>
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<td>Professional courses</td>
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<td>Social science or humanities electives</td>
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<td>General electives</td>
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</table>

**TOTAL: 194 hours**

#### See Requirements for Graduation.

### Broadcasting

#### LOWER-DIVISION CURRICULUM (Required of all broadcasting majors)

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Hours</th>
<th>Credit</th>
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</thead>
<tbody>
<tr>
<td>English 1010-20, 1032</td>
<td>9</td>
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</tbody>
</table>
TOTAL: 194 hours

MANAGEMENT SEQUENCE

Freshman

Broadcasting 3650, 3670

Broadcasting 4020 or 4021, 4030

Journalism 3110, 3410

Advertising 4380

Marketing 3110-20

Management 5010

Accounting 2110

*General electives...

*Upper-division social science and/or business electives...

TOTAL: 194 hours

PRODUCTION/PERFORMANCE SEQUENCE

Junior

Broadcasting 3650, 3670

Broadcasting 4020, 4030

Journalism 3110, 3410

Music 1210...

Theatre 2111...

Theatre 2221...

*Social science and/or speech/theatre electives...

*General electives...

Senior

Broadcasting 4010, 4040...

Broadcasting 4020, 4060...

Journalism 3010, 4410...

Communications electives...

Speech and Theatre 2021 and 3551 or 3661 or 3671 or 4840...

*Upper-division social science and/or humanities electives...

*General electives...

TOTAL: 194 hours

Department of Instruction

Communications (259)

Professors:
J. A. Cook, Ph.D., Iowa State; A. D. Fletcher, Ph.D., Illinois; J. B. Haskins, Ph.D., Minnesota; D. G. Hillman, Ph.D., Illinois; D. W. Holt, Ph.D., Northwestern; H. H. Howard, Ph.D., Ohio; B. K. Leter, Ph.D., Southern Illinois; D. D. Nimmer, Ph.D., Vanderbilt.

Associate Professors:
G. A. Everett, Ph.D., Iowa; M. Miller, Ph.D., Michigan State; M. W. Singletary, Ph.D., Southern Illinois.

1110 Introduction to Communications (3) Nature, functions and responsibilities of mass communications media and agencies. Survey of newspapers, magazines, radio, television, film, advertising, public relations, press associations, and specialized publications. Open to majors who have had no communications courses and to non-majors below junior level.

1118 Honors: Introduction to Communications (3) Nature, functions and responsibilities of mass communications media and agencies, with in-depth study of special problems. Open only to those majors selected on the basis of placement scores and high school record.

GRADUATE

5000 Thesis

5100 Introduction to Graduate Studies (3)

5120 Communications Research Design (3)

5121 Communications Research Methods (3)

5130 Advanced Principles of Mass Communications (3)

5140 Mass Communication Theory I (3)

5150 Seminar in Communications Issues (3)

5200 Seminar in Communications Education (3)

5410 Seminar in Communications Law (3)

5420 Seminar in Communications History (3)

5470 Seminar in Media Economics and Management (3)

5970 Independent Study (3)

6000 Doctoral Research and Dissertation

6100 Introduction to Doctoral Studies (1)

6140 Mass Communication Theory II (3)

6141 Mass Communication Theory III (3)

6200 Seminar in Communication Topics (3)

6300 Survey Research Methods in Communications (3)

6310 Experimental Research Methods in Communications (3)

6320 Seminar in Historical Research Methods in Communications (3)

6330 Content Analysis (3)

Advertising (012)

Professors:
R. Joel (Head), M.A., Wisconsin; A. D. Fletcher, Ph.D., Illinois; D. G. Hileman, Ph.D., Illinois.

Black Studies: Geography 1810-20 or 2110-20; Mathematics 1545-50-60 or 1840-50; Music 1210-20, Philosophy 1510-20, 2510-20, Religious Studies 2610-11-12; Theatre 1310, Women's Studies.

1See Requirements for Graduation.

2See Requirements for Graduation.

3See Requirements for Graduation.

4Eighteen hours of liberal arts electives must be selected from the following: Anthropology 2510-20-30; Art 1815-25; Biology 1810-20; Business 2550-55-60; Communications 2300-25-30; Economics 1810-20-30; Geography 2550-55-60; Government 1810-20-30; History 2550-55-60; Philosophy 1210-20-30; Sociology 1810-20-30; Social Science 2550-55-60; Theology 2550-55-60; World History 2550-55-60.
Associate Professor: D. Jackson, M.S. Tennessee.
Assistant Professor: J. B. Dunlap, Ed.D. Akron.

3000 Advertising Principles (3) Advertising in business and society. Types and functions of advertising. Fundamentals of broadcast and publications advertising. Stress on communications aspects of advertising. Prereq: Sophomore standing or higher. Prereq: Communications 1110 or 1118 for communications majors only.

3630 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.

3650 Basic Advertising Research (3) Use of research in solving media, creative, and managerial problems in advertising. Introduction to secondary information sources and primary research methodology. Prereq: 3000 with grade of C or better or consent of instructor.

3740 Retail Advertising and Promotion (3) Planning of retail advertising and promotion, practice in retail copy and layout: selecting media, research. Prereq: 3000 or Marketing 4150.

4000 Advanced Advertising Copy and Layout (4) Creative strategy and execution of advertisements for mass media. Problems in idea creation for advertisers. Lecture and labs. Prereq: 3630 with grade of C or better or consent of instructor.

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.

4460 Cases and Problems (3) Case approach to study of advertising problems. Analysis of campaigns and trends. Prereq: 3630, 3650, and 4360 with grades of C or better, or consent of instructor.

4470 Advertising Campaigns (4) Application of theory in planning and execution of campaigns. Market and consumer research; development and allocation of budgets. Choice of appeals and approaches; media selection; preparation of advertisements. Prereq: 3650, 4000 and 4360 with grades of C or better, or consent of instructor.

4670 Radio-Television Management (3) Business policies and practices of networks and stations. Departmental functions, cost, and departmental policies. Advertising agencies, and governmental regulations. Lectures by commercial broadcasters. Prereq: 2750 or consent of instructor.

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.

4510-20-30 Practicum (1, 1, 1) Prereq: 3000. May be repeated. Maximum credit 6 hrs. S/NC.

GRADUATE

5310 Current Issues in Advertising (3)
520 Advertising Management (3)
5400 Advertising Management (3)
5350 Advanced Advertising Research (3)
5510 Creative Projects (3)
5970 Independent Study (3)

Broadcasting (202)

Professors: D. W. Holt (Head), Ph.D. Northwestern; H. H. Howard, Ph.D. Ohio.
Associate Professors: P. G. Ainsworth, Ph.D. Bowling Green; L. G. Simpson, M.S. Syracuse; M. W. Singletary, Ph.D. Southern Illinois.
Assistant Professors: B. A. Moore, Ph.D. Ohio; R. A. Shirley, M.A. Tennessee.

2750 Introduction to Broadcasting (3) Theory, history, regulation, and economic aspects of broadcasting industry and its functions in society. Prereq: Communications 1110 or 1118 for communications majors only.

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

3610 Radio-Television News (3) Theory and technique of writing news and features for broadcast media. Editing and rewriting press association dispatches, gathering local news, recording interviews, and preparing newscasts and feature programs. 2 hrs. and 1 lab. Prereq: Journalism 2220 or consent of instructor.

3650 Radio-Television Writing (3) Theory and technique of writing broadcasting scripts except news and dramas. Special events, interviews, musical scripts, radio talks, documentaries, and promotion material.

3670 Television News (3) Theory and techniques of preparing video tape and film production for television. Ethical considerations and editing techniques. Emphasis on news and information programs. 2 hrs. and 1 lab.

4010 Speech for Broadcasting (3) Fundamental broadcast conditions affecting the announcer; pronunciation and oral interpretation of general American speech. Prereq: Speech 2011.

4020 Radio Production (3) Study of radio production, past and present. Use of reproduction production tools and techniques. Group and individual production activities. Prereq: 2750 or consent of instructor.

4021 Advanced Radio Production (3) Application of the theories, techniques, and tools of radio production to create programming of a professional level of sophistication and quality. Prereq: 4020 or consent of instructor.

4030 Television Production (3) Overview of elements of television production: cameras, sound, lighting, film videotape recording, optics, and studio control centers. Presented with the inexperienced and professional broadcast student in mind. Prereq: 4020 or consent of instructor.

4040 Advanced Television Production (3) A semi-independent course in program origination, directing, and performing with orientation to the professional broadcast student. Prereq: 4030 or consent of instructor.

5410-20-30 Practicum (1, 1, 1) Prereq: Consent of instructor. S/NC.

5410 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 newsgathering. Prereq: 2759 and 2760 or consent of instructor.

5470 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.

5480 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.

GRADUATE

5410 Educational Broadcasting (3)
5510 Creative Projects (3)
5610 Public Affairs Broadcasting (3)
5620 Broadcast Law and Regulations (3)
5630 Broadcast Documentary Writing (3)
5650 Radio-Television Program Development (3)
5970 Independent Study (3)

School of Journalism (594)

Professors: J. A. Grook (Director), Ph.D. Iowa State; J. B. Hawkins, Ph.D. Minnesota; B. K. Leiter (Meeman Distinguished Professor), Ph.D. Southern Illinois; D. D. Nance, Ph.D. Virginia.
Assistant Professors: M. L. Kern, Ph.D. Wisconsin; D. L. Smith, M.S. Columbia.

Instructors: A. L. Landin; M.S. Murray State; A. R. Padgett, M.S. Columbia.

1On leave.

2210 Writing for Mass Media (3) Principles and practice of writing for major types of mass communications media. Not available to majors in the College of Communications. Prereq: English 1010 or 1011; 1020, 1031 or 1032 or 1033.

2215 Basic News Writing (4) Information gathering and writing under deadline. Observation, interviewing, speech reporting for print and broadcast media. Grammar workshops. Prereq: English 1023. Communications 1110 or 1118 and typing proficiency of 30 wpm.

2220 Reporting (4) Methods of gathering and writing news for mass media. Emphasis on news and news features. Prereq: 2210 or 2215.

2230 Editing for Mass Media (3) Methods and practice in judging news copy, and writing headlines. Introduction to video display terminals. Emphasis on precise word use. Prereq. 2220.

3110 Communications History (3) Development of newspapers, magazines, broadcasting, photography, film, and photojournalism in America and their relationship to society.

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.

3210 Advanced Reporting (3) Gathering and writing news in depth on current issues and concerns under deadline. Special emphasis on business news. Use of video display terminals. Prereq: 2230.

3220 News Editing and Display (3) Principles and practice in making up newspapers and magazines. Advanced work in copyediting, rewriting, and heading. Prereq: Workshop in 1112 or 1118. Prereq: 2230.

3310 Graphic Arts in Journalism (3) Survey of printing processes and associated technologies. Emphasis on publication design, offset techniques, and computer technology.

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

3510 Practicum in Journalism, (1-3) Supervised experience in news writing and editing. May be repeated for credit. Prereq: 2230. Maximum 3 hours.

3710 Public Relations (3) Theories and principles of public relations. Overview of PR as a management tool of business, government, institutions, and organizations.

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

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

3910 Basic News Photography (3) Principles of photojournalism including historical perspectives and special techniques. Medium and small format reflex cameras are used. Darkroom techniques for black-and-white photography. Prereq: Consent of instructor.

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.

4130 Editorial Writing (3) Analysis of editorial policies, practices, pages. Writing of editorials and columns, with emphasis on study and use of rhetorical devices and logic.

4150 Issues in Journalism (3) Topics vary. May be repeated. Maximum credit 9 hrs.

4150 Reporting Public Affairs (3) Reporting news of courts, politics, and government. State, county, and local coverage. Prereq: 2230 and senior standing.

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.

4420 Newspaper Management (3) Daily and weekly business operations. Developments in newspaper management.

4510 Practicum in Journalism (1-3) Supervised experience in news writing and editing. May be repeated for credit. Prereq: Senior standing or consent of instructor. Maximum 3 hours.

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.

4710 Public Relations Cases (3) Case studies and application of public relations principles to problems in business and industry, government, institutions, trades, and professions; solving problems in public relations situations. Prereq: 3720.

4810 Journalism in the High School (3) Functions and methods of publications. Staff organization, writing, and editing techniques, editorial problems, and business management.

4910 News and Feature Photography (3) Advanced principles and methods in black-and-white photography. Emphasis on news and feature photographs and picture stories. Prereq: 3910 or consent of instructor.

4950 International Communications (3) Communication 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.

4970 Independent Study (3) May be repeated. Maximum credit 6 hrs.

GRADUATE

5210 Government and the Press (3)

5250 Public Opinion and Mass Media (3)

5510-20-30 Writing and Editing Projects (3,3,3)

5560 Magazine Article Writing (3)

5710 Studies in Public Relations Communications (3)

5950 Communications and International Development (3)

5970 Independent Study (3)
Division of Continuing Education, Knoxville

Joseph P. Goddard, Dean
William D. Barton, Associate Dean
Judy B. Constantine, Administrative Assistant

The Division of Continuing Education, Knoxville, is the administrative unit of UTK that extends academic courses, educational services, and other programs to the non-traditional student. While most people who participate in the programs are adults, persons of all ages and academic levels can be counted among the people who enroll in the credit and non-credit offerings of the Division.

Programs and courses are based upon student needs and desires, whether for self-motivated learning; for leisure and recreational programs; or for professional promotion, certification, licensure, relicensure, or mid-career changes. The Division provides these educational opportunities through program coordination and development of the two departments: Conferences and Non-Credit Programs, and the University Evening School. Specific programs and services of each department are described on the following pages.

Conferences and Non-Credit Programs

Director:
W. L. Whelan, Ed.D., Pacific States.

Assistant Director for Program Development:
G. D. Cooper, Ed.D., Tennessee.

Assistant Director for Administration:

Staff Assistant:
M. A. Barry
Administrative Assistant:
I. P. Keith

It has become evident that learning can take place for an extended period of time in a variety of modes, settings, and circumstances other than in the traditional classroom. To bring this fact to reality, The University of Tennessee, Knoxville, continuing education program has been designed and staffed to bring together under University auspices groups of participants and qualified resource persons to share new learning and ideas; to develop new insights; to address current problems; or to impart new skills and techniques. The program embraces virtually all disciplines, professions, vocations, and avocations.

The Department of Conferences and Non-Credit Programs is staffed and equipped to advise, assist, and provide administrative support in the delivery of successful conferences, seminars, and non-credit courses. In these roles, the Department can consult on program content; develop a working budget; secure appropriate classroom and/or meeting sites; devise an attractive format; arrange for auxiliary services, such as lodging, meal and banquet events, extra excursions and tours, and handle complete registration procedures. In addition, the Department designs, prints, and mails conference brochures and non-credit catalogs. The Department is equipped to handle computerized registrations and to process all monies as required.

Non-credit courses administered by the Department are tailored to meet the personal and professional needs of individuals and groups in the area. These courses are offered in cooperation with other academic units of the University and/or non-University agencies and cover a wide range of interests. One program, the Smoky Mountain Field School, generates considerable interest by emphasizing outdoor learning experiences in the Great Smoky Mountains National Park.

One phase of the Department which has experienced increased interest and growth is the English Language Institute. This program is of special interest to non-English speaking people and is structured to help foreign students obtain a sufficient mastery of the English language so as to pursue their educations in the United States.

Continuing Education Units (CEU's) are awarded to students satisfactorily completing courses which are approved. A CEU is defined by the Southern Association of Colleges and Schools as "ten contact hours of participation in an organized continuing education experience under responsible sponsorship, capable direction, and qualified instruction." A permanent record of CEU's is maintained by the Department. A letter of completion of all CEU's earned at The University of Tennessee, Knoxville, may be obtained upon written request.

Recent statewide legislation gives Tennessee citizens who are 60 years of age or older or those who are totally disabled the opportunity to audit courses at UTK free of charge, according to available space. Legal verification of either of these conditions is required for enrollment. Additional information may be obtained by calling (615) 974-5261 or 974-6688.

University Evening School

Director:

Director, Off-Campus Graduate Engineering Program:
Kingsport-M. K. Goodman, M.S., Tennessee; Oak Ridge and Nashville-J. D. Westbrook, Ph.D., V.P.I.; Assistant Director, Oak Ridge-V. Maya, M.S. Tennessee.

Associate Director:
J. O. Sekula, Ph.D., Tennessee.

Assistant Directors:

Coordinator:
M. R. Warden, M.S. Tennessee

Administrative Assistant:
A. H. Beeler
Assistant Professors:

Instructor:
A. J. MacCabe, M.S., SUNY at Albany.

The University Evening School, in conjunction with academic colleges and departments, administers credit programs for those students attending classes on-and off-campus in a variety of non-traditional formats. Support services are provided to assist students in their educational pursuits.
On-Campus Evening Program. Classes are offered during late afternoon and evening hours for those students who work or have other commitments during the day. The following undergraduate degrees are available:

- **College of Business Administration** - Bachelor of Science in Business with a major in Accounting, General Business, Economics, or Management (General concentration);
- **College of Liberal Arts** - Bachelor of Arts with major in Anthropology, Art, Biology, Computer Science, Economics, Mathematics, Psychology, or Sociology.

Some departments within the Colleges of Business Administration, Education, and Engineering offer all courses required for an advanced degree during the evening. The College of Business Administration also offers all courses required for the MBA degree with a concentration in Management. For other majors, consult the appropriate academic department.

**Mini-Term.** The University Evening School offers two Mini-Terms a year — one during September and one in December. Students may enroll in one concentrated credit course during the ten-day Mini-Term period. Courses and instructors listed for the Mini-Term are carefully selected to reflect a broad academic base of individualized offerings suited to an intensive program of study. Courses cover traditional material and information included in regular quarterly offerings; however, these courses may be supplemented with films, team teaching, field trips, independent research projects and specialized areas of study, affording students the opportunity to immerse themselves in the discipline selected.

**Off-Campus Programs.** The Evening School conducts undergraduate and graduate courses in many locations away from the Knoxville campus. The courses are scheduled in response to requests and identifiable needs of adult part-time students who live some distance from the UTK campus and who take part or all of their courses at off-campus locations.

All course offerings and instructors are approved by the appropriate academic department heads, and the credit awarded is resident credit. The majority of colleges cooperate in off-campus programming.

Some off-campus locations offer course work leading to specialized graduate degrees. Graduate students in the College of Education may acquire sufficient course work at Cleveland State Community College to complete the Masters degree in Curriculum and Instruction with a major in Curriculum.

The Evening School administers off-campus centers at Kingsport, Nashville, and Oak Ridge where courses leading to advanced degrees in science, engineering, and business are offered. The Kingsport Center offers course work leading to Masters and Doctoral degrees in Chemical, Electrical, and Industrial Engineering (Management options available). At Oak Ridge, graduate study programs lead to an MBA with concentrations in Management or Statistics, as well as Masters and Doctoral degrees in Engineering, Mathematics, and Physical Sciences.

Graduate programs leading to the Masters in Industrial Engineering are available at the Nashville location.

Workshops. Credit workshops are coordinated through various academic departments of the University and provide students the opportunity to participate in short periods of intensive study. As a result, students may earn college credit within a shorter time frame than the traditional quarter system.

Workshops offer flexibility of timing, location, and content; and summer workshops are particularly popular with teachers and school administrators. Although most workshops are held on the UTK campus, geography is not a limiting factor.

**Nursing Education Program.** The Nursing Education Program is conducted under a contractual agreement with three Knoxville area hospitals. The University Evening School provides academic foundation courses for the independent Schools of Nursing of each hospital. Evening School also provides academic courses for Radiologic Technology students enrolled through two area hospitals.

**Student Services.** A comprehensive program of services is provided by the University Evening School for both on- and off-campus students.

**REGISTRATION.**

Quarterly registration by mail is offered as a convenience to former Evening School students. Secondary registration at both on- and off-campus locations are also available.

**ADVISING.**

An advising counseling program is available for the benefit of all evening students who need assistance with academic and/or personal matters. The program can accommodate students during regular daytime hours (8:30-5:30) and in the evenings by appointment, as well as at various centralized off-campus locations. During evening advance registration days, advisers from the various colleges are on hand for academic consultation. The Colleges of Liberal Arts and Business Administration also cooperate with the Evening School by providing extended hours several times a week to advise students. A veterans adviser assists in academic planning for Evening School students who receive educational benefits under the G.I. Bill.

**FINANCIAL AID.**

Evening School students who encounter difficulty in pursuing academic goals because of financial restrictions may be eligible for assistance through the Evening School Scholarship Fund. Interested students may also obtain applications for the Pell Grant (formerly Basic Educational Opportunity Grant) in the Evening School Office.

**Elderly and Disabled Persons.**

Recent legislation gives Tennessee citizens who are 60 years of age or older, or those who are totally disabled, the opportunity to attend courses at the University at no charge on an audit, space available basis. Legal verification of either of these conditions is required for enrollment. Students who are 65 or over, or who are totally disabled, and who desire to receive UT credit for their courses, may pay a reduced charge of $5 per credit hour up to a maximum of $50 for a full-time load. Registration for day and evening classes is handled by the Evening School.

The University Evening School office is located at 451 Communications & University Extension Building on the UTK campus and may be reached by calling (615) 974-5361. All inquiries concerning these programs are welcome.
College of Education

William H. Coffield, Dean
C. Glennon Rowell, Associate Dean for Instructional Programs
Thomas W. George, Assistant Dean for Support Services

Teacher education is historically a major function of The University of Tennessee. Beginning in 1903, when the first courses for teachers were offered, the University has increasingly fulfilled its responsibility to provide schools with competent teachers and service personnel to improve the teaching profession by continually upgrading its membership. The College of Education was established in 1926, and all teacher preparation programs at The University of Tennessee are now coordinated within its seven departments and its School of Health, Physical Education, and Recreation.

The College of Education holds membership in the American Association of Colleges for Teacher Education. All certification and degree programs through the doctoral level are fully accredited by the National Council for Accreditation of Teacher Education, the Southern Association of Colleges and Schools, and the Tennessee State Department of Education.

The faculty of the College of Education is committed to performing three major functions: (1) to provide professional preparation for teachers, administrators, and school service personnel at undergraduate and graduate levels; (2) to collaborate with school personnel, educational agencies, professional groups, and others interested in the evaluation and improvement of educational opportunities, programs, and services; and (3) to promote and conduct experimental and research studies in education.

The teacher preparation programs represent utilization of University-wide resources and cooperation of all appropriate units. Certain requirements are of basic importance: A broad cultural background in the arts and sciences (general education), mastery of professional knowledge and skills, and thorough preparation of specific teaching fields.

Through a carefully planned program of combined academic and direct experiences, the prospective teacher acquires a depth and breadth of knowledge and understanding superior to that of the typical college graduate—superior in cultural and citizenship appreciation as well as in professional and scholarly accomplishment.

The Claxton Education Building contains many modern and functional facilities for the professional training of teachers. Classrooms, laboratories, seminar rooms, faculty and administrative offices, the instructional materials center, the Bureau of Educational Research and Service, the School Planning Laboratory, and facilities for special activities such as observation and experimentation are located in this air-conditioned building.

Teacher Placement Service

The College of Education, cooperating with the University Placement Service, assists qualified students and alumni in securing positions. School and college administrators are cordially invited to make full use of these services in their efforts to employ competent personnel.

General Information

Application with the College

Application for association with the College of Education may be made at any time.

Course Load—Permission for more than 19 hours in a quarter must be obtained from the Assistant Dean for Support Services. A normal course load in the college is 16-19 hours.

Applicants for association with the College of Education are classified accordingly:

(1) Full Association. Minimum 2.5 high school grade point average (4 point scale) and a minimum of 17 ACT composite score or 765 SAT combined score. (2) Provisional Association. Students not eligible for Full Association are granted Provisional Association. Students not eligible for Full Association are granted Provisional Association. Status may be upgraded to Full Association upon the completion of a minimum of 45 quarter hours and the achievement of a minimum 2.5 grade point average (4 point scale). Transfer students, from within and external to The University of Tennessee, Knoxville, must meet the same Association requirements described above. Post-secondary work completed and grade point averages earned at other institutions will be used in the determination of Full Status for transfer students who have not earned the minimum high school grade point average and standardized test scores.

Admission to Teacher Education

Students desiring certification to teach must gain admittance into Teacher Education before enrolling in various required upper-division education courses. Applicants are encouraged to (1) begin the multiphase admission process during their first quarter of full-time attendance and (2) complete the process by approximately the sixteenth quarter hour.

Applicants must complete the following requirements (recommended sequence for completion):

1. Basic Skills Tests. The State Board of Education requires all applicants to pass tests of reading comprehension, mathematics computation, and language. Applicants with a minimum ACT composite score of 17 are exempted from this requirement. (Transfer students having a minimum ACT composite score of 17 or a total score of 765 (Verbal/Quantitative) on the SAT or CEEB must supply the assistant dean's office with an official record of their score(s).)

2. Socio-Emotional Evaluation. Applicants are required to undergo a socio-emotional (personality) evaluation. Students whose scores on selected scales represent extreme variations from established norms will be required to undergo further evaluation. Students, except for junior-senior transfer students, should take the personality test during their third quarter of full-time attendance.

3. Field Experience. Applicants to Teacher Education must provide evidence of having
successively completed a field experience in a public school setting. (Refer to program area curriculum for specific required experiences.)

Students, except for junior-senior transfer students, should complete the field experience requirement during their fourth quarter of full-time attendance.

4. Speech and Hearing Evaluations. Applicants are required to undergo speech and hearing evaluations.

Students, except for junior-senior transfer students, should undergo the speech and hearing evaluations during their fourth quarter of full-time attendance.

Applicants to Teacher Education are required to have a minimum of 2.5 UKT grade point average. Furthermore, transfer students must also, have a minimum of 2.5 cumulative grade point average. (No applicant's grade point average will be considered until the completion of at least 60 quarter hours.)

A program area recommendation may be required of some applicants.

Applicants to Teacher Education will be reviewed by the Office of Student Conduct. Any applicant who has established a record of misconduct will be reviewed by the college's Admission and Retention Committee.

Graduate students, except for those previously admitted to the College's Teacher Education Program, must gain admittance to Teacher Education before receiving the College's recommendation for certification.

Students interested in complete details on student teaching experience in the public schools is the value of the experience for preparing for teaching. The University cannot guarantee the geographic locale desired by the student though effort will be made to follow the student's wishes. Student teaching centers are maintained in East Tennessee communities, some of which are at a considerable distance from Knoxville. Married students will be placed as near their homes as possible in order to preserve family life.

Substitutions

It is sometimes necessary and advisable for students to substitute other courses for those required in a particular curriculum. This is particularly true of students who transfer to The University of Tennessee College of Education from another college or university. The general test of whether a substitution would be appropriate is, Does the course you with to substitute meet the spirit of the course requirement? That is, Is the content similar or perhaps more appropriate to your needs?

To initiate a substitution request, the student should visit the advisor first. If they agree that the substitution is an appropriate one, the substitution request form should be forwarded to the Office of the Assistant Dean for Support Services, 212 Claxton Education Building. The University cannot guarantee the geographic locale desired by the student though effort will be made to follow the student's wishes. Student teaching centers are maintained in East Tennessee communities, some of which are at a considerable distance from Knoxville. Married students will be placed as near their homes as possible in order to preserve family life.

Recommendation for Certification

The application for a professional teacher's certificate should be completed early in the final quarter before graduation. Application forms may be obtained in the Registrar's Office, 215 Student Services Building, and in the Office of the Assistant Dean for Support Services, 212 Claxton Education Building. Tennessee state regulations stipulate that the applicant for a professional certificate must be recommended by the teacher-training institution. The dean of the College of Education is the official designated to recommend University of Tennessee graduates for teacher certification. To receive this recommendation, the applicant must have fulfilled the following requirements:

(1) A minimum cumulative grade point average of 2.0.
(2) Satisfactory performance of the student teaching practicum.
(3) A minimum grade point average of 2.0 in the teaching field(s).
(4) Completion of a methods course in each area of endorsement.

Satisfactory/No Credit Courses

For the curricula listed under roman numerals I, II, and III only, a student may include a maximum of 50 hours in non-
directed electives taken on a Satisfactory/No Credit basis in the total hours required for graduation. S/NC may not be used in required courses or controlled electives, except where the course is offered on an S/NC basis (such as student teaching and field experiences). An area of concentration will be considered as non-directed electives unless where specific courses or controlled electives are required.

NOTE: Students are advised to consult the University's degree requirements as stated in the front section of this catalog as well as the requirements for the college or department.

I. Curricula for Elementary Teachers

A. Grade 1 through Grade 8 (certification for grades 1-8)

GENERAL EDUCATION

- Communications (13 hours)
- Social Sciences (18 hours)
- Natural Sciences (16 hours)
- CORE PROFESSIONAL EDUCATION (53 hours)
- Joint Elementary-Mathematics Education Certification

B. Kindergarten through Grade 8 (certification for Kindergarten - Grade 8)

GENERAL EDUCATION

- Communications (13 hours)
- Social Sciences (18 hours)
- Natural Sciences (16 hours)
- CORE PROFESSIONAL EDUCATION (53 hours)
- Joint Elementary-Mathematics Education Certification

Health and Physical Education (15 hours)

P.E. 3450 (3), School Health 3610 (3), P.E. activities (4), P.E. electives (2-3 hours) and Health elective (3) from Public Health 1110, 1210, 3000, 3210, School Health 3410, 3510.

HUMANITIES (12 hours)

- Literature 8 hours; Art Education 3500 or Music Education 3500 (4 hours).

MATH (9 hours)

- Mathematics 2110, 2120, 2130.

SPECIALIZED COURSES (33 hours)

- Recommended series are Biology 1210, 1220 (1230) or Botany 1110, 1120, 1120. 8 hours in physical science. Recommended series are Physics 1410, 1420 (1430), or Geology 1410, 1420, or Astronomy 2110, 2120 (2130), or Chemistry 1110, 1120 (1130).

SOCIAL STUDIES (16 hours)

- U.S. History (8 hours—it is recommended that the history course be taken at the sophomore level); Social Institutions (4 hours). Geography (4 hours).

CORE PROFESSIONAL COURSES

- Education Curriculum & Instruction (9 hours)l Educ. C&l 3010*, 3020*, 3030*.

ELEMENTARY EDUCATION COURSES

- Educational Psychology 3430; Educ. Psych. 3100, 3110, 3510; Music Ed. 2100, 3110; Ed. C&l 3510; Special Ed. 3333; C&l 4303; C&l 4420; C&l 4750.

ELECTIVES

- 18 hours

TOTAL MINIMUM REQUIRED: 191 hours

C. Nursery School through Grade 3 (certification for Kindergarten-Grade 3)

GENERAL EDUCATION

- Communications (12 hours)
- English 1010 or 1011; 1020; 1031 or 1032; Speech 2021 or 2311.

HUMANITIES (12 hours)

- Literature (4); Music 1210 or 1220 or Art 1815 or 1825; philosophy or religious studies (4).

NATURAL SCIENCE (16 hours)

- Biological science in one series or combination (8); physical science (in series or combination) (8).

MATHEMATICS (9 hours)


SOCIAL SCIENCES (18 hours)

- History (4); Child and Family Studies 4610; Economics 2110; Anthropology 2530 or 3410 or Human Services or Sociology 4020 or 4510; Electives (from anthropology, economics, geography, human services, political science, sociology).

INTERDISCIPLINARY STUDIES IN HOME ECONOMICS (16 hours) H.E.

*Requires admission to Teacher Education Program.

1510, 1520, 2510, 3510.

SPECIALIZED COURSES

- 34 hours

- Education Curriculum & Instruction (9 hours)l Educ. C&l 3010*, 3020, 3030*.


ELECTIVES

- 6 hours

TOTAL MINIMUM REQUIRED: 192 hours

II. Joint Elementary-Mathematics Education Certification

Mathematics (9 hours)

- Mathematics 2110, 2120, 2130. Students with at least 3 years high school mathematics (e.g. Algebra I, Geometry, and Algebra II) and ACT Mathematics score of at least 22 may replace the 9 hours of Mathematics 2110-20-30 with the following six hours of mathematics courses; 3 hours credit in courses selected from Mathematics 3310, 3320, 3330; 3 hours credit in courses selected from Mathematics 3100, 3110, 3720.

GENERAL EDUCATION

- 90 hours

- Communications (12 hours)
- English 1010-20 and 1031 or 1032 or 1033 (English 1019 may be required of some students); Speech 2021 or 2311.

HUMANITIES (12 hours)

- Eight hours of literature and four elective hours.

Health and Physical Education (19 hours)

- Physical Education 3450; Physical education electives (3 hours); School Health 3610.

- Select one of the following as a prerequisite to School Health 3610: Public Health 1110, School Health 3000, 3210, 3410, 3510.

NATURAL SCIENCES (20 hours)

- Recommended series or combinations: A. Biological science (6-12 hours) Biology 1210-20-30 or Botany 1110-20. B. Physical Science (6-12 hours) Physics 1410-20-30 or Geology 1510-20 or Astronomy 2110-20-30 or Chemistry 1110-20-30.

MATHEMATICS (9 hours)

- Math 2110-20-30 taken in sequence.

SOCIAL SCIENCES (18 hours)

- Four hours in history; 14 hours electives from a minimum of three areas of social science other than history.

CORE PROFESSIONAL EDUCATION

- 53 hours

- Education Curriculum & Instruction (9 hours)l Educ. C&l 3010*, 3020, 3030*.

III. Curricula for Secondary Education (7-12)

GENERAL EDUCATION .......................... 70 hours

English 1010 or 1011; 1020; 1031 or 1032 or 1033 (English 1019 may be required for some students), and Speech 2311.

Health and Physical Education (9 hours) including at least 3 hours of school health or public health or nutrition (P.E. must be represented).

Humanities (16 hours)

Any 4 hours from English 2510-20-30-40-50-60-70-80-90, plus 12 hours of electives from anthropology, art, English literature, Library and Information Science 3510-20-30, foreign language (beyond introductory level), history (upper-division), music, philosophy, or religious studies. (NOTE: At least three fields must be represented.)

Mathematics (4 hours)

Natural Science (12 hours)

A biological science, a physical science, or a combination of the two.

Psychology (4 hours)

Psychology 2500.

Social Studies (12 hours)

Two fields should be represented from anthropology, economics, geography, history, human services, political science, and sociology.

CORE PROFESSIONAL EDUCATION .......................... 9 hours
Educ. C&I 3010, 3020, 3030

SPECIALIZED PROFESSIONAL EDUCATION .......................... 39 hours
Special Ed 3333, Educational Psychology 3810; 6 hours of appropriate methods courses; Educ. C&I 3521-22-23, 4100, 4710-20*, Ed. 4300 or Ed. 4304, and 6 hours of electives selected from the College of Education.

NOTE: An appropriate special methods course must be taken in each subject and/or area in which endorsement is sought, and admission to Teacher Education Program is required for each.

English
Educ. C & I 3657 and 3658

Foreign Language
Educ. C & I 3652 and 3653

Mathematics

Educ. C & I 3751 and 3752

Science
Educ. C & I 3654 and 4654

Social Studies
Educ. C & I 3653 and 5853

TEACHING SUBJECT AREAS AND ELECTIVES .......................... 72 Hours

See outline of the programs below.

TOTAL MINIMUM REQUIRED .................................. 190 hours

PROGRAMS AVAILABLE

Program majors leading to graduation and certification for high school teaching range from the broad fields, comprehensive major, to the subject major and minor combination programs.

A. English Education

1. English with a Minor
   a. 45-quarter hours in English, including three in English language (3330, 3340, 4430, 4440, 4450). Nine of the 45 hours may be in speech provided the student is not minoring in speech.
   b. 27 hours in some other subject which constitutes a minor. (If students who elect to minor in a foreign language do not have two entrance credits in a foreign language from high school, they must take 36 hours in a foreign language.)
   c. Students enrolled in this program must take two English methods courses: Education C&I 3657 and 3658.

B. Foreign Language Education

1. Foreign Language Area
   a. 36 quarter hours in one language with no less than 18 quarter hours of upper-division courses.
   b. 27 quarter hours in another language with no less than 18 quarter hours of upper-division courses.
   c. 9 hours of general and applied linguistics.

2. Foreign Language Major and Minor
   a. 45 quarter hours (9 less quarter hours if based upon 2 entrance credits from high school) and one language with no less than 27 quarter hours of upper-division courses.
   b. 27 quarter hours in another subject.

C. Mathematics Education

1. Area Majors in Mathematics
   a. Mathematics and Physical Sciences (75 hours)
      (1) Mathematics 1 (27 hours) must include at least one year sequence in calculus or analytic geometry and calculus and at least 12 quarter hours in courses numbered 3050 or above with at least one course in algebra and one in geometry.
      (2) Related Sciences—12 hours in physics and 12 hours in each of two of the following subjects: astronomy, biology, botany, chemistry, geology, microbiology, zoology.
      Endorsements: Mathematics, General Science
   b. Mathematics and Physical Science, General Science
      (1) Mathematics 1 (36 hours)—must include at least a one-year sequence in calculus or analytic geometry and calculus and at least 12 hours in courses numbered 3050 or above with at least one course in algebra and one in geometry.
      (2) Computer Science and Physics—24 hours in computer science and 12 hours in physics.
      Endorsement: Mathematics

D. Psychology Education

1. A concentration and endorsement in psychology shall require a minimum of 30 quarter hours—12 hours upper division distributed as follows:
   Core 16 hours
   Psychology 2500 .................................................. 4
   Psychology 3120 .................................................. 4
   Psychology 3150 .................................................. 4
   Psychology 3210 .................................................. 4
   Electives—14 hours selected from:
   Psychology 2520, 2530, 2540, 3129, 3210, 3220, 3210, 3310, 3430, 3550, 3650, 4230, 4510, 4520, 4610, 4900; Psychology or Ed. Psych. 4640; Ed. Psych. 3110, 4110, 4130, 4800, 4880, 4890.
   2. Two minors (18-27 hours for a total of 45 quarter hours) each with minimum of 6 hours upper division.
   At least one of the two minor areas must meet Tennessee minimum endorsement requirements for the subject area.

E. Science Education

1. Area Majors in Science
   a. Biological science (72 hours minimum)
      Biology 1210-20-30* or Botany 1110-20-40 (12 hours)
      Biology 3110-20-30 (12 hours)
      Microbiology 2010 (4 hours)
      Chemistry (excluding 1410 series) (12 hours)
      Science electives—(32 hours minimum), approved electives must be selected from one or more of the following: biological sciences—biochemistry, botany, microbiology, zoology; physical science—chemistry. Minimum requirement in biological science consists of 56 hours (12 hours chemistry required, excluding 1410 series).
   b. Mathematics and Physical Sciences, General Science
      (1) Mathematics 1 (36 hours)—must include at least a one-year sequence in calculus or analytic geometry and calculus and at least 12 hours in courses numbered 3050 or above with at least one course in algebra and one in geometry.
      (2) Related Sciences—12 hours in physics and 12 hours in each of two of the following subjects: astronomy, biology, botany, chemistry, geology, microbiology, zoology.
      Endorsements: Mathematics, General Science
   c. Mathematics and Computer Sciences (72 hours)
      (1) Mathematics 1 (36 hours)—must include at least a one-year sequence in calculus or analytic geometry and calculus and at least 12 hours in courses numbered 3050 or above with at least one course in algebra and one in geometry.
      (2) Computer Science and Physics—24 hours in computer science and 12 hours in physics.
      Endorsement: Mathematics
Endorsements: Biology (Life Science) and General Science.

b. Earth and Environmental Sciences (72 hours minimum) Includes 12 hours biological science required, and 14 hours science electives selected from astronomy, chemistry (excluding 1410 series), geography, geology, and physics.


Cartography, conservation, oceanography, or soil science (6 hours).


c. Natural Science (72 hours minimum) Basic requirement of 12 hours in each of the four of the following subjects: 1. Biology 1210-20-30 or Botany 1110-20-40. Chemistry series (excluding 1410 series). Geology series (excluding Geology 1000). Physics (excluding 1410 series) Mathematics (excluding 1020, 2020 and 2110-20-20). Credit for only 12 math hours accepted in the program. Approved science electives—24 hours minimum, including a total of six quarters of course work in one subject area other than math.

Biography is considered as one subject for high school endorsement.

Endorsements: General Science 2 (Possible endorsements: Biology, Chemistry, and Physics)

2. Subject Majors in Science

The only single subject majors in science leading to certification are chemistry and physics. Majors 45 quarter hours; minors 27 quarter hours. 3. Specialized Subject: Major Subject

F. Social Science Education

Program I

Broad fields Social Studies (Major 72 hours)

Certification includes economics, geography, history, political science and sociology.

a. 28 quarter hours in history, including 1510-20 and 2510-20, and 12 hours in World and/or American history.

b. 8 quarter hours in each of the following: geography, political science, and sociology.

c. 4 quarter hours in anthropology.

d. 9 quarter hours in economics, including 2110-20 and an elective.

e. 7-8 additional quarter hours in the above-listed or related fields.

Program II

Specific subject major (45 hours plus 27 hours for a minor).

Minors. A minor is defined as 27 quarter hours in a single subject area, i.e., biology, history, French, psychology, speech, etc. A minor does not meet certification requirements in all cases.

IV. Art and Music Education

A. Art Education

GENERAL EDUCATION.............68-70 hours

Communications (12-13 hours) 1

English 1010 or 1011; 1020; 1031 or 1032 or 1033; and 3-4 hours in speech.

Health and Physical Education (9 hours) Activities courses in physical education plus School Health 3510.

Humanities (15-16 hours)

Art History 1815 and 1825, one literature course, and one elective from anthropology, philosophy, foreign language above 1000 level, history, library service, religious studies or music.

Mathematics (4 hours) 2

Natural Science (12 hours) Any twelve hours from the biological and/or physical sciences.

Psychology (4 hours) Psychology 2500.

Social Studies (12 hours) Any twelve hours from at least two areas.

CORE PROFESSIONAL EDUCATION..9 hours Ed. C & I 4710*; 4720*;

Ed. Psych. 2430 or 3810; Special Educ. 3333, Art Ed. 4100.

TEACHING AREAS AND ELECTIVES........88-94 hours

A. Major (60 hours) Art Ed. 3110; 3220; 3320, 4120, 4130; 4200, 4300; 4400.

Art 1115, 1125, 1135. Plus twelve quarter hours in a single studio area and twelve additional hours distributed over three other studio areas.

B. Minor (24 hours) Social Science Education (9 hours) Any subject of the above or a minor in another field.

TOTAL MINIMUM REQUIRED........183 hours

B. Music Education

GENERAL EDUCATION...............66-68 hours

Communications (12-13 hours) 1

English 1010-20 and 1031 or 1032 or 1033; and 3-4 hours in speech.

Health and Physical Education (9 hours) Activities courses in physical education plus School Health 3510.

Humanities (14 hours) Music 2320-30, literature course, and one elective from art, anthropology, literature, foreign language beyond introductory level, history, philosophy, or religious studies.

Mathematics (4 hours) Psychology (4 hours)

Natural Science (11-12 hours) Three courses from the biological and/or physical sciences, to include Physics 1810. Psychology 2500.

Social Studies (12 hours) Any 12 hours, to include at least two areas.

CORE PROFESSIONAL EDUCATION..9 hours Ed. C & I 3101*; 3020, 3030*

SPECIALIZED PROFESSIONAL EDUCATION........22 hours

Student teaching: Ed. C & I 4710*; 4720*;

Ed. Psych. 2430 or 3810; Special Educ. 3333, Art Ed. 4100.

TOTAL MINIMUM REQUIRED........183 hours

B. Music Education

GENERAL EDUCATION...............66-68 hours

Communications (12-13 hours) 1

English 1010-20 and 1031 or 1032 or 1033; and 3-4 hours in speech.

Health and Physical Education (9 hours) Activities courses in physical education plus School Health 3510.

Humanities (14 hours) Music 2320-30, literature course, and one elective from art, anthropology, literature, foreign language beyond introductory level, history, philosophy, or religious studies.

Mathematics (4 hours) Psychology (4 hours)

Natural Science (11-12 hours) Three courses from the biological and/or physical sciences, to include Physics 1810. Psychology 2500.

Social Studies (12 hours) Any 12 hours, to include at least two areas.

CORE PROFESSIONAL EDUCATION..9 hours Ed. C & I 3101*; 3020, 3030*

SPECIALIZED PROFESSIONAL EDUCATION........22 hours

Student teaching: Ed. C & I 4710*; 4720*;

Ed. Psych. 2430 or 3810; Music Ed. 4100, and Special Ed. 3333.

TEACHING AREAS AND ELECTIVES.....65-110 hours

Concentration in Vocal Music (Voice Principal)

TOTAL MINIMUM REQUIRED........182-209 hours

GENERAL REGULATIONS FOR ALL MUSIC EDUCATION STUDENTS

A. Required participation, with credit or as a registered auditor, in a major instrumental or vocal organization each quarter in residence (on-campus) as a music education major, as approved by the student’s advisor and the directors of the organizations concerned. Students preparing to be band directors are expected to enroll in marching band unless officially excused.

Institutional Major. Concert Band; University Marching Band; or University Orchestra.

Vocal Major: Concert Choir; University Chorus, Chamber Singers.

Elementary Music Education Major. Same as Vocal Major.

B. Transfer students must take proficiency examinations in applied music, music theory, sight-singing and dictation prior to registration in music education curricula.

V. Health, Physical Education, Recreation, and Safety

A. Concentration in Elementary Physical Education (1-9)

GENERAL EDUCATION...............90 hours

*Requires admission to Teacher Education Program.

**Requires admission to Teacher Education Program.
### Communications (12 hours)
English 1010 or 4100, 1031 or 1032 or 1033; Speech 2021 or 2311.

### Humanities (16 hours)
English 2510 or 2520 plus 12 hours of electives in history, literature, philosophy, religion, or the arts.

### Natural Science (24 hours)
Chemistry 1510-20, Physics 1450, or Zoology 3300-30 and 4840.

### Mathematics (4 hours)
Math 3210 or 3220.

### Specialized Professional Education (3 hours)

### Cognate Course and Electives (24 hours)
CFS 3210 and 21 hours to be used for minor, endorsement, or free electives.

### TOTAL MINIMUM REQUIRED 197 hours

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### B. Minor in Elementary Physical Education

- *Open only to students with a concentration in secondary physical education.*
- P.E. 3540, 3550, 3560, 3570, 3650, 3660, 3670, 3680, 3340, 4110, 4150, 4330, 4440, 3260, and 4 hours of P.E. activities electives.

### C. Concentration in Secondary Physical Education (7-12)

#### GENERAL EDUCATION 96 hours
- English 1010 or 1011; 1020 or 1031 or 1032 or 1033; speech elective (4); chemistry (1510-20 suggested); Physics 1450; Zoology 2920-30, 4940; Mathematics elective (3); School Health 3210. Humanities electives (16 hours) selected from: English literature; anthropology; art; foreign language; music; philosophy; religion; dance appreciation; interior design and housing. Social studies electives (20 hours) selected from: history; anthropology; economics; geography; political science; sociology; geology; psychology. Psychology 2520. Physical education activities (12 hours); P.E. 1020, 1021 or 1022, 1032, 2012, 2022, 2032.

#### PROFESSIONAL EDUCATION 33 hours
Education C & I 3010-20-30*, Educ. Psych. 3810, Educ. C & I 4710-20, education elective (3 hours); Physical Education 4100, 3250 (practicum, field experience—2 hours).

#### SPECIALIZED PROFESSIONAL EDUCATION 8 hours
P.E. 1000, 3210; 4140; 3320; 4110; 4120; 4220; 3210 or 3170; 4310; 4440 or 4450.

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*Requires admission to Teacher Education Program.

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### Electives

- **Electives**
- **D. Minor in Secondary Physical Education** (27 hours)
- **E. Minor in Coaching** (28 hours)
- **F. Major in Dance**
- **G. Minor in Dance** (29-31 hours)
- **H. Major in Recreation**

### Selection of Specific Courses

- Selection of specific courses in each area below depending on career goals in recreation. Consult advisor.

### Natural Sciences (16 hours minimum)
4 hours selected from: chemistry, physics, geology, astronomy, and Geography 3810, 1820, 3530. 4 hours selected from: biology or botany, zoology, the areas of anatomy or physiology. At least 8 additional hours selected from any or a combination of the above.

### Mathematics (3-4 hours)

### Social Sciences (16 hours minimum)
Sociology 1510 and 4530; at least 8 additional hours selected from Sociology 1520, 3130, 3410, 3420, 3690, 4330, 4560, or Rural Sociology 3420 or Human Services 2650, 4900, 3300 or Political Science 2520, 2020, 2510-20, 3565-66, 3710-20, Economics 2110-20, 2001, 3220, 3240.

### Behavioral Sciences (16 hours minimum)
Psychology 2550; at least 12 additional hours selected from: Psychology 2540, 3120, 3550, 3650, 3616-26 or Educ. Psych. 2430, 2510-20, 4130, 4800, or CFS 2110, 3210-20, 4260, 4610, 4810.

### Communications (16)
English 1010 or 1011; 1020; 1032; Speech 2311; and Journalism 3710.

### Health and Safety (3 hours minimum)
School Health 3210, Public Health 3210 or Safety 3520.

### Humanities (16 hours minimum)
At least 4 hours selected from English 2000 level and above; at least 3 hours selected from history; at least 9 additional hours selected from English 2000 level and above, History 1510-20, 1590-60, 2510-20, 2350, Anthropology 2530, Geography 3650, Classics 2910-20, 2910-20, 3210-20, 3910-20-30, 4010, Philosophy 1510-20, 2310, 2410, 3315, 3630, 3910, Religious Studies 2610, 2611.

### Cultural Arts (12 hours minimum)
4 courses from at least 2 of the following arts: Music 1210-20, 3210-11, 12, 3450, 4230, 4241, 4260, 4270, Theatre 3253-54-55, 3262-63, Art 2515, 2725, 3735-36, 3765-66, 1815-25, P. E. 2070, 3090, 3151.

### Professional Recreation Education

#### Recreation Education 24 hours
Recreation 1100, 3100, 3140, 3220, 3880, 4130, 4200.

#### Field Study

- 21-24 hours
- Recreation 1000, 2000, 3000, 4000.

### Skills Areas

- 18-24 hours
- Student selects two of the following skill areas and completes at least 3 courses (9-12 hours) in each:
  - **Arts and Crafts**: Art 1115-25-35, 2105, 2115, 2205, 2215, 2250-60, 2725, 2315, 2450-60, 2515-16, 2545-55-65, 2605, 2617, 2950-50-70, 3200, 3710, 4150; Art Education 2100, 2210-20, 3110, 3920-30, 4130, 4150, 4410.
  - **Dramatics**: Theatre 1310-20-30, 2111, 2121-2211, P.E. 4070.
  - **Music**: Music Education 4410, 2100, 1010-20, Music 1500 through 1595 applied music series.
Outdoor Recreation and Camping: Recreational 4240, Recreation 3301, 3302, 3710, 4310.

Sports: Physical education—2 team sports, 3 individual sports.

FREE ELECTIVES: to be added to above requirements to total minimum of 192 hours for the degree.

TOTAL MINIMUM REQUIRED...........192 hours

I. Major in Public Health

GENERAL EDUCATION......................87 hours

Communications (13 hours)
- English 1010 or 1011; 1020 and 1032;
- Speech 2311.

Health and Physical Education (11 hours)
- School Health 3000
- School Health 3210
- Physical education electives.

Humanities (16 hours)
- English—any 4 hours from literature;
- Anthropology 2530; Philosophy or religious studies elective (4); Art or music elective (4).

Mathematics (4 hours)

Natural Science (20 hours)
- Chemistry or physics sequence; Biology 1210-20 or Zoology 2920-30.

Psychology (4 hours)
- Psychology 2500.

Social Studies (19 hours)
- Economics 2110; Geography 2110 or 2120 or Political Science 2510 or 2520; History 1510-20 or 2510-20; Sociology 1510.

TOTAL MINIMUM REQUIRED...........190 hours

II. Major in School Health Education

GENERAL EDUCATION......................87 hours

Communications (13 hours)
- English 1010-20 or 1031 or 1032 or 1033;
- Speech 2311.

Health and Physical Education (11 hours)
- School Health 3000
- School Health 3210
- Physical education electives.

Humanities (16 hours)
- English—any 4 hours from literature;
- Anthropology 2530; Philosophy or religious studies elective; Art or music elective.

Mathematics (4)

Natural Science (20 hours)
- Chemistry or physics sequence; Biology 1210-20 or Zoology 2920-30.

Psychology (4 hours)
- Psychology 2500.

Social Studies (19 hours)
- Economics 2110; Geography 2110 or 2120 or Political Science 2510 or 2520; History 1510-20 or 2510-20; Sociology 1510.

CORE PROFESSIONAL EDUCATION....9 hours

SPECIALIZED PROFESSIONAL EDUCATION..................................................28 hours
- Education C & I 4750, 4710 and 4720;
- Education Psychology 3810; School Health 3650, 4100; Special Educ. 3333.

TEACHING AREAS AND ELECTIVES........66 hours
- School Health required courses:
  - English 3410, 3420, 3620; School Health electives (3): 3471 or 4810-20-30 Public Health required courses:
  - School Health 3310, 3320, 3330; Public Health electives:
  - School Health 3310, 3320, 3330; Public Health electives:
  - School Health 4700-20.

SPECIALIZED EDUCATION (12 hours)
- Education C & I 4750, 4710 and 4720;
- Education Psychology 3810; School Health 3650, 4100; Special Educ. 3333.

TEACHING AREAS AND ELECTIVES........66 hours
- Public Health required courses (12): 3310, 3320, 3330, and 4220; Public health electives (6); School health required courses (9): 3410, 3420, 3620; Safety required courses (3): 3520; Biology 1230; Microbiology 2910-19;
- Psychology 3150; Sociology 3150; Sociology 3150; Nutrition 3120; electives (12).

Special Note: If some of the specific courses cited above are dropped or changed, they may be substituted with an equivalent course.

TOTAL MINIMUM REQUIRED.............190 hours

J. Major in School Health Education

GENERAL EDUCATION......................87 hours

Communications (13 hours)
- English 1010-20 or 1031 or 1032 or 1033;
- Speech 2311.

Health and Physical Education (11 hours)
- School Health 3000, 3210; Physical education electives.

Humanities (16 hours)
- English—any 4 hours from literature;
- Anthropology 2530; Philosophy or religious studies elective; Art or music elective.

Mathematics (4)

Natural Science (20 hours)
- Chemistry or physics sequence; Biology 1210-20 or Zoology 2920-30.

Psychology (4 hours)
- Psychology 2500.

Social Studies (19 hours)
- Economics 2110; Geography 2110 or 2120 or Political Science 2510 or 2520; History 1510-20 or 2510-20; Sociology 1510.

CORE PROFESSIONAL EDUCATION....9 hours

SPECIALIZED PROFESSIONAL EDUCATION..................................................28 hours
- Education C & I 4750, 4710 and 4720;
- Education Psychology 3810; School Health 3650, 4100; Special Educ. 3333.

TEACHING AREAS AND ELECTIVES........66 hours
- School Health required courses:
  - School Health 3410, 3420, 3620; School Health electives (3): 3471 or 4810-20-30 Public Health required courses:
  - School Health 3310, 3320, 3330; Public Health electives:

II. Major in Driver and Traffic Safety Education (28 hours)

REQUIRED COURSES......................17 hours
- Safety 3520, 4410, 4420; School Health 3210.

ELECTIVES...................11 hours
- At least nine hours selected from:
  - School Health 4120; Educ. C & I 4750; Educ. Psychology and Guidance 2520; School Health 3650.

L. Minor in School Health Education (30 hours)
- School Health 3000, 3210, 3410, 3650, 3420; Safety 3520; Public Health 3310, 3320, 4410; Nutrition 3120 or School Health 4420 or School Health 3620.

VI. Special Education* A. Concentration in General Special Education

GENERAL EDUCATION......................74 hours

Communications (9 hours)
- English 1010-20 and 1031 or 1032 or 1033.

Health and Physical Education (18 hours)
- P. E. 4340, 3450, 4110 activities electives

Humanities (12 hours)
- Literature (4 hours); electives from anthropology, art, literature, library and information science, upper-division history, music, philosophy, religious studies, or foreign language above the introductory level (8 hours).

Mathematics (3 hours)
- Elective (Math 2110 recommended).

Natural Science (16 hours)

*Requires admission to Teacher Education Program.

Biological science (12 hours); physical science (4 hours); social science (3 hours); special education (5 hours).

Social Studies (16 hours)
- History 2510, 2520 and electives from anthropology, economics, geography, political science or sociology (8 hours).

CORE PROFESSIONAL EDUCATION....8 hours
- Educ. C & I 3010* and 3030*

SPECIALIZED PROFESSIONAL EDUCATION.................................42 hours

Language Arts (12 hours)

Mathematics Methods (3 hours)
- Educ. C & I 3350.

Psychology or Educational Psychology (9 hours)
- Psych. 2430 or 3810 and six elective hours.

Child Development (9 hours)
- Nine elective hours.

Student Teaching in Elementary Schools (9 hours)

SPECIAL EDUCATION COURSES........39 hours
- Special Education 3333, 4520, 4110, 4120, 4130, 4150, 4351, 4361, 4440, 4610, 4740, 5260, 5820.

SPECIAL EDUCATION STUDENT TEACHING........15 hours
- Special Education 4880, 4881, 4882.

ELECTIVES.....................13 hours

TOTAL MINIMUM REQUIRED.............189 hours

*Requires admission to Transfer Education Program.

B. Concentration in Combined General Special Education and Elementary Education

GENERAL EDUCATION.....................89 hours

Communications (12 hours)
- English 1010-20 and 1031 or 1032 or 1033;
- Speech 2311 or 2321 or 2321 or any speech elective.

Health and Physical Education (20 hours)
- P. E. 3450, School Health 3510, School Health 3600, Psychology 2500, P.E. 4110 and 3430, and four elective hours.

Humanities (12 hours)
- Literature (8 hours); elective from foreign language above the introductory level, philosophy, religious studies, art, or music (4 hours).

Mathematics (9 hours)
- Math 2110, 2120, 2130.

Natural Science (20 hours)
- Biology 1210, 1220, 1230 and Physics 1410, 1420.

Social Studies (18-20 hours)
- History 2510; electives from anthropology, economics, geography, political science and sociology. Minimum of three areas to be represented (14-16 hours).

CORE PROFESSIONAL COURSES........9 hours

ELECTIVE ELEMENTARY EDUCATION COURSES........36 hours

*Requires admission to Teacher Education Program.
College of Education

Educ. C & I 3260, 3270, 3280, 3281, 3350, 3351, 3720, 3511-12-13 or Special Education 4361, 4610*, 4820.

SPECIALIZED COURSES ................... 18 hours
Ed. Psych. 2430, Art Educ. 2100, 2110,
Music Educ. 2100, 2110; LIS 3510.

SPECIAL EDUCATION COURSES .......... 42 hours
Special Education 3333, 4520, 4110, 4210,
4610, 4130, 4150, 4351, 4440, 4740, 5260,
and 6 hours psychology or educational
psychology electives.

STUDENT TEACHING WITH EXCEPTIONAL CHILDREN .................. 15 hours
Special Education 4860, 4861, 4862.

TOTAL MINIMUM REQUIRED .............. 209 hours

2. Concentration in the Hearing Impaired
ADMISSION TO THE PROGRAM FOR
TEACHERS OF THE HEARING IMPAIRED
In addition to the college requirements for
Admission to Teacher Education, Special
Education students in the program for
Teaching the hearing impaired will follow these
procedures:

1. File application for admission to the program;
2. The Program Screening Committee will
review all applications quarterly. The following
criteria will be considered:
a. cumulative grade point average:
b. completion of these courses: Special
Education 2110-20-30, 3333 and 9 additional
hours of course work in the major field
(AREA OF CONCENTRATION).
c. adviser's recommendations (based on
personal interview and career planning);
d. instructor's recommendations (from the
courses in Special Education listed above);
e. the candidate's personal aptitude for
Teaching in Special Education as indicated by
practicum experiences;
f. writing sample;
g. the committee will grant full, or
provisional, admission or will deny
admission. A candidate may appeal the
decision to the Departmental Appeals
Committee and the College Appeals
Committee.

3. Formal admission to the program will be
granted after the Program Screening
Committee reviews applications and the
above criteria are considered.

A comprehensive examination in sign
language and finger-spelling must be taken at
least two quarters before student teaching. A
remedial course in sign language and
finger-spelling will be offered each quarter.

The candidate and instructor will follow the
same admission procedures.

1. Specialization in Early Childhood
Development

GENERAL EDUCATION .................. 74 hours
Communications (9 hours) English 1010-20 and 1032. (Some students
may be required to take English 1019 based
on placement scores.)

Health and Physical Education (10 hours) School Health 3510, P.E. 3450; P.E.
electives.

Psychology (4 hours) Psychology 2500.

Humanities (11-12 hours) English literature

7-8 hours electives (choose 2 areas):
anthropology, art, history, philosophy, foreign
language (above introductory level), religious
studies, music, library and information science.

Mathematics (3 hours)
Mathematics 2110.

Natural Sciences (20 hours)
8-12 hours in biological science (choose
one series): Biology 1210-20-30; Botany 1110-
20, 8-12 hours in physical science: Physics
1410-20-30, Astronomy 1510-20, Astronomy
2110-20-30, Chemistry 1110-20-30.

Social Studies (17-20 hours)
History 1510-20 or 2510-20; 9-12 hours
(history 3 areas): anthropology, economics,
geography, political science, sociology.

CORE PROFESSIONAL EDUCATION ........................................ 9 hours
Education C & I 3010, 3020, 3030.

AREA OF CONCENTRATION ............. 67 hours
Audiology and speech pathology elective
(3050 recommended), Audiology and Speech
Pathology 3010, 3710 (or Sp. Ed. 4240), 4930
(or 5950), Special Education 2110, 2120
(or Educ. C & I 3511-15-19), 3333, 4190, 4200,
4210-20-30, 4250, 4280, 4290, 4351, 4361,
4371, 4870, 4871, and pre-student teaching
seminar, 4100 (1).

TOTAL MINIMUM REQUIRED ............. 189 hours

3. Specialization in Elementary Education

GENERAL EDUCATION .................. 77 hours
Communications (9 hours) English 1010-20 and 1032. (Some students
may be required to take English 1019 based
on placement scores.)

Health and Physical Education (15 hours)
P.E. 3450; School Health 3510, 3610; P.E.
electives.

Psychology (4 hours) Psychology 2500.

Humanities (12 hours) Literature (6); elective from philosophy, art,
religious studies, or music.

Mathematics (3 hours)
Mathematics 2110.

Natural Sciences (16 hours)
8-12 hours in biological science (choose
one series): Biology 1210-20-30, Botany 1110-
20, 8-12 hours in physical science: Physics
1410-20-30, Astronomy 2110-20-30, Chemistry
1110-20-30.

Social Studies (18 hours)
History 1510-20 or 2510-20; 10 hours
choose 3 areas); anthropology, economics,
geography, political science, sociology.

CORE PROFESSIONAL EDUCATION ........................................ 9 hours
Educ. C & I 3010, 3020, 3030.

SPECIALIZED PROFESSIONAL EDUCATION .................. 6 hours
Educational Psychology 3810 and
appropriate methods course for major area.

AREA OF CONCENTRATION ............. 67 hours
Audiology and speech pathology elective
(3050 recommended), Audiology and Speech
Pathology 3010, 3710 (or Sp. Ed. 4240), 4930
(or 5950), Special Education 2110, 2120
(or Educ. C & I 3511-15-19), 3333, 4190, 4200,
4210-20-30, 4250, 4280, 4290, 4351, 4361,
4371, 4870, 4871, and pre-student teaching
seminar, 4100 (1).

MAJOR AREAS .............................................................. 30-45 hours

NOTE: 30 quarter hours are required for
graduation and Council on the Education of
the Deaf Certification. For Tennessee State
Certification for Teaching Non-handicapped
Students, additional credit hours are required.

TOTAL MINIMUM REQUIRED ............. 187 hours

4. Specialization in Multiple Handicapped

GENERAL EDUCATION .................. 75 hours
Communications (9 hours)
English 1010-20 and 1032. (Some students
may be required to take English 1019 based
on placement scores.)
**Health and Physical Education (10 hours)**
School Health 3510; P.E. 3450 and P.E. electives.

**Psychology (4 hours)**
Psychology 2500.

**Humanities (11-12 hours)**
English literature; 8 hours electives (choose 2 areas): anthropology, art, history, philosophy, foreign language (above introductory level), religious studies, music, library and information science.

**Mathematics (3 hours)**
Mathematics 2110.

**Natural Science (20 hours)**
8-12 hours in biological science (choose one series): Biology 1210-20-30; Botany 1110-20; 8-12 hours in physical science: Physics 1410-20-30, Geology 1510-20, Astronomy 2110-20-30, Chemistry 1110-20-30.

**Social Studies (18 hours)**
History 1510-20 or 2510-20. 10-12 hours (choose 3 areas): anthropology, economics, geography, political science, sociology.

**CORE PROFESSIONAL COURSES**
- **D. Concentration In Speech and Hearing**
  - **GENERAL EDUCATION**
    - Communications (12 hours)
    - **Health and Physical Education**
      - Activities courses recommended plus health and physical education electives (both areas must be represented).
    - **Humanities**
      - English (4 hours from 2000-level literature); electives from two of the following areas: anthropology, art, English (literature), foreign language (above introductory level), history (upper division). Library and Information Science 3510-20-30, music, philosophy, and religious studies.
  - **Mathematics**
    - Elective (4 hours).
  - **Natural Sciences**
    - Elective (16 hours)
  - **Psychology**
    - Psychology 2500.
  - **Social Studies**
    - History electives (8 hours); 12 hours from three of the following areas: anthropology, economics, geography, political science, sociology.
  - **General Electives**
    - Elective (6 hours).

**PROFESSIONAL EDUCATION**
- **E. Concentration in Partially Seeing**
  - **VI. Vocational-Technical Education**
    - **A. Business Education**
      - See curricula for Secondary Education (7-12) p. 106 for General Education and Professional Education requirements.
      - 63 quarter hours in business and economics to meet five business endorsement areas approved by the department adviser. A statement of requirements and alternative programs may be obtained from the coordinator of business education.
    - **B. Distributive Education**
      - Option 1.

**EDUCATION**
- **18 hours**
  - Psychology 2520 or 2530, Psychology 3550 or 2540 or Ed. Psych. 2430 or 3610, 11-12 hours upper-division psychology or educational psychology including Psychology 3150. (Ed. Psych. 3110, 4800, 4640 recommended.)
- **TEACHING AREAS AND ELECTIVES**
  - **69 hours**
    - Special Education 3333, three-hour elective (4110 or 4130 recommended); Audiology and Speech Pathology (or Special Education) 3310, 3710, 4040, 4310, 4470, 4920, 4930. Audiology and Speech Pathology 3010, 3050, 3065, 3200, 4610, 4650; Clinical Practicum Courses (12-15 hours): Audiology and Speech Pathology (or Special Education) 4320-30-40. Special Education 4341, 4342.
  - **181 hours**
    - The following area of endorsement requires completion of requirements of the elementary (K-9) or secondary education curriculum.

**PROFESSIONAL EDUCATION**
- **42 hours**
- **SPECIALIZED COURSES**
  - **42 hours**
    - Business Adm. 1110; Office Adm. 4310 or 4320; Accounting 2110; Marketing 3110-20, 4140, 4310, 4150; Finance 3120; Management 3101; Business Law 4110; Voc. Tech. Ed. 4440; Textiles and/or Advertising electives (6 hours).
  - **Electives**
    - **23 hours**

**TOTAL MINIMUM REQUIRED**
- **183 hours**

**GENERAL EDUCATION**
- **67 hours**

**COMMUNICATIONS**
- **12 hours**
  - English 1010-20 and 1031 or 1033; speech elective.

**Health and Physical Education**
- **3 hours**

**Mathematics**
- **3-4 hours**

**Humanities**
- **12 hours**
  - Literature elective (4 hours); 12 hours humanities electives.

**Natural Science**
- **12 hours**

**Psychology**
- **7-8 hours**

**SPECIALIZED COURSES**
- **48 hours**
  - Bus. Admin. 1110, Office Adm. 4310-20, Accounting 2110, Marketing 3110-20, 4140, 4310, 4150; Finance 3120; Industrial Management 3010; Business Law 4110; Textiles and/or Advertising elective (6 hours) VTE 4440 (6 hours).

**Electives**
- **23 hours**

**TOTAL MINIMUM REQUIRED**
- **183 hours**

**C. Industrial Education**
- **Option 1. Concentration in Trades and Industries**

**GENERAL EDUCATION**
- **67 hours**

**Communications**
- **12 hours**

**Health and Physical Education**
- **9 hours**

**Mathematics**
- **3 hours**

**Humanities**
- **15 hours**
  - Literature elective (4 hours); 11 hours from two of the following areas: philosophy, psychology, physical education electives (both areas must be represented).

**ELECTIVES**
- **23 hours**

**TOTAL MINIMUM REQUIRED**
- **183 hours**

*Requires admission to Teacher Education Program.

**SPECIALIZED PROFESSIONAL**
**TOTAL MINIMUM REQUIRED**: 186 hours

**Option 3. Concentration in Industrial Training**

**GENERAL EDUCATION**: 67-68 hours

**Communications** (12 hours)

**English** (9 hours; speech elective).

**Health and Physical Education** (9 hours)

Health and Safety 3210, First Aid and Emergency Care, electives.

**Humanities** (15 hours)

Two of the following areas must be represented: history, anthropology, economics, geography, political science, sociology.

**Mathematics** (3-4 hours)

Education 2500 or Ed. Psych. 3100.

**Psychology** (4 hours)

Psychology 2500.

**Natural Science** (12 hours)

Two of the following must be represented: history, anthropology, economics, geography, political science, sociology.

**SPECIALIZED COGNATE**: 45 hours

See page 61 for this program.

**E. Home Economics Education** See page 164 for this program.

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**Art and Music Education**

**Professors:**

- C. H. Ball (Head), Ph.D.
- Peabody; A. W. Humphreys (Emeritus), Ed.D.
- Illinois; J. H. Jones (Emerita), Ed.D.
- Columbus; W. J. Julian, Ph.D.
- Northwestern; J. W.
- Robertson, Ed.D.
- Columbia; A. T. Tips, Ph.D.
- Michigan.

**Associate Professors:**

- H. L. Gill, B.S.
- Milwaukee State Teachers; H. N. Hull, Ed.D.
- George Peabody; P. O. Johansen, Ed.D.
- Indiana; W. H. McDaniel, M.S.
- Tennesse; J. O.
- Mintz, Ed.D.
- Columbus; M. C. Moore, Ph.D.
- Michigan; A. J. Palmer, Ph.D.
- UCLA.

**Assistant Professors:**

- P. O. Johansen, Ed.D.
- Indiana; J. P. Watkins, M.S.
- Tennesse.

**Art Education (141)**

**1511 Field Experiences in Teaching Art** (Field experiences in which students perform tasks related to teaching and to teacher roles. S/N/C, may be repeated for credit.

**3100 Introduction to Art in Education** (Philosophy, developmental theory, goals, and media in relation to art education; directed experiences with selected media; field experience optional; prerequisite to other art education courses; for both majors and non-art education majors.

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**112 College of Education**

anthropology, art or art education, literature, foreign language, music or religious studies.

**Mathematics** (3 hours)

**Natural Science** (12 hours)

**Psychology** (4 hours)

Psychology 2500.

**Social Studies** (12 hours)

Two of the following areas must be represented: history, anthropology, economics, geography, political science, sociology.

**PROFESSIONAL EDUCATION**: 12 hours

Educ. C & I 3010*, 3020, 3030* (select any two); Special Education 3333; Ed. Psych. 3810.

**PROFESSIONAL INDUSTRIAL EDUCATION**: 42 hours

Vo. Tech. Ed. 3830, 3850, 3860, 3870, 4010, 4016, 4040, 4050, 4070, 4910, 4920.

**TECHNICAL COMPETENCY**: 45 hours

Health and P. E. electives. (Both areas must be represented.)

**Humanities** (15 hours)

Lecture elective (4 hours); art or art education (6 hours); additional hours taken from the following: history (upper division), philosophy, anthropology, foreign language (beyond introductory level), music or religious studies.

**Mathematics** (3 hours)

Natural Science (12 hours)

Psychology (4 hours)

**Social Studies** (12 hours)

Two areas from the following must be represented: history, anthropology, economics, geography, political science, sociology.

**PROFESSIONAL EDUCATION**: 10 hours

Educ. C & I 3010*, 3020, 3030* (select one); Special Education 3333; Ed. Psych. 3800, 3810.

**PROFESSIONAL INDUSTRIAL EDUCATION**: 30 hours

Vo. Tech. Ed. 3770, 4070, 4080, 4800, 4810, 4811.

**TEACHING AREAS**: 63 hours

**Communication** (Drafting, Graphic Arts)

Vo. Tech. Ed. 1620, 2620, 3620, 3672, Journalism 3190.

**Power and Transportation** (Prime Movers, Electricity/Electronics)

Vo. Tech. Ed. 1610, 1630, 2611, 2630, 3830.

**Construction and Manufacturing**

Vo. Tech. Ed. 1640, 1661, 2641, 2652, 2660, 3640, 3651, 3662, 4660, 4662, 4670.

**ELECTIVES**: 16 hours

*Requires admission to Teacher Education program.

*Requires admission to Teacher Education Program.

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**3110 Crafts in the Elementary School** (Prereq: 2110. 1 hours and 2 labs.)

**3120 Learning Through Studio Experiences: Sculpture and Craft Design** (Prereq: selected sculpture and craft design experiences; consideration of (1) subject matter, ideas, and concepts; (2) media and processes; (3) development and sequencing of appropriate learning activities for art program. Prereq: Art Ed. 3100 and at least one course in sculpture or crafts.

**3150 Drawing, Painting, and Design Activities in Elementary School** (Program planning and teaching strategies in elementary art; directed classroom activities with media; lesson planning and field experiences.

**3220 Learning Through Studio Experiences: Sculpture and Craft Design** (Prereq: selected sculpture and craft design experiences; consideration of (1) subject matter, ideas, and concepts; (2) media and processes; (3) development and sequencing of appropriate learning activities for art program. Prereq: Art Ed. 3100 and at least one course in sculpture or crafts.

**3220 Learning Through Studio Experiences: Graphic Design and Lettering** (Prereq: selected graphic design and lettering experiences; consideration of (1) subject matter, themes, and concepts (2) media and processes (3) development and sequencing of appropriate learning activities for art programs. Prereq: Art Ed. 3100 and at least one course in lettering or graphics.

**3500 Art and Music Appreciation in the Elementary School** (4) For majors in Elementary Education.

**Educ. A & M** 3511, 3521, 3531, 3541, 3551. Field Experiences in Teaching Art (Field experiences in which students perform tasks related to teaching and to teacher roles. S/N/C. May be repeated for credit.

**4100 Pre-Student Teaching Seminar** (1) Orients student teachers to the field of classroom centers and the student teaching program; describes the objectives and policies of the student teaching program; meets special needs of student teachers; raises awareness of professional liability. The pre-student teaching seminar must be completed the quarter immediately preceding student teaching. Fall quarter student teachers complete pre-student teaching seminars spring quarter. Prereq: full admission to the Teacher Education Program. Undergraduate credit only. May not be repeated for credit.

**4110 Program Development in Art** (3) Foundation readings for philosophy; writing program units; analysis of curriculum guides; field experience required (credit optional). Prereq: Art Ed. 3100 and 9 hours art education.

**4200 Designing Teaching Aids for Art** (3) Resource retrieval; identification of learning activities; new materials and methods of teaching; development of slide-tape presentation and other teaching aids for art teaching. Prereq: Art Ed. 3100 and 9 hours art education.

**4300 Learning Through Appreciation and History of Art** (3) Review of historical periods; citizen and community programs; application in teaching art. Prereq: Art Ed. 3100.

**4350-60-70 Problems in Art Teaching** (3, 3, 3) Prereq: Consent of Instructor.

**4400 Strategies for Teaching Art** (3) Readings on art teaching and planning for teaching; development of teaching activities and field experience; classroom experiences. Prereq: Art Ed. 3100 and 9 hours Art Education.

**4410 The Administration and Organization of Recreational Arts and Crafts Programs** (3) Purpose of art activity in recreation; scope of activities; organizational procedures, resources, and coordination required in community arts and crafts programs.

**GRADUATE**

**5000 Thesis**

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

**5210 Organization, Administration, and Supervision of Art in the School Program** (3)
Music Education (707)

The curricula in music education provide for five areas of concentration: vocal music (voice principal), vocal and instrumental music (voice principal), elementary music education (vocal organ principal), and instrumental music.

1010-20 Choral Laboratory (1, 1) Choral conducting: methods and materials required of all music education majors. Prereq: Consent of instructor.

1511 Field Experience in Teaching Music (1) Field experiences in which students perform tasks related to teaching and to teacher roles. S/NC. May be repeated for credit.

2100 Basic Experiences in Classroom Music (3) Vocal, instrumental, rhythmic, listening, music reading, and creative activities. Prereq: Major in elementary or special education. 5 hours.

2110 Experiences in Classroom Music (3) Vocal, instrumental, rhythmic, listening, music reading, and creative activities. For music education majors. Prereq: Approval of instructor, one year of music theory. 2 hours and 1 lab.

2411-12-13 Methods, Materials, and Techniques of String Class Instruction (2, 2, 2) Structure, use, techniques of playing, care and repair of principal instruments in school instrumental organizations. Emphasis on techniques necessary for basic understanding and effective teaching of the instruments. Practical use of current instructional materials. 2 hours per week.

2421-22-23 Methods, Materials, and Techniques of Woodwind Class Instruction (2, 2, 2) Structure, use, techniques of playing, care and repair of principal instruments in school instrumental organizations. Emphasis on techniques necessary for basic understanding and effective teaching of the instruments. Practical use of current instructional materials. 2 hours per week.

2431-32 Methods, Materials, and Techniques of Brass Class Instruction (2, 2, 2) Structure, use, techniques of playing, care and repair of principal instruments in school instrumental organizations. Emphasis on techniques necessary for basic understanding and effective teaching of the instruments. Practical use of current instructional materials. 2 hours per week.

3110 Teaching Music in the Primary Grades (3) Singing, rhythmic, instrumental, listening, creative, and music reading activities; evaluation, materials appropriate for Grades K-3. For elementary education majors only. Prereq: 2100 or 2110; Educ. Psych. 2430, upper-division standing.

3120 Teaching Music in the Intermediate and Upper Grades (3) Singing, rhythmic, instrumental, instrumental, listening, creative, and music reading activities; evaluation, materials appropriate for grades 4-6; Primarily for elementary education majors. Prereq: Music 2100 or 2110; Educ. Psych. 2430 and upper-division standing.

3130 Teaching Music in the Elementary School (3) Singing, rhythmic, instrumental, listening, creative, and music reading activities; evaluation, materials appropriate for Grades K-6. For music education majors only. Prereq: 2110; Educ. Psych. 2430 or 3810, and two years of music theory.

3150 Teaching Music in Junior and Senior High Schools (3) Procedures, techniques, curriculum, scheduling, administration, evaluation, materials and evaluation, creative, and music reading activities. Prereq: Two years of music theory; coreq: 3511.

3410 Teaching Instrumental Music (3) Problems and techniques, materials, instrument and equipment selection. Prereq: 6 hours of credit from 2411-21-31 series; coreq. for 3410: 3511.

3500 Art and Music Appreciation in the Elementary School (4) For majors in Elementary Education, Media, techniques, and styles of visual arts and music. Methods and materials of teaching arts appreciation in the elementary classroom.

3511 Field Experiences in Teaching Music (1) Field experiences in which students perform tasks related to teaching and to teacher roles. S/NC. May be repeated for credit.

4100 Pre-Student Teaching Seminar (1) Orient student teachers to the off-campus center and the student teaching program; describes the objectives and policies of the student teaching program, meets special needs of student teachers; and raises awareness of professional liability. The pre-student teaching seminars must be completed the quarter immediately preceding student teaching. Fall quarter student teachers complete pre-student teaching seminars spring quarter. Prereq: full admission to the Teacher Education Program. Undergraduate credit only. May not be repeated for credit. S/NC only.

4350-50-70 Problems in Music Teaching (3, 3, 3) Readings, conducting, and interpretation of vocal and instrumental scores suitable for school, church, and community groups. 4420—vocal music, 4430—instrumental music. Prereq: 1010-20 and 3 hours of credit from 2411-21-31 series and two years of music theory. Must be taken in sequences. 2 hours and 1 lab.

4441-42-43 Teaching Class Piano (1, 1, 1) For majors in music, music education, or elementary education. Prereq: Approval of instructor.


4460 Marching Band Techniques (3) Functions, organization, and direction of a school marching band. Prereq: Senior standing and approval of instructor; coreq: 3511.

4510 Choral Methods and Materials (3) Organization and administration, teaching techniques, choral literature, and interpretation. Prereq: 1010-20, 4420; one year of voice instruction, two years of music theory; 2 lecture hours and 2 one-hour labs; labs meet with 1010-20.

Graduate

5000 Thesis

5002 Non-Thesis Graduation Completion (3-15) 5060 Adult Education: A General Survey (3) 5110 Seminar in College Teaching (3) 5360-70-80 Problems in Continuing and Higher Education (1-3, 1-3, 1-3)

5410 College and University Law—The Legal Environment (3)

5420 College and University Law—Constitutional Rights and Responsibilities of Students (3)

5430 College and University Law—Tort Liability and Risk Management (3)

5440 American Higher Education (3)

5450 Instruction in Higher Education (3)

5460 Adult Development (3)

5470 The Curriculum of Undergraduate Higher Education (3)

5500 Governance of Colleges and Universities (3)

5550 Fiscal Problems in Higher Education (3)

5660 Program Planning in Continuing and Higher Education (3)

5750 Student Personnel in Higher Education (3)

5770 Case Studies in College Student Personnel (3)

5860 The Community-Junior College (3)

5955-65-75 Practicum in Continuing and Higher Education (1-3, 1-3, 1-3)

5960-70-80 Seminar in Continuing and Higher Education (1-3, 1-3, 1-3)

5990 Practicum in College Student Personnel (3)

6450 Advanced Seminar in Program Planning (3)

(See also course listings under the Departments of Curriculum and Instruction, Educational Administration and Supervision, and Educational Psychology and Guidance.)

Curriculum and Instruction

Professors: J. J. Bellon (Head), Ph.D. Oklahoma; J. E. Alexander, Ed.D.

Associate Professors: D. M. J. Allin, Ph.D. Oklahoma; B. C. Allison, Ph.D. Oklahoma; J. E. Alexander, Ed.D.

Associate Professors:


Assistant Professors:


Instructors:

M. A. Blank, M.S. Tennessee; F. L. Hagan, M.S. Tennessee.

*Alumni Distinguished Service Professor.*

**Educational Curriculum and Instruction (301)**

Undergraduate programs in the Department of Curriculum and Instruction provide the general professional courses for the preservice education of teachers in elementary and secondary schools.

1410 Efficient Reading and Study Skills (2,1) Improvement of reading comprehension in elementary and secondary schools. Emphasis on the development of critical thinking and study skills as they relate to content area subjects. May be repeated for a maximum of 1 hour credit for individuals.

1500 Introduction to Early Education (3) (Same as Child and Family Studies 1500.)

2010-20-30 Field Study in Education (3, 3, 3) Problems of teachers in active service in the fields of education, community organizations, and study skills as they relate to content area subjects. Must be repeated prior to the first 3 credit hours for individual candidates.

3010 History and Philosophy of Education (3) Role of philosophy in education; realism, neo-Thomism, pragmatism, and other contemporary movements; major ideas, historical roots, and modern applications. Undergraduate credit only.

3020 Principles and Organization of Education (3) Relation to current educational problems and practices; organizational patterns; financing of public education; professionalization of teaching. Undergraduate credit only.

3030 Social Foundations and Curriculum (3) Culture and society and their influences on curriculum; principles, problems, and procedures of subject matter selection; and the development of curriculum content; state curriculum policies and practices. Undergraduate credit only.

3150 Analysis of Teaching (3) Use of interaction analysis of learning; use of instructional strategies; analysis of learning; and the development of instructional skills. Taught in a series of seminar groups of students in elementary or secondary schools. Lectures are videotaped, and the students observe the teaching skills as they are recorded on the tape. Prereq: Consent of instructor.

3180 Microteaching (3) Emphasis upon the development of instructional skills. Students teach a series of lessons to small groups of students in either elementary or secondary schools. Lessons are videotaped, and the students observe the teaching skills as they are recorded on the tape. Prereq: Consent of instructor.
ics in elementary school. Developmental and diagnostic/corrective programs. Not open to students with recent course or background in teaching of elementary school mathematics.

4217 Teaching Elementary School Language Arts (3) Methods and materials used in teaching of elementary school language arts. Development of functional relationships with other curriculum areas, diagnostic procedures, and corrective work. Not open to students with recent course or background in teaching of elementary school language arts.

4230 Introduction to Diagnosis and Correction of Classroom Arithmetic Difficulties (3) Classroom strategies for diagnosing and correcting arithmetic difficulties, focusing upon content typically presented from grades 1-6. Prereq: 3305 or 5751 or equivalent.

4240 Classroom Instructional Organization (3) Developing understandings and skills relating to grouping, individualization, space utilization, organization, grading, integration, and achieving an effective social environment. For elementary classroom teacher. Prereq: Senior standing.

4250 Initiating the Activities Program (3) Prereq: Educ. Psych. 2430, six quarter hours of methods of teaching in the elementary school, and junior or senior standing.

4280 Orientation to Corrective Practices for Classroom Reading Problems (3) An orientation to the basic practices in diagnosing and correcting reading problem in the classroom. The inexperienced or beginning teacher deals with the collection and interpretation of reading behavior information and the presentation of corrective teaching. A course in the teaching of reading.

4300 Developmental Reading in Secondary School and Community College (3) An introductory course covering approaches and materials for teaching basic reading skills and organizing reading classrooms and/or laboratories at the middle school, secondary school, and community college level.

4303 Language Development of Children: Birth-Preadolescence (3) In-depth view of language development from birth through preadolescence; application of process of language development to instructional programs for early and middle childhood.

4304 Developing Reading Skills in Content Fields (3) Study of approaches and techniques for the teaching of reading skills in content areas of the school program. Emphasis on middle school and secondary school programs.

4400 Problems in Improvement of Instruction (1-3) Special conferences, workshops, or inservice programs designed for improvement of instruction. May be repeated. Maximum credit 9 hours. S/NC.

4410 Educational Sociology (3) (Same as Sociology 4410).

4430 Practicum in Teaching in the Elementary School (3) Practicum experience in elementary school classroom teaching designed for students seeking elementary certification who have obtained degrees in areas other than elementary education and who have obtained degrees and certification in areas other than this. Application must be filed with student teaching office at least one quarter prior to registration for practicum. Prereq: 3250-70-80, 3350, 3720 or equivalent and admission to Teacher Education.

4450 Teaching in Kindergarten: Overview (3) Relationship of kindergarten to total elementary program; goals; historical settings and current developments.

4451 Teaching in Kindergarten: Program Development (3) Curriculum planning and organization; classroom management. Prereq: Admission to Teacher Education.

4452 Elementary School Teaching: Minicourse (1-3) Minicourse focusing on various aspects of teaching in elementary school. Topics vary. Prereq: Student teaching. May be repeated.

4530 Home and School Relations (3) Study of need and techniques and materials used in fostering close relationships between the home and school at both elementary and secondary levels. Prereq: Senior standing.

4654 Methods, and Materials in Environmental and Science Education (3) Instructional methods, materials, curricular programs and current issues in environmental and science education for classroom teachers.

4710 Student Teaching, Grades 7-12 (6) Application for student teaching must be filed not later than the final quarter of junior year. Students should hold themselves available to do this work in off-campus centers. Must be taken with 4720. Prereq: 3010-20-30, Educ. Psych. 3810, appropriate special methods course(s), minimum grade point average of 2.0. Undergraduate credit only. S/NC.

4720 Student Teaching, Grades 7-12 (6) Cooperative planning with other students and teachers; analyses of teaching practices; evaluation of teaching competencies as a result of student teaching. Must be taken with 4710. Undergraduate credit only. S/NC.

4750 Utilization of Instructional Media (3) Introduces the basic communications processes, need for instructional media, instructional development, selection and utilization of media and basic software production techniques. (Same as Library and Information Science 4750 and Vocational-Technical Education 4750).

4810 Student Teaching in the Elementary School (9) Application for student teaching must be filed not later than final quarter of junior year. Students should hold themselves available to do this work in off-campus centers. Must be taken with 4820. Prereq: 3010-20-30, 3260-70-80, 3350, 3720; Educ. Psych. 2430; Library Service 3510; minimum grade point average of 2.0. Undergraduate credit only. S/NC.

4820 Student Teaching in the Elementary School (6) Must be taken with 4810. Undergraduate credit only. S/NC.

4850 Student Teaching in Early Elementary School (K-3) (9) Application filed no later than second quarter of junior year with placement one quarter prior to quarter of graduation. Prereq: Educ. C & I 3260, 3270 or 3720, 3280, 3350, 4450; CFS 3120, 3210. S/NC.

4851 Student Teaching in Early Elementary School (K-3) (9) Application filed no later than second quarter of junior year with placement at least one quarter prior to quarter of graduation. Prereq: Educ. C & I 3260, 3270 or 3720, 3280, 3350, 4450; CFS 3120, 3210. S/NC.

4860 Programmed Learning (3) Theories of learning as related to technology of programmed instruction; techniques and applications of programming. 2 lectures and 1 lab. Prereq: Psychology 3210, Educ. Psych. 3730, or consent of instructor. (Same as Psychology 4860.)

GRADUATE Graduate instruction in the Department of Curriculum and Instruction provides opportunities to improve the effectiveness of educational service in a number of areas.

5000 Thesis

5002 Non-Thesis Graduation Completion (3-15)

5040 Studies and Theory in Language Development (3)

5070 Seminar in Intercultural Education (3)

5090 Special Topics (1-6)

5091 Independent Study (1-6)

5092 Supervised Readings (1-6)

5100 History of European Education (3)

5110-12 History of American Education (3,3)

5120 Principles of Education (3)

5140 Comparative Philosophies of Education (3)

5141 Pragmatism in Education (3)

5142 The Existential Student (3)

5150-60-70 Seminar (1-3, 1-3, 1-3)-5000 Thesis

5190-92-5200 Educational Specialist Research and Thesis (3, 3, 3)

5210 Seminar in International Education: Asia and Africa (3)

5211 Instructional Strategies in Elementary School Social Studies (3)

5212 Programs and Materials in Teaching Elementary School Social Studies (3)

5230 Advanced Study and Practicum in Diagnosis and Remediation of Arithmetic Difficulties (3)

5240 Creative Thinking and Expression in Elementary School (3)

5250 Secondary School Instruction (3)

5260 Philosophy of Education (3)

5261 Educational Classics (3)

5270 The Elementary School Curriculum (3)

5280 Teaching Language Arts in the Elementary School (3)

5281 Teaching Social Studies in the Elementary School (3)

5282 Teaching Science in the Elementary School (3)

5283 Programs and Materials in Teaching Elementary Science (3)

5284 Seminar in Teaching Elementary Science (3)

5290 Teaching of Mathematics in the Elementary School (3)

5291 Programs and Materials in Elementary School Language Arts (3)

5292 Seminar in Research and Theory in Teaching Mathematics in the Elementary School (3)

5301 Developmental Reading in the Elementary and Middle School (3)

5302 Psychology of Reading (3)

5303 Methods and Materials for Teaching Critical Reading (3)

5304 Programs and Materials for Reading Instruction (3)

5305 Trends and Issues in Teaching Reading (3)

5306 Teaching Reading to the Linguistically Different Learner (3)

5307 Assessment and Correction of Classroom Language Arts Difficulties (3)

5350 Curriculum Development and Evaluation (3)

5360 Curriculum Development at the Local Level (3-9)

5365 Mathematics Laboratories in Elementary School (K-9) (3)

5379 Diagnosis and Correction of Classroom Reading Problems (3)

5380 Practicum in Diagnosis of Reading Problems (3)

5381 Practicum in Remediation of Reading Problems (3)

5382 Developmental Reading Practicum (3)

5400 Problems in Improvement of Instruction (1-3)

5410 The High School Curriculum (3)

5510 Education in Cultural Perspective (3)

5511 Non-Western Education: Anthropological Approaches (3)

5570 The Junior High and Middle School Curriculum (3)
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**Educational Administration and Supervision (292)**

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Associate Professors:

* H. F. Aldmon, Ed.D. Tennessee (Vice Chancellor for Student Affairs); G. W. Harris, Jr., Ph.D. Michigan; P. M. Husen, Ed.D. Stanford.
* Assistant Professors:

**GRADUATE**

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Educational Counseling and Psychology (311)

Profiessors:

Associate Professors:
T. W. George3, Ed.D. Tennessee; M. A. Hector, Ph.D. Michigan State; A. McIntyre3, Ph.D. Yale; N. M. Meera, Ph.D. Ohio State; M. Peterson3, Ph.D. Ohio State; R. S. Saudargas1, Ph.D. Florida; K. Swander1, Ph.D. Florida.

Assistant Professors:

1Part time.  2Adjunct.

2000 Field Experience (1) Field experiences in working with children and youth and their teachers. Students will perform various teaching tasks and be given opportunity to act in teaching roles. May be repeated for a total of 6 credit hours.

2210 Academic Development (3) The development of skills for competence in higher education, including principles of learning, self-knowledge, techniques of behavior change, time use, examination preparation, and independent study. Application of learned skills to current courses.

2220 Personal Development (3) A study of the relationships among self, others, and environment in contemporary culture. Topics include self-awareness, interpersonal skills, environmental awareness, values clarification and socialization.

2230 Career Development (3) Vocational opportunities and aspirations, career appraisal, career planning, decision making, occupational exploration, and vocational development.

2299 Developmental Laboratory (1) Repeatable to three credit hours. Specialized laboratory experiences in the improvement of skills related to academic, personal, or career development.

3000 Field Experience (1) Field experiences in working with children and youth and their teachers. Students will perform various teaching tasks and be given opportunity to act in teaching roles. May be repeated for a total of 6 hours.

3100 Learning Principles (4) The acquisition, retention, and transfer of information and skills, and major steps in problem solving and reasoning.

3110 Classroom Behavior Management (4) Student will develop understanding of behavior management procedures and skill in utilizing behavior management procedures in shaping pupil classroom behaviors. Prereq: Psychology 2500.

3430 Child Study (3) Child learning and development: study of individual children, ages 5-12. Prereq: Psychology 2500 or equivalent; coreq: either Educ Psych 2000 or a 2 hour/week field experience.

3550 Child Psychology (4) (Same as Psychology 3550).

3560 Individual Skills for Campus Leaders (3) Knowledge and skills for effectively managing leadership and administrative roles in campus organizations.

3810 Educational Psychology: Adolescence (3) Physical, emotional, social, career, and ethical dimensions of adolescent development; major emphasis given to effective communication with adolescents within the educational setting. Prereq: Psychology 2500 or equivalent; coreq: either Educ Psych 2500 or Psychology 3000 and a 2-hour/week field experience.

4100 Pre-Student Teaching Seminar (1) Orients student teachers to the off-campus centers and the student teaching program; describes the objectives and policies of the student teaching program, meets special needs of student teachers, and raises awareness of professional liability. The pre-student teaching seminars must be completed the quarter immediately preceding student teaching. Fall quarter student teachers complete presudent teaching seminars spring quarter. Prereq: full admission to the Teacher Education Program. Undergraduate credit only. May not be repeated for credit. S/NC only.

4110 Psychology of Sex Role Development (3) Examination, from both a theoretical and research base, of factors which contribute to sex role development with attention to changes in sex role definition in society and role of education in these changes. Aimed at the undergraduates or graduate student with minimal background in behavioral sciences. (Same as Psychology 4115).

4130 Mental Health (3) Studies and exploration of positive mental health. Application of mental health criteria to study of one's self based on a battery of self-assessment procedures in shaping pupil classroom behaviors. Prereq: Psychology 2500 or equivalent; coreq: either Educ Psych 2500 or equivalent; S/NC only.

4200 Developmental Laboratory (1) Repeatable to three credit hours. Specialized laboratory experiences in the improvement of skills related to academic, personal, or career development.

4551-52-53 Student Leadership Workshops (1, 1, 1) Series of small group and individualized experiences to develop knowledge and skills required of students in leadership roles. Sections are designed for resident assistants, student government officers, student activities, and other student organizations. Prereq: Consent of Instructor. S/NC.

4640 Standardized Testing (3) Use and interpretation of standardized group instruments in assessment of intelligence, aptitude, achievement, vocational interests and personality adjustment.

4650 The Construction of Classroom Tests (3) Concerned with teacher-made classroom tests: in-
structural objectives, principles of test construction, item analysis, evaluating a test's reliability and validity, interpretation of test scores, relationship between testing and grading.

4700 Assertiveness Training (1) Readings and group exploration of the principles of assertiveness and the application of assertive behavior in a variety of settings.

4760 Advanced Child Study (3) Prereq: 2430 or 3810 or consent of instructor.

4800 Psychology of the Disadvantaged Child (3) Significant behavioral differences and causes; appropriate intervention approaches.

4810 Psychoeducational Aspects of Appalachian People (3) Exploration of psychology of people of Appalachian region through an examination of history, culture, and role of education.


4890 Differential Psychology (3) Nature and sources of individual differences in behavioral characteristics, and differences between racial, ethnic, socioeconomic, sex, and other groups.

GRADUATE

5000 Thesis

5002 Non-Thesis Graduation Completion (3-15)

5040 Guidance and Pupil Personnel Services in Education (3)

5050 Children and Adolescents (3)

5060 Group Approaches with Students (3)

5070 Seminar in Elementary School Guidance (3)

5099 Field Work in School Psychology (1-6)

5100 Developmental Psychology (3)

5101 Advanced Psychology of Adolescence (3)

5110 Psychology of Women (3)

5111 Seminar in Current Issues in School Psychology (3)

5120 Seminar in Bias-Free Counseling (2)

5140-50-60 Psychoeducational Assessment (3, 3, 3)

5149-50-69 Practicum in School Psychology I (2, 2, 2)

5180-90-5200 Educational Specialist Research and Thesis (3, 3, 3)

5210 Interpreting Published Articles: Statistics (3)

5220 Interpreting Published Articles: Research Design (3)

5310 Diagnostic and Corrective Teaching (3)

5319 Field Work in School Psychology: Level I (2)

5320 Advanced Classroom Behavior Modification (3)

5330 Theory and Research in Human Learning (3)

5331 Current Developments in Human Learning (3)

5340 Group Dynamics (3)

5350 Educational Applications of Cognitive Theories (3)

5560 The College Student (3)

5720 Evaluation in Education (3)

5760 Career Development: Theory and Research (3)

5785 Career Development: Program Development Implementation and Evaluation (3)

5780 Career Development: Workshop (1-6)

5840 Student Appraisal (3)

5850-60-70 Special Topics and Problems (1-6, 1-6, 1-6)

5880 Career Development: Occupational and Educational Resources (3)

5885 Career Development: Field Experience (1-3)

5890 Counseling Theories and Techniques (3)

5897 Pre-Practicum (3)

5910-20-30 Problems in Lieu of Thesis (3, 3, 3)

5940 Counseling Practicum (3)

5950-60 Theory and Practice in Consultation (3, 3)

5959-69 Practicum in Consultation (3, 3)

5980 Organization and Administration of Pupil Personnel Programs (3)

6000 Doctoral Research and Dissertation (3-15)

6040 Seminar (1)

6099 Internship (1-6)

6110 Application of Research Design (3)

6120 Application of Experimental Research Design (3)

6319 Field Work in School Psychology: Level II (2)

6550-60-70 Seminar in College Student Personnel (2, 2, 2)

6610-20-30 Seminar in Dissertation Proposal Writing (2, 2, 2)

6750-60-70 Special Topics and Problems (1-6, 1-6, 1-6)

6810 Seminar in Counseling (3)

6840-50-60 Seminar in Professional Issues (1, 1, 1)

6910 Special Topics Seminar (3)

6931-32-33 Practicum in Counseling Psychology (3, 3, 3)

6940 Group Counseling Practicum (3)

6941-42-43 Practicum in Guidance, Counseling, and Personnel Services (3, 3, 3)

6944-45-46 Teaching Practicum (3, 3, 3)

6950 Counseling Supervision (3)

School of Health, Physical Education, and Recreation

Madge M. Phillips, Director

At the undergraduate level, professional preparation programs are offered in health, physical education, dance, and recreation. For information on graduate programs leading to the Master of Science, the Master of Public Health, Educational Specialist, the Doctor of Education, or the Doctor of Philosophy degrees, see the Graduate Catalog.

The School of Health, Physical Education, and Recreation also provides activities programs for all students in physical education and service courses in health and safety.

Health and Safety

Professors:


Associate Professors:

J. D. Gorski, Dr. P.H. UCLA; R. J. Pursley, Ph.D. Iowa; A. F. Thompson, Ph.D. Michigan.

Assistant Professors:


Instructors:

D. S. Holloway, M.S. Tennessee.

Safety (890)

3520 Principles of General Safety (3) Deals with principles, practices and procedures in general safety; covers safety problems in school traffic, recreation, industry, home, and other public areas.


4410 Driver and Traffic Safety Education (5) Preparation of teachers of driver education in schools and colleges. Students are required to teach at least one non-driver. Valid driver's license required. 3 hours and 2 labs.

4412 Cardiopulmonary Resuscitation (2) (Same as School Health 4412.)

4420 Advanced Driver and Traffic Safety Education (5) Development of competency in teaching of driver education through use of simulation, multi-media and multiple-car driving range. Emphasis placed on teaching skills and supervision. Prereq: 4410.

4430 Sports Safety (5) Accident prevention and injury control in sports activities; philosophy of sports safety, human environmental factors and their interrelationship in sports injury and their control; risk-taking and decision solutions strategies; and contributions of sports medicine to safety. 3 hours of lecture and 2 hours of lab.

4720 Workshop in Safety (3-6) Deals with special safety education problems. For advanced undergraduates, graduate students, teachers, supervisors, and administrators. May be repeated for credit.

GRADUATE

5000 Thesis

5002 Non-Thesis Graduation Completion (3-15)

5040 Guidance and Pupil Personnel Services in Education (3)

5050 Children and Adolescents (3)

5060 Group Approaches with Students (3)

5070 Seminar in Elementary School Guidance (3)

5099 Field Work in School Psychology (1-6)

5100 Developmental Psychology (3)

5101 Advanced Psychology of Adolescence (3)

5110 Psychology of Women (3)

5111 Seminar in Current Issues in School Psychology (3)

5120 Seminar in Bias-Free Counseling (2)

5140-50-60 Psychoeducational Assessment (3, 3, 3)

5149-50-69 Practicum in School Psychology I (2, 2, 2)

5180-90-5200 Educational Specialist Research and Thesis (3, 3, 3)

5210 Interpreting Published Articles: Statistics (3)

5220 Interpreting Published Articles: Research Design (3)

5310 Diagnostic and Corrective Teaching (3)

5319 Field Work in School Psychology: Level I (2)

5320 Advanced Classroom Behavior Modification (3)

5330 Theory and Research in Human Learning (3)

5331 Current Developments in Human Learning (3)

5340 Group Dynamics (3)

5350 Educational Applications of Cognitive Theories (3)

5560 The College Student (3)

5720 Evaluation in Education (3)

5760 Career Development: Theory and Research (3)

5785 Career Development: Program Development Implementation and Evaluation (3)
### Physical Education (764)

**Professors:**
- G. F. Brady (Emeritus), Ph.D. Iowa; E. K. Capen (Emeritus), Ph.D. Iowa; B. D. Franks, Ph.D. Illinois; E. T. Howley, Ph.D. Wisconsin; A. J. Kozar, Ph.D. Michigan; N. E. Lay, Ph.D. Florida State; W. P. Lienohn, Ph.D. Iowa; M. M. Phillips, Ph.D. Iowa; H. B. Watson (Emeritus), Ph.D. Michigan; H. G. Welch, Ph.D. Florida.

**Associate Professors:**

**Assistant Professors:**

**Instructors:**
- F. K. Whitt, M.A. Appalachian State; C. A. Wren, M.S. Eastern Michigan. Lecturers:

**Grading:**
- No-credit Options Available. (2) Emphasis on individual and group study. May be repeated. Maximum credit 8 hours. Prereq: Consent of instructor.

**Field Practice in Health Education (3-6) Off-campus health education internship or field practice in educational or other agency with qualified professional.**

**1000 Introduction to Physical Education (2) Special emphasis on theoretical and practical aspects of physical education.**

#### 4000-10-20 Electives in Physical Education (1-3, 1-3, 1-3)
- Off-campus health education internship or field practice in educational or other agency with qualified professional. May be repeated. Maximum credit 6 hours. Prereq: Consent of instructor.

**2050 New Repertory Dance Company (1) Preparation and presentation of public performances. May be repeated. Maximum credit 4 hours. Prereq: Consent of instructor.**

**2060 New Repertory Dance Company (2) Preparation and presentation of public performances. May be repeated. Maximum credit 4 hours. Prereq: 2040 or consent of instructor.**

**2070 Orientation in Dance—Appreciation (3) Historical, aesthetic principles, and current trends in dance.**

**3000 Administration of Athletics (2) Conduct of programs of athletic sports in high schools and colleges.**

**3010 Elementary Modern Technique (2) Analytical and practical study of modern dance techniques. May be repeated. Maximum credit 6 hours.**

**3020 Intermediate Modern Technique (2) Theoretical, technical, and improvisational study of modern dance. May be repeated. Maximum credit 6 hours. Prereq: 3010. Available to dance majors and minors or with consent of instructor.**

**3030 Intermediate/Advanced Modern Technique (2) Emphasis on various styles and techniques. May be repeated. Maximum credit 6 hours. Prereq: 3020. Available to dance majors and minors or with consent of instructor.**

**3040 Elementary Jazz Techniques (2) Instruction and practice in styles and techniques of jazz. May be repeated. Maximum credit 6 hours.**

**3041 Intermediate Jazz Dance Technique (2) Intermediate in jazz dance technique with emphasis on lyrical and percussive styles. Prereq: 3040. Available to dance majors and minors or with consent of instructor. May be repeated. Maximum credit 6 hrs.**

**3050 Beginning Dance Composition (2) Experience in creative forms of dance. Prereq: 3010.**

**3061 Dance Composition II (2) Further development of solo and duo compositional skills with particular emphasis on form; content and use of music. Prereq: 3050.**

**3062 Dance Composition III (2) Study of choreography for small groups. Exploration of costumes, props, stage space, and aesthetic environments. Prereq: 3061.**

**3070 Elementary Ballet Techniques (2) Practical and analytical study of classical ballet technique. May be repeated. Maximum credit 6 hours.**

**3075 Intermediate Ballet Technique (2) Emphasis on styles and methods of intermediate classical ballet technique, basic pointe work and use of petit and grand allegro combinations. Prereq: 3070. Available to dance majors and minors or with consent of instructor. May be repeated. Maximum credit 6 hrs.**

**3080 Officiating Volleyball (3) Officiating appropriate to volleyball competition. Emphasis on knowledge of rules and officiating mechanics.**

**3100 Social Dance (2) Instruction, practice, and teaching in basic social dance steps.**

**3110 Athletic Coaching of Football (2) Fundamentals and coaching techniques. Prereq: Approval of instructor.**
3120 Coaching of Basketball (2) Individual and team fundamentals for the high school coach; attention given to conditioning, schedule making, and other business arrangements. Prereq: Approval of instructor.

3140 Athletic Coaching of Track and Field Events (2) Techniques and training procedures. Prereq: Approval of instructor.

3160 Officializing Basketball (3) Officializing appropriate to basketball competition. Emphasis on knowledge of rules and officiating mechanics.

3170 Weight Control and Physical Activity (3) Theoretical knowledge of and practical experience in principles and methods of weight control and related physical activity.

3180 Track and Field (2) Methods and practical experience in various events of track and field. Special emphasis on teaching techniques, demonstration, progression, and analysis.

3200 Athletic Coaching of Baseball (2) Individual and team fundamentals for high school and college coach. Prereq: Consent of instructor.

3210 History and Principles of Physical Education (3) Principles from basic sciences of anatomy, bacteriology, biology, chemistry, physiology, psychology, and sociological applications to physical education and athletic coaching.

3220 Physical Fitness Activities (3) Teaching of calisthenics, conditioning activities, and weight training with emphasis on physical fitness concepts including muscular development of the body.

3240 Team Sports (2) Instruction, practice, and student teaching in selected team sports.

3250 Athletic Training Techniques (3) Theory and practice in the prevention and care of basic athletic injuries.

3260 Practicum for Physical Education Majors (1-10) Observation and limited teaching, coaching, and leadership experiences in physical education programs. Experiences intended to cover the last three-year period of professional preparation. May be repeated; Maximum credit 10 hours. S/NC Only.

3300 Tap Dance (2) Instruction, practice, and student teaching.

3320 Applied Anatomy and Kinesiology (3) Bones, joints, ligaments, and muscles involved in movements; reaction to joints and muscular mechanism to bodily development and efficiency.

3330 Stunts and Tumbling (2) Instruction and practice; student teaching and lesson planning with focus upon safety techniques.

3430 Adapted Physical Education Laboratory (1) Practicum, including student teaching, supplementing 4110.

3450 Physical Education in the Elementary School (2) Movement experiences appropriate for elementary school children; planning and teaching a development program.

3510 Conceptual Bases for Study of Human Movement Behavior (3) Biophysical, percepto-cognitive, and psycho-social forces causing humans to move as they do. Prereq: 1011 or 1012.

3530 The Teaching of Swimming and Lifesaving (2) Certification in ARC Water Safety Instructor Training or Senior Lifesaving with additional practice in teaching of swimming.


3560 Human Growth and Motor Development (2) Structural and functional changes in man from birth to old age, and relationship of changes to physical performance and skill development.


3510-20 Individual and Dual Sports (2, 2) Instruction, student teaching, and practicum in organizing adult sports and recreation programs suitable for schools, churches, or community recreation centers.

3590 Teaching Strategies and Program Implementation in Elementary Physical Education (3) Understanding and employing teaching strategies appropriate to elementary physical education, and study of program content and implementation. Prereq: 3570.

3660 Basic Movement Sequences for Children (3) Teacher's manual. Movement patterns and skills which are fundamental to movement activity, with emphasis upon designing and presenting sequential learning tasks and creative activity experiences. Prereq: or coreq: 3660.

3730 Practicum in Developmental Movement for Early Childhood (3) Experiences in designing and presenting developmental movement tasks to preschool children. Prereq: or coreq: 3660.

3740 Structured Movement Activities in Elementary Physical Education (4) Self-teaching, games and sports, and development of an elementary school physical education program, with emphasis upon designing and presenting sequential learning experiences. Prereq: 3670.

3750 Philosophy of Physical Education and Sport (3) Introduction to form and content of philosophy of physical education and sport; specific emphasis on content of philosophical, psychological, and sociological status of physical education and sport.

3910 Principles and Problems of Coaching (3) Examination of practical problems and situations which prepares students to make judgments and decisions in a coaching environment. Prereq: At least sophomore standing.

4000 Intermediate Advanced Ballet Technique (2) Emphasis on styles and methods of intermediate/advanced classical ballet technique, intermediate/advanced pointe work, baletts, and petit allegro. Prereq: 3075. Available to dance majors and minors or with consent of instructor. May be repeated. Maximum credit 6 hours.

4005 Advanced Ballet Technique (3) Emphasis on styles and methods of advanced classical ballet technique, including multiple pirouettes, batterie, equpport, and allegro. Prereq: 4000. Available to dance majors and minors or with consent of instructor. May be repeated. Maximum credit 6 hours. Senior standing or graduate status required for graduate credit. There is a different level of performance expected of those registered for graduate credit.

4010 Advanced Modern Technique (2) Development, integration, and synthesis of previous dance vocabulary, emphasis on advanced practice and principles. May be repeated. Maximum credit 6 hours.

4020 Practicum In Dance Production (2) Prereq: Consent of instructor.

4050 Rhythmic Analysis (3) The basic nature and principles of music, rhythm, and rhythmic notation with emphasis on their correlation with dance movement and composition. Prereq: Consent of instructor. Senior standing or graduate status required for graduate credit. There is a different level of performance expected of those registered for graduate credit.

4060 Advanced Composition (4) Application of compositional, production, and administrative skills culminating in the presentation of two complete choreographic works. Prereq: 3062, 4062.

4070 Stagecraft for Dance Production (2) Equipment, light design, properties, sets, and stage management.

4080 History of Dance I (3) A survey of the dance of various societies and cultures from pre-history through the nineteenth century. Senior standing or graduate status required for graduate credit. There is a different level of performance expected of those registered for graduate credit.

4090 History of Dance II (3) A survey of the development of dance in the theatre, recreation, and education during the 20th century. Senior standing or graduate status required for graduate credit. This is a different level of performance expected of those registered for graduate credit.

4100 Pre-Student Teaching Seminar (1) Orient student teachers to the off-campus center and the student teaching program; describes the objectives and policies of the student teaching program, meets special needs of student teachers; and raises awareness of professionalism of the field. The pre-student teaching seminars must be completed the quarter immediately preceding student teaching. Fall quarter student teachers complete pre-student teaching seminars spring quarter. Prereq: full admission to the Teacher Education Program. Undergraduate credit only. May not be repeated for credit. S/NC Only. (Same as Ed. C&I 4100. Art Ed. 4100. Music Ed. 4100. Ed. & Counseling Psych. 4100. School Health 4110, Public Health 4110, and Bus. Ed. 4100.)

4110 Adapted Physical Education (3) Classification of atypical students who require modified programs in physical education; class offers selection suitable for required or special physical education classes.

4120 Administration of Physical Education (3) Selection of topics in organization and administration; problems related to physical education programs in schools. Emphasis placed on human relations approach to solving problems in administration.

4140 Measurement and Evaluation in Physical Education (3) Relationship of measurement and evaluation in physical education. Administration and critique of appropriate measures of physical fitness, sports skills, and knowledge.

4150 Creative Rhythms for Children (3) Methods and materials for grades 1-3. 3 hours and 1 lab.

4160 Athletic Coaching Field Experience (2) Practical experience in coaching and related responsibilities. Must be repeated. Maximum credit 4 hours. Prereq: Approval of instructor.

4230 Program Planning in Physical Education (3) Curriculum building, course construction, and lesson planning for public schools and colleges.

4310 Folk and Square Dance (2) Materials and methods for public schools, colleges and recreation centers.

4330 Intermediate Tap Technique (2) Instruction and practice in intermediate tap techniques. Prereq: P.E. 3300 or consent of instructor.

4330-40-50 Specialization Study in Physical Education (1-3, 1-3, 1-3)

4410 Wrestling (2) Theoretical and practical work for prospective teaching; emphasis on safety procedures.

4430 Women's Gymnastics (2) Development of skills on balance beam, uneven parallel bars, and side horse vaulting; special emphasis on progression, safety, and teaching techniques. Open to men and women. Prereq: 3330.

4440 Men's Gymnastics II (2) Development of skills on pommel horse, parallel bars, and long horse vaulting. Special emphasis placed on safety, progression, and teaching techniques. Open to men and women. Prereq: 4440.

4460 The Coaching and Judging of Women's Gymnastics (2) Appreciation of women's gymnastic according to the rules of the United States Gymnastics Federation. National tests and ratings will be given. Both men and women are encouraged to take this course. Prereq: 2734 or 4440.
Service Program in Physical Education

The service program in physical education provides all students a program of physical education planned in accordance with their present and future needs and interests.

2701 ARC Advanced Life Saving (2)
2702 ARC Water Safety Instructor Training (2)
2703 ARC Water Safety Instructor for Handicapped (2)
2707 Badminton Elementary (2)
2708 Badminton Intermediate (2)
2711 Ballet Elementary (2)
2712 Ballet Intermediate (2)
2713 Ballet Advanced (2)
2714 Basketball (2)
2715 Bowling Elementary (2)
2716 Bowling Intermediate (2)
2717 Bowling Advanced (2)
2719 Equestrian Elementary (2)
2725 Field Hockey (2)
2727 Flag Football (2)
2728 Folk and Square Dance (2)
2730 Foundations of Physical Fitness (Lecture, Lab, Activity) (2)
2731 Golf Elementary (2)
2732 Golf Intermediate (2)
2734 Women's Elementary Gymnastics (Coed) (2)
2735 Women's Intermediate Gymnastics (Coed) (2)
2736 Women's Advanced Gymnastics (Coed) (2)
2737 Handball Elementary (2)
2738 Handball Intermediate (2)
2739 Handball Advanced (2)
2741 Ice Skating Elementary (2)
2742 Ice Skating Intermediate (2)
2743 Ice Skating Advanced (2)
2745 Lacrosse Elementary (2)
2747 Modern Dance Elementary (2)
2748 Modern Dance Intermediate (2)
2749 Modern Dance Advanced (2)
2750 Modern Jazz (2)
2752 Paddleball Elementary (2)
2753 Paddleball Intermediate (2)
2755 Racquetball Elementary (2)
2756 Physical Fitness (Conditioning Program) (2)
2757 Men's Elementary Gymnastics (Coed) (2)
2758 Personal Safety and Defense for Women (2)
2759 Men's Intermediate Gymnastics (Coed) (2)
2760 Soccer (2)
2761 Men's Advanced Gymnastics (Coed) (2)
2762 Social Dance (2)
2764 Softball (2)
2765 Sport in Society (2)
2766 Racquetball Intermediate (2)
2770 Racquetball Advanced (2)
2771 Swimming Elementary (2)
2772 Swimming Elementary II (2)
2773 Swimming Intermediate (2)
2774 Swimming Advanced (2)
2775 Synchronized Swimming Elementary (2)
2776 Synchronized Swimming Intermediate (2)
2778 Tap Dance Elementary (2)
2779 Tap Dance Intermediate (2)
2781 Tennis Elementary (2)
2782 Tennis Intermediate (2)
2783 Tennis Advanced (2)
2784 Track and Field (2)
2785 Tumbling Elementary (2)
2786 Tumbling Intermediate (2)
2787 Tumbling Advanced (2)
2789 Volleyball Elementary (2)
2790 Volleyball Intermediate (2)
2791 Volleyball Advanced (2)
2792 Weight Control and Figure Improvement (2)
2794 Weight Training Elementary (2)
2795 Weight Training Intermediate (2)
2797 Wrestling Elementary (2)
2798 Wrestling Intermediate (2)

Public Health (839)

Associate Professors:
C. B. Hamilton (Acting Chairman), Dr. P.H. Oklahoma; R. J. Pursley, Ph.D. Iowa.
Assistant Professors:
S. F. Spear, Ph.D. Iowa.

3310 Communicable and Noncommunicable Diseases (3) Modern concepts of diseases; etiology of common communicable and chronic disease problems including prevention and control. Prereq: One year of biological science and one course in bacteriology.

3320 Sanitation (3) History of sanitary awakening; disease-producing relationships and controls of water, sewage, refuse, milk, and other foods, air, insects, and soil; sanitation of homes, swimming pools, industrial plants, markets, restaurants, camps, and public bathing places; healthful school living as affected by buildings and grounds, lighting, acoustics, thermal control, and safety provisions. Prereq: one year of biological science, one course in microbiology, 2 hours and 1 lab.

3330 Introduction to Public Health (3) Philosophy, organization, and functions of federal, state, and local official and voluntary public health agencies. Includes periodic field trips.

4100 Pre-Student Teaching Seminar (1) Orient student teachers to the off-campus centers and the student teaching program; describes the objectives and policies of the student teaching program, meets special needs of student teachers, and raises awareness of professional liability. The pre-student teaching seminars must be completed the quarter immediately preceding student teaching. Fall quarter student teachers complete pre-student teaching seminars.
spring quarter. Prereq: full admission to the Teacher Education Program. Undergraduate credit only. May not be repeated for credit. S/NC only.

4210 Urban and Industrial Health (3) Health problems created by a burgeoning population and the megalopolis; industrial health problems of concern to management, supervisor, and industrial worker, control of occupational diseases, poisons, accidents, and other conditions incidental to industry.

4220 Communications for Better Health (3) Selective study of communications in health enterprise. Consideration in logical progression of the problems of transmitting current and new information to practitioners; communications among members of modern health teams, among health agencies, and use of mass media for transmitting health information.

4410 Consumer Health and Safety Education (3) Survey of major consumer health and safety problems; selecting, purchasing, and financing of safety and medical services. (Same as School Health 4410.)

5002 Non-Thesis Graduation Completion (3-15)

5010-30-50 Workshop in Public Health (3-6) For students, academic, health workers, social workers, and other voluntary and public health agency personnel; emphasizes the problem-solving approach through small group interaction, case method, and critical incident technique. May be repeated for credit.

5070-10-30 Field Practice in Public Health (3, 3, 3) Field practice in public health under supervision of public health profession. S/NC.

5070-80-90 Field Practice and Seminar in Public Health (3, 3, 5, 5)

5100-20-30 Workshop in Public Health (3-6) For students, nurses, case workers, sanitarians, and other voluntary and public health agency personnel; emphasizes the problem-solving approach through small group interaction, case method, and critical incident technique. May be repeated for credit.

5110 Environmental Health (3-5)

5120-30 Occupational Health and Safety (3-5, 3-5)

5150 Industrial Toxicology (3)

5200 Health and Sickness (3)

5410 Epidemiology (3)

5420 Administration of Public Health (3)

5430 Vital and Medical Statistics (4)

5440 Methods and Materials in Public Health Education (4)

5500 Factors in Problem Solving for Community Health (3)

5600 The Public Health Educator in Community Organization and Development (4)

5650 Functions and Roles of the Public Health Educator (3)

5680 Physical Activity and Health (5)

5705 Advanced Professional Health Education: Health Planning I (3-5)

5710 Advanced Professional Health Education: Health Planning II (3-5)

5715 Advanced Professional Health Education: Health Planning III (3-5)

5730 Dental Health Education (3-5)

5735 Emergency Medical Services (3-5)

5745 Family Health Unit (3-5)

5750 Health and Medical Care Legislation and Law (3-5)

5755 Health Facilities Administration (3-5)

5760 Health Services Administration (3-5)

5785 Occupational Health Unit (3-5)

5790 Self-Care Unit (3-5)

5795 The Training of Paramedical Personnel (3-5)

5840-50-60 Problems in Public Health Education (1-1-2, 1-3, 1-3)

6000 Doctoral Research and Dissertation

6120 Health Aspects of Gerontology (3)

6220 Seminar on the Nation's Health (3)

6230 International Health (3)

Recreation (853)

Professor: M. L. Peters (Chairman), Ph.D. Illinois.

Assistant Professor: M. D. Blanton, Re.D. Indiana; K. L. Krick, Re.D. Indiana.

1000-2000-3000 Field Practice (2-3, 2-3, 2-3) Supervised practice in an approved agency offering leisure services. Each hour of credit requires 25 hours of work in field agency. For recreation students only. Must be taken in sequence.

1100 Introduction to Recreation Profession (3) Overview of types, functions, and interrelationships of delivery systems for recreation and park services.

3100 Recreation Leadership Procedures (3) Principles of practice and leadership techniques; methods and methods of working with individuals and groups in leisure activity. Two one-hour lectures and one two-hour lab each week. Prereq: 1000, 1100, and passing score on CAT.

3140 Philosophical Foundations of Recreation (3) Examination of recreation as personal experience; theories of play, philosophies of leisure and relationship to economy, ecology, health, government, culture, and self-realization; history of recreation movement.

3200 Planning Leisure Programs (3) Principles and methods employed in planning effective and well balanced leisure time programs for various groups in various settings. Prereq: 2000, 3100.

3220 Organization, Supervision, and Management of Recreation Programs (3) Management, organization, and supervision of recreation programs and facilities. Prereq: 2000 and 3200.

3301 Outdoor Recreation Skills and Techniques I (3) Fundamentals necessary for safe participation in outdoor recreation activities such as hiking, swimming, ski, snowboarding, water sports, camping, backpacking, etc. Environ. emphasis on natural environment without disturbance or destruction of plant and animal habitats. Prereq: Consent of instructor.

3302 Outdoor Recreation Skills and Techniques II (3) Instruction in safe conduct of outdoor recreational activities such as sailing, skin diving, caving, orienteering, and natural interpretation without disturbance of environment. Provision of outdoor recreation experiences for the handicapped. Two 1-hour lectures/discussion and one 2-hour lab each week. Prereq: Consent of instructor.

3100 Camp Counseling (3) History and philosophy of camping movement, counselor leadership and programming skills and outdoor living skills.

3800 Social Recreation (3) Principles and practice of social recreation suitable for all age groups and appropriate to a variety of settings. Content includes methods of conducting low-organized and social-interaction activities for special events and programs.


4130 Recreation Administration (3) Introduction to recreation administration, including planning, personnel, areas and facilities, program services, finances, and public relations. Prereq: 3140, 3200, 3800 or consent of instructor.

4200 Survey of Recreation for Special Populations (3) Responsibility of recreation profession to minority groups whose leisure opportunities and needs may require special services. Prereq: 3140, 3200, 3800 or consent of instructor.

4310 Camp Administration (3) Program planning and organization, personnel management, camp site development and maintenance and camp operation for administrators and supervisors of organized camps.

4500 Specialized Study in a Selected Area of Recreation (1-9) Comprehensive study in a selected specialized area within the broad field of recreation. For recreation students only. May be taken for variable credit up to 9 hours. May be repeated for a maximum credit of 9 hours with consent of the division. Prereq: Consent of instructor.

GRADUATE

5000 Thesis (9)

5002 Non-Thesis Graduation Completion (3-15)

5130 Interpretation of Leisure (3)

5140 Leisure Service Delivery Systems (3)

5150 Current Issues in Recreation (3)

5240 Therapeutic Recreation (3)

5250 Implementation of Recreation Services for the Ill or Disabled (3)

5260 Leisure and Mental Health (3)

5300 Seminar in Recreation (1)

5340 Administration of Recreation Funds (3)

5350 Organizational Policies for Recreation (3)

5360 Management and Operation of Recreation Facilities (3)

5440 Problems and Projects in Recreation (1-9)

5450 Specialized Study in Recreation (1-9)

Special Education and Rehabilitation (933)

Professors:


Associate Professors:


Assistant Professors:


Instructors:

A. M. Griffin, M.S. Tennessee; D. D. McCampbell, M.S. Tennessee; N. E. Tedder, M.S. Minnesota; G. D. Tyler, M.S. Tennessee; M. K. Wardin, M.S. Tennessee.

Lecturers:

D. E. Reece, B.S. Memphis State.

The undergraduate programs in the Department of Special Education and Rehabilitation provide the general professional courses for the preservice education of candidates for certification in meeting the
needs of exceptional children. Facilities are available for continuous observation and participation in direct relationships with exceptional children who are hospitalized, homebound, in residential schools, special classes, or regular classes.

Course sequences are planned in the areas of (1) General Special Education; (2) the Hearing Impaired; (3) Speech and Hearing; (4) Rehabilitation Counselor Education.

It is possible to plan a program which will lead to certification in more than one area. For planning a program, the student must consult with an advisor in the chosen area.

General Special Education:
3333, 4110, 4120, 4130, 4150, 4351, 4361, 4440, 4520, 4610, 4740, 4860, 4881, 4882, 5260, 5620.

The Hearing Impaired:
2110, 2120, 3333, 4190, 4200, 4210, 4220, 4230, 4250, 4280, 4290, 4351, 4361, 4371, 4470, 4740, 4871, 4930, 5220, 5240, 5280, 5310, 5320, 5330, 5820.

Speech and Hearing:
3310, 3333, 3710, 4030, 4040, 4310, 4320, 4330, 4340, 4341, 4342, 4400, 4720, 4930. Other courses from Audiology and Speech Pathology: 3010, 3050, 3065, 3200, 4610, 4650.

Rehabilitation Counselor Education:
5100, 5110, 5115, 5120, 5130, 5145, 5154, 5161, 5174, 5175, 5160, 5170, 5700, 5710, 5720, 5730, 5740, 5750, 5760, 5770, 5771.

2110 Field Experience (1) Students observe, tutor, and perform teacher-related tasks in special education programs. S/NC.

2120 Field Experience (3) Students observe, tutor, and perform teacher-related tasks in non-special education programs. S/NC.

3310 Articulation Disorders (4) (Same as Audiology and Speech Pathology 3010).

3333 Education of the Exceptional Child (3) Principles, characteristics, and special needs; local and state programs for diagnosis and care; educational provisions in regular or special classes; home teaching; social and vocational guidance.

3710 Audiology I (3) (Same as Audiology and Speech Pathology 3710).

4000 Rehabilitation Practicum (3) Evaluation of client data in predicting rehabilitation prognosis. Prereq: 4230.

4020 The Professional Aspects of Speech/Language/Hearing Programs in the Schools (3) Comprehensive study of the organization, administration of school programs. Also, other settings, hospitals, institutions, private practice, professional certification levels, legislation, careers.

4040 Appraisal of Speech and Language Disorders (4) (Same as Audiology and Speech Pathology 4040).

4100 Pre-Student Teaching Seminar for Teachers in Special Education (1) A seminar to provide students with additional information about student teaching. Prereq: Consent of instructor.

4110 The Nature and Concept of Mental Retardation (3) Identification, description, and study.

4120 Education of the Mentally Retarded Child (3) Philosophy and rationale underlying the teaching and guidance of the mentally retarded; methods and materials in special and regular classes. Prereq. or coreq: 4110.

4130 Education of the Brain-Injured Child (3) Nature of brain-injured child; skills for identifying educational, physical, and emotional characteristics; special educational techniques.

4150 Education of Children with Crippling and Special Health Conditions (3) Medical and educational characteristics of children with crippling and special health conditions; appropriate educational modifications and associated services. Prerequisite/Corequisite 3333 or consent of instructor.

4160 Education of Partially Sighted Children (3) Curricular adjustments and materials; home visits for parents' cooperation in medical care and special needs.

4190 Speech Development of the Hearing Impaired (3) Anatomy and physiology of speech system. Relationship of hearing to speech development. Theories and techniques of speech development and improvement for hearing impaired children. Prereq: Speech 3050. (Same as Audiology and Speech Pathology 4190.)

4200 Practicum in Speech Development of Hearing Impaired (3) Application of theories and techniques of speech development and improvement with hearing impaired children. Prereq: Speech 3050 and consent of instructor. (Same as Audiology and Speech Pathology 4200.)

4210 Language Development of Hearing Impaired (3) Systems by which formal language is presented. (Same as Audiology and Speech Pathology 4210.)

4220 Language Development for the Hearing Impaired II (3) Techniques in language development for specific age levels. Prereq: formal language is presented. Prereq: 4210 or consent of instructor. (Same as Audiology and Speech Pathology 4220.)

4230 Communication Processes for the Hearing Impaired (3) Communication skills required of the hearing impaired person; speech and language development; auditory training, speech reading, manual language; and relation to other forms of communication. Observation practicum. (Student must acquire a degree of proficiency in manual language.) Prereq: Consent of instructor.

4231 Communication Processes for the Hearing Impaired II (3) Intermediate courses in manual communication skills and techniques with emphasis on vocabulary development with receptive and expressive fluency. Prereq. Spec. Ed. 4230 or consent of instructor.

4240 Nature of Hearing Impairments (3) Basic principles of audiology: anatomy, physiology of hearing; nature and causes of hearing loss; methods and instrumentation for assessment of hearing level; interpretation of audiograms; selection and use of hearing aids; relation of audiological services to medical and other rehabilitative disciplines. Observations and practicum.

4250 Introduction to the Psychology and Education of the Hearing Impaired (3) Offered for the student planning to enter field of teaching the deaf and hard-of-hearing. Review of history of education of the deaf. Research studies relating to psychology, social adjustment, and learning of the deaf. Survey of professional literature in the field of deaf child and adult. (Same as Audiology and Speech Pathology 4250.)

4260 Curriculum Development in Elementary and Secondary Schools for the Hearing Impaired (3) Adaptation of curriculum development and methods in public school education to meet needs of deaf and hard-of-hearing students in residential and integrated settings.

4290 The Teaching of Reading to Hearing Impaired Children (3) Readiness activities, developmental approaches, theories, and specialized materials for curricula in teaching reading.

4310 Stuttering (3) (Same as Audiology and Speech Pathology 4310.)

4320 Introduction to Clinical Practice in Speech Pathology (3) (Same as Audiology and Speech Pathology 4320.)

4330 Clinical Practice in Speech Pathology (1-6) (Same as Audiology and Speech Pathology 4330.)

4340 Clinical Practice in Speech Pathology (1-6) (Same as Audiology and Speech Pathology 4340.)

4341 Clinical Practice in Communication Disorders in Schools (3) Prereq: Audiology and Speech Pathology 4340-30-40, Special Ed. 4030 and consent of instructor. S/NC.

4342 Seminar in Communication Disorders in Special Education (3) A seminar to provide students with additional information about communication disorders; information on referral procedures, agencies, legislation; incorporation of speech and language disorders into regular curriculum. For students not majoring in speech—language pathology or audiology.

4610 Nature and Characteristics of Learning and Behavior Disorders (3) Forms of academic and socially disturbing behavior, degrees of severity, possible causes, and relationships to each other. Relationships with school and learning. Determining whether or not social and developmental factors interpreted through behavioral and psychodynamic theory as well as practical situations in which to focus for student's problem may occur.

4620 Education of the Emotionally Disturbed Child (3) Managing behaviors, models for instruction, teaching techniques and materials, and teacher-pupil-family interpersonal relationships as basic to academic achievement for the pupil. Prereq: 4610.

4630 Practicum in Residential Settings Serving Children with Disturbing Behavior (3) Practice in scientifically identifying, observing, and recording disturbing behaviors; initiating behavior changes regarding academic and social behaviors; to performing in a tutorial capacity within a residential classroom; take in part in discussion and evaluation of relevant academic curriculum and reinforcement schedules. Prereq: 4610 and 4620 or consent of instructor.

4640 Practicum in Public School Systems Serving Children with Learning and Behavior Problems (6) Academic tutoring in a teacher aide capacity within regular classrooms. Particular emphasis and practice in individualizing instruction for the better understanding of some behavior problem children within the regular classroom setting. Discussion and evaluation of relevant materials and methods utilized in each teaching situation. Prereq: 4610 and 4620 or consent of instructor.

4720 Audiology II (4) (Same as Audiology and Speech Pathology 4720.)

4740 Evaluating Exceptional Students (3) Explores mandates relative to evaluations; examines theoretical considerations and methods of evaluating exceptional students; introduces basic statistical concepts relative to norm-and-reference testing. Prereq. Spec. Ed. & Rel. 3333 or consent of instructor.

4810 Student Teaching Mental Retardation (3) Prereq: Major in education of mental retardation. S/NC.

4811 Student Teaching Mental Retardation (9) Prereq: Major in education of mental retardation. S/NC.

4840 Educational Problems of the Cerebral Palsied Child at Home and School (3) Physical, social, and educational needs of cerebral palsied; evaluative techniques; related services.

4850 Eye Problems Encountered by the Teacher (3) Eye anatomy and hygiene; common diseases and defects; testing and treatment; educational adjustments for specific eye conditions; related service roles.

4870 Student Teaching with Hearing Impaired Children (9) Supervised academic tutoring, preschool, day school, and residential pupils. S/NC.
Cooperative Education (988)

Vocational-Technical Education

Professors:
J. L. Matthews (Head), Ph.D.; G. K. LaBorde, Ed.D.; J. L. Cameron, Ph.D.; J. L. H. McInnis (Coordinator), Ph.D.

Graduate Coordinators:
J. L. Matthews, Ph.D.; G. K. LaBorde, Ed.D.; J. L. Cameron, Ph.D.; J. L. H. McInnis (Coordinator), Ph.D.

Assistant Professors:
J. L. Matthews, Ph.D.; G. K. LaBorde, Ed.D.; J. L. Cameron, Ph.D.; J. L. H. McInnis (Coordinator), Ph.D.

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J. L. Matthews, Ph.D.; G. K. LaBorde, Ed.D.; J. L. Cameron, Ph.D.; J. L. H. McInnis (Coordinator), Ph.D.

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Assistant Professors:
J. L. Matthews, Ph.D.; G. K. LaBorde, Ed.D.; J. L. Cameron, Ph.D.; J. L. H. McInnis (Coordinator), Ph.D.

Graduate Coordinators:
J. L. Matthews, Ph.D.; G. K. LaBorde, Ed.D.; J. L. Cameron, Ph.D.; J. L. H. McInnis (Coordinator), Ph.D.
6000 Doctoral Research and Dissertation
6010 Curriculum Planning in Vocational-Technical Education (3)
6020 Program Planning and Development in Vocational-Technical Education (3)
Evaluation of Vocational-Technical Education Programs (3)
6040 Seminar in Vocational-Technical Education (1, 1)
6050 Administration of Vocational-Technical Education (3)
6111-12-13 Internship in Vocational-Technical Education (3, 3, 3)

Agricultural Education (056)
3450 Agricultural Experience and Future Farmers of America Programs (3) Prereq: Consent of instructor.
3460 Methods in Teaching Agriculture (3) Prereq: Consent of instructor.
3470 Program Development and Adult Education in Agriculture (3) Prereq: Consent of instructor.
4110 Organizing and Teaching Agricultural Mechanics (3) Methods of teaching agricultural mechanics to vocational agricultural students. Emphasis on special competencies needed for planning, conducting, and evaluating agricultural mechanics programs. Prereq: Agriculture 1120, Agricultural Mechanization 3110, and/or consent of instructor. 2 hours and 2 labs.
4230-31-32 Problems in Agribusiness Education (1-6, 1-6, 1-6) Total not more than 9 hours.
4240-41-42 Seminar in Agricultural Education (1, 1) Prereq: 4350 or consent of department head.
4350-60 Student Teaching in Agricultural Education (6-1) Offered in oncampus centers. Application must be filed not later than final quarter of junior year. Courses must be taken concurrently. Prereq: 4340, 4360, 4370, consent of instructor. Undergraduate credit only. S/NC.
Graduate
5210 Supervision of Student Teaching in Agricultural Education (3)
5220 Teaching Agricultural Mechanization in Vocational Agriculture (3)
5230-31-32 Special Problems in Agricultural Education (3, 3, 3)
5240 Current Literature and Agricultural Education (1-3)
5250-51 Agricultural Education in Off-Farm Agricultural Occupation (3, 3)
5260 Agricultural Education for First-Year Teachers (3)
5270 Adult Education in Agriculture (3)
5290 Supervised Occupational Experience in Agriculture (3)

Business Education (207)
4300 Principles of Business Education (3) Historical background and present status; principles of vocational education applied to business education; guidance activities of business teachers.
4310 Pre-Student Teaching Seminar (1) Orients student teachers to the off-campus centers and the student teaching program; describes the objectives and policies of the student teaching program; meets special needs of student teachers; and raises awareness of professional liability. The pre-student teaching seminars must be completed the quarter immediately preceding student teaching. Fall quarter student teachers complete three one-week teaching seminmars spring quarter. Prereq: full admission to the Teacher Education Program. Undergraduate credit only. May not be repeated for credit. S/NC only.
4320 Teaching Basic Business Subjects (2) Materials, evaluation procedures, and recent research in subject fields.
4330 Teaching Typewriting and Word Processing (2) Materials, methods, evaluation procedures, and recent research in subject fields.
4340 Teaching Shorthand (2) Materials methods, evaluation procedures, and recent research in subject fields.
4350 Teaching Accounting and Data Processing (2) Materials, methods, evaluation procedures, and recent research in subject fields.
4370 Seminar in Business Education (3) Current business education problems. viewpoints of leaders in field, special attention to problems of those enrolled. S/NC only.
4390 Special Topics (1-9) Topics to be assigned. May be repeated for maximum of 9 hours total. May be offered for later grade or for S/NC.
Graduate
5305 Methods and Materials for VOE Programs (3)
5306 Organization and Management of VOE Programs (3)
5307 Measurement in Business Education (3)
5308 Curriculum in Business Education (3)
5309 Evaluation of Research in Business Education (3)
5310 Graduate Seminar in Business Education (3)
5311-12 Special Topics in Business Education (1,1)
5313-14-15 Practicum in Business Education (2, 2, 2)
5320 Improvement of Instruction in Basic Business Courses (3)
5330 Improvement of Instruction in Typewriting and Clerical Programs (3)
5340 Improvement of Instruction in Shorthand/Secretarial Subjects (3)
5350 Improvement of Instruction in Accounting and Data Processing Programs (3)
5360 Improvement of Instruction in Basic Business Communication and Word Processing (3)
5380-85 Problems and Projects in Business Education (3, 3)
5390 Problems in Business Education (1-9)
5390-10-20 Current Issues in Business Education (3, 3, 3)
6330-40 Advanced Studies in Business Education (3, 3)
6350 Advanced Studies in Business Education (3)
6360 Higher Education for Business (3)

Distributive Education (273)
4410 Student Teaching in Distributive Education (6) Full-time, supervised experience in classroom teaching, organization, club work, and adult education. Prereq: 4460, 4470; Ed. Maj. 2010-20 or 50 or VTE 4300; Educ. Psych. 3810, 4140 or equivalent. Undergraduate credit only. S/NC.
4420 School and Community Relationships for the Teacher Coordinator (6) Content dependent upon teaching assignment; human relations evolving from school, parent, business, and other community contacts. Must be taken with 4410. Undergraduate credit only. S/NC.
4430-31-32 Problems in Distributive Education (1-3, 1-3, 1-3) Selected research problems in teaching and coordinating distributive education programs. May be repeated. Maximum credit 6 hours each.
4440 Supervised Distributive Experience (3) Minimum 200 hours experience for each 3 credit hours in approved distributive business; concurrent analytic project. May be repeated.
4450 Areas of Distribution (3) Marketing, product or service, technology, location, business, and distribution as these areas affect the distributive education curriculum in secondary and post secondary programs.
4460 Organization and Operation of Distributive Education Programs (3) Background and development needs, federal and state legislation; curriculum implications; establishing, evaluating, reporting, and improving the programs.
4470 Methods and Materials in Distributive Education (3) Prereq: 4460 or consent of instructor.
4480 Coordination Techniques in Distributive Education (3) Selecting training agencies; job analysis; selecting and briefing the training supervisors; advisory committees; adult education and other community services. Prereq: 4460 and 4470.
Graduate
5410 Administration and Supervision of Distributive Education (3)
5418-28-38 Problems in Distributive Education: Retailing (3, 3, 3)
5420 Organizing and Teaching Adult Distributive Education (3)

5430-31-32 Special Problems in Distributive Education (3, 3, 3)

Home Economics Education (490)
2240 Introduction to Teaching Vocational Home Economics (3) Introductory and exploratory experiences concerned with a teaching career in vocational home economics. Includes observation and participation within various educational and vocational settings.
3240 Strategies of Teaching Home Economics (4) Teaching strategies, methods, techniques, and use of media. Field experience included. Prereq: 2240.
4240 Curriculum Development in Vocational Home Economics (4) Planning of curriculum and design of instruction for the classroom. Prereq: 2240, 3240. To be scheduled one of the two quarters immediately preceding student teaching.
4310 Student Teaching (6) Underlying philosophy, techniques, and materials: relation to school program and community. S/NC.
1400 Teaching in Community-Based Home Economics Programs (4) Planning and implementing community-based home economics education programs-methods, curriculum, delivery systems, evaluation. Includes a field experience. Satisfies senior standing requirement.
4500 Field Experience in Home Economics Community-Based Programs (6) Supervised field experience in appropriate, related, community-based programs. Includes seminar. S/NC.
4509 Field Experience in Home Economics Related Occupations (4) Supervised field experience and seminar in teaching of occupations which utilize home economics skills and knowledge. Prereq: Consent of instructor. S/NC. May be repeated.
4610 Student Teaching (6) Open to seniors or graduates who have successfully completed one year's study at The University of Tennessee. Off-campus teaching centers (minimum of eight weeks). Prereq: 2240, 3240, 4240; coreq: 4310. S/NC.
4718-28-38 Honors: Home Economics Education (3, 3, 3) For juniors and seniors showing special ability and interest in home economics education. Prereq: Consent of department head.
Graduate
5510 Organization of the Homemaking Curriculum in Secondary Schools (3)
Industrial Education

1610 Engine Analysis (3) Designed to give experi-
men tal laboratory experience in automotive technol-
y. Engine tune-up and engine overhaul techniques and
procedures are studied and practiced.

1620 Graphic Communications (3) Drafting as a
means of communication in technology. Orthographic
and multi-view drawing, conventional practices, pictori-
techniques, and applications of photography.

1630 Basic and Applied Electricity (3) Operation
and characteristics of electrical systems and devices. Con-
struction of demonstration apparatus and various elec-
trical projects involving function of different types of
circuits.

1640 General Metals (3) An introductory course deal-
ng with processes, equipment, materials, products,
and organization of metal-working industries. Involves
processes in basic machining, foundry, sheetmetal,
forging, heat treatment, arc and gas welding, fabrica-
tion and the use and care of common metalworking
tools.

1642 Welding and Cutting Practices (3) Prereq:
1640.

1661 General Woodworking (2) Basic course dealing
with processes, tools, equipment, products, organiza-
tion of woodworking industry. Stresses importance in
safety and using hand tools and basic machining pro-
ceded. Power Mechanics (3) Includes various prime
movers, methods of utilization, distribution and trans-
mision of power with internal combustion engines.

2611 Power Mechanics (3) Includes various prime
movers, methods of utilization, distribution and trans-
mision of power with internal combustion engines.

2620 Industrial Graphics (3) Auxiliary views, sec-
tions, conventional practices, fasteners, dimensioning,
working drawings, and machine drafting. Prereq: 1620.

2630 Fundamentals of Applied Electronics (3) Elec-
trical circuit analysis and introduction to semi-conduc-
tor and IC applications, amplifiers, switching and

2632 Electronics Technology (3) Basic principles
and application of electronics. Undergraduate credit
only.

2641 Machine Tool Processes (3) Introductory
course of the function, care, set-up, operation, and
theory of basic machine tools. Prereq: 1640.

2652 General Plastics (3) Characteristics of ther-
mooplastics and thermal setting materials, methods of
determination, and resin conversion to finished prod-
ucts.

2660 Furniture and Cabinet Construction (3) Com-
prehensive study of cases and carcass construction
with emphasis placed upon furniture and built-ins.
Prereq: 1661.

2800-01-02 Basic Experiences in Trade and Indus-
trial Education (3,3,3) Methods and materials of in-
struction. 3 periods.

3080-81 Machining of Metals (3, 3) Introduction to
machine shop theory and practice in using basic
machine tools. Undergraduate credit only.

3512 Automotive Mechanics (3) Advanced laborato-
ry experience in tune-up, overhaul, transmission, and
the suspension system. Prereq: 1610.

3620 Architectural Graphics (3) Introduction to fun-
amental principles of residential and residential
architecture. Light construction principles are stressed
and working drawings for a residential building are
shown. Prereq: 1661.

3650 Welding, Brazing, Cutting, and Related Pro-
cedures (3) Undergraduate credit only.

3651 Plastic Processing (3) Plastics production
related to product design and processing of plastics.
Prereq: 2601 and 3650.

3662 Construction Methods and Materials (3)
Materials, methods, and equipment used in residential
construction, including location and evacuation, found-
y, framing, roofs, interior and exterior finishes, installa-
tion, and acceptable practices in assembly. Prereq:
1661.

3672 Graphic Arts Reproduction Processes (3)
Graphic arts skills in printing and duplicating tech-
iques and other modes of graphic communication.

3692 Photographic Processes for Planographic
Printing in Industrial Arts (3) Principles of basic
photography for industrial arts teachers. Includes theo-
ry and practice in SLR work, camera copy preparation,
line photography, halftone photography, layout, strip-
pling, platemaking, and offset presswork. Prereq: 3672.

3810 Related Science, Mathematics, and Technol-
y in Occupations (15) Prior department approval
for registration. Applicants must show evidence ofonfidence occupational experience compatible with
State Plan requirements. Undergraduate credit
credit only.

3811 Manipulative Skills in Occupations (15) Prior
department approval for registration. Applicants must show evidence of
bonfidence occupational experience compatible with
State Plan requirements. Undergraduate credit
credit only.

3812 Knowledge of Related Subjects in Occupa-
tions and Personal Qualifications (15) Prior depart-
ment approval for registration. Applicants must show evidence of
bonfidence occupational experience compatible with
State Plan requirements. Undergraduate credit
credit only.

3830 History and Philosophy of Industrial Educa-
tion (3)

3840-41-42 Part-time Programs in Cooperative In-
dustrial Training (3, 3, 3) Principles of organization,
methods, and materials.

3850 Shop Organization and Management (3)

3860-51 Materials and Methods for Teachers of
Shop and Related Subjects (3, 3) Prereq: Consent of
instructor.

3870 School Shop Safety (3)

4620 Special Topics in Drafting (3) Undergraduate
credit only.

4630 Industrial Electronics and Digital Equipment
Controls (3) Applications of digital and analog elec-
tronics in industrial and control circuitry. Emphasis is
placed on circuit analysis, troubleshooting, and syn-
thesis of systems, including microprocessor applica-
tions. Prereq: 3630.

4660 Vocational Technical Laboratory Equipment
Maintenance (3) Understanding of preventive mainte-
nance, maintenance, and calibration of instruments
and power equipment used in industrial education
shops.

4670 Supervising of Home Economics (3) Prereq:
1661, 2651, 2650, 2651, or consent of
instructor.

4680-01-02 Basic Experiences in Trade and Industri-
al Education (3, 3, 3) Methods and materials of in-
struction. 3 periods.

4700 Manufacturing Processes (3) The manufactur-
ing processes of industry and their relationship to
undergraduate work. Prereq: Consent of instructor.

4760 Furthering Good Human Relationships In the
Home (3) Prereq: Consent of instructor.

4810 Visual Communications in Industrial Arts (3)
Methods of development, current events, problems,
and materials.

4820 Foreman Training by the Conference Method
(3)

4830 Job Analysis (3, 3) Principles, practices, in-
structional methods.

4840 Methods of Teaching Shop and Related Sub-
jects (3) Undergraduate credit only.

4850-51 Curriculum Building in Trade and Industri-
al Subjects (3) Arranging course material in trade sub-
jects. Emphasis upon instructional objectives, project
selection and informational assignments and evalua-
tion. Prereq: Consent of instructor.

4860-61-62 Problems in Industrial Education (3, 3,
3) Prereq: Consent of instructor.

4870 Numerical Control (3) Tooling, manual pro-
gramming, automatic programming, automatic pro-
gramming language, and use of automatic pro-
grammer as a computer. Undergraduate credit only.

4880-01-02 Seminar in Industrial Education (3, 3, 3)
Educational innovations, current events, problems,
and techniques associated with the field of industrial
education.

4885 Organization and Development of Vocational
Industrial Clubs of America (VICA) (3) Designed to

College of Education
give the industrial education teacher experiences and an understanding of the organization and operation of VICA. Prereq: Undergraduate degree and 3 yr. teaching experience when taken for graduate credit.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>4890</td>
<td>New Developments in Industrial Education</td>
<td>(3)</td>
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<tr>
<td>4891</td>
<td>New Developments in Industrial Education</td>
<td>(3)</td>
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<tr>
<td>4895</td>
<td>New Developments in Industrial Education</td>
<td>(3)</td>
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<tr>
<td>4896</td>
<td>Internship in Training and Supervision</td>
<td>(6,9,15)</td>
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Developments, pressing problems and recent trends in field of industrial education as presented by a coordinating instructor in conjunction with knowledgeable resource personnel.

**GRADUATE**

<table>
<thead>
<tr>
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<th>Credits</th>
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<tbody>
<tr>
<td>5030</td>
<td>Organization and Operation of Area Vocational-Technical Schools</td>
<td>(3)</td>
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<tr>
<td>5055</td>
<td>Vocational School Administration and Management</td>
<td>(3)</td>
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<tr>
<td>5810-11-12</td>
<td>Administration and Supervision of Industrial Education</td>
<td>(3, 3, 3)</td>
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<td>5830-31-32</td>
<td>Special Problems in Industrial Education</td>
<td>(3, 3, 3)</td>
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<tr>
<td>5840</td>
<td>Method of Research in Industrial Education</td>
<td>(3)</td>
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<td>5850</td>
<td>Improving Teachers in Service</td>
<td>(3)</td>
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<tr>
<td>5860</td>
<td>Advisory Committees and Apprentice Training</td>
<td>(3)</td>
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<tr>
<td>5880</td>
<td>Advanced Methods of Teaching Skills and Technical Information</td>
<td>(3)</td>
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<tr>
<td>5890-91-92</td>
<td>Seminar in Industrial Technical Education</td>
<td>(3, 3, 3)</td>
</tr>
<tr>
<td>5895</td>
<td>New Developments in Industrial Education</td>
<td>(3)</td>
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College of Engineering

Robert E. C. Weaver, Dean
William A. Miller, Associate Dean
William K. Stair, Associate Dean
Andrew W. Spickard, Assistant Dean

The engineer applies mathematical and scientific knowledge in planning economical ways of providing materials and energy in forms that are useful to humankind. In today's technology-based society, everyone feels the effects of the engineer's plans and decisions. Hence, there is a continuing and urgent need for engineering graduates who possess a thorough understanding of mathematical and scientific principles, who can apply these principles to the solution of practical problems, and who can view the solutions in their overall social perspective so that the actions that they recommend will be truly beneficial. It is the purpose of the College of Engineering to educate men and women to the high levels of technical competence and social understanding that will enable them to fulfill their responsibilities as professional engineers.

Graduates of the B.S. curricula offered by the college may enter directly a position in industry, government, or private practice, or may pursue advanced study in graduate school. Their professional activities include research, development, design, operations analysis, construction, production supervision, and technical sales. Many practice their profession in Tennessee; but engineering knows no geographical bounds, and graduates of the college serve throughout the nation and in other countries as well.

The college had its beginnings early in the history of the University when surveying was introduced into the curriculum in 1838. In 1877 civil engineering was first recognized as a department. The first mechanical course appeared in about 1847; other mechanical courses followed, and in 1877 this body of studies was designated as mechanical engineering. By 1877 mining had found a place in the University, but it was later dropped. Electrical engineering appeared about 1896, when a Professor of Physics and Electrical Engineering was appointed.

Although metallurgy was announced in the catalog as early as 1888, the program was dormant until it was revived in the Department of Chemical Engineering shortly after 1940. A separate degree in metallurgical engineering was authorized in 1957. Although the rudiments of chemical engineering appeared in the form of industrial chemistry shortly after 1900, a full chemical engineering program and a department were not established until 1938. Industrial engineering was introduced in 1940, was dropped for a time during the war years, and was reinstated in 1947.

Nuclear engineering was established as a separate curriculum in 1957 in response to the rapidly increasing demand for engineers with a knowledge of nuclear phenomena. Engineering physics, a program operated jointly with the physics department, first appeared as an engineering curriculum around 1942. Curricula in engineering mechanics and aerospace engineering were added in 1965 and 1966, respectively, and a curriculum in engineering science was added in 1967.

The first dean of the college, Professor Charles E. Ferris, was appointed in 1912. Prior to that time the engineering programs were organized as a school, with a chairman of the faculty. Other former deans are Nathan W. Dougherty, who served from 1940 to 1956, Armour T. Granger, who served from 1956 to 1965, Charles H. Weaver, who served from 1965 to 1968, and Fred N. Peebles, who served from 1968 to 1980.

The Cooperative Engineering Program was established in 1926. The University of Tennessee was one of the early pioneers in this valuable type of education, which originated at the University of Cincinnati in 1905. A Cooperative Engineering Scholarship Program was formally established in 1957, with emphasis on participation by students of superior ability. A conventional cooperative program, open essentially to all students in good standing in the college, was re-established in 1967, replacing the scholarship program.

The College, in cooperation with industrial sponsors, established the Minority Engineering Scholarship Program in 1973. The program goal is to increase significantly the number of qualified black engineering graduates.

The Engineering Experiment Station was established in 1922. The college has ten major undergraduate curricula in which a student may specialize: aerospace, chemical, civil, electrical, industrial, mechanical, metallurgical, and nuclear engineering; engineering physics, and engineering science.

Agricultural engineering is based in the College of Agriculture with facilities located on the Agricultural Campus. The agricultural engineering curriculum is offered cooperatively by the College of Agriculture and the College of Engineering. Details of the curriculum may be found in the College of Agriculture section of this catalog.

Facilities

The College of Engineering is housed in Ferris, Estabrook, Perkins, Dougherty, and Berry Halls, and in the Nuclear Engineering building, all located on the southeastern end of the campus, and is the Alumni Memorial Auditorium-Gymnasium.

Ferris Hall. This building houses the offices, classrooms, laboratories, and shops of the electrical engineering department, and the Water Resources Laboratory. There is also a remote input/output terminal and computer graphics facility connected with The University of Tennessee Computing Center.

Estabrook Hall. Some operations of the Departments of Civil Engineering and Engineering Science and Mechanics and of the Engineering Experiment Station are carried out in Estabrook Hall.

Perkins Hall. This building houses the offices of the Dean of Civil Engineering, and Engineering Science and Mechanics, and the Office of the Dean of the College of Engineering. The building contains laboratories, drafting rooms, faculty offices, and classrooms.

Nuclear Engineering Building. This building houses operations of the nuclear engineering department and contains laboratories and equipment for monitoring, counting, and investigating various nuclear phenomena. It also houses subcritical reactors.

Nathan W. Dougherty Engineering Building. This building, the most recent and
largest of the engineering buildings, houses the Department of Chemical, Metallurgical, and Polymer Engineering, and Mechanical and Aerospace Engineering. In addition to classrooms and instructional laboratories, it provides modern facilities for various types of research.

Alumni Memorial Auditorium-Gymnasium A six-story building containing offices, classrooms, and laboratories of the Department of Industrial Engineering.

Berry Hall. This building is used by the Department of Civil Engineering and the Engineering Experiment Station for maintenance and research work.

Tau Beta Pi National Headquarters

The college is honored to have the National Headquarters of Tau Beta Pi, the National Engineering Honor Society, housed on our campus. This honor was earned in part through the untiring efforts of R.C. "Red" Matthews, who served as secretary-treasurer for the organization from 1905 to 1947. The suite of offices, located in Dougherty Hall, is occupied by Mr. R. H. Nagel, secretary-treasurer, and his staff.

Chi Epsilon National Headquarters

The college is also honored to have the National Headquarters of Chi Epsilon, the National Civil Engineering Honor Society, located in Perkins Hall. Chi Epsilon was founded in 1922. Dexter C. Jameson, Jr., associate professor of civil engineering, serves as the first executive secretary of Chi Epsilon.

Cooperative Engineering Program

The five-year Cooperative Engineering Program is offered to students in the college in order to provide a superior engineering education that affords the opportunity to combine significant experience in industry with academic preparation.

Cooperative work assignments differ from part-time or summer employment in that they involve regularly scheduled cycles of full-time academic quarters alternated with full-time work quarterly six, a minimum of five—in career-related, planned assignments of progressive complexity and responsibility. In exposing the student in this manner to the world of work, the college and the facilities of industry join together to offer a broader and richer preparation for postgraduate employment and for life in general than can be provided by a conventional academic program alone. This experience in an industrial and professional environment contributes to the student’s maturity, increases the scope of acquaintances and concepts, and enables the student to define more clearly educational and career interests and objectives. Some of the experience received is at a subprofessional level not available to an engineer after graduation, yet is of great significance in total education and effectiveness.

Admission to the Cooperative Engineering Program is open to academically qualified freshmen and sophomore students. A fall application period conducted in early October is the source of most candidates placed for the following spring and summer; a late application period is usually held in May for students and sophomores applying during the previous fall and who hope for placement the subsequent fall or winter. Students must be attending the College of Engineering at the time of application. Those in school fall quarters who are undecided about co-op participation should nevertheless apply during the fall application period, and then request that their applications be held until they are ready to make a definite commitment, since fall applicants can take priority over spring applicants for all placements for which they are qualified.

In general, students begin their work periods after completing their freshman academic work and continue them until beginning their senior coursework. Exceptionally well qualified candidates may be placed to begin their work experience after two quarters of freshman courses. Applicants must be able to schedule a minimum of five work periods alternating with academic quarters prior to beginning their senior year in order to qualify for co-op placement. With very few exceptions, transfer students must complete a minimum of two academic quarters in the College of Engineering at UTK before beginning co-op participation.

Students in the Cooperative Engineering Program are graded in terms of quarter hours credit of completed courses:

- Freshman: 0-42.0
- Sophomore: 53-103.9
- Junior: 104-153.9
- Senior: 154-up

Sample academic schedules for co-op students are shown elsewhere in this section.

A brochure with further details may be obtained from the Cooperative Engineering Program, University of Tennessee, Knoxville, Tennessee 37996-2350.

Binary Program (Dual Degree)

A binary program in engineering is available. The college has informal agreements with a number of liberal arts colleges to conduct a five-year program, three years of which will be given at the liberal arts college and the last two years at The University of Tennessee in engineering. At the end of the fifth year, or whenever all requirements at UTK have been satisfied, the college will award a baccalaureate degree in one of the branches of engineering.

Institutions which have previously cooperated with UTK in offering this Liberal Arts-Engineering 3-2 Binary Plan include:

- Belmont College, Nashville, Tennessee
- Bethel College, McKenzie, Tennessee
- Carson-Newman College, Jefferson City, Tennessee
- David Lipscomb College, Nashville, Tennessee
- East Tennessee State University, Johnson City, Tennessee
- King College, Bristol, Tennessee
- Knox College, Galesburg, Illinois
- Maryville College, Maryville, Tennessee
- Middle Tennessee State University, Murfreesboro, Tennessee
- Southwestern University, Memphis, Tennessee
- Tennessee Wesleyan College, Athens, Tennessee
- Union University, Jackson, Tennessee
- Questions concerning technical programs at UTK may be directed to the Dean of Engineering.

Graduate Program

Graduate programs leading to the degree of Master of Engineering in all areas of study, and the degree of Doctor of Philosophy is offered in eight major subjects: aerospace engineering, chemical engineering, electrical engineering, engineering science, mechanical engineering, metallurgical engineering, nuclear engineering, and polymer engineering. A Master of Engineering degree focusing on engineering design professional practice is offered in aerospace, civil, electrical, environmental, mechanical, and nuclear engineering. Information concerning graduate programs is given in the Graduate Catalog.

Graduate Program at the UT Space Institute

At The University of Tennessee Space Institute near Tullahoma, graduate-level courses are offered in engineering fields such as aerospace, electrical, and mechanical engineering, and in mathematics and physics. Current programs lead to the M.S. and Ph.D. degrees. Many members of the faculty of the Space Institute are also members of the faculty of the college at The University of Tennessee, Knoxville. Information may be obtained from the REGISTRAR, THE UNIVERSITY OF TENNESSEE SPACE INSTITUTE, TULLAHOMA, TN 37388.

Engineering Experiment Station

William K. Stair, Director

The management of the Engineering Experiment Station is vested in the president of the University, the dean of engineering and the director.

An advisory committee consisting of the heads of the departments of the college and the heads of departments in allied scientific fields may assist in determining policy and procedures. Members of the faculty of the college are available for consultation and advice in technical matters.

The station is organized to conduct research underlying engineering practice and to aid in the development of the state's resources and industries insofar as funds available will permit. Inquiries from industries concerning technical questions which interest them are welcomed.

The station may also make special arrangements with any person or company to study any technical question within the capacity of its resources, and to report the results to the company requesting the study. In such cases, the whole expense will be carried by the parties requesting the investigation.

Bulletins are published from time to time giving the results of various investigations.

Upon request, unpublished results of current studies are made available to interested parties.

Curricula in Engineering

NATIONAL ACCREDITATION

Since 1936 engineering programs at institutions of higher learning have been accredited by organizations formed by many engineering societies and now known as the Accreditation Board for Engineering and Technology (ABET). Currently accredited areas at UTK include aerospace, agricultural, chemical, civil, electrical, engineering science, industrial, mechanical, metallurgical, and nuclear.

COURSE LOAD

The maximum number of hours which can be taken by an undergraduate engineering
student without special permission is 19 hours. The dean of engineering or his designee must give permission to take 20 hours or more.

**DROP DEADLINE**
The drop deadline for all undergraduate courses administered by any department in the College of Engineering shall be the end of the eighth calendar day of each quarter, counted from the beginning day of classes. This coincides with the Campus add deadline. Any drop action after this date on the part of any student (regardless of major) is subject to late drop regulations.

**GENERAL REQUIREMENTS**

**NOTE:** Students are advised to consult the University's degree requirements as stated in the front section of this catalog as well as departmental requirements.

**Inspection Trip.** Each candidate for graduation majoring in aerospace, mechanical, chemical, or metallurgical engineering must participate in inspection trips scheduled by the major department.

**Transfer Credit.** Every attempt will be made to give maximum credit for courses taken elsewhere and transferred to the college. Discussions concerning the evaluation of transfer credits should be conducted with the head of the department (or his designee) into which the student purposes to transfer following the evaluation of transfer credits by the Admissions Office.

**Program for Second B.S. Degree.** Upon approval by the Dean of Engineering and the Committee on Degrees of a program of study recommended by the major engineering department, a student who already holds a bachelor's degree may obtain the appropriate first degree in engineering upon completion of a minimum of 45 quarter hours' credit. The prevailing University regulations shall apply (see page 33).

**Satisfactory/No Credit Courses.** An undergraduate engineering student may count towards a degree up to 12 quarter hours obtained by Satisfactory/No Credit (S/NC) grading. Such courses must be used for humanistic-social (non-technical) elective credit in engineering. Certain engineering courses carrying only S/NC grading do not count in this limit.

**Correspondence Courses.** A student should check with his or her major department to see what restrictions there are, if any, on the use of correspondence course credit to meet the minimum degree requirements.

**Humanities and Social Science Electives.** The college assumes an obligation to include in each of the engineering curricula a means whereby students gain greater insight into their interaction with society, both personally and professionally. For this purpose, a part of each engineering curriculum is devoted to humanities and social science electives. Broadly stated, these courses serve a three-fold need: to provide an expanded sensitivity to the human aspects of the practice of engineering; to enrich the student's knowledge of the world in which he or she lives—its culture, behavior patterns, history, and governance; and to provide a basis for the appreciation of and the ability to deal with complex interactions between technology and society in the contemporary world. Engineers are now working with new constraints that demand a consciousness of the social and political implications of their work. They are interacting with the public in explaining their work as the public demands greater participation in the decision-making process concerning the utilization of technology. Because of the significance of this technological interplay, engineering students are encouraged to seriously consider their selection of required electives in this area.

Students are urged to plan a non-technical electives program which will enhance their own interests and objectives. It is recognized that, just as engineers show individual preference for concentration in one area of engineering, they differ in their interests in the many areas of the humanities and social sciences. However, these subjects should be pursued with sufficient depth in terms of courses to permit a reasonable level of comprehension of the selected areas. In order to increase the effectiveness of this interest and to meet ABET accreditation guidelines, the Humanities and Social Studies Committee of the college provides a list of approved courses in the form of 13 coherent groups of courses identified in three broad areas as follows:

**Area I. Human, Economic, and Political Relationships to Engineering**

A. Governance and Political Science
B. Economics
C. Sociology and Psychology
D. Human Values

**Area II. Society—Its Culture, History, and Literature**

A. Fine Arts
B. American Culture
C. History
D. Literature
E. Anthropology

**Area III. Technology and Society**

A. Human Habitat
B. Technology Assessment
C. Communication
D. Resources

Courses in the list which follow are selected by the committee with revisions as course offerings and needs change. They are recommended as satisfying the non-technical (humanities-social studies) electives requirement in the various curricula of the college. However, the structure and permissible courses of the non-technical elective content of each engineering curriculum are established by the respective departments. Therefore, individual departments may delete courses from this list, require certain courses, or require selection of courses from specific subgroups. Students should consult their departments for any restrictions.

This course is intended to eliminate paperwork for the most commonly-chosen electives and to illustrate the kinds of suitable courses. This list is not complete, and it is recognized that individual students may desire to take courses not on the approved list. Those students should discuss their interests and desires with their academic advisor prior to registering for elective courses if such courses are to be used to satisfy degree requirements. Also the catalog may state prerequisites for upper-division courses in the list. In such cases, students are encouraged to consult the instructor in the particular course. With respect to student records these lists are handled by means of a substitution sheet which originates with the adviser. Courses which are primarily skill development courses in the arts, music, mathematics or science, are intended for specialists in another field (such as education), or which are very elementary in nature are usually not approved as humanities-social studies electives in an engineering curriculum.

**ELECTIVE COURSES IN HUMANITIES AND SOCIAL STUDIES**

**Area I. Human, Economic, and Political Relationships to Engineering**

**IA. Governance and Political Science**

Philosophy 2340
Geography 3610
History 3795, 4310-20-30, 4370, 4380
Political Science 2510-20, 3545-46, 3585, 3566, 3710-20, 3750-60, 3891-02-03-04, 3880, 4060, 4535-36, 4540-50, 4545-46, 4665-66
Sociology 3030, 4530, 4560

**IB. Economics**

Economics 2110-20-30, 3110-11-12, 3120, 3210-11, 3220, 3240, 3310, 3410-20, 4110
Geography 2110-20-30, 3410

**IC. Sociology and Psychology**

Geography 3000, 3020, 3860
Psychology 2500, 3120, 3220, 4560-60, 4900,
Social Sociology 3420
Sociology 1510-20, 3030, 3150, 3320, 3410, 3610, 3620, 4350, 4560

**ID. Human Values**

Geography 3000
History 3060-70-80, 3270
Philosophy 2310, 3111-21-31-41-51, 3440, 3690
Religious Studies 2610, 3550, 3800-10-20, 3611, 3740
Zoology 3410 (Bioethics)

**Area II. Society—Its Culture, History, and Literature**

**IIA. Fine Arts (Note: No more than 8 quarter hours may be taken in the performing arts [band, chorus, etc.])**

Art 1815-25, 3715-16, 3725-26, 3750, 3765-66
English 2660, 3411-12-20-30-40
Music 1210-20-30, 1340, 2310-20-30-40, 3350, 4210, 4230, 4241, 4261-71
Philosophy 2410, 3910
Theatre 3252-53-54

**IIB. Culture**

American Studies 3010
Anthropology 3410
Black Studies 2010-20, 3550-60, 4830
English 2640-50, 3310, 4721-31-41
French 2610-20-30
Geography 3430, 3450, 3660, 3910-20-30-40
History 1950-60, 2350, 3670, 3680, 4290, 4640-50-60
Italian 2610-20
Music 1210-20-30, 1340, 2310-20-30-40, 3350
Philosophy 1510-20, 3311-12, 3720
Very few ROTC courses can be used as a humanities-social studies elective. Individual departments determine the appropriate substitutions.

Approval of Electives and Substitutions. Not later than the beginning of the third quarter prior to anticipated graduation, each student shall discuss with an advisor the status of the program of study. Any necessary additions to or substitutions in the program, or electives requiring special approval, shall be cleared in written form at that time, and it is each student’s responsibility to see that all necessary approvals are secured. Inattention to such matters may delay graduation.

CURRICULA, TABULAR VIEW

Following are the course requirements for the various engineering curricula. The numbers in the columns indicate the number of quarter hours of credit for each course. Columns represent the three principal quarters of the academic year—fall, winter, and spring. This is not a schedule, and courses are available in quarters other than those indicated here. This listing is a guide, not a rigid schedule. Individual course prerequisites should be strictly adhered to, even if courses are not taken in the indicated quarters.

Although the requirements for each degree can be completed in four academic years (five for the cooperative program), the quality of the learning experience is much more important than the speed with which the curriculum is completed. Humanities-social studies electives are the same as non-technical electives in these tabulations. Questions about individual courses should be directed to the department responsible for the course; questions about a particular curriculum should be directed to the major department.

Aerospace Engineering

Before entering the third quarter of the junior year, the student, with the aid and approval of his or her advisor, must select a program of technical electives.

College of Engineering

Agricultural Engineering

Available in Engineering Science Degree Program.

Biomedical Engineering
### Electrical Engineering

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1. A minimum of one-half (12 quarter hours) of the humanities/social studies electives must be taken from a single group under one of the three areas of the humanities and social studies electives. Not required in the cooperative program.

### Chemical Engineering

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**Mechanical Engineering**

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**Total Credit Hours:**

- Mechanical Engineering: 199 hours
- Industrial Engineering: 200 hours
- Total: 399 hours

**A minimum of one-half (12 quarter hours) of the humanities/social studies electives must be taken from a single group under one of the three areas.**

**Not required in the cooperative program.**

**Nuclear Engineering**

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**Total Credit Hours:**

- Nuclear Engineering: 199 hours
- Total: 399 hours

**A minimum of one-half (12 quarter hours) of the humanities/social studies electives must be taken from a single group under one of the three areas.**

**Not required in the cooperative program.**

**Departments of Instruction**

**Agricultural Engineering**

(See College of Agriculture)

**Basic Engineering and Graphics**

*(Non-Departmental Unit)*

**Basic Engineering (179)**

Coordinator: W. T. Snyder

1310 Basic Mechanics I (4) Forces in a plane; free body diagram analysis; equilibrium in two dimensions;
Cooperative Curriculum in Aerospace Engineering
Students Working Spring and Fall Quarters—Group A

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TOTAL: 204 hours

*Humanities/social studies electives; minimum of 24 hours required.

Technically electives; upper-division courses in engineering, mathematics, or physical science as approved by the department.
## Cooperative Curriculum in Agricultural Engineering

*(See College of Agriculture Section)*

## Cooperative Curriculum in Chemical Engineering

### Students Working Spring and Fall Quarters—Group A

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| YEAR | WORK | WORK | WORK | WORK |
| | Chem. 2140-49 | Tech. elect | Humanities/social studies elect | Humanities/social studies elect |

| YEAR | WORK | WORK | WORK | WORK |
| | Math. 2860 | Math. 2860 | Math. 2860 | Math. 2860 |
| | Physics 2320 | Physics 2320 | Physics 2320 | Physics 2320 |

### Students Working Summer and Winter Quarters—Group B

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| | Tech. elect | Humanities/social studies elect | Humanities/social studies elect | Humanities/social studies elect |

| **THIRD** | ES & M 2720 | ES & M 2720 | ES & M 2720 | ES & M 2720 |
| | Math. 2860 | Math. 2860 | Math. 2860 | Math. 2860 |
| | Physics 2310 | Physics 2310 | Physics 2310 | Physics 2310 |

| | Elect. Engr. 3120 or 3130 | Humanities/social studies elect | Humanities/social studies elect | Humanities/social studies elect |

| | Humanities/social studies elect | Humanities/social studies elect | Humanities/social studies elect | Humanities/social studies elect |

**TOTAL: 200 hours**

1 A minimum of one-half (12 quarter hours) of the humanities/social studies electives must be taken from a single group under one of the three areas of the humanities and social studies electives.
### Cooperative Curriculum in Civil Engineering

**Students Working Spring and Fall Quarters—Group A**

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**Students Working Summer and Winter Quarters—Group B**

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1. Humanities/social studies courses approved by the department.
2. Mechanical engineering 3320 or 3311 may be substituted.
3. Technical electives must be approved by the student's adviser and the primary and one of the two secondary areas of study must come from the departmental list of approved courses for 15 credits and 6 credits respectively.
4. Math/science courses approved by the department.
### Cooperative Curriculum in Electrical Engineering

**Students Working Spring and Fall Quarters—Group A**

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**TOTAL: 203-206 hours**

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### Students Working Summer and Winter Quarters—Group B

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**TOTAL: 203-206 hours**

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**FIFTH YEAR**

See Senior Year Areas of Interest, page 132.
### Cooperative Curriculum in Engineering Physics

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#### SECOND YEAR

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**TOTAL: 199 hours**

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#### Students Working Summer and Winter Quarters—Group B

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**TOTAL: 199 hours**

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1. To be taken from the College of Liberal Arts triads of Language, Literature and Arts, or History and Society, with at least 16 hours from courses approved for Language, Literature and Arts.
2. The honors sequence (Physics 1318-28-38) is recommended for qualified majors.
3. To be taken in College of Engineering.
5. From engineering, mathematics, computer science, physics, chemistry, or astronomy.
6. Students not pursuing graduate studies may substitute Physics 3710-20-30.
### Cooperative Curriculum in Engineering Science

**Students Working Spring and Fall Quarters—Group A**

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**SECOND YEAR**

|            | Math. 2640   | Physics 2310 | Math. 2650   | 4          |
|            | Met. Engr. 2110 | ES & M 3700 | Physics 2320 | 3          |
|            | Basic Engr. 1320 | Humanities/social studies elect | ES & M 3311 | 4          |

**THIRD YEAR**

|            | Mech. Engr. 3440 or 3540 | Physics 2310 | Math. elect | 3          |
|            | ES & M 3310 or 3120 | ES & M 3110 | Elect. Engr. 3130 | 3          |
|            | Humanities/social studies elect | Humanities/social studies elect | Tech. elect | 3          |

**FOURTH YEAR**

|            | Mech. Engr. 3440 or 3540 | Physics 2310 | Math. 2850   | 4          |
|            | ES & M 3310 or 3120 | ES & M 3110 | Physics 2320 | 3          |
|            | Humanscience/social studies elect | Humanities/social studies elect | Humanities/social studies elect | 4          |

**FIFTH YEAR**

|            | ES & M 4810 | ES & M 4010 | Engr. sci. elect | 3          |
|            | Engr. sci. elect | ES & M 4620 | Tech. elect | 9          |
|            | Tech. elect | Biology/social studies elect | Humanities/social studies elect | 4          |

**TOTAL: 196 hours**

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**Students Working Summer and Winter Quarters—Group B**

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**SECOND YEAR**

|            | Math. 2640   | Physics 2310 | Math. 2650   | 4          |
|            | Met. Engr. 2110 | ES & M 3700 | Physics 2320 | 3          |
|            | Basic Engr. 1320 | Humanities/social studies elect | ES & M 3311 | 4          |

**THIRD YEAR**

|            | Mech. Engr. 3440 or 3540 | Physics 2310 | Math. elect | 3          |
|            | ES & M 3310 or 3120 | ES & M 3110 | Elect. Engr. 3130 | 3          |
|            | Humanities/social studies elect | Humanities/social studies elect | Tech. elect | 3          |

**FOURTH YEAR**

|            | Mech. Engr. 3440 or 3540 | Physics 2310 | Math. elect | 3          |
|            | ES & M 3310 or 3120 | ES & M 3110 | Elect. Engr. 3130 | 3          |
|            | Phys. or bio. sci. elective | Phys. or bio. sci. elective | Humanities/social studies elect | 4          |

**FIFTH YEAR**

|            | ES & M 4810 | ES & M 4010 | Engr. sci. elect | 3          |
|            | Engr. sci. elect | ES & M 4620 | Tech. elect | 9          |
|            | Tech. elect | Biology/social studies elect | Humanities/social studies elect | 4          |

**TOTAL: 196 hours**

---

1. Humanities/social studies courses approved by the department.
2. Appropriate courses approved by the department.
3. Appropriate courses in the College of Engineering approved by the department.
4. Upper-division courses in mathematics, statistics, natural science, or engineering approved by the department.
# Cooperative Curriculum in Industrial Engineering

## Students Working Spring and Fall Quarters—Group A

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## Cooperative Curriculum in Mechanical Engineering

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**TOTAL 204 hours**

### Students Working Summer and Winter Quarters—Group B

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**TOTAL 204 hours**

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1. Humanities/social studies electives: Minimum of 24 hours required.
2. Mechanical engineering electives: senior courses in mechanical or aerospace engineering not otherwise required.
3. Technical electives: upper-division courses in engineering, mathematics, or physics as approved by the department.
## Cooperative Curriculum in Metallurgical Engineering

**Students Working Spring and Fall Quarters—Group A**

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**TOTAL: 198 hours**

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**TOTAL: 198 hours**

*A minimum of one-half (12 hours) of the non-technical electives must be taken from a single group under one of the three areas of the humanities and social studies electives.*
## Cooperative Curriculum in Nuclear Engineering

**Students Working Spring and Fall Quarters—Group A**

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**TOTAL: 200 hours**

### Students Working Spring and Winter Quarters—Group B

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**TOTAL: 200 hours**
Chemical, Metallurgical, and Polymer Engineering

Professors:  
H. F. Johnson (Head), D. Eng; Yale, P.E.; D. C. Bogue, Ph.D; Delaware; C. R. Brooks, Jr., Ph.D; Tennessee;  
D. Clark, Ph.D; California (Berkeley); O. L. Cuberbon (Emeritus), Ph.D; Texas; L. W. Crawford, P.E; Cincinnati; J. F. Fellers, Ph.D; Pennsylvania; G. C. Fisher, E. Eng; John Hopkins; J. M. Holmes, Ph.D; Tennessee; H. W. Hsu, Ph.D; Wisconsin;  
S. H. Jury (Emeritus), Ph.D; Cincinnati; L. Blatt (Emeritus), Ph.D; Western Pennsylvania State; J. J. Perone, Ph.D; Pennsylvania State; J. J. Perone, Ph.D; Northeastern, P.E; Associate Dept; Head; Chemical Engineering; J. W. Prados (Vice President for Academic Affairs), Ph.D; Tennessee, J. E. Spruell, Ph.D; Tennessee, Associate Dept; Head,  
Metallurgical Engineering; E. E. Stansbury, Ph.D; Cincinnati; C. O. Thomas, Ph.D; Tennessee; R. A. Vandermeer, Ph.D; Illinois Institute of Technology; R. E. C. Westar (Dean of Engineering), Ph.D; Princeton, P.E; L. L. White, Ph.D; Delaware; M. A. Wright, Ph.D; Wales.

Associate Professor:  
W. T. Becker, Ph.D; Illinois, D. D. Burns, Ph.D; Houston; R. M. Curran, Ph.D; Tennessee.

Assistant Professor:  
F. Weber, Ph.D; University of Minnesota.

Space Institute, Tullahoma  

BACHELOR OF SCIENCE PROGRAM

Separate complete curricula are offered in chemical engineering and in metallurgical engineering. However, the first two years of these curricula are identical and a decision as to choice can be made in the third year. Both curricula are arranged to provide a central core of courses with flexibility in the upper-division years to permit emphasis on preparation for graduate study or technical employment. Graduation in either chemical or metallurgical engineering requires a minimum grade point average of 2.00 for all departmental courses.

GRADUATE STUDY PROGRAMS

Graduate programs leading to the degrees of Master of Science and Doctor of Philosophy with majors in chemical engineering, metallurgical engineering, or polymer engineering are offered. A program of studies is arranged to provide a central core of courses with flexibility in the upper-division years to permit emphasis on preparation for graduate study or technical employment. Graduation in either chemical or metallurgical engineering requires a minimum grade point average of 2.00 for all departmental courses.

Graduate students are expected to complete a thesis or project in the last year of study. The thesis option requires the successful completion of additional course work. The project option requires the successful completion of additional course work and an oral examination on the project. The thesis is expected to be based on original research and to be written in a form suitable for publication.

The Graduate School operates a Resident Graduate Program at Oak Ridge, Kingsport, Tennessee. Assistantships on contracts with industry and government agencies are available. Fellowships and traineeships provided by fellowships and traineeships provided by the National Science Foundation are available. Other aid to graduate students is provided by graduate assistantships, fellowships and traineeships provided by graduate assistantships, fellowships and traineeships provided by the National Science Foundation, and other sources.


3430 Thermal Operations (3) Analysis of graph-  

3430 Diffusion Operations (3) Diffusion simultaneous heat and mass transfer, applications including humidification, gas absorption, extraction. Prereq: Chem. Engr. 3040.

3440 Stagewise Operations (3) Analytical and graph-  

3450 Diffusion Operations (3) Diffusion simultaneous heat and mass transfer, applications including humidification, gas absorption, extraction. Prereq: Chem. Engr. 3040.
3160 Engineering Materials VI (3) Extension of 3110 with emphasis on materials of significance in nuclear and mechanical engineering. Prereq: 3120 or Chemet. Engr. 3410 and 3420 or equivalent. 3 hrs. or 2 hrs. and 1 lab.


4540 Fluid-Solid Operations (3) Heat and mass transport in fixed and fluidized beds: applications include absorption, ion exchange, crystallization. Prereq: 3420 or equivalent.

4620 Process Modeling, Simulation, and Control of Chemical Processes (3) Development of process models, experimental process identification, process computer simulation, conventional and non-conventional feedback control systems. Prereq: 3620 or equivalent background in basic control theory and differential equations.

4730 Mass and Energy Flow in Biological Systems (3) Basic physiological and organizational principles applicable to biological systems. Derivations of general equations of biomass and energy transfer. Thermodynamics of transport and equilibrium in biological systems. Discussion of Volterra's equation and biological clocks. Prereq: Consent of instructor.

4740 Introduction to Transport Phenomena in Biological Systems (3) Application of principles of transport phenomena to biological systems. Transfer of chemical energy and various cellular active transports; structure and rheology of physiological fluids, membrane and interfacial phenomena; analysis and design of artificial organs. Prereq: 3440 and 3450, or consent of instructor.

4750 Microbiological Process Engineering (3) Application of chemical engineering principles and design concepts to microbiological processes; continuous culture of microorganisms, food processing and pharmaceutical processes. Prereq: 4440, 4450, or consent of instructor.

4760 Principles of Biochemical Separation (3) Fundamental aspects and similarities of modern biochemical separation methods, advanced control concepts, design of production and analytical systems. Prereq: Consent of Instructor. May be repeated. Maximum credit 9 hours.

GRADUATE

5000 Thesis

5010 Graduate Seminar (1)

5050 Engineering Analysis (3)

5120 Heat Convection (3)

5130 Methods of Optimization (3)

5210 Process Dynamics (3)

5250 Chemical Process Industry Economics (3)

5210 Thermodynamics of Heterogeneous Equilibria (3)

5320 Statistical Thermodynamics (3)

5510 Chemical Reactor Design (3)

5610 Stagewise Mass Transfer Operations (3)

5620 Differential Mass Transfer Operations (3)

5810 Mechanics of Viscous Flow (3)

5900 Special Topics in Chemical Engineering

6000 Doctoral Research and Dissertation

6130 Process Optimization (3)

6210 Advanced Diffusional Operations (3)

6250 Venture Analysis in the Process Industries (3)

6310 Thermodynamics of Irreversible Processes (3)

6320 Statistical Thermodynamics of Non-equilibrium Systems (3)

6410 Stability Phenomena in Chemical Engineering: Discrete Systems (3)

6420 Stability Phenomena in Chemical Engineering: Continuous Systems (3)

6510 Applied Chemical Reaction Kinetics (3)

6520 Catalytic Reactor Design (3)

6710 Process Dynamics (3)

6900 Advanced Topics of Chemical Engineering (3)

Metallurgical Engineering (679)

2040 Experimental Methods in Metallurgy (4) Lectures provide subject bases for laboratory experiments. Experimental procedures and techniques, use of potentiometers, x-ray, spectrometers, computer experimental data acquisition and readout, dilatometer, X-ray diffraction analysis on metallographic samples, microstructure, calorimetry, and metallographic preparation and photomicrography. 2 hrs. and 2 labs. Prereq: 2030.

2110 Engineering Materials I (3) Introductory course relating the atomic, crystal, and microstructure of solids and mechanical behavior. Consideration of thermal and chemical properties of engineering significance. 3 hrs. or 2 hrs. and 1 lab. Prereq: Sophomore standing in engineering.

2210 Electron Microscopy (1) Presents to science and engineering students a brief introduction to the operation of the electron microscope and its applications to scientific problems. Prereq: Physics 2130-21. 3 hr. lab. S/NC.

3010 Industrial Inspection Trips (1) Technology of metallic industries, emphasizing Tennessee industry; plant trips. S/NC.

3040 Metallurgical Thermodynamics (4) Application of laws of thermodynamics to problems of metalurgy, particularly applicable to the design and engineering systems, predictive techniques, and analysis of networks and 3-hr. lab. S/NC.

3110 Engineering Materials I (4) Introductory course correlating the atomic, crystal, and microstructure of solids with mechanical, physical, and chemical properties of engineering significance. 3 hrs. and 1 lab.

3120 Engineering Materials II (3) Extension of 2110 with emphasis on control of mechanical properties of materials by specification of composition, thermal, and mechanical treatment; correlation of resultant properties with service performance. Suggested for mechanical, civil, and industrial engineering students.

3130 Engineering Materials III (3) Extension of 2110 with emphasis on control of electrical and magnetic properties of materials, correlation to scientific problems. Prereq: Physics 2310-20. 3-hr. lab. S/NC.

3140 Engineering Materials IV (3) Extension of 2110 with emphasis on materials processing, specification, and evaluation. Suggested for mechanical and industrial engineering students.

3150 Engineering Materials V (3) Extension of 3110 with emphasis on mechanisms and control of reactions of engineering materials with aqueous, non-aqueous, and gaseous environments. Prereq: 2110 or 3110 or Chemet. Engr. 2300.

3160 Engineering Materials VI (3) Extension of 2110 with emphasis on materials of significance in nuclear engineering; reactor construction materials, nuclear fuel materials, and interaction of radiation with solids to produce changes in engineering properties. Suggested for nuclear and mechanical engineering.

3170 Engineering Materials VII (3) Extension of 2110 to biomedical applications of materials. Engineering materials in biomedical applications: medical, polymers, and ceramics; prosthetic devices; dental applications; corrosion problems; failure analysis; fabrication. Prereq: 2110 or equivalent.

3210 Plastic Deformation (4) Phenomena and theory of plasticity of single and polycrystalline materials.
BACHELOR OF SCIENCE PROGRAM

The curriculum in civil engineering is designed to provide training in fundamental engineering sciences and in certain non-technical and basic subjects in various civil engineering fields to serve as a basis for entrance into civil engineering practice, and/or for graduate study. By use of technical electives (27 hours maximum), a student can specialize as primary or secondary areas of study in environmental engineering, geotechnical/materials, structures, transportation, or water resources. Primary specialization will be shown on the student's transcript.

Students are required to maintain a cumulative grade point average of at least 2.00 in all civil engineering and environmental engineering courses taken at The University of Tennessee, Knoxville, and used to satisfy the graduation requirements.

MASTER OF SCIENCE AND MASTER OF ENGINEERING PROGRAMS

Graduate programs in civil engineering and environmental engineering leading to the degrees of Master of Engineering are offered to graduates of recognized undergraduate curricula.

The general requirements for the masters' degrees are stated in the Graduate Catalog.

DOCTORAL PROGRAM

Graduate work leading to the degree of Doctor of Philosophy with a major in civil engineering is offered. Major fields of study include environmental engineering, geotechnical/materials, structural engineering, transportation, and water resources.

The general requirements for the doctoral degree are stated in the Graduate Catalog.

Civil Engineering (254)

2260 Engineering Surveys (4) Mensuration through the application of surveying techniques; the theory of errors and their analysis; fundamental concepts of horizontal, vertical, and angular measurement; basic surveying operations and computations. 3 hrs. lectures and one 3 hr. lab. Prereq: Math 1850.

2310 Seminar (1) Presentation and discussion of topics related to civil engineering.

2360 Route Surveying (3) Emphasis on basic principles and practical applications of horizontal and vertical engineering surveys and route surveys, specifically covering simple, compound, reverse and parabolic curves and spirals. Earthwork computations. Prereq: 2350.

3210 Stresses In Framed Structures (3) Reactions, moments, shears, and stresses in trusses and framed structures from fixed loads; influence lines and reactions, moments, and shears. Prereq: Engr. Science Mech. 3111.

3230 Design of Framed Structures (3) Selection of rolled beams; design of compression and tension members for axial and combined axial and bending stresses. Prereq: 3210.


3315 Soil Mechanics II (3) The compressibility of fine grained soils and the influence of time rate of consolidation. Shear strength of soils. Failure theories. 2 hrs. lecture and 1 lab.

3320 Computer Applications in Civil Engineering (1) Utilization of computer programs through the use of digital computers. Prereq: Basic Engr. 1410.

3360 Surveying Practice (3) Route surveying procedures. Two 3-hr. labs. Coreq: 2360.

3800 Transportation Planning (3) Emphasis on transportation problems, problem perspectives, both rural and urban; use of the planning process to establish existing travel patterns, modeling of demand, proposing alternatives and their evaluation, and plan implementation. Prereq: Junior standing.

3610 Transportation Engineering (3) Introductory course on design, construction, maintenance, and operation of various transportation modes, their design and construction, environmental considerations, traffic circulation and control, elements of urban transportation planning studies. Prereq: Senior Standing.


4110 Concrete Design (3) Reinforced concrete beams and columns; use of standard specifications. Prereq: 3210 and 3710.

4120 Concrete Design (3) Reinforced concrete continuous beams and floor slabs; footings and retaining walls. Prereq: 4110 and 4410.

4220 Foundations (3) Subsurface investigations; design of shallow and deep foundations on cohesive and cohesionless soils; principles of bearing on rock. Lateral earth pressure. Stability of slopes in homogeneous clay. Prereq: 3315 and Geology 2610.

4230 Legal and Ethical Aspects of Engineering (3) Legal principles underlying engineering work; laws of contracts, torts, and real property; problems of professional registration and ethics.

4240 Structural Design (3) Plate girders, composite steel and concrete beams, connections and details, and design of industrial building. Two 3-hr. periods. Prereq: 3230 and 4410.

4260 Photogrammetry (3) Methods of plotting maps from aerial photographs; stereoscopic plotting instruments; applications. Prereq: 2360, or Forestry Summer Camp for forestry majors.

4320-20 Seminar (1,1) Selected topics dealing with historical and modern civil engineering achievements and professional and ethical responsibilities. Prereq: Senior standing and completion of all junior level non-elective engineering courses.

4410 Deflections and Statically Indeterminate Structures (3) Deflections of beams and trusses; analysis of indeterminate beams, trusses, bents, and frames. Prereq: 3310.

4420 Analysis of Framed Structures (3) Maximum stresses due to moving loads; uses of influence lines; lateral forces due to earthquake and wind; analysis of portals, building frames, and space frames. Coreq: 4410.

4430 Construction Methods and Equipment (3) Fundamental operations in construction and selection of equipment; production rates, balancing of equipment, and cost estimates. Prereq: 3710.

4460 Land Surveying (3) Procedures of locating properties; evaluating evidence; procedures to describe property, to create land divisions, and to prepare plots; laws of land surveying. Prereq: 2260 or equivalent.

4510-20 Advanced Structural Design (3,3) Plastic design in steel in 4510; design of typical short span steel highway bridges in 4520. Prereq: 3230 for 4510; 3230 and 4410 for 4520.


4560 Stabilization of Soils (3) Mechanical stabilization of soils by compaction, drainage, and blending; chemical stabilization of soils with admixtures; water-proofing and modifying soils and additives. 2 hrs. of lecture and 1 lab. Prereq: 3315.

4600 Highway Engineering I (3) Design, construction, operation, and maintenance of highway facilities; includes integration of system planning and project planning to design and construction procedures. Prereq: 2560, 3600 and 3910.

4620 Airport Planning and Design I (3) Emphasis on airport roadways and taxiways, runway design or configuration; design of runways and taxiways and the airside are runway configuration, capacity, geometry, and lighting; and on the airside are included terminal layout and design, and ground access systems and parking. Prereq: 3600, 3910.

4640 Traffic Engineering (3) Characteristics of driver, vehicle, and roadway and their interrelationship; traffic studies for specific transportation modes; traffic signal operation, transportation circulation and control; elements of urban transportation planning studies. Prereq: Senior Standing.

4650 Highway Engineering II (3) Integration and application of various engineering principles and techniques to process of planning, locating, and design of highway facility through comprehensive team project. 1 lecture and 2 labs. Prereq: 4620.

4710 Portland Cement Concrete Mix Design (3) Properties and tests of portland cement concrete, methods of concrete design, basic destructive and non-destructive concrete evaluation testing, use of concrete admixtures. 2 lectures and 1 lab. Prereq: 3710.

4720 Asphalt and Bituminous Concrete (3) Properties and tests of asphalts and asphaltic mixes, mix design and bituminous concrete. Emphasis on use of asphalt in transportation construction projects. 2 lectures and 1 lab. Prereq: 3710.

4731-32 Earthquake Resistant Structure I, II (4,4) (Same as Architecture 4731-32.)

4800 Introduction to Civil Engineering Systems (3) Methods of modeling civil engineering systems and their specific application to problems of transportation, environment, water resources, and materials. Prereq: Senior standing or consent of instructor.

4850 Elementary Structural Matrix Methods (4) (Same as Architecture 4850 and Engineering Science Mech. 4850.)

4860 Structural Wood Design (3) The application of structural design principles to structural members of various combinations of wood products. Beams, columns, and diaphragm construction with plywood are covered in some detail. Attention is given to various types of fastenings and connections. Prereq: 3210.

4880 Civil Engineering Systems Design and Management (3) Introduction to basic systems engineering concepts within civil engineering context; discussion of the role of decision maker and use of optimal principles of engineering planning. Prereq: Computer Science 3150.

4910 Special Topics (1-3) Topics relating to recent developments and current practice in civil engineering through supervised self-study. Prereq: Consent of individual instructor and approved by department head. May be repeated.

GRADUATE

5000 Thesis

5020 Non-Thesis Graduation Completion (3-15)

5110-20 Statically Indeterminate Structures (3,3)

5140 Statically Indeterminate Structures (3)

5150 Matrix Formulation of Structural Problems (3)

5160 Analysis and Design of Plate Structures (3)

5170 Introduction to Structural Dynamics (3)

5180 Finite Element Structural Analysis (3)

5220 Pavement Design (3)

5240 Advanced Properties of Materials: Bituminous Substances and Mixes (3)
5270 Planning and Transportation (3)
5310 Engineering Practice (3)
5320-30 Engineering Practice Applied to Administration of Engineering Projects (3,3)
5410 Construction Contract Law and Administration (3)
5420 Structural Model Analysis (3)
5430-40-50 Construction Management I, II, III (3,3,3)
5460-70 Construction Estimating I, II (3,3)
5550 Soil Mechanics-Plastic Equilibrium (3)
5560 Soil Mechanics-Elastic Behavior (3)
5570 Soil Mechanics-Seepage (3)
5610 Behavior of Steel Structures (3)
5730 Prestressed Concrete (3)
5740 Behavior of Reinforced Concrete Members (3)
5800 Urban Systems: Engineering and Management I (3)
5805 Urban Systems: Engineering and Management II (3)
5810 Traffic Engineering-Characteristics (3)
5820 Traffic Engineering-Operations (3)
5840 Geometric Design (3)
5850 Functional Design of City Streets and Urban Freeways (3)
5860 Urban Transportation Planning (3)
5870 Public Transit Planning (3)
5880 Highway Safety I (3)
5885 Highway Safety II (3)
5890 Traffic Accident Reconstruction (3)
5900 Special Problems in Civil Engineering (1-9)
5910-20-30 Special Topics (1-6,1-6,1-6)
6000 Doctoral Research and Dissertation (3)
6110 Research Development (3)
6120 Research Management (3)
6140 Behavior of Steel Bridges and Buildings (3)
6740 Behavior of Reinforced Concrete Beams and Frames (3)
6750 Behavior of Reinforced Concrete Slabs (3)
6830 Traffic Flow Theory (3)
6860 Statewide Passenger Transportation Planning (3)
6870 Future Transit Technology and Research (3)
6880 Planning Models for Transportation Systems I (3)
6890 Planning Models for Transportation Systems II (3)
6910-20-30 Special Topics in Civil Engineering (3,3,3)

Environmental Engineering (344)
3120 Hydraulics (3) Application of basic and developed principles of hydraulics. Flow measurement, flow in closed conduits; uniform and nonuniform open channel flow; pumps and turbines; basic hydromechanics; flow similitude and models. Two lectures and one 3-hr. lab. Prereq: Engr. Mech 3110.
4000 Environmental Protection (3) A rationale is developed for managing water resources, body wastes, and wastewaters, air pollution, solid and hazardous waste, environmental modeling, and environmental impact analysis and removal of environmental contaminants. Prereq: Chemistry 1130 and senior standing.
4030 Environmental Engineering Chemistry (3) Fundamentals of chemistry which relate to generation, formation analysis, and removal of environmental contaminants. Includes objectives of design and practice without detailed design or practice methods. Prereq: Senior standing.
4180 Urban Water Management (3) Introduction to urban water modeling; evaluation of optimum urban water policies; formulation of system constraints and analysis of decision-making process; management of storm water for beneficial use. Prereq: 3330.
4210 Water Resources Engineering Design (3) Elements of water resource structures and systems, including reservoirs, dams, control works and open channel design. Dam safety control; environmental impact of reservoir projects. Prereq: 3330 or consent of instructor.
4220 Water Resources Engineering Development (3) Multi-objective evaluation procedures for comparing and selecting among water resources development alternatives; achieving project optimality; single- and multi-project projects; special topics in new developments in water resources engineering. Prereq: 3330 or consent of instructor.
4330 Hydrologic Design (3) Application of frequency and regression analysis to hydrologic design of water resources system; unsteady surface runoff and streamflow modeling; urban peak runoff design using kinematic wave theory; evaluation of effects of land use changes on stream flow quantity and quality. Prereq: 3330.
4510 Elements of Water and Wastewater Transport Systems (3) Introduction to theory and design of water transportation and distribution systems and wastewater collection systems. Prereq: 3120 and 3330.
4520 Elements of Water and Wastewater Treatment Systems Design (3) Introduction to unit operations and processes employed in physical, chemical, and biological treatment of water and wastewater. Application of unit operations and processes in design of water and wastewater treatment plants. Prereq: 3120.
4525 Water and Wastewater Treatment Plant Design (3) Detailed process design of water and/or municipal industrial wastewater treatment plants; sludge handling systems, and ultimate disposal of residuals. Prereq: 4520 or equivalent.
4530 Environmental Engineering Laboratory (3) Standard analytical techniques for evaluation of specific air, water and solid waste pollutants. 2 hrs. and 1 lab. Prereq: 4030.
4600 Solid and Hazardous Waste Management (3) Magnitude and characteristics of solid and hazardous waste problems; collection systems; disposal systems including landfill, incineration, composting, leaching, and biological treatment of water and wastewater. Application of unit operations and processes in design of water and wastewater treatment plants. Prereq: 3120.
4700 Air Pollution-Air Resource Management (3) Introductory course on concepts of air pollution; analysis of relationship among emission sources, meteorology and topographic factors, and adverse effects on receptors; engineering approaches for air pollution control. Prereq: Senior standing.
4820 Environmental Engineering Law (3) Legal aspects of water and air pollution, drainage, land use controls, and environmental impact statements with emphasis upon federal-state relations, current legislation and court decisions, and enforcement. Prereq: Senior standing.
4910-20-30 Special Topics (1-3,1-3,1-3) Topics relating to recent developments and current practice in environmental engineering through supervised self-study. Prereq. Consent of individual instructor and approved by department head. May be repeated.

GRADUATE
5000 Thesis (3)
5002 Non-Thesis Graduation Completion (3-15)
5150 Water and Urban Welfare (3)
5230 Surface Water Transport Processes (3)
5232 Sediment Transport (3)
5240 Flood Control Hydraulics (3)
5261 Basic Principles of Remote Sensing (3)
5262 Remote Sensing Data Acquisition (3)
5263 Remote Sensing Data Analysis and Interpretation (3)
5301 Stormwater Modeling I (3)
5302 Stormwater Modeling II (3)
5310 Groundwater Transport Processes (3)
5330 Descriptive Hydrology (3)
5400 Introduction to Environmental Systems (3)
5501 Water and Wastewater Treatment Theory I (3)
5502 Water and Wastewater Treatment Theory II (3)
5503 Advanced Water and Wastewater Systems (3)
5530 Environmental Engineering and Wastewater System Behavior (3)
5551 Water Quality Management (3)
5552 Microbiology for Sanitary Engineers (3)
5593 Advanced Environmental Engineering Laboratory (3)
5620 Solid Waste Collection Systems (3)
5630 Design of Solid and Hazardous Waste Disposal Systems (3)
5700 Planning and Air Pollution Control (3)
5710 Air Pollution Control Engineering (3)
5715 Ambient Air Monitoring (3)
5720 Air Pollution Particle Collection Theory (3)
5725 Air Quality Modeling and Impact Assessment (3)
5730 Air Pollution Control Device Design (3)
5735 Industrial Source Sampling (3)
5745 Ambient Air Chemistry (3)
5750 Diffusion in the Atmosphere (3)
5900 Special Problems in Environmental Engineering (1-9)
5910-20-30 Special Topics (1-6,1-6,1-6)
5990 Environmental Engineering Seminar (1)
6110-20 Advanced Topics in Fluid Mechanics and Convective Transfer (3,3)
6230 Kinematic Wave Theory (3)
6510 Industrial Waste Unit Operations and Processes (3)
6520 Industrial Waste Management (3)
6530 Rate Processes in Environmental Pollution (3)
6820 Advanced Theory and Applications in Water Resources Energy Systems I (3)
grade point average, grades earned in courses required in the lower-division curricula of the College of Engineering, and seriousness of purpose and interest in department. Admission to the upper-division program is controlled by regular and orderly progress through the prescribed curriculum without abuse of withdrawal and course repeat privileges. Students will be evaluated during the quarter prior to entry for Electrical Engineering 2030. Transfer students may take nine (9) quarter hours in departmental courses before evaluation if EE 2030 transfer credit is given. Those who transfer to the upper-division program of the department will not be permitted to register for any upper-division courses within the department. Such students will also be counseled and advised of certain educational alternatives.

MASTER OF SCIENCE PROGRAM

Graduate work leading to the Master of Science degree may be completed during one academic year of full-time study or the degree may be obtained in two or three years of study on a part-time basis.

Graduate assistantships and scholarships are available for outstanding students. Graduate assistants may obtain the master's degree in one calendar year.

Course work leading to the degree of Master of Science in Electrical Engineering is offered in the evening. Each course meets for two and one-half hours each week.

THE DOCTORAL PROGRAM

Graduate work leading to the degree of Doctor of Philosophy is open to candidates for the major in electrical engineering. The department also participates in the engineering science doctoral program.

General policies of the Graduate School, residence, language, research, examinations, and admission to candidacy requirements are explained in the Graduate Catalog.


2020 Circuits II (3) Elementary transient analysis of circuits with one storage element. Steady-state and transient analysis of circuits with one storage element. Theorems of circuit analysis. Basic network theorems. 3 hrs. including biweekly lab.


2040 Basic Communication Systems (3) Fourier series and transforms. Introduction to communication theory. Digital signals. 3 hrs. including biweekly lab.

3010 Transient Analysis I (3) Theory and applications of p-n junctions; simple power supplies; the high-speed circuit and operational amplifier. Topics include digital circuits and applications in simple circuits. Coreq: Math 2610 or 2610. 3 hrs. including lab.

3011 Basic Electronics I (3) Introduction to electronic devices. Thermionic and semiconductor devices. Types of devices. 3 hrs. including lab.

3012 Basic Electronics II (3) Introduction to electronic devices. Operating principles of transistors, diodes, and operational amplifiers. 3 hrs. including lab.

3013 Basic Electrical Engineering-Machinery (3) For non-electrical engineering majors. Coreq: Math 2610 or 2610. 3 hrs. including lab.

3014 Basic Electrical Engineering-Electronics (3) For non-electrical engineering majors. Coreq: Math 2610 or 2610. 3 hrs. including lab.

3016 Basic Electrical Engineering-Electronics (3) For non-electrical engineering majors. Coreq: Math 2610 or 2610. 3 hrs. including lab.

3017 Basic Electrical Engineering-Electronics (3) For non-electrical engineering majors. Coreq: Math 2610 or 2610. 3 hrs. including lab.

3018 Basic Electrical Engineering-Electronics (3) For non-electrical engineering majors. Coreq: Math 2610 or 2610. 3 hrs. including lab.

3019 Basic Electrical Engineering-Electronics (3) For non-electrical engineering majors. Coreq: Math 2610 or 2610. 3 hrs. including lab.

3020 Basic Electrical Engineering-Electronics (3) For non-electrical engineering majors. Coreq: Math 2610 or 2610. 3 hrs. including lab.

3021 Basic Electrical Engineering-Electronics (3) For non-electrical engineering majors. Coreq: Math 2610 or 2610. 3 hrs. including lab.

3022 Basic Electrical Engineering-Electronics (3) For non-electrical engineering majors. Coreq: Math 2610 or 2610. 3 hrs. including lab.

3023 Basic Electrical Engineering-Electronics (3) For non-electrical engineering majors. Coreq: Math 2610 or 2610. 3 hrs. including lab.

3024 Basic Electrical Engineering-Electronics (3) For non-electrical engineering majors. Coreq: Math 2610 or 2610. 3 hrs. including lab.

3025 Basic Electrical Engineering-Electronics (3) For non-electrical engineering majors. Coreq: Math 2610 or 2610. 3 hrs. including lab.

3026 Basic Electrical Engineering-Electronics (3) For non-electrical engineering majors. Coreq: Math 2610 or 2610. 3 hrs. including lab.

3027 Basic Electrical Engineering-Electronics (3) For non-electrical engineering majors. Coreq: Math 2610 or 2610. 3 hrs. including lab.

3028 Basic Electrical Engineering-Electronics (3) For non-electrical engineering majors. Coreq: Math 2610 or 2610. 3 hrs. including lab.

3029 Basic Electrical Engineering-Electronics (3) For non-electrical engineering majors. Coreq: Math 2610 or 2610. 3 hrs. including lab.

3030 Basic Electrical Engineering-Electronics (3) For non-electrical engineering majors. Coreq: Math 2610 or 2610. 3 hrs. including lab.

3031 Basic Electrical Engineering-Electronics (3) For non-electrical engineering majors. Coreq: Math 2610 or 2610. 3 hrs. including lab.

3032 Basic Electrical Engineering-Electronics (3) For non-electrical engineering majors. Coreq: Math 2610 or 2610. 3 hrs. including lab.

3033 Basic Electrical Engineering-Electronics (3) For non-electrical engineering majors. Coreq: Math 2610 or 2610. 3 hrs. including lab.

3034 Basic Electrical Engineering-Electronics (3) For non-electrical engineering majors. Coreq: Math 2610 or 2610. 3 hrs. including lab.

3035 Basic Electrical Engineering-Electronics (3) For non-electrical engineering majors. Coreq: Math 2610 or 2610. 3 hrs. including lab.

3036 Basic Electrical Engineering-Electronics (3) For non-electrical engineering majors. Coreq: Math 2610 or 2610. 3 hrs. including lab.

3037 Basic Electrical Engineering-Electronics (3) For non-electrical engineering majors. Coreq: Math 2610 or 2610. 3 hrs. including lab.

3038 Basic Electrical Engineering-Electronics (3) For non-electrical engineering majors. Coreq: Math 2610 or 2610. 3 hrs. including lab.

3039 Basic Electrical Engineering-Electronics (3) For non-electrical engineering majors. Coreq: Math 2610 or 2610. 3 hrs. including lab.

3040 Basic Electrical Engineering-Electronics (3) For non-electrical engineering majors. Coreq: Math 2610 or 2610. 3 hrs. including lab.

3041 Basic Electrical Engineering-Electronics (3) For non-electrical engineering majors. Coreq: Math 2610 or 2610. 3 hrs. including lab.
A project-oriented course stressing applications of adaptive delta, delta-sigma, and delta PCM systems. and carrier modulation and digital waveforms. Delta, microwave power transmission and for microwave stripline waveguides. Waveguide resonators and other aspects of dc-ac inversion and energy storage. Prereq: 3810, 3090.

4909 Microscopic Waveform and Electronics (3) Scattered wave description of circuits, to include isolators and circulators, diodes, and other small-signal devices. Filters, phase shifters, loading and interconnection of systems. Power generation and amplification by vacuum tubes and by solid state (pulsed and junction) devices. Microwave switching, filtering and multiplexing. Prereq: 3060. 3 hrs. including bi-weekly lab.


4210 Introduction to Artificial Intelligence (3) (Same as Computer Science 4210.)


4370 Introduction to Feedback System Design (3) Mathematical formulations of control systems for nonlinear, linear, time-invariant, and time-variant systems, optimal linear systems design with quadratic criteria, pole placement and observers for linear systems, stability theory. Prereq: 3720, Computer Science 3150, Math 2860 and 4120.

4391 Introduction to Applied Optimal Estimation (3) A project-oriented course stressing applications of optimal control theory. Topics include state-space representation of systems, controllability and observability, minimum principle, dynamic programming and the calculus of variations, optimal control of linear systems, optimal linear systems design with quadratic criteria, pole placement and observers for linear systems, stability theory. Prereq: 3720, Computer Science 3150, Math 2860 and 4120.

4410 Power System Components and Control (3) An introduction to the design of power system components, circuits and calculations and power flow limitations. Control of real and reactive power flows in interconnected power systems; the PF and QV control problems. Prereq: 3090.


4430 Transmission, Distribution, and Protection (3) Studies in underground and d.c. transmission; consideration of power lines; properties and tests. Synthesis of L-C network protection against faults. Prereq: 3060, 3090.

4460 Lasers and Masers (3) Principles of laser and maser operation based on classical concepts and electrical engineering analogies. Consideration of practical devices and applications. Prereq: Senior standing.

4470 Plasma II (3) Magnetohydrodynamics. Prereq: 3190.

4480 Plasma III (3) Macroscopic plasma equations, particle distributions, interactions, and waves. Prereq: 3190.


4500 Electro-Optic Detection and Instrumentation (3) Sensitivity, resolution (frequency response) and noise concepts of and practical engineering data for both spatial and recording media (e.g. photographic emulsions) and temporal detectors (e.g. photodiodes) will be given. Last third of the course will be devoted to selected topics in sensor materials (e.g laser light scattering, optical data processing, holo- graphic interferometry).

4540 Antennas and Propagation II (4) Wave equation for sound, radiation from pistons, impedance of a piston, loudspeakers, horns, speaker systems, phonograph recording and reproduction, tape recording and reproduction, noise reducing systems. Prereq: senior standing.

4600 Analog Signal Processing Circuits for Electronic Instrumentation (3) Use of operational amplifiers, instrumentation amplifiers, and other integrated circuits in signal processing. Design examples such as filter design, signal generation, function generators, active rectifiers, and synchronous demodulators. Analysis of interfacing problems between transducers and signal processors. Prereq: 3830. 3 hrs. including project laboratory.

4610 Analog-Digital Systems (3) Principles of analog computing devices. Applied to analog computing to include linear and non-linear functions, principles and characteristics of analog multipliers, dividers, and function generators. Presenters compare systems, digital to analog conversion, and analog to digital conversion techniques. Prereq: 3180 and 3830. 3 hrs. including biweekly lab.


4630 Digital System Organization and Design (3) System organization of digital systems including microcomputer and microprocessor architectures and comparisons. Characteristics of ALU and CPU structures, storage systems (RAM, ROM, and PROM building blocks), and interfacing systems. Control/Unit organization to include serial-parallel modes of operation, synchronous/asynchronous time sequencing, and microprogramming of microprocessors. Prereq: 3180. 3 hrs. including biweekly lab.

4660 Bioelectric Instrumentation (3) Nature and origin of bioelectric potentials, transducers, amplifier requirements, recording systems, and noise problems. Prereq: Senior Standing.

4680 Electric Amplifiers (3) Feedback amplifier principles. Wideband linear amplifiers. Audio and radio-frequency power amplifiers. Prereq: 3830, 3720. 3 hrs. including project laboratory.

4690 Communications Electronics (3) Receiver and transmitter circuits for communications. Prereq: 3040, 3830. 3 hrs. including project laboratory.

4700 Digital Integrated Electronics (3) Comparators, logic gates, flipflops, registers, counters, memories, analog switches, A/D and D/A conversion, clipping, clamping, and sweep circuits. Prereq: 3830, 3160. 3 hrs. including project laboratory.

4740 Integrated Circuits (3) Processing and fabrication of active and passive components for monolithic and hybrid circuits. Design techniques for linear and digital circuits. Prereq: 3830. 3 hrs. including project laboratory.

4750 Interactive Computer Graphics (3) (Same as Computer Science 4750 and Geography 4750.)

4780 Synchronous Machines (3) Construction and application of synchronous machines, analysis of par- fornance from equivalent circuit models for round rotor and salient pole machines; Park's transformation to the 2-axis model, use of this model in transient studies; extension of the 2-axis concept to the general- ized theory of electrical machines. Prereq: 3090.

4790 Controllable Motor Drives (3) Constructional features and design parameters for the usual varia- tions of the d.c. motor, A.C. servomotor, stepping motor; development of transfer functions and exam- ples of their application in control system. Prereq: 3090.

4800 Hardware-Software Interface in Minicomputer and Microprocessor System Design (3) Minicomputer and microprocessor interface design. Hardware-software interaction and trade-offs. Priority interrupt structures. Telecommunications. Project or- ented, contract course. Completion of two projects, one utilizing a minicomputer and the other a microcomputer, are minimal course requirements. Prereq: 3180.

4810 Discrete-Data Systems (3) Introduction to analy- sis and design of discrete data control systems using frequency domain techniques. Realtime digital filtering techniques; application of digital computers in closed-loop feedback systems. Prereq: 3720.

4820 Introduction to Pattern Recognition (3) Role of pattern recognition within framework of artificial intelligence. Design of learning and adaptive ma- chines. Typical applications of pattern recognition to problems of practical significance. Computer simula- tion course, elementary topics in pattern recognition. Prereq: Either 3100 and Computer Science 3150, or Statistics 3450 and Computer Science 1510. (Same as Computer Science 4820.)

4830 Digital Image Processing (3) Principal methods of image storing, and processing images by means of digital computers. Computational algorithms for image operations, Prereq: 3100 and Computer Science 3150, or Statistics 3450 and Computer Science 1510. (Same as Computer Science 4830.)

4850 Small Computer Systems (3) Basic structure of small computer systems, input-output techniques, inter-rupt structures, peripheral devices, system software, and assembly language programming. Course is project oriented. Prereq: Basic Eng. 1410, Computer Science 1510 or 3150, or consent of instructor. (Same as Computer Science 4850.)

4910-20-30 Special Electrical Engineering Prob- lems (3,3,3) Problems in electrical engineering involv- ing library and experimental research.

GRADUATE

5000 Thesis

5040-50-60 Electrical Engineering Research (3,3,3)

5070-60 Modern Transform Methods (3,3)

5110 Introduction to Network Analysis (3)

5120 Network Synthesis and Design (3)

5130 Advanced Network Analysis (3)

5150 Bioengineering Systems I: Models, Systems Analysis, and Simulation (3)

5175 Introduction to Logic Design (3)

5180 Bioengineering Systems II: Bioelectric Phe- nomena (3)

5190 Bioengineering Systems III: Instrumentation and Analysis (3)

5210-20 Advanced Electrical Machinery (3,3)

5230 Advanced Electrical Machinery Applications (3)

5240-50-60 Control Systems Design I, II, III (3,3,3)

5271 Modern Systems Theory I (3)

5281 Modern Systems Theory II (3)

5291 Modern Systems Theory III (3)

5310 Basic Requirements for Plasma Fusion (3)
6000 Doctoral Research and Dissertation (5)
5940 Advanced Small Computer Systems (3,3)
5930 Digital Image Processing (3)
5920 Electromagnetic Diffraction and Scattering (3)
5910 Network Synthesis (3,3,3)
5900 Detection Theory (3)
5890 Coding Theory (3)
5880 Advanced Topics in Electronic Instrumentation (3,3,3)
5870 Special Topics in Systems Methodology (3,3,3)
5860 Microwave Antenna Theory (3)
5850 Microwave Electronics (3)
5840 Aperture Antennas (3)
5830 Linear Antennas and Antennas Arrays (3)
5820 Electromagnetic Fields (3,3)
5810 Power System Networks (3)
5420 Fault and Load Flow Studies (3)
5040 Power System Stability and Control (3)
5440 Distribution Systems (3)
5460 Selected Topics in Power Systems (3)
5510-20-30 Advanced Analog Electronics (3,3,3)
5450 Thick Film Hybrid Microcircuits (3)
570-80-90 Advanced Electronic Switching Circuits (3,3,3)
5610-20 Logic Design and Finite Automata Theory (3,3)
5615-25 Introduction to Switching Theory and Logic Design (3,3)
5620 Digital System Architecture (3)
5635 Introduction to Digital Computer and Analog Systems (3)
5650-60 Electric Communications Systems (3,3,3)
5670-80 Patterns Recognition (3,3)
5690 Introduction to Artificial Intelligence (3)
5710 Random Process Theory for Engineers (3)
5720-30 Prediction, Filtering and Detection Theory (3,3)
5740 Digital Processing of Signals (3)
5750-60 Radar Systems Analysis (3,3,3)
5770 Identification (3,3,3)
5800 Power Transmission Lines (3)
5810-20 Electromagnetic Fields (3,3,3)
5840 Linear Antennas and Antennas Arrays (3)
5840 Aperture Antennas (3)
5850 Microwave Electronics (3)
5860 Electromagnetic Wave Propagation (3)
5870 Introductory Microwave Networks (3)
5930 Digital Image Processing (3)
5920 Electromagnetic Diffraction and Scattering (3)
5910 Network Synthesis (3,3,3)
5900 Detection Theory (3)
5890 Coding Theory (3)
5880 Advanced Topics in Electronic Instrumentation (3,3,3)
6910-20-30 Advanced Sequential Machine and Automata Theory (3,3,3)
recognized by the American Society for Engineering Education such as (1) mechanics; (2) electrical sciences, electric and magnetic fields, circuits, and electronics; (3) thermodynamics and statistical mechanics; (4) materials science; (5) information science; (6) transfer and rate processes such as heat, mass, and momentum transfer. Other modern engineering fields which may be studied in the engineering science option are the space sciences and the environmental sciences. It is not expected that all the engineering sciences but will structure a course plan to provide depth in some of the engineering sciences.

Because of the large number of elective courses to be selected in the engineering science degree program, faculty advising plays an essential role in the process of developing the student's course of study. Before the end of the sophomore year, students in the engineering science program are required to develop, in concert with a faculty adviser, a statement of objectives and a course plan for the upper-division years. This course plan must be filed with the Office of Admissions and Records before students with more than 90 quarter hours can register for courses, and before a student's schedule is finalized and a final course schedule can be prepared.

MASTER OF SCIENCE AND DOCTORAL PROGRAMS

Graduate programs leading to the degrees of Master of Science and Doctor of Philosophy with a major in engineering science are available to graduates of recognized curricula in engineering, mathematics, or one of the physical or biological sciences. Program options include solid mechanics, fluid mechanics, biomedical engineering, and other engineering sciences. In the biomedical and engineering science option, interdisciplinary programs are arranged to meet individual needs or interests. Each applicant will be advised as to any prerequisite courses before entering a program; the student's program of study must be approved by his or her advisory committee, and the candidate must meet the requirements of the Graduate School. The student's major professor may be selected from a department other than the Department of Engineering Science and Mechanics.

The flexibility and interdisciplinary aspects of the program options are intended to be of particular interest to prospective students currently employed in research, development, or design activities and whose interests in continuing education (either full-time or part-time) lie at one of the interfaces between science and engineering, or can be best met by interdisciplinary study in engineering. The department's course offerings and research activities are also intended to meet the needs of students who seek preparation for employment in professional areas requiring specialization in mechanics, or in related interdisciplinary studies such as biomechanics. General policies of the Graduate School relating to admission, residence, examinations, and research are described in the Graduate Catalog.

Engineering Science and Mechanics (395)

2720 Dynamics (3) Absolute and relative kinematics of rigid bodies using Newton's laws, work-energy, and impulse momentum. Prereq: 2705 or Basic Eng. 1320, Math 2840.

3010 Seminar (1) Discussions of engineering professionalism. Freq. offering: S/NC.

3110-20 Fluid Mechanics (3,3) Basic laws of fluids, effects of viscosity and compressibility; empirical analysis: Navier-Stokes equations; boundary-layer concepts, potential flows, and motion in sequences. Prereq: 2720 or 3700, Math 2840, coreq for 3110, Mech. Engr. 3511 or equivalent.

3310-20 Mechanics of Materials (3) Concepts of stress and strain, stress strain relations, Mohr's circle, stresses and displacements in strained pressure vessels, shafting; determinate, indeterminate, and nonhomogeneous beams; column theory. Must be taken in sequence. Prereq: Basic Engr. 1310; coreq: Math 2840.

3311 Mechanics of Materials (4) Concepts of stress and strain, stress strain relations and Mohr's circle, static analysis of members; area moment of inertia, stress and displacement analysis of axially loaded members; torsion; bending. Not for departmental graduate credit. Prereq: Basic Engr. 1310; coreq: Math 2840.

3410 Introduction to Biomedical Engineering (4) Introduces the faculties and opportunities of biomedical engineering, and provides a background in basic sciences and ground knowledge for further courses in the field. Subjects include anatomy, physiology, biomaterials, mathematical and physical sciences. Prereq: Mech. Engr. 3311 or equivalent. Coreq: Math 2840 or consent of instructor.

4210 Introduction to Clinical Engineering (3) Engineering applications in the clinical/hospital setting; description, analysis, and design of systems; hospital organization and structure; clinical use of biomedical equipment; principles of safety engineering; fundamentals of codes and standards and regulations. Prereq: 3410, Physics 2520, or consent of instructor.

510 Materials of Engineering (3) Mechanical properties of engineering materials; behavior of materials under load. 3 hrs. or 2 hrs. and 1 lab. Prereq: 3311 and Met. Engr. 2110 or 3110.

520 Materials Behavior and Chemical Process Equipment Design (3) (Same as Met. Engr. 3520). 3 hrs. or 2 hrs. and 1 lab.

3700 Dynamics (4) Kinematics of rigid bodies; mass motion; rigid body; kinetics and kinematics of rigid bodies using forces, mass, acceleration; work-energy; impulse-momentum. Not for departmental graduate credit. Prereq: 2720 or Basic Eng. 1320, Math 2840.

3710 Intermediate Dynamics (3) Three-dimensional introductory dynamics. Kinematics of rigid bodies with varying mass; central force motion; Lagrange's equations. Prereq: 2720 or 3700, Math 2850.

4010 Project in Design and Development (4) Investigation, design, and report of an engineering science project. Prereq: Senior standing and a grade of C or better in 3311, 3700, and 3110.

4020 Computer-Aided Design (3) Use of computer graphics and analysis programs for design of selected structures, components, and systems. Evaluation of design alternatives. Prereq: 4010 or consent of instructor.

4011 Project in Design and Development (3) Investigation, design, and report of an engineering science project. Prereq: Senior standing.

4520 Biomedical Fluid Mechanics (3) Discusses objectives, review foundations, and present developments in biomedical fluid mechanics. Properties of human blood and blood vessels, determinants of cardiac performance; analysis and measurement of flow and pressure in arteries, nontraumatic study of circulatory system, mechanics of microcirculation. Applications to areas of hemodynamics, thrombosis, and fluid flow in heart assist devices. Prereq: 4500 or a course in fluid mechanics or consent of instructor.

4530 Biomechanics (3) Discusses objectives, review foundations, and present developments in areas of mechanical properties of living tissues, biomechanics of injury and prosthesis, material compatibility of prosthetic devices, and biomechanical problems related to impact. Prereq: 3311 or 4500 or consent of instructor.

4540 Fracture-Safe Design (3) A critical review of mechanical properties of materials that are indicative of fracture resistance, including transition temperature, R-curves, stress intensity factors, and J-integrals; the use of these properties in design. 3 hrs. or 2 hrs. and 1 lab. Prereq: 3311 and Met. Engr. 2110. (Same as Met. Engr. 4540.)

4550 Design of Artificial Internal Organs (3) Study of the design, development and evaluation of artificial internal organs including Federal regulation and ethical considerations. Prereq: of currently available devices and new developments. Prereq: 3311, 3410, Math 2850.

4580 Principles of Non-destructive Testing (3) (Same as Physics 4580.)

4610 Experimental Stress Analysis (3) Basic concepts: theory, techniques, and instrumentation of residual strain gauges; theory and techniques of brittle coating method, introduction to other stress analysis methods. Prereq: 3311, Elec. Engr. 2020 or 3110. 2 hrs. and a 3-hr. lab.

4620 Dynamic Data Acquisition (4) Instrumentation of measuring systems for dynamic events and responses; signal conditioning; oscillographs, oscilloscopes, and magnetic tape recording, telemetry and data transmission; data processing. Prereq: 3311, 4710, Elec. Engr. 3120. 3 hrs. and a 3-hr. lab.

4630 Introductory Photomechanics (3) Introduction to photomechanics, photelastic coating method, More methods, interferometry, and holography. Prereq: 3311, Physics 2320. 2 hrs. and a 3-hr. lab.

4710 Fundamentals of Vibrations (3) Free and forced vibrations of damped and undamped lumped parameter systems; energy methods. Prereq: 2720 or 3700, Math 2860.


4810-20 Engineering Analysis (4,3) Integration of fundamental physical laws and mathematical methods of analysis with emphasis on application to realistic engineering problems. Prereq: 3311, 3311, and Computer Science 3150.

4850 Elementary Structural Matrix methods (4) (Same as Architecture 4850 and Civil Engineering 4850.)

4910-20 Special Engineering Science Topics (3,3) Problems related to recent developments and practice. Open to juniors or seniors with consent of instructor. May be repeated for credit once.

G R A D U A T E

5000 Thesis

5002 Non-Thesis Graduation Completion (3-15)

5110-20 Fluid Dynamics (3,3)

5130 Introduction to Turbulence (3)

5140 Finite Element Methods In Fluid Mechanics (3)

5180 Finite Element Structural Analysis (3)

5220 Mechanics of Viscous Flow (3)

5230 Non-Newtonian Fluid Mechanics (3)

5310-20 Advanced Mechanics of Materials

5410-20 Theory of Elasticity (3,3)

5430 Thermal Stresses (3)

5440 Theory of Linear Viscoelasticity (3)

5550 Fracture Mechanics (3)

5630-40 Photoelasticity (3,3)

5710-20 Advanced Dynamics (3,3)

5730 Advanced Vibrations (3)
(556)

132. Descriptions of the physics courses are shown in tabular form on page 225. The undergraduate fundamental courses in engineering, science, and mathematics. In the upper division, the curriculum emphasizes the knowledge and skills necessary to design integrated systems of people, materials, equipment, and energy wherever they are found, such that the overall system functions at an optimal level and such that the needs of the human components of the system are adequately met.

This curriculum, which is built upon a strong background in mathematics and statistics, includes fundamental course work in all of the engineering sciences, introductory economics and accounting, training in fundamental human factors which influence engineering design, the economic analysis of alternative design choices, quality control techniques, manufacturing processes and materials, production and inventory system design and control, material handling systems and facilities design, the mathematical modeling and simulation of complex systems, and the design and installation of information acquisition and control systems. The technical and non-technical electives further allow the students to specialize in an area(s) which meets particular needs.

The solid, broad based engineering, combined with training in applying engineering methodology to traditionally non-engineering problem areas as provided through the industrial engineering curriculum, leads to participation by industrial engineers in an unlimited range of fields including, among others, retail distribution, banking, health care delivery, corporate management, municipal management, aerospace systems, research groups, and government as well as in the traditional area of manufacturing.

MASTHER OF SCIENCE PROGRAM

The graduate program in industrial engineering contains a basic requirement of 18 hours of course work covering topics in industrial engineering at the graduate level. The remaining 18 hours in the program are based upon the educational objective of the student and determined with the approval of the student's advisor. A minor is usually taken in an area related to industrial engineering, and a thesis is required. The program is open to graduates of recognized curricula in all fields of engineering.

A non-thesis program of 45 hours of course work plus a 3-hour project is also available and open to graduates in engineering or science. Basic courses (5110, 5520 and 5700, 5710, 5720) are 18 hours of the total and are identical to the basic courses in the program for thesis students. An option is selected from manufacturing, health systems, operations research, human factors, or decision processes. Each option requires 9 hours of non-engineering electives to support the selected option. The project requires the design of a procedure or operating system based especially upon the course work in the selected option and clearly applicable as a solution to a problem in actual professional practice. The student is examined upon the project and related course work.

2310 Seminar (1) Introduction to the industrial engineering profession, its history, and current trends. Plant trips and lectures by the faculty. Prereq: Sophomore standing.


3330 Computer Applications and Analysis Methods in Industrial Engineering (3) Use of digital computer in problem solving involving matrix operations, deterministic and stochastic simulations, large scale data base manipulation, and general optimization techniques. Prereq: 2320 and Math 1860.


3440 Quality Control (3) Application of statistical methods to control quality of manufactured parts and techniques of inspection. Prereq: 3450.

3510 Introduction to Operations Research I (3) Introduction to methodology of operations research and the application of operations research to industrial problems. Topics covered include statistical inference, decision theory, and queueing theory. Prereq: 3430 and Computer Science 3150.

3520 Introduction to Operations Research II (3) Introduction to mathematical programming includes classical optimization theory, linear programming (with emphasis on the simple method, the transportation problem, and the assignment problem), and dynamic programming. Prereq: Computer Science 3150 or consent of instructor.


3600 Motion and Time Study (3) Design of work methods, including analysis, improvement, timing of work, and determining standards. Laboratory work included. Prereq: Basic Engr. students. Prereq: junior standing.

3610 Human Factors in Work Design I (3) Human capabilities and limitations which must be reflected in: work place layout; working environment specifications, tool, equipment, and vehicle design; and in design of industrial communication-control systems. Prereq: Junior standing in College of Engineering or consent of instructor.

3620 Work Methods and Design (3) Job analysis, job evaluation, design of wage structures, design of work-place layouts, flow charting, activity chart and analysis, and methods improvement. Laboratory work included. Prereq: 2310 and 3610.

3630 Work Measurement (3) Use of work measurement tools such as time study, predetermined time systems, work sampling, historical data analysis. Construction of time study and development of time systems, use of learning curves, and design of wage incentive systems. Laboratory work included. Prereq: 3620 and Statistics 3450.


4060 Production Systems Planning and Control I (3) Theory and application of forecasting, capacity and materials planning, production systems design and inventory control. Prereq: 2510-20.

4070 Production Systems Planning and Control II (3) Theory and application of master scheduling, materials requirements planning systems, lot sizing and safety stocks, and distribution requirements planning. Prereq: 4060.

4080 Forecasting Methods in Industrial Engineering (3) Application of technological forecasting techniques to industrial engineering problems. Includes moving averages analysis, regression analysis, and polynomial regression models, autocorrelated time-series analysis, Delphi methods, and other selected industrial forecasting methods. Prereq: 4060.

4150 Project Control with CPM and PERT (3) A study of project planning and control based primarily
on "critical path" techniques, including resource allo-
cation, time-cost trade-off algorithms, multi-project
control, and computer programs. Prereq: 3620.

4160 Materials Handling (3) Analysis and planning for
the storage, movement, and handling of materials; equipment
3310.

4200 Production Facilities Design (4) Design of
production facilities including materials handling, plant
layout, service areas, inventory control applications,
and operating procedures design. Prereq: 3630, 3510-
20, 4060, 4520.

4230 Scheduling Systems (3) Performance meas-
ures for job shop and flow shop scheduling, including
both static and dynamic conditions, as well as tech-
niques for generating production schedules. Determin-
istic and probabilistic dispatching conditions. Prereq: 3620.

4250 Work Measurement Applications (3) Applica-
tion of learning curves, queuing theory, standard data
methods, and incentive systems to the design of industrial
work situations. Prereq: 3630.

4310 Seminar (1) Discussions, lectures, and trips to
unity student's educational experience. Prereq: Senior
standing in industrial engineering.

4520 Engineering Economy (3) Methods and prob-
lbs in selection or replacement of equipment. Deci-
sions among engineering alternatives involving capital
recuperation, economic life of equipment, and rate of
return of investment.

4530 Case Studies in Engineering Economy (3)
Extension of basic engineering economy principles to
ethical problems faced by competitive firms and regu-
lated industries. Case studies taken from literature
form basis of classroom discussion. Out-of-class as-
signments involves working with local companies to
evaluate make or buy options, leasing versus cash
purchases, equipment replacement studies, energy
source economies, etc. Prereq: 4520.

4540 Industrial Development (3) Factors other than
mechanical or chemical which enter into successful
establishment of manufacturing enterprise. Cost and
location studies and market analysis to determine the
commercial feasibility of new plants or projects.

4590 Simulation (3) Generation of outcome of com-
plex random process by computer. Models of complex
systems using available simulation languages. Simula-
tion as design tool in industrial systems. Prereq: 3430
and Computer Science 3150.

4600 Predetermined Time Systems (3) Work design
and measurement using a predetermined time system
such as Methods Time Measurement, Basic Motion,
Time-Study, or Work Factor. Theory and application.
Prereq: 3630.

4610 Human Factors in Work Design II (3) Human
capabilities and limitations affecting work place
layouts, working environments, design of tools and
equipment, and communications and response in
man-machine systems. Prereq: 3600, 3630, or consent of
instructor.

4830 Health Systems Engineering (3) Hospital man-
gement systems and means by which they may be
improved through application of modern industrial en-
geineering principles and techniques. Prereq: 3620.

4840 Industrial Plant Problems Analysis (3) Industri-
al problems, application of industrial engineering
methods in local industry, problem definition, analy-
sis, and presentation. Prereq: 3630, 3440, 3510, 3520,
4520, 4890.

4870 Mini-Computer Applications in Industrial En-
geineering (3) Introduction to computer hardware
and man-computer interfaces; emphasis on small comput-
er software and on computing systems; applications
and limitations of small computers in solving industrial
engineering problems. Prereq: Senior standing.

4910-20-30 Special Industrial Engineering Topics
(3,3,3) May be repeated for credit. Prereq: Consent of
instructor.

4950 Industrial Safety (3) Development of organiza-
tions and programs for prevention and control of ac-
cidents with emphasis on OSHA Rules and Regula-
tions. Prereq: Senior standing.

GRADUATE

5000 Thesis

5002 Non-Thesis Graduation Completion (3-15)

5110 Work Design (3)

5210 Advanced Work Measurement (3)

5240 Facilities Planning and Design (3)

5250 Advanced Scheduling (3)

5260 Information Systems Design (3)

5280 Production and Inventory Systems (3)

5340 Applied Decision Theory (3)

5340 Statistical Methods in Industrial Engineering (3)

5390 Seminar (3)

5420 Reliability Engineering (3)

5520 Advanced Engineering Economy (3)

5600 Human Factors Engineering (3)

5610 Human Factors Engineering (3)

5700 Optimization Methods in Industrial Engineer-
ning (3)

5701 Operations Research Applications (3)

5710 Linear, Quadratic, and Separable Pro-
gramming (3)

5720 Queuing Models and Simulation (3)

5730 Game Theory and Random Processes (3)

5810 Theory of Industrial Automatic Control (3)

5830 Health Systems Engineering II (3)

5840 Air Traffic Control Systems (3)

5850 Dynamic System Simulation (3)

5900 Design Project (1-9)

5910-20-30 Special Topics in Industrial Engineer-
ing (3,3,3)

6400 Probabilistic Methods in Engineering Sys-
tems (3)

6520 Operations Research Models in Engineering
Economy Decisions (3)

6700 Nonlinear Programming (3)

6730 Dynamic Programming (3)

6740 Advanced Topics in Optimization and Dy-
namic Systems (3)

6910 Advanced Topics in Industrial Engineering (3)

Mechanical and
Aerospace Engineering

Professors: D. R. Pitts (Head), Ph.D. Georgia Institute
of Technology; J. F. Bailey1, Ph.D. Lehigh, P.E., G. W.
Braun, (Emeritus); F. G. Collins1, Ph.D. California
(Berkeley); A. J. Edmondson, Ph.D. Texas A & M, P.E., W. Prost2, Ph.D.
Washington, B. H. Goethert2, Ph.D. Berlin
(Germany); K. E. Harwel2, Ph.D. California
Institute of Technology, P.E., J. W. Hodgson (Assoc. Head), Ph.D.
Georgia Institute of Technology, P.E.; R. W.
Holland, M.S. Tennessee, P.E.; W. S. Johnson, Ph.D.
Clemson, P.E.; E. G. Keshock, Ph.D. Oklahoma
State; M. Kurosk2, Ph.D. California Institute of
Technology, P.E.; H. Liston, Jr. (Associate Vice
Chancellor for Academic Affairs) M.E.A. George
Washington, J. M. Raus, Ph.D. North Carolina State;
R. L. Maxwell, M.S. Case, P.E.; M. W. Milligan, Ph.D.
Tennessee, P.E. M. A. Newman2 (Emeritus), Ph.D.
Colorado, P.E., C. Peters, Ph.D. Brussels; F.
Shahrokhi2, Ph.D. Oklahoma; F. H. Speckhart2, Ph.
D. Georgia Institute of Technology, P.E., W. K.
Stair, M.S. Tennessee; L. C. Thomas2, Ph.D.
Kansas State; J. M. Tucker (Emeritus), M.S. Illinois;
H. J. Willkerson, Ph.D. Tennessee, P.E.; J. M. Wu,
Ph.D. California Institute of Technology, J. L. C. Wu2,
Ph.D. California Institute of Technology, R. L.
Young2, Ph.D. Northwestern, P.E.

Associate Professors: R. V. Avrami, Ph.D. VPI & SU, S. E. Becker, Ph.D.
North Carolina State, P.E.; C. W. Brown, M.S.
Tennessee, P.E.; R. D. Enskof, Ph.D. Tennessee;
Instructor of Science; F. G. Collins, Ph.D. California
(Berkeley); J. A. Euler, Ph.D. Purdue; R. J. Krane,
Ph.D. Oklahoma; T. H. Moulent, Ph.D. Tennessee;
R. Schulz, Ph.D. Pennsylvania State; J. C. White, Ph.D.
Stanford.

Assistant Professors: P. E. George, II, Ph.D. Purdue, M. Parang, Ph.D.
Oklahoma; J. R. Parsons, Jr., Ph.D. North Carolina
State.

1Alumni Distinguished Service Professor.
2Space Institute, Tulsa, Oklahoma.
3On leave

BACHELOR OF SCIENCE PROGRAM

Separate, complete curricula are offered in aerospace engineering and mechanical engineering; however, the first two years of these curricula are identical. During the first two years, the curricula provide for training and study in the basic sciences and require an understanding of such areas of applied physics, mathematics, chemistry, and engineering common to these fields. The third year of both programs continues with the development of the particular engineering sciences of the aerospace and mechanical engineering fields. In the senior year an opportunity is provided for the student to apply this fundamental knowledge to mechanical and aerospace engineering problems. Both curricula are arranged with flexibility in the upper-division years to permit emphasis on preparation for graduate study or technical employment.

Aerospace engineering has scientific foundations close to those of mechanical engineering. The aerospace engineer, however, devotes attention particularly to the research, development, design, testing, and production of aerodynamic vehicles, aircraft, spacecraft, missiles; auxiliary systems—heating, cooling, guidance, control; and propulsion systems—piston engines, turbo-

jets, ramjets, and rockets. Mechanical engineering has its foundation in the basic sciences and requires an understanding of such areas of applied science as solid and fluid mechanics, thermodynamics, heat transfer, structures, vibrations, mechanical design, manufacturing processes, and instrumentation in order to resolve the complex engineering problems of the real world.

In the mechanical engineering curriculum the student, with the aid and approval of an adviser, must select a senior year program of mechanical engineering and technical electives. The following areas of concentration are available.

Energy. A study of energy conversion systems and the laws governing energy transformations. This option includes the design and analysis of conventional and future power generating systems utilizing various energy sources. The central courses are Mech. Engr. 4140-50-60.

Environment. A study of the systems which control the environment within enclosed
spaces. The program includes the design and analysis of air conditioning, refrigeration, and heat pump devices encompassing heating, cooling, ventilation, humidifying, and noise control. The central courses are Mech. Engr. 4700-50.

Manufacturing. A study of manufacturing methods and production processes common to mass production industries. The program includes the selection of processes, design of tools and fixtures, numerical control and analysis and design of the total manufacturing system. The central courses are Mech. Engr. 4621-22-23-24 with related courses in metallurgy.

Machine Design. The study and application of the principles of mechanics, materials, and manufacturing processes to the design and analysis of machine elements, machines, and structures. The central courses are Mech. Engr. 4660 and 4690.

Propulsion. The study of propulsion devices for ground vehicles, aircraft, and spacecraft. The program covers the analysis and design of internal combustion engines, gas turbines, jets and rocket engines using conventional and non-conventional fuels. The central courses are Mech. Engr. 4810 and Aero. Engr. 4250-60.

Aerospace. The study of aircraft and spacecraft including the mechanics of flight and related systems and propulsion devices. The program includes the analysis and design of a variety of aerospace vehicles and systems. The central courses are Aero. Engr. 4240-50-60.

ADMISSION TO UPPER DIVISION PROGRAMS

Admission to Upper Division Programs is competitive and is based on departmental capacity. Factors considered include overall grade point average, performance in selected lower division courses, and evidence of satisfactory and orderly progress through the prescribed curriculum.

Admission: A Lower Division student in the department may apply for admission to Upper Division Programs after completing 81 quarter hours of Lower Division engineering curriculum course work with an overall GPA of at least 2.4.

Provisional Admission: Students who have completed 81 quarter hours of Lower Division engineering curriculum course work with an overall GPA of 2.0 in at least 12 hours of 3000 level and above (including 8 specified hours in the department). Further admission to upper division courses is dependent upon this minimum level of performance.

Any student with an overall GPA below 2.0 will not be admitted to mechanical or aerospace engineering courses with the exception of ME and Aero Engr. 2040. Students who have not been admitted to an Upper Division Program will be dropped from departmental class rolls.

TRANSFER STUDENTS at the Upper Division level are admitted on a Provisional Admission basis only. Any student presenting more than 42 hours of Lower Division engineering curriculum course work by Transfer Credit is considered a Transfer Student.

LOSS OF ADMISSION STATUS

Students who are admitted to Upper Division Programs are expected to maintain an overall GPA of at least 2.0 and a concurrent GPA of at least 2.0 in departmental courses. Failure to maintain these minimum levels of performance will result in a review of the overall progress of the student through the prescribed curriculum and probable loss of Admission Status.

GRADUATE STUDY PROGRAMS

Graduate programs leading to the degrees of Master of Science, Master of Engineering, and Doctor of Philosophy with specialization in mechanical engineering or aerospace engineering are available to graduates of recognized undergraduate curricula in mechanical or aerospace engineering and to graduates of other curricula who satisfy the necessary prerequisite courses. The general requirements for advanced degrees are summarized in the Graduate Catalog.

Mechanical Engineering (550)

2040 Introduction to Mechanical Engineering (1) Presentation and discussion of topics related to mechanical engineering. S/NC.

3000 Energy—An Overview (4) Introduction to available energy resources, recovery and utilization; power generation techniques including conservation schemes; emphasis on the resources-environment-machinery interaction associated with energy; primarily for non-engineering students.

3040 Seminar (1) Presentation and discussion of topics related to mechanical engineering. Prereq: Junior standing. S/NC.

3110 Applied Engineering Thermodynamics (3) Energy and laws governing energy transformations; thermodynamic properties; applications to engineering problems. Prereq: Basic Engr. 1320, Chem. 1130, and Math 1860, for non-departmental engineering students.

3311 Engineering Thermodynamics (3) Energy and laws governing energy transformations; thermodynamic properties. Prereq: Basic Engr. 1330, Chem. 1130, and Math 2940.

3321-30 Engineering Thermodynamics (2,3) Properties of gases, liquids, and binary and multicomponent systems; chemical reactions; equilibrium; applications to mechanical engineering problems. Prereq: 3311 and 3321 respectively.

3410 Fluid Flow (3) Development of continuity, momentum, and energy principles for fluid systems; applications to mechanical and aerospace engineering problems. Prereq: Math 2860; coreq: 3311.


3520-30-40 Thermal Sciences (3,3,3) Fundamental principles of thermodynamics and transport phenomena as applied to engineering design. For non-departmental majors. To be taken in sequence. Prereq: Math 2850 and Basic Engr. 1330.


4010 Thesis (3) Problem investigation and report. Prereq: Senior standing.

4140 Energy Conversion Systems (3) Operating and design characteristics of energy conversion systems including new technology development; selected direct conversion techniques. Prereq: 3390; coreq: 4420.

4150 Energy Conversion Systems (3) Fossil fuel energy conversion systems with emphasis on coal technology. Prereq: 4140.

4160 Design of Energy Conversion Systems (3) Synthesis and design of a complete energy conversion system including economic and technical considerations. Participation in team design effort including formal presentations and design report. Prereq: 4150 and Ind. Engr. 4520.

4170 Turbo-Machinery (3) Basic principles of turbomachinery; systematic methods of analysis, design, performance evaluation. Prereq: Aerospace Engr. 3811.

4180 Energy Production and Utilization (3) Thermodynamic constraints on energy sources and concepts; energy conservation schemes. Prereq: Senior standing in engineering.

4220 Environmental Noise (3) Basic principles of acoustics—measurement and control of noise in industrial and community environments. Prereq: Senior standing in engineering or consent of instructor.

4310 Seminar (1) Discussion of topics related to engineering; includes inspection trips to industrial plants. Prereq: Senior standing. S/NC.

4320 Seminar (1) Formal oral presentations by students on engineering topics. Evaluations of technical talks. Prereq: Senior standing.


4450 Lubrication (3) Hydrodynamic theory of lubrication of sliding bearings; application of Navier-Stokes equations to infinite and finite bearings; analytical and numerical solution techniques to design. Prereq: 3440, Aerospace Engr. 3511.

4471-91 Experimental Mechanical Engineering (3,3) Experimental methods and measurements of force, length, time, temperature, pressure, transport rates, and physical properties. Planning, conducting, analyzing, and reporting experimental tests run according to test standards and other specifications. Prereq: 3321, 3410, 3440, Engr. Sci. & Mech. 3320 for 4471; 4471 and 4442 for 4491.


4520-93 Creative Design (3) Application of engineering principles to the solution of current problems with emphasis on design innovation. Prereq: Consent of instructor.
4621 Manufacturing Processes (3) Comparison of machining methods; plastic production; metrology. Prereq: 3650 and 3660 or consent of instructor.

4622 Tool Design (3) Principles underlying tool and die design; design of high-volume production tool and molds, work holding fixtures. Prereq: 3650-60 or consent of instructor.


4625 Manufacturing Process Engineering I (3) Product specification: dimensional analysis of size and form; true position tolerance theory; tolerance analysis; and workplace control for production to tolerance. Prereq: 3660 or Ind. Engr. 4040.

4631 Energy Methods in Mechanical Design (3) Application of strain energy principles in complex beams and structures. Prereq: 3630, 3650, and Computer Science 3150 or consent of instructor.

4660 Materials and Manufacturing Process (3) Selection of materials in design process, emphasizing relationship between stress and strain analysis, material properties, environment, temperature, manufacturing technology, and cost. Prereq: 3650, 3660.


4690 Machine Design (3) Innovative design of complete machine, documentation including specifications, design calculations, working drawings, and cost analysis. Written and oral report. Prereq: 4670-80, and Ind. Engr. 4520.

4710 Thermal Environmental Systems (3) Vapor compression and absorption cycles; heat pump systems; moist air properties; psychometric processes. Prereq: 3330, 3440.

4720 Thermal Environmental Systems (3) Design analysis of air washers, cooling towers and extended surfaces: solar radiation; building heat transmission; physiological effects. Prereq: 4420, 4710.


4740 Solar Energy Utilization (3) Nature and availability of solar radiation; review of selected heat transfer topics pertinent to solar energy collection and use; design analysis of solar energy collectors and method of storage; selected applications. Prereq: 3321, 4420, or consent of instructor.

4810 Internal Combustion Engines (3) Thermal phenomena in combustion and propulsion engines. Combustion, detonation; equilibrium; dissociation. Analysis of internal combustion engines using ideal and real fluids. Prereq: 3330, 3440.

4910-20 Selected Topics in Mechanical Engineering (3,3) Problems related to developments and practice in mechanical engineering. Prereq: Consent of instructor.

GRADUATE

5000 Thesis

5002 Non-Thesis Graduation Completion (3-15)

5110 Conduction Heat Transfer (3)

5120 Convection Heat Transfer (3)

5130 Radiation Heat Transfer (3)

5140 Phase Change Heat Transfer (3)

5210 Classical Thermodynamics (3)

5220 Microscopic Thermodynamics (3)

5230 Special Topics in Thermodynamics (3)

5310 Intermediate Fluid Mechanics (3)

5341 Hydrodynamic Lubrication (3)

5410-20-30 Research in Mechanical Engineering (3,3,3)

5450-50-60 Advanced Strength of Materials (3,3,3)

5601 Dynamics of Mechanical Systems (3)

5602 Computer Aided Mechanical Design (3)

5610-20-30 Experimental Stress Analysis (3,3,3)

5640-50-60 Advanced Machine Design (3,3,3)

5670-80 Dynamics of Machinery (3,3)

5690 Vibrations of Mechanical Systems (3)

5710 Metal Machining (3)

5800 Transfer Matrix Methods in Elastomechanics (3)

5810-20-30 Rocket Propulsion Systems (3,3,3)

5840-50-60 Turbo-Machinery Systems (3,3,3)

5870 Dynamic Modeling and Simulation (3)

5900 Selected Engineering Problems (3-9)

5950 Seminars (1)

5990 Special Topics in Mechanical Engineering (1-3)

6000 Doctoral Research and Dissertation

6110-20 Advanced Topics in Fluid Mechanics and Heat Transfer (3,3)

6130-40 Advanced Radiation Heat Transfer (3,3)

6420-30 Selected Topics in Thermodynamics (3,3)

6610 Engineering Vibrations (3)

Aerospace Engineering (018)

2040 Introduction to Aerospace Engineering (1) Presentation and discussion of topics related to aerospace engineering. S/NC.

3040 Seminar (1) Presentation and discussion of topics related to aerospace engineering. Prereq: Junior standing. S/NC.


3620 Mechanical Vibrations (3) Free and forced vibrations of single and multiple degree vibrating systems, balancing of rotating machinery. Prereq: 3610 and Mech. Engr. 3910.


4010 Thesis (3) Problem investigation and report. Prereq: Senior standing.

4110 Aerodynamic Fundamentals (3) Atmosphere, dynamics and thermodynamics of perfect gasses, fluid flow types, aerfoil theory, wing theory, drag. For non-aerospace engineering majors only. Prereq: Consent of instructor.

4120 Aircraft Propulsion and Performance (3) Propellers, propulsion systems for aircraft, static performance and special performance problems, maneuverers, control surfaces, stability, and control. For non-aerospace engineering majors only. Prereq: 4110.


4220 Low Speed Aerodynamics (3) Potential flow theory; kinematics and dynamics of perfect fluids; analysis and design of aerodynamic bodies. Prereq: 3511 and Mech. Engr. 3910.

4230 Viscous Flow (3) Boundary layer theory; laminar and turbulent flow; compressibility effects; numerical solution methods. Prereq: 3511 and Mech. Engr. 3910.


4260 System Design (3) Synthesis and design of a complete aerospace system including economic and technical aspects. Participation in team design effort including formal presentations and design report. Prereq: 4250 and Ind. Engr. 5420.

4310 Seminar (1) Discussion of topics related to engineering, includes inspection trips to industrial plants. Prereq: Senior standing.

4320 Seminar (1) Formal oral presentations by students on engineering topics. Evaluations of technical talks. Prereq: Senior standing.


4510 Airplane Performance (3) Introduction to airfoil and wing characteristics, drag; propellers; static performance and maneuverers; theory and design of control surfaces; stability. Prereq: 3511.

4910 Selected Topics in Aerospace Science (3) Current problems in aerospace science; topics in science and engineering required for an understanding of the several areas of aerospace science. Prereq: Consent of Instructor.

GRADUATE

5000 Thesis

5002 Non-Thesis Graduation Completion (3-15)

5110 Fundamentals of Aerodynamics (3)

5120 Experimental Methods in Fluid Mechanics (3)

5150-60-70 Vehicle Aerodynamics and Performance (3,3,3)

5210-20 Aerodynamics of Compressible Fluids (3,3)

5240 Dynamics of Viscous Fluids (3)

5250 Introduction to Hypersonic Flow (3)

5260 Selected Topics in Aerodynamics (3)

5270-40-90 Aerospace Ground Test Facilities (3,3,3)

5310 Magnetohydrodynamics (3)

5340-50 Atmospheric Entry (3)
5440-50 Transonic Flow (3,3)
5510-20-30 Aerospace Mechanics (3,3,3)
5540-50 Aerospace Vehicle Stability and Control (3,3)
5560 Vertical or Short Take-Off and Landing Aircraft (3,3)
5570 Aerospace Vehicle Flutter and Vibration (3)
5590-90 Aeroelasticity (3,3)
5610 Applied Acoustics (3)
5620 Aeroacoustics I (3)
5810 Aviation Systems: An Overview (3)
5820 Air Vehicles (3)
5900 Selected Engineering Problems (3-6)
5950 Seminars (1)
5990 Special Topics in Aerospace Engineering (1-3)
6000 Doctoral Research and Dissertation
6130-20-30 Magnetohydrodynamics (3,3,3)
6410-20 Physical Gasdynamics (3,3)
6510-20-30 Advanced Aerodynamics (3,3,3)
6810 Advanced Boundary Layer Theory (3)
6910 Advanced Topics in Gas Dynamics (3)

Nuclear Engineering (716)

Professors:
P. F. Pasqua (Head), Ph.D. Northwestern, P.E.; G. de Sausmarez, Ph.D. Massachusetts; H. L. Dodds, Ph.D. Tennessee; E. J. Fussey, Ph.D. Georgia Institute of Technology; T. W. Linfield, Jr., Ph.D. Tennessee; H. G. MacPherson (Emeritus), Ph.D. California (Berkeley); J. T. Mihailezo, Ph.D. Tennessee; R. B. Perez, Ph.D. University of Madrid; P. N. Stevens, Ph.D. Northwestern, P.E.

Associate Professors:
L. F. Miller, Ph.D. Texas A & M

Assistant Professors:
E. M. Katz, Ph.D. Tennessee; B. R. Upadhyaya, Ph.D. California (San Diego).

BACHELOR OF SCIENCE PROGRAM

The curriculum in nuclear engineering is designed to provide basic training in many of the fields encountered in the applications of nuclear and radioactive materials. The first two years are concerned with the fundamental courses in engineering, physics, mathematics, chemistry, and English. The last two years encompass scientific and engineering courses equipping the student for entry into a variety of work in industry, research, or graduate studies.

MASTER OF SCIENCE AND MASTER OF ENGINEERING PROGRAMS

A graduate program leading to a degree of Master of Science and Master of Engineering is available to graduates of recognized undergraduate curricula in engineering and physics. Each applicant will be advised as to the necessary prerequisite courses before entering the program.

The general requirements of the masters' degrees are summarized in the Graduate Catalog.

DOCTORAL PROGRAM

A program leading to the Ph.D. degree is available in nuclear engineering. For details, see the Graduate Catalog.

2310-20-30 Seminar (1,1,1) Presentation and discussion of topics related to nuclear engineering. S/NC.


3030 Introduction to Reactor Analysis (3) Nuclear reactors and radiations, cross section, fission process, diffusion and slowing down, steady state reactor theory, criticality condition, reflected reactors. Prereq: Physics 3720; Math 4710.

3150 Dynamics and Controls (3) Systems differential equations; solution by classical methods; Laplace transform method; frequency response, stability, and control. Coreq: 4110.

3210-20 Thermodynamics (4,4) Properties and laws of thermodynamic systems. First and second laws used to analyze power plant systems—both fossil and fission. Prereq: Math 2860 and Basic Eng. 1330.

3730 Momentum Transport (4) Development of differential and integral momentum equations; elementary theory of turbulence, applications to piping systems, pumps and nuclear reactors. 3 lecs. and one lab. Prereq: Math 4710.


4110-20-30 Introduction to Nuclear Reactor Theory (5,3,3) Nuclear structure; radioactive decay laws; neutron interaction; fission process; chain-reacting systems; diffusion equation including multigroup diffusion theory, neutron moderation; reactivity coefficients; perturbation theory. Prereq: Physics 3730 or consent of instructor.


4210-20-30 Nuclear Engineering Laboratory (3,3,3) Radiation detection and counting instrumentation, counting statistics, half-life and decay schemes, gamma spectrometry, cross-section measurements, analog computation, diffusion properties of neutrons, critical loading experiments, control rod calibration, statistical weight, shielding, xenon poisoning, prompt critical reactor behavior, fission density, and adjacent flux. Prereq: 4110 (or registration therein), or equivalent.


4610-20-30 Reactor Power Systems (3,3,3) Nuclear system structure, decay laws, neutron diffusion, time behavior of reactors, heat removal, analysis of reactor power plants; economic, safety, and environmental aspects of nuclear power. Prereq: Math 4610; non-nuclear engineering students only.

4710 Energy Transport (4) Development of differential and integral energy conservation equations; conduction, convection, and radiation heat transfer; application of nuclear reactor fuel elements and heat exchangers. Prereq: 3790.

4720 Reactor Thermal Design (4) Hydrodynamics and heat transfer in boiling systems; boiling crises; fuel element thermal design, steam generator design. Prereq: 4710.

4730 Nuclear Reactor Design (3) First order reactor design, integration with non-nuclear heat transfer and power conversion system, economic evaluation; optimization procedures, description of typical systems. Coreq: 4130.

4810 Radiation Shielding (3) Types of radiological sources, gamma ray and neutron attenuation, biological effects of radiation, shield design. Prereq: Physics 3730, Math 4550.

4820 Reactor Kinetics and Controls (3) Derivation of kinetic equations; basic kinetic parameters; transient response with feedback; control and protective systems. Prereq: 4110.

4840 Nuclear Reactor Safety (3) Presentation of reactor safety concepts and criteria; credible accidents; fission product release and transport; containment systems; accident analysis; engineered safeguards. Prereq: 4120.

4930 Nuclear Fuel Management (3) Discussion of problems associated with processing of nuclear materials; fuel cycle analysis; burn-up calculation. Prereq: 4120.

GRADUATE PROGRAMS

5000 Thesis

5002 Non-Thesis Graduation Completion (3-15)

5110-20-30 Transport Processes in Nuclear Engineering (3,3,3)

5210 System Dynamics (3)

5220 Reactor System Dynamics (3)

5230 Experimental Methods in Reactor Dynamics (3)

5240 Reactor Instrumentation (3)

5310-20-30 Nuclear Systems Reliability (3,3,3)

5410 Nuclear Fuel Cycle Analysis (3)

5420 Reprocessing and Waste Disposal (3)

5510-20-30 Nuclear Systems (3,3,3)

5710-20-30 Nuclear Reactor Theory (3,3,3)

5740 Reactor Shielding (3)

5790 Monte Carlo Shield Design Shielding (3)

5810 Fundamentals of Fusion Physics and Engineering (3)

5820 Plasma Engineering (3)

5830 Fusion Technology (3)

5840-50 Fast Breeder Reactors (3,3)

5970 Special Topics in Nuclear Engineering (3-12)

6000 Doctoral Research and Dissertation

6110-20-30 Selected Topics in Reactor Theory (3,3,3)

6140 Radiation Shielding (3)

6150 Reactor Dynamics (3)

6510 Nuclear Reactor Noise Analysis (3)

6710 Two-Phase Flow and Heat Transfer (3)
The College of Home Economics is an integral part of The University of Tennessee's academic program in its three major functions of teaching, research, and extended services. The college ranks among the top two colleges of home economics in the nation in enrollment and first in the number of master's and doctoral degrees granted. All undergraduate programs of the college are accredited by The American Home Economics Association. Much of the qualitative and quantitative growth of the college is due to its highly qualified faculty and staff who, being aware of the current community problems and needs, have made its programs relevant to the goals and aspirations of today's students.

Today's students are seeking professional positions in which they can better serve people—individuals, families, consumers—by helping them predict and solve problems arising from the increasingly rapid changes occurring in the society in which we live. The basis of the college's professional programs is to prepare young men and women to serve the needs of people in their many varied environments and different stages of life. The philosophy of the college is best stated as follows: home economics does seek knowledge that describes and analyzes, but is not content with only studying "what is," in order to enhance the quality of life and well-being of people and society, the college is also concerned with promoting "what can and should be".

The college's mission is twofold: its undergraduate programs prepare students to work with people in a professional capacity so that they make use of what has been learned in serving as professional agents of change; its graduate programs are geared toward research, producing alternative solutions to technical and social problems which are and will be encountered by the people who are to be served.

The University of Tennessee pioneered as one of the first institutions of higher education in the South to offer home economics and has continued to hold a position of leadership. The first class was taught in 1897. The faculty of the college numbers 60 full-time teaching and research staff. There are three departments with curricula leading to the Bachelor of Science degree: Child and Family Studies; Nutrition and Food Sciences; and Textiles, Merchandising and Design. The undergraduate program in Home Economics Education is offered in cooperation with the College of Education. Approximately 350 courses are offered in these departments. The graduate programs leading to the Master of Science degree were begun in the summer of 1925. Programs for the Doctor of Philosophy degree were initiated in 1960. The Doctor of Philosophy degree program in home economics now includes three options: Interdisciplinary, Food Science, and Nutrition. Food Systems Administration may be taken as a concentration in the Food Science doctoral option.

Special Resources

Several special programs enhance the offerings of the college: Selected students have the opportunity to study for one quarter at the Child Development Center of the Center for Health Sciences in Memphis or at the Fashion Institute of Technology in New York. Credits earned may be applied toward a Bachelor of Science degree in appropriate curricula of the college.

Model research programs for infant care and preschool day care provide home economics students the opportunity to train for careers as directors of, and teachers in, child care facilities. The need for appropriate child day care facilities staffed with well-trained, competent staff is recognized as one of the most urgent problems of today's urban society. Opportunities for home economics graduates with special interest in preschool programs are numerous and continue to increase. The Nursery School through Grade Three program offered jointly with the College of Education provides certification for teachers in early childhood education.

The U.S. Department of Agriculture Textiles and Clothing Research Laboratory is part of the Southern Region Mid-Atlantic Area and was located at The University of Tennessee in 1967. Textiles and clothing researchers collaborate with the U.S.D.A. staff to conduct investigations that will (1) determine consumer needs for textiles and clothing and the adequacy of products available to meet these needs, (2) develop basic principles to guide consumers in selecting and caring for textiles and clothing, and (3) solve other economic and technical problems pertaining to the field. Graduate students in this area may be trained at the laboratory.

International study tours in several areas of home economics are offered when a demand is indicated. The course "Home Economics 4910 International Study Tour" is offered for 6 credit hours at the undergraduate level. At the graduate level, "Home Economics 5100 International Studies" is available, depending on demand and resources, for up to 15 graduate credit hours. The length of the tours may vary from 6 to 8 weeks and the program is under the direction of a member of the faculty.

The Department of Nutrition and Food Sciences has a cooperative arrangement in which food service systems, such as those of the University, hospitals, schools, hotels, and restaurants are available for laboratory experience for Tourism, Food and Lodging Administration students in food industries for those in the food science curriculum.

During the junior and senior years, students in the Coordinated Undergraduate Program in Dietetics receive clinical experience integrated with courses in hospitals and other health care facilities. The Tourism, Food, and Lodging Administration program offers coordination of theory and experience with industry during all four years. It also provides a cooperative plan of study that combines supervised employment experience in approved tourism, food, or lodging industry facilities during the summer and fall quarters of the sophomore, junior, and senior years. Graduates of the Coordinated Undergraduate Program in Dietetics will be eligible for membership in the American Dietetics Association (ADA) and to apply for the ADA Registration Examination. The Nutrition and
Food Sciences department is affiliated with the Child Development Center, UT Center for Health Sciences, Memphis, for special study in mental retardation and development disorders. A liaison is maintained with the Knox County Health Department to provide concurrent field experience for students in Nutrition and Food Sciences options. The Nutrition and Food Sciences option also meets academic requirements for membership in the American Dietetic Association.

All departments of the college conduct basic and applied research that may be supported in part by the college, by special grants and contracts, and by the Agricultural Experiment Station. The University of Tennessee Atomic Energy Commission program at Oak Ridge also provides opportunity for training and research. Workshops on special topics of current importance are offered by the different departments in home economics. These will be of special interest to those desiring to work in the home economics departments in Tennessee Atomic Energy Commission programs. These programs will provide opportunity for training and research.

The Child Development Center is a separate building especially planned as a laboratory for teaching and research with preschool children. It houses toddler and day care centers, a nursery school for two-, three-, four-, and five-year-old children, a preschool curriculum laboratory, and rooms for observation and research.

A separate Child Day Care Center housed in the UT Golf Range Apartments is staffed by the college and provides a laboratory for study as well as an adequate center for group care of children 2 to 6 years of age. The Family Life Center provides office and classroom space.

Facilities

Nutrition and Food Sciences facilities include well-equipped laboratories for basic food science, experimental food science, experimental nutrition (animal), and chemistry for undergraduate and graduate students. Laboratories include instruments for the evaluation of the chemical, physical, histological, and sensory properties of food, in addition to facilities for metabolic and survey studies that benefit fiber producers, fabric and clothing manufacturers, and consumers. Laboratories are well equipped for the physical and chemical analyses of fabrics, yarns, and fibers.

Certification in Vocational Home Economics Education

Certification to teach vocational home economics requires either a bachelor's or master's degree in home economics from an institution offering a curriculum for teacher training approved by the State Board for Vocational Education and by the United States Office of Education. The University of Tennessee, Knoxville, is approved for the training of teachers in home economics. A description of the vocational home economics education curriculum leading to recommendation for certification will be furnished upon request. Graduate students interested in meeting certification requirements should consult the Coordinator of Home Economics Education. Transfer and graduate students who desire to qualify for vocational certification in home economics should state this desire when applying for admission.

Home Economics Education (HEED)

The curriculum in the following major leads to the degree of Bachelor of Science in Interior Design:

Interior Design (ID)

The curriculum in the following major leads to the degree of Bachelor of Science in Interior Design:

Interior Design (ID)

The curricular major for the degree of Bachelor of Science in Home Economics, students must complete the last 45 quarter hours of work (three quarters) at The University of Tennessee, Knoxville, and in association with the College of Home Economics. Seventy-two hours must be earned in courses numbered 3000 and above at The University of Tennessee, Knoxville. The prospective transfer student is advised to preplan the total college program before starting any college-level work. Careful planning prior to transferring to the college is essential to maintaining a program of study with maximum utilization of credit and sequence of course work. All new freshmen and transfer students whose majors require chemistry must enroll in the freshman chemistry course sequence until requirements are completed. It is recommended that transfer students complete the freshman chemistry requirements before transferring to the college.

Students wishing to transfer 36 or more credit hours from a college other than the University of Tennessee, Knoxville, must meet the freshman chemistry requirements for the College of Arts and Sciences as stated in the catalog of the University of Tennessee, Knoxville. Transfer students whose majors require chemistry must enroll in the freshman chemistry course sequence until requirements are completed. It is recommended that transfer students complete the freshman chemistry requirements before transferring to the college.

Students wishing to transfer 36 or more credit hours must have an average of 2.0 for admission. Students with an average of less than 2.0 are not eligible for enrollment in junior or senior courses. During the first quarter each student must generally takes courses basic to all curricula and is assigned a faculty adviser for program planning.

A normal student load per quarter is 15-16 credit hours. The maximum load is 18 credit hours per quarter (16 hours maximum for the Coordinated Undergraduate Program in Dietetics) unless otherwise approved by the Assistant Dean for Undergraduate Studies. When a student has completed one quarter in residence at The University of Tennessee, Knoxville (with at least a 2.0 average in course work), the student will be eligible to participate in self-registration, except for those quarters for which the student is scheduled for mandatory advisement. Students participating
in the voluntary academic registration program bear full responsibility for meeting degree requirements in the proper sequence.

Students may choose to take elective courses during one of the major departments under the satisfactory/no credit grading system. (Required courses may not be taken for a satisfactory or no credit grade). The purpose of the satisfactory/no credit (S/NC) grading system is to encourage the student to explore subject matter areas outside of the requirements and other courses of the major by minimizing causes for the student's dissatisfaction with the program or the major. The S/NC system is somewhat less outstanding than that in preferred subject areas. These courses will count as hours for graduation but not for calculating the student's grade point average. A final grade of C or better will be recorded as satisfactory. The maximum satisfactory or no credit hours that can be counted toward a degree is 30 hours. When the student wishes to take a satisfactory or no credit course, the student must so indicate at the time of registration.

Proficiency examinations are offered for numerous courses of the college. Information on courses for which proficiency examinations are offered may be obtained from departments of the college.

Field training provides the opportunity for practical pre-professional experience and constitutes an integral part of many of the college's programs. Students enrolled in certain College of Home Economics courses who are involved in field experiences are required to participate in the group liability insurance plan offered through the college. The annual cost to the student for this insurance coverage is $4 (subject to change).

The first digit in course numbers indicates the student group for whom the course is primarily offered: 1000 indicates courses for freshmen, 2000 for sophomores, 3000 for juniors, 4000 for seniors, 5000 and 6000 for graduate students.

Education 3810 should be elected in the sophomore year by those students majoring in the vocational home economics education curriculum. This course is a prerequisite for other required courses in education. Psychology 2500 is a prerequisite for Education 3810.

For majors in the food science, nutrition, or textiles curricula, Nutrition and Food Sciences 3130 should be taken preferably in the sophomore year and not later than the first quarter of the junior year. The following four courses are fundamental to home economics and are required in all curricula:

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**OPTION 1. EARLY CHILDHOOD DEVELOPMENT**

This option is appropriate for persons interested in the following types of positions: day care teacher, nursery school teacher, worker in center for socially disadvantaged and/or handicapped children, entry level positions in child care work, or preparation for graduate school.

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**OPTION 2. HUMAN DEVELOPMENT AND FAMILY STUDIES**

This option is for undergraduate CFS majors who want a generalist background in individual and family studies. This option does not prepare for a career in preschool education. Students interested in the Cooperative Extension Service, community agencies, general family counseling, social work, and graduate work would choose this undergraduate option.

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<thead>
<tr>
<th>Hours</th>
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<tbody>
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</table>

**OPTION 3. NURSERY SCHOOL-GRADE THREE**

This option is appropriate for persons interested in working with young children up to the age of eight in a variety of settings. A joint program with the Department of Curriculum and Instruction, this option provides certification for grades K-3.

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</table>

**Professional Curriculum in Child and Family Studies**

The Department of Child and Family Studies is concerned with early education, human development and family interaction throughout the life span, and with resource management and consumer studies. Departmental goals and objectives are designed to contribute to the interpersonal and professional competence of men and women students, and to provide preparation for careers in the helping professions related to children, adolescents, adults, and families, depending on the option the student selects.

The curriculum is appropriate for persons oriented toward teaching and/or administrative positions in child care centers and nursery schools, in public schools, with family services, child welfare agencies, Cooperative Extension, banks, and consumer agencies. Other opportunities exist that require study beyond the bachelor's level (for example: administration, research, and clinical services). All options provide necessary background for graduate study in child development, family relationships, early childhood education, and social work.

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<tr>
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**Curricula:**

- Textiles curricula
- Nutrition and Food Sciences curricula
- Sociology 1510-20, Anthropology 2510, 2520, 2530
Speech 2021 or 2311 ........................................ 4
Music 1210 or 1220 or Art 1815 or 1825 ............. 4

| Biological science elective .......................... 3 |
| Math 2110-20-30 ........................................ 9 |
| Religious studies elective ............................ 3 |

| Sociology 2500 ......................................... 4 |
| Art Education 2100-10 .................................. 6 |
| Music Education 2100 ................................... 6 |
| Physical Education 2450 ............................... 4 |
| Physical science elective ............................ 6 |
| Literature elective ................................. 8 |
| Culture and society elective .......................... 4 |
| History elective ...................................... 4 |
| Social science elective ............................. 8 |
| Economics 2110 ......................................... 3 |

| JUNIOR .................................................. 3 |
| Home Economics 3510 .................................. 4 |
| Child & Family Studies 3360 .......................... 3 |
| Edu. Curriculum & Instruction 4450 ............... 12 |
| Edu. Curriculum & Instruction 3280-70-80-81 .... 12 |
| Edu. Curriculum & Instruction 3360 ................ 12 |
| Edu. Curriculum & Instruction 3720 ................ 12 |
| Edu. Curriculum & Instruction 4300 ................ 12 |
| Edu. Curriculum & Instruction 3010-20-30 ......... 30 |
| (choose any two) ...................................... 30 |
| Music Education 3110 .................................. 6 |
| Public Health 3210 ..................................... 6 |
| Physical Education 3660 .............................. 6 |
| Library & Information Science 3510 ............... 6 |

| SENIOR .................................................. 9 |
| Child & Family Studies 3200 or 3220 or 4350 .... 9 |
| Child & Family Studies 4610 .......................... 9 |
| Edu. Curriculum & Instruction 4451 ................ 12 |
| Edu. Curriculum & Instruction 4452 ................ 12 |
| Special Education 3333 ................................ 3 |
| Electives ............................................... 2 |

TOTAL: 162 hours

Courses should be chosen from: Biology 1210 or 1220 or 1330 or Botany 1110 or 1120 or Zoology 2800 or 2900.

Courses should be chosen from: Philosophy 1510 or 1520 or 2310 or 2510, 2520 or Religious Studies 2610 or 2611 or 2620.

Nutrition and Food Sciences 1100 recommended.

Courses should be chosen from: Chemistry 1110, 1510, 1610 (choose one) or 1120, 1520, 1620 (choose one), or Geology 1110 or 1420 or 2215, or Anatomy 2110 or 2120, or Physics 1210 or 1220 or 1420 or 1420.

Courses should be any 2000-level English literature course.

Courses should be chosen from: Anthropology 2550 or 3410 or Human Sciences 2600, 3100, 3200 or 3300 or Psychology 2500 or 3416 and 3626, or Sociology 1510, 1520, 3410, or 3420.

Courses should be chosen from 1000- or 2000-level history courses.

Courses should be any course in areas of anthropology, economics, human services, political science, psychology, sociology.

All students who desire teacher certification are required to appear for admission to the Teacher Education Program in the College of Education.

Application for student teaching in Child and Family Studies and in Curriculum and Instruction must be filed in each department no later than January 1 of the academic year preceding the actual experience.

Professional Curricula in the Department of Nutrition and Food Sciences

Nutrition and Food Sciences Major

Entering freshmen in Options 1 and 2 will be enrolled as departmental majors and a departmental advisor will be assigned to assist with program planning. Students will not register in a particular option until their third quarter in residence. They will apply for progression into a specific option by March 15 of the sophomore year. Designation of an option for each applicant will be made by a faculty committee by May 15, and each student will be assigned to an advisor associated with the chosen option. Transfer students must apply to the Director of Admissions and be admitted to The University of Tennessee, Knoxville, and affiliate with the College of Home Economics before entering progression procedures into the Nutrition and Food Sciences and the Tourism, Food and Lodging Administration majors, respectively.

OPTION 1. NUTRITION AND FOOD SCIENCES

This professional curriculum provides a broad, flexible approach to the study of nutrition and food sciences. It includes indepth study in nutrition and food sciences and application of this knowledge to individuals, families, and groups. Career opportunities of graduates include positions in food product development and evaluation and/or consumer services in industry, government, a dietetic internship, and graduate study.

Students may elect to meet academic requirements (Plan IV - Clinical Nutrition) for membership in The American Dietetic Association by selection of appropriate electives noted below. An internship, 3 year approved work experience, or a graduate degree is required to complete the clinical requirements. Upon completion of academic and clinical requirements, students are eligible for membership in The American Dietetic Association to apply for the registration examination to qualify as a Registered Dietitian (R.D.).

Freshman

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Chemistry 1510-20-30 ................................ 12</td>
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<tr>
<td>English 1010 or 1011; 1020 .......................... 6</td>
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<tr>
<td>Economics 2110 ....................................... 4</td>
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<tr>
<td>English Literature Elective .......................... 4</td>
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<td>Humanities Elective ................................... 4</td>
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Junior

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<thead>
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<tbody>
<tr>
<td>Nutrition and Food Sciences 3130-40-50 ......... 12</td>
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<tr>
<td>Nutrition and Food Sciences 3210 ................ 12</td>
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</tr>
<tr>
<td>Economics 2130 ....................................... 3</td>
</tr>
<tr>
<td>English Literature Elective ........................ 4</td>
</tr>
<tr>
<td>Humanities Elective ................................... 4</td>
</tr>
<tr>
<td>Microbiology 2910-19 ................................ 8</td>
</tr>
<tr>
<td>Microbiology 2950-19 ................................ 8</td>
</tr>
<tr>
<td>Zoology 2990-30 ...................................... 8</td>
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Elective

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<tr>
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<tr>
<td>Home Economics 3510 .................................. 4</td>
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<tr>
<td>Nutrition and Food Sciences 3010 ................. 4</td>
</tr>
<tr>
<td>Microbiology 3610-19 ................................. 4</td>
</tr>
<tr>
<td>Microbiology 3650-19 ................................ 4</td>
</tr>
<tr>
<td>Speech 2311 or 2361 .................................. 4</td>
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<tr>
<td>Zoology 2990-30 ...................................... 8</td>
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<td>Electives ............................................... 8</td>
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Senior

<table>
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<tr>
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<td>Nutrition and Food Sciences 4150 ................. 3</td>
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<tr>
<td>Nutrition and Food Sciences 4330 ................. 3</td>
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<td>Humanities electives ................................ 4</td>
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<td>Communication Sciences Electives ................. 6</td>
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<td>Natural Science Electives .......................... 6</td>
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<td>Child and Family Study Elective .................... 3</td>
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Electives

<table>
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<tr>
<td>Sociology 1510 ....................................... 4</td>
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<td>Home Economics 3510 .................................. 4</td>
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<td>Nutrition and Food Sciences 3010 ................. 4</td>
</tr>
<tr>
<td>Microbiology 3610-19 ................................ 4</td>
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</table>

TOTAL: 190 hours

Requires Math 1150 as a prerequisite.

Select from anthropology, art, literature (other than required), foreign language (beyond introductory level), music or history.

College of Home Economics 161
Cooperative Curriculum in Tourism, Food, and Lodging Administration

The professional curriculum is concerned with meeting the middle and upper level management needs of the tourism, food, and lodging industry of today. It provides a program that will assist students in gaining breadth of knowledge, perspective, flexibility, and creativity to meet the changing environment of operations and management problems in the industry. This major offers two curricular plans: a regular four-year program (A) and a cooperative plan (B) with pre-planned and supervised work experiences in the sophomore, junior, and senior years during which the student is employed by an approved facility in the tourism, food or lodging industry. The cooperative plan will take four years plus two terms. Selection of Plan A or B must be made at the end of the freshman year.

A Business Minor is available to students who successfully complete 21 hours of the following required courses: Accounting 2110-20-30, Economics 2110-20-30, and Statistics 2100. In addition, 15 hours of upper-division business electives must be taken at UT. Not more than six upper-division hours of accounting, economics, or statistics may be used for this minor. Students are responsible for meeting prerequisites listed for any upper-division courses taken. The 12 hours of appendage business courses required in Plan A or B may be applied toward satisfying the 15 hour elective requirement.

Plan A

Cooperative Curriculum in Tourism, Food, and Lodging Administration

First Year

Fall

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<thead>
<tr>
<th>Course</th>
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<tr>
<td>English 1010 or 1011</td>
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<tr>
<td>Winter</td>
<td>10</td>
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<tr>
<td>Natural science elective</td>
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<tr>
<td>Second Year</td>
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<tr>
<td>Fall</td>
<td></td>
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</tr>
<tr>
<td>Microbiology 2910-11</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>English Literature Elective</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Home Economics 2510</td>
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<td>3</td>
</tr>
<tr>
<td>Winter</td>
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<tr>
<td>Economics 2130</td>
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<td>TOTAL: 190</td>
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Plan B

Cooperative Curriculum in Tourism, Food, and Lodging Administration

First Year

Fall

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<tr>
<th>Course</th>
<th>Hours</th>
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<td>Natural science elective</td>
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<tr>
<td>Natural science elective</td>
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<tr>
<td>Microbiology 2910-11</td>
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<td>Psychology 2500 or 2530</td>
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<tr>
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<tr>
<td>TOTAL: 190</td>
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Professional Curricula in the Department of Textiles, Merchandising and Design

Acquisition and Exhibition

The department reserves the right of acquisition and exhibition of work completed in its studios under the guidance of the faculty.

INTERIOR DESIGN MAJOR

The Interior Design major is for students who are primarily interested in becoming professional interior designers. This program has received provisional accreditation by FIDER.

Admission and Progression Policies

Applications in Interior Design must be received by the Director of Admissions no later than March 1 for admission to the summer and fall quarters. Selection will be made by April 1. November 1 is the deadline for applications for the spring quarter; enrollment is closed for the winter quarter. An applicant who is not accepted may be reconsidered if an application is made for a future class.

Admission to junior level interior design studio requires (1) satisfactory completion of the sophomore level interior design series (2115-16) with a cumulative grade point average of at least 2.3, exceptions by petition only, (2) application to the Department of Textiles, Merchandising and Design no later than the eighth week of the quarter in which the student is enrolled in IDH 2116, and (3) failure to declare another major.
design, manufacture, promotion, and distribution of textile and apparel products. Students who have a strong interest in retailing should pursue this major. A business minor is available to students who successfully complete 21 hours of the following required courses: Accounting 2110-20-30, Economics 2110-20-30, and Statistics 2100. In addition, 15 hours of upper-division hours of accounting, economics, or statistics may be used for this minor. Students are responsible for meeting prerequisites listed for any upper-division courses taken.

**Freshmen**

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<thead>
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<tr>
<td>Economics 2110-20-30</td>
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<tr>
<td>Literature electives</td>
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<td>Psychology 2520</td>
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<td><em>Textiles and Clothing 1160</em></td>
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**Sophomores**

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**Juniors**

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**Seniors**

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<td><em>Textiles and Clothing 3610</em></td>
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<td><em>Advertising 3300 or Marketing 4150 or 4210</em></td>
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**Bachelor's Degree Total**

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**Note:**
- A minimum of 72 hours of upper-division courses are required for graduation.
- Select eight hours from the following areas: Biology 1210-20, Chemistry 1519-20, Physics 1410-20, Botany 2265-75, Zoology 2920-30, and Statistics 2100.
- Select eight hours from: Economics 2210-20, 2310, 2320, 4210-20, Sociology 1510-20, and Mathematics 1540-60, 1840-60.
- A business minor is available to students who successfully complete 21 hours of the following required courses: Accounting 2110-20-30, Economics 2110-20-30, and Statistics 2100. In addition, 15 hours of upper-division hours of accounting, economics, or statistics may be used for this minor. Students are responsible for meeting prerequisites listed for any upper-division courses taken.

**College of Home Economics**

<table>
<thead>
<tr>
<th>Hours</th>
<th>Credit</th>
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</thead>
<tbody>
<tr>
<td>163</td>
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</table>

**Option 3. Apparel and Textiles**

This curriculum is designed to prepare students who are interested in graduate study to become college teachers and researchers in the social science aspects of textiles and clothing. Continuation in the program after having completed 89.9 credit hours requires that the achievement and maintenance of an overall grade point average of 2.5 or better.
### Professional Curricula in Home Economics Education

**Option 1. Vocational Home Economics Education**

The teacher education program in home economics education is offered in cooperation with the College of Education, prepares prospective teachers for vocational certification at the secondary level. Preparation is for both the consumer and homemaking program and the occupational program. The four-year course of study involves general education and professional courses including home economics subject matter. State certification requirements are met and provision for capitalizing on one's area of interest. Requirements for admission to teacher education, to student teaching, and for recommendation for certification are listed on pages 103-104.

All freshman, sophomore, and junior required courses must be completed before a student engages in student teaching. Home Economics Education 4240 should be scheduled within one of the two quarters immediately preceding the quarter in which student teaching is scheduled.

Endorsement in one or more of the occupational areas is optional. Course requirements for an endorsement are in addition to those of the basic consumer and homemaking education requirements.

#### Freshman

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>Chemistry 1510-20-30</td>
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<tr>
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<td>English 1031 or 1032 or 1033</td>
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<tr>
<td>Nutrition and Food Sciences 1010</td>
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</tr>
<tr>
<td>Home Economics 1510</td>
<td>4</td>
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<tr>
<td>Mathematics elective</td>
<td>3</td>
</tr>
<tr>
<td>Physical Education or health electives</td>
<td>3</td>
</tr>
<tr>
<td>Speech elective</td>
<td>3</td>
</tr>
<tr>
<td>Textiles &amp; Clothing 1160</td>
<td>3</td>
</tr>
<tr>
<td>Textiles &amp; Clothing 1165</td>
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<tr>
<td>Sociology</td>
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#### Sophomore

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<td>Economics elective</td>
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<td>Electives</td>
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<tr>
<td>Home Economics Education 2240</td>
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<td>Humanities elective</td>
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<td>Literature elective</td>
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<td>Social science elective</td>
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<td>Zoology 2920-30</td>
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<tr>
<td>Educ. Curriculum &amp; Instruction 3020-30</td>
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<tr>
<td>Special Education 3333</td>
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<td>Educational Psychology 3810</td>
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<td>Electives</td>
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<tr>
<td>Food Science 3020</td>
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<td>Home Economics Education 3240</td>
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<tr>
<td>Nutrition and Food Sciences 3120</td>
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### Option 2. Extension and Community Service

This option is designed to prepare graduates to work in community based home economics education programs. Due to social forces and effects of legislation, home economists increasingly are entering the field of community service as teachers and specialists in home economics subject matter in non-traditional educational settings. This option provides the same general education components as in Option 1, a comprehensive home economics background encompassing all of the subject matter areas within the field, as well as educational principles and skills needed to participate effectively in community based programs. There is provision in the curriculum for students to select coursework in supporting areas such as communications, psychology, political science, sociology, human services, and education. Early exposure to community based programs and an extensive field experience are integral parts of the curriculum.

#### Freshman

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<tr>
<td>Chemistry 1510-20-30</td>
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<tr>
<td>Speech elective</td>
<td>3</td>
</tr>
<tr>
<td>Textiles &amp; Clothing 1160</td>
<td>3</td>
</tr>
<tr>
<td>Textiles &amp; Clothing 1165</td>
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<td>Electives and/or supporting courses</td>
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<td>Sociology</td>
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#### Sophomore

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### Graduate Study Programs in the College of Home Economics

The College of Home Economics offers a full range of graduate studies leading to the M.S. and Ph.D. degrees. Any person interested in graduate studies should request information and a Graduate Catalog from Dr. Jay Stauss, Associate Dean, College of Home Economics, The University of Tennessee, Knoxville, TN 37996-1900.

### Departments of Instruction

#### Child and Family Studies (245)


Assistant Professors: J. Allen, Ph.D. Purdue; C. Buehler (Emeritus), Ph.D. Ohio State; G. Eastman, M.S. Cornell; J. S. Kidwell, Ph.D. Purdue; O. W. Patterson, Ph.D. Brigham Young; C. O. Schramm, Ph.D. Tennessee; K. G. Weidle, Ph.D. Tennessee.
1120 Management and Its Contribution to Family Living (3) Decision making process, relationships among decisions; principles of organization for implementing decisions; evaluation procedures; factors affecting management process; application of management principles to problems.

1500 Introduction to Early Education (3) Introduction to the prekindergarten education setting: conceptions of children, teachers, and teaching. Includes field observation.

2110 Human Socialization (3) Human development with emphasis on socialization process from infancy through adolescence in family, school, and peer group settings. For non-home economics majors only.

2120 Sex Roles and Marriage (3) Examination of impact of gender roles on marital relationship. Issues such as power and decision-making, communication, combining careers and families are included. (Same as Women's Studies 2120.)

2410 Human Sexuality (3) Dimensions of human sexuality as examined through cultural, social, and psychological influences.

3125 Day Care and Children (3) Examination of different types of day care and influence of day care on infants and children. Prereq: 3210.

3200 Development In Infancy (3) Development during prenatal period and first 15 months of life. Interaction of genetic and environmental factors. Review of research relating to childbearing practices and prediction of later behavior. Prereq: 2110 and Zoology 2930 or equivalent.

3210 Development In Early Childhood (3) Comprehensive view of the child during the early childhood years. Analysis of interrelationships among various aspects of development: physical, cognitive, emotional, and social. Recommend 3200 be taken prior to this course. 3 hrs. 1 hr. observation per week.

3220 Development In Middle Childhood (3) Growth and development during the middle childhood years with emphasis on influence of family and community. Special attention to different social and cultural settings. Recommend 3200 and 3210 be taken prior to this course. 3 hrs. 1 hr. observation per week.

3300 Observational Methods in Child Development (3) Overview of methods of observing teacher and child behavior and development of individuals skills in observational assessment. Prereq: 3200 or 3210 or 3220 or consent of instructor.

3350 Program Planning (3) Philosophies of preschool education. Analysis of program and teacher-child interaction. Prereq: 3210; 3500 recommended.

3360 Aesthetic Experiences (3) Examination of subject matter areas—quantity and logic, art, music, literature, science. Prereq: 3350 recommended.

3420 Family Economics (3) Management of family income and resources. Private and public measures to improve income position and reduce income insecurity. Prereq. or coreq: Economics 2120.

3510 Intimacy: Marriage and Alternatives (3) Examination of primary relationships from perspectives of both individual development and relationship development. Emphases are on dating, marriage, and variant family forms.

3515 Family Relationships (3) Focus on emerging and changing relationships among family members across the family life cycle from various theoretical approaches. Prereq: 3510 or 3520.

3520 The Family and the Adolescent (3) Problems of individual development during teen years: role of parents and other adults in fostering adolescent development. Upper-division students only. Prereq: 2110 or 3210. 3 hrs. 1 hr. field observation.

4110 Student Teaching In Preschool Settings (5) Increasing responsibility for planning and guiding groups of young children under supervision of head teacher; includes 2-hr. weekly seminar; Prereq: 3210, 3300, 3500; 3960 recommended; coreq: 4111. S/NC.

4111 Student Teaching of Preschool Children (3) Increasing responsibility for planning and guiding groups of young children under the supervision of a head teacher; includes 2-hr. weekly seminar. Prereq: 1500, 3210, 3300, 3500; 3960 recommended; coreq: 4110. S/NC.

4210 Family Finance (3) Analysis of alternative ways of meeting financial problems encountered in cycle of family life.

4220 Conserving Time and Energy in the Home (3) Application of management principles to homemaking activities; evaluation of equipment, work centers, and work procedures in terms of time and energy demands. Adaptations for the handicapped.

4260 Adult Development and Aging (3) Adult life in our society. Adjustment to internal and environmental changes through middle and aged years. Prereq: 2110 or Home Economics 1510 or equivalent background in adult development or consent of instructor.

4350 Advanced Child Development (3) Survey of selected theories relevant to child development with emphasis on research literature and research methodology. Prereq: 4 hrs. of psychology and 6 hrs. of child development or equivalent.

4420 Learning Experience with Parents (3) Dynamics of parent-teacher interaction. Emphasis on variety of techniques for developing communication and working relationships between parents and teachers through experiences in a variety of settings. Prereq: Home Economics 1510 or 3210.

4430 Family Interaction (3) Dynamics of family interaction at different points in the life cycle. Includes dynamics of parent-child relationships and the marital dyad, both with the family and as the family interacts within the community; formal and informal support systems within the community. Prereq: 3515.


4610 Child in the Community (3) Needs of children, community agencies meeting these needs; visits to agencies contributing to welfare of children. Prereq: 2110 or Home Economics 1510 or equivalent.

4620 Administration of Programs for Young Children (3) Planning for staffing, housing, feeding, scheduling, and financing for day care of infants and young children, nursery school programs, and specialized programs for deprived preschool children. Prereq: 3210 or 3130 or 4110.

4630 Field Work In Child, Family, and Consumer Studies (3-15) Opportunity for student to work in nursery schools or community agencies; focus on children, families, and/or consumer concerns selected. May be repeated. Maximum credit 15 hrs. S/NC.

4710 Contemporary Developments (1-3) Student or staff initiated course for study of special topics pertinent to the field; topics to be determined by students and instructor with departmental approval. Elective credit only. Prereq. Consent of instructor. May be repeated with departmental approval for credit up to 9 hrs.

4810 Afro-American Families (3) Historical background, contemporary family structure and relationships, emerging needs and programs. Prereq: 4 hrs. in social sciences and upper-division standing. (Same as Black Studies 4810.)

4830 Consumers and the Market (3) Analysis of elements in marketplace which create problems for consumers. Special attention is given to consumer decision making. need for information and constraints, and opportunities associated with government protection of consumers.

4978 Honors: Child, Family, and Consumer Studies (3) Individual special programs for juniors and seniors showing special ability and interests. May be repeated. Maximum credit 9 hrs.
Nutrition and Food Sciences (725)

1010 Food Principles (3) Principles of food selection, preparation, and service. 2 hrs. and 1 lab.
1130 Elementary Nutrition (3) Principles and applications to everyday living. A student who has received credit for NPS 53120 may not receive credit for this course.
2010 Nature of Food I (4) Classification on basis of composition, type of systems, structure, and consistency, source, food components, and their interrelationships. Prereq: Chemisty 1520 or equivalent. 3 hrs. and 1 lab.
2210 Introduction to Tourism, Food and Lodging Administration (2) Overview of tourism including food and lodging industries; analysis of basic operating systems and problem areas in the hospitality complex.
2220 Dimensions of Tourism (3) Economic and cultural impact of tourism on society; examination of forces influencing the domestic and international tourism industry.
3010 Nature of Food II (4) Food composition in relation to response of foods to heat, microwave, enzymatic and other physical and chemical treatments. Prereq: 2010, 3130. 3 hrs. and 1 lab.
3020 Food and the Consumer (3) Economic considerations in food management, including food legislation, quality, consumer acceptability, and convenience. Prereq: 3 hrs. of economics. 2 hrs. and 1 lab.
3120 Fundamentals of Nutrition (3) Basic human nutrition. Not open to graduate or undergraduate majors in the department. Prereq: Chemistry 1510-20-30 or equivalent; Zoology 2920-30 or equivalent. 3 hrs. and 1 lab. A student who has received credit for NFS 1130 may not receive credit for this course.
3140 Physiological Chemistry (4) Metabolism of carbohydrates, lipids, and proteins; role of vitamins and minerals in metabolism. Prereq: 3130 or equivalent. Not for graduate credit for departmental majors.
3150 Food and Clinical Analyses (4) Elementary quantitative analyses; methods of food and clinical analyses. Prereq: 3130 or equivalent and 3140 or equivalent. 2 hrs. and 2 lab. Not for graduate credit for departmental majors.
3161 Clinical Experience in Dietetics (2) Planned experiences for application of principles of normal nutrition in selected health care facilities. Coreq: 3160. Open only to students in the Coordinated Undergraduate Program in Dietetics.
3210 Foodservice Systems Management (3) Effective and efficient use of management resources in foodservice systems; fundamental management processes, concepts and principles to improve competencies in decision-making and problem solving.
3220 Quantity Food Procurement and Production (3) Application of principles necessary for determining needs, procuring, storing and producing foods in volume. Prereq: 1010 or 2010 or 3210. 3 hrs. and 2 labs.
3230 Tourism, Food and Lodging Administration Externship (3) Planned educational experiences in selected food and lodging operations or other tourist related facilities. Prereq: 3220.
3322 Survey of Diets I (1) Overview of diets and career opportunities. Prereq: Junior standing.
3325 Survey of Diets II (1) The role of the dietitian in health delivery systems. Prereq: Junior standing.
4000 Origin of Food and Foodways (3) Food origin and development of individual and group foodways. Prereq: 8 hrs. of social science or humanities.
4010 Clinical Experience in Dietetics (2) Planned experiences applying food science principles to modify diets for patients. Coreq: 4010. Open only to students in the Coordinated Undergraduate Program in Dietetics.
4011 Introductory Experimental Food Science (1) Physical and sensory evaluation in experimentation with fats, high protein foods, and batter and dough systems. Prereq: 3010. 2 hrs. and 1 lab.
4012 Clinical Experience in Dietetics (1) Planned experiences applying food science principles to modification of diets for patients. Coreq: 4010. Open only to students in the Coordinated Undergraduate Program in Dietetics.
4020 Introduction to Sensory Evaluation of Foods (3) Sensory evaluation methods. Prereq: 4010 or 9 hrs. FTB. 1520-3010 or equivalent. 2 hrs. and 1 lab.
4040 Food in Contemporary Society (3) Consumers' options, responsibilities, and potential influence with respect to the food supply.
4050 Food Preservation (3) Application of basic principles and research findings to food preservation in home. Prereq: 3140 or consent of instructor and 3150 or equivalent recommended. 2 hrs. and 1 lab.
4110 Introduction to Nutrition Research (3) Nutrition principles and laboratory experiences involving small animals. Prereq: 3160. 2 hrs. and 1 lab.
4120 Nutrition in Disease I (4) Nutrition problems in diseases influenced by diet. Prereq: 3160.
4150 Clinical Experience in Dietetics (2) Planned clinical experiences applying principles of nutrition in disease. Coreq: 4130. Open only to students in the Coordinated Undergraduate Program in Dietetics.
4160 Nutrition in Disease II (3) Interdisciplinary lectures and discussions on the metabolic processes of normal and diseased organs and/or tissues and the dietary or behavioral techniques required. Prereq: 4130. Designed for senior students in the Coordinated Undergraduate Program in Dietetics.
4141 Clinical Experience in Dietetics (3) Advanced educational experiences applying principles of nutrition in disease in selected health care facilities. Coreq: 4140. Open only to students in the Coordinated Undergraduate Program in Dietetics.
4150 Community Nutrition (3) Nutrition problems and services in community facilities. Prereq: 3120 or 3160.
4151 Clinical Experience in Dietetics (3) Supervised field experience in the community. Prereq: 4131; 4051; or consent of instructor; coreq: 4150.
4160 Nutrition Throughout the Life Cycle (4) Application of nutrition principles throughout the life cycle with emphasis on communication of nutrition information. Prereq: 3120 or 3140 or consent of instructor.
4170 Clinical Experience in Dietetics (4) Experience in providing coordinated and continuing nutrition care in healthy delivery systems. Prereq: 4151. Open only to students in the Coordinated Undergraduate Program in Dietetics.
4180 Environmental Effects on Nutrition (3) Effect of natural and synthetic food toxins, drugs both social and therapeutic, and extreme environmental conditions upon the nutrition of man and requirements of humans. Prereq: 6 hrs. natural science.
4190 Diet and Drug Therapy (3) Effect of drug therapy on absorption, utilization, and toxicity of drugs. Prereq: 3160 or consent of instructor.
4210 Design and Layout of Food Systems (3) Design of physical facilities, selection and purchasing of equipment for food service systems. Prereq: 3220.
4220 Food and Lodging Information Systems (3) Design of information systems for decision making in the hotel-motel-computer application in the hospitality industry. Prereq: Acct. 2130; Comp. Science 1140; Econ. 2130.
4230 Tourism, Food, and Lodging Managerial Field Experience (5-10) Planned educational managerial experience in selected food services or food and lodging systems or tourist related facilities. To be taken in the junior or senior year with consent of instructor. Prereq: 3220.
4240 Food Systems Personnel Development (3) Development of training programs and personnel management policies for food systems personnel. Prereq: Econ. 3420 or Psych. 4460 or consent of instructor.
4241 Clinical Experience in Dietetics (3) Development of technical, human, and conceptual skills and practices through planned educational experiences at increasing levels of administrative responsibility in selected food systems. Prereq: 3220, Coreq: 4240. Open only to students in the Coordinated Undergraduate Program in Dietetics.
4250 Food Systems Managerial Cost Control (3) Cost analysis for food and beverages; use of financial statements for decision making in foodservice systems. Prereq: 3220.
4251 Clinical Experience in Dietetics (3) Development of technical, human, and conceptual skills through planned educational experiences at increasing levels of administrative responsibility in selected food systems. Prereq: 3220. Coreq: 4250. Open only to students in the Coordinated Undergraduate Program in Dietetics.
4260 Food and Lodging Physical Plant Planning and Maintenance (4) Fundamentals of mechanical systems and building floor plans of the food and lodging physical plant; organization and principles of properties management. Prereq: 4210. 3 hrs. and 1 lab.
4270 Tourism and Lodging Administration (3) Marketing management principles for the tourism and lodging industries; current problems in the marketing of hospitality services. Prereq: Marketing 3120.
4280 Clinical Experience in Dietetics (4) Planned educational experiences for increasing levels of administrative responsibility in selected food systems. Prereq: 3220. Open only to students in the Coordinated Undergraduate Program in Dietetics.
4330 Readings in Nutrition and Food Sciences (3) Reports and discussions of current literature. Prereq: 3160.
4340 Field Experience (3-15) Planned educational experience in selected food, food service, nutrition related industries or laboratories or community facilities. Prereq: Consent of instructor. Hrs. and credit arranged.
4710 Contemporary Developments (1-3) Student or staff initiated course for study of special topic(s) pertinent to the field; topics require departmental approval.
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<td>6120</td>
<td>Mineral Metabolism</td>
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<td>6130</td>
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<td>Vitamin Metabolism</td>
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<td>Manpower Planning and Training for the Food Service Industry</td>
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<td>6220-30</td>
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<td>Experimental Methods in Nutrition</td>
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<td>5170</td>
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<td>Methods of Foods Systems Research</td>
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<td>Financial Management of Foods Systems</td>
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<td>Administration of Food Service Delivery Systems</td>
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<td>Clinical Training in Health Care Agencies</td>
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<td>Problems in Nutrition and Food Sciences</td>
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<tr>
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<td>Proteins and Amino Acids</td>
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**Home Economics (481)**

1010 Home Economics as a Profession (1) Scope of the profession of home economics; educational and professional preparation; personal qualities required and satisfaction to be gained from various careers within the profession. S/NC.

1510 Family Systems: Human Development (4) Definition, description, and utilization of basic systems concepts as applied to development of individual and family; emphasis on professional development and contribution.

1820 Family Systems: Aesthetic Environment (4) Examination of near and far environment from an aesthetic perspective with implications for quality of life of individuals and families.

2510 Family Systems: Physiological Well-Being (4) Definition, description, and utilization of interdisciplinary concepts as related to physiological well-being of individuals and families.

3110 Methods of Community Services Development (3) Organizations, educational responsibility, objectives, methods, and evaluation of community services programs. Prereq: Psychology 2500 or equivalent.

3510 Family Systems: Consumer Resources (4) Appraisal and application of effective management of resources with implications for role of professional in the interactions of individuals and families with society. Prereq: 3 hrs. of economics, junior standing.

4000 Senior Seminar (2-15) Personal application of interrelated knowledge and professional competencies through experience in community service training to serve society in a professional capacity; gaining experience beneficial to chosen professional career; scope of current research and career opportunities in home economics; comprehension of professional ethics required of a home economist. May be repeated. Maximum credit 15 hrs. Prereq: Junior or senior standing. Consent of department head required for credit beyond 2 hrs. S/NC.

4110 Community Services Programs with Adults (3) Procedures and techniques in working with adults; individual, group, and mass methods. Taken as an off-campus course of field training with 4110. Prereq: 3110 and consent of instructor.

4120 Community Services Programs with Youth (3) Procedures and techniques in working with youth. Taken as an off-campus course of field training with 4110. Prereq: 3110 and consent of instructor.

4130 Methods and Procedures for Community Services Work (3) Individual, group, mass and indirect methods in community services work. Prereq: 3110. 2 hrs. and lab.

4710 Contemporary Developments (1-3) Recent advanced in specialized areas of home economics, their implications for home economics and related professions. Prereq: Consent of instructor. Hrs. arranged. May be repeated with departmental approval for credit up to 9 hrs.

4910 International Study Tour (6) See page 156. Prereq: Consent of instructor.

**Home Economics Education (490)**

Professors: J. H. McNida, Ph.D. Florida State; S. W. Miller, Ph.D. Ohio State.

Associate Professors: J. H. McNida, Ph.D. Florida State; S. W. Miller, Ph.D. Ohio State.

The Department of Home Economics Education is included as an instructional unit in the Department of Vocational-Technical Education in the College of Education (see page 124 for course offerings). Professional subject matter courses are offered by the departments of the College of Home Economics for those preparing for secondary school teaching programs and extension and community service careers. The vocational home economics education curriculum is designed to provide the requirements for certification in vocational home economics. The curriculum is listed on page 164.

**Textiles Merchandising and Design**

Professors: R. G. Blakemore, Ph.D. Florida State; J. D. Dejonge (Head), Ph.D. Iowa State; A. Delong, Ph.D. Pennsylvania State; D. Durman, Ph.D. Pennsylvania State; B. G. Gosewici, Ph.D. Manchester (England).


Faculty Associate: T. L. Vigo, Ph.D. Tulane.

Assistant Professors: C. E. Cox, Ph.D. Tennessee; S. J. Dillard, M.S. Tennessee; G. K. McCurry, M.S. California State.

Lecturers: B. B. Thompson, B. Arch. Iowa State.

**Interior Design and Housing (582)**

1430 Introduction to Interior Design (4) Introduction to interior design, basic creative design skills, drawing, spatial organization, color, and design awareness. Prereq: Architecture 1002. 1 hour and 3 labs.
426: Interior Design Practicum (8-16) Supervised practicum in establishments engaged in practice of interior design. Prereq: senior standing in interior design majors, 3260, and consent of instructor.

430: Field Experience (3-15) Supervised field experience; subject to departmental approval. Prereq: Senior standing and consent of faculty.

4320: Family Housing Problems (3) Housing requirements of families. Reading and judging house plans; effective use of space; maintenance problems; housing regulation and restrictions; site selection and neighborhood characteristics; financing procedures. Prereq: 6 hrs. from Economics 2110-20-30.

4440: Furniture Design (4) Analysis of human factors data in the design of body support, task support and storage furniture pieces and systems; production of construction drawings and scale models. Prereq: Senior standing.

4450-51: Advanced Interior Design I, II (6,6) Intensive interior design experiences to include complex design problems utilizing systematic design methodology. Project type includes: multi-family housing, commercial and institutional environments, or complex working environments, assistance and critiques from area professionals. Prereq: 3452 for 4450. Courses should be taken in sequence or have consent of instructor.

4610: Studio Problems in Interior Design (3) Problems for seniors with special ability and interest in interior design. May be repeated to a maximum of 9 hrs. Prereq: Senior standing and consent of department.

4710: Contemporary Developments (1-4) Students and/or staff initiated course for study of special topic(s) pertinent to the field; topics selected to be determined by students and instructor with departmental approval. Elective credit only. May be repeated with consent of department. Maximum credit 12 hrs. Prereq: Consent of instructor.

4791: History of Contemporary Interior Architecture (4) History of interior architecture, including a study of furniture, design and design philosophies of Europe and America are discussed in relation to the forces that shaped them: movements in the visual arts, technological advances, and the culture milieu. (Same as Art 4791.)

4792: History of American Interior Architecture (4) A study of patterns in historical development as revealed in interior architectural spaces and the decorative arts of America, Colonial through Federal periods. Design forms are analyzed within the cultural context. (Same as Art 4792.)

4978: Honors: Interior Design (1-3) Problems for juniors and seniors with special ability and interest in interior design. Hours arranged. May be repeated. Maximum credit 9 hrs. Prereq: Consent of department head.

4988: Honors: Housing (1-3) Problems for juniors and seniors with special ability and interest in housing. Hrs. arranged. May be repeated. Maximum credit 9 hrs. Prereq: Consent of department head.

GRADUATE

5000: Thesis

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

5040: Seminar in Design (3)

5050: Advanced Design Studio (4)

5060: Practicum (1-12)

5120: Historic Interior Design (3)

5210: Furniture Appreciation (3)

5310: Interior Design (3)

5410: Advanced Problems (3)

5510: Environmental Factors in Interior Design (3)

5520: Environmental Factors in Interior Design (3)

5530: Environmental Factors in Interior Design (3)

5610: Furniture Design (3)

5613: Housing Management (3)

5614: Housing Regulations and Controls (3)

5615: Housing Programs and Policies (3)

5620: Experimental Methods in Household Equipment (3)

5630: Environmental Requirements for Family Work Centers (3)

5815: Environmental Design Research (1-3)

5820: Interior Design (1-3)

5830: Problems in Housing (1-3)

5910-20-30: Seminar (1-4, 1-4, 1-4)

6110: Contemporary Housing Issues and Problems (3)

6120: Advanced Topics in Housing Research (3)

6210: Environmental Design Analysis (3)

6420: Perspectives in Interior Design (3)

Textiles and Clothing (971)

1160: Introduction to Design Analysis (3) Identification of the elements and principles of design, and application to contemporary apparel design and production. Analysis of the relationships of design to figure type, personality, color and fabrication.

1165: Apparel Construction (3) Fundamentals of pattern alteration, fitting, and construction with emphasis on design quality and construction compatibility. Prereq: 1160. 1 hr. and 2 labs.

1170: Design Analysis: Pattern Making (4) Apparel design analysis based on flat pattern, draping and drafting techniques. Comparison of these methods for style-volume and coating of garments. Prereq: 1160, proficiency or 1165 or equivalent. 2 hrs. and 2 labs.

2110: Fashion (3) How fashion world works, from designer to consumer, fashion trends and cycles.


3170: Advanced Apparel Production (3) Advanced apparel techniques and an experimental approach for contemporary fabrics and garments in garment style. Prereq: 1170. 1 hr. and 2 labs.

3330: Textiles (3) Textile products—study of consumer selection, preference, and satisfaction with emphasis on performance. For non-majors only.

3410: Cultural and Functional Aspects of Textiles and Clothing (3) Cultural, socio-psychological, functional, and technological developments in textiles and clothing. Prereq: 3 hrs. each of the following: child development and family relationships, economics; 4 hrs. of sociology or anthropology or psychology.

3420: Textiles I (2) Consumer-oriented study of textiles, emphasizing fibers, fabric construction, and finishes in relation to use, serviceability, and care of apparel and household fabrics. Prereq: 12 hrs. of chemistry or physics or biology or botany.


3450: Consumer Issues: Clothing for Contemporary Families (3) Problems of clothing consumption encountered during various stages of family life cycle. Prereq: Junior standing.

3480: Historic Costume (3) Development of costume from ancient to modern times with consideration of historic, social, and economic settings.

3510: Fashion Merchandising: Planning and Control (3) Analysis of fashion merchandising practices and...
4010 Textiles II (3) Recent textile developments with emphasis on man-made fibers, new construction techniques and finishes. Opportunity for individual investigation. Prereq: 3410.

4110 Fashion Buying (3) Analysis of buying practices, procedures, activities, techniques and underlying concepts fundamental to fashion merchandising. Prereq: 3510.

4120 Textile Economics (3) Economic background of textile and apparel industry with emphasis on production and distribution. Current national and international problems. Prereq: Economics 2110, 2130.

4130 Research Experiences (3-15) Individual juniors and seniors showing special abilities may be assigned to ongoing research within department or work in research and development laboratory or quality control department of fiber, chemical, or textile company. Prereq: Recommendation of department head and research advisor, 4010, 4140, and 3 hrs. of statistics. May be repeated. Maximum credit 15 hrs.

4140 Introduction to Textile Testing Methods (3) Methods and equipment used in physical testing as approved by recognized textile groups. Prereq: 3420, 3450, 1 hr. and 2 labs.

4210 Elementary Textile Microscopy (3) Microscopic techniques as applied to study of textile fibers and fabrics. Prereq: 4010. 1 hr. and 2 labs.

4220 Textile Fiber Chemistry (4) Chemistry of textile fibers with emphasis on structure, preparation, and reactions. Implications relating to dyeing and finishing of fabrics. Prereq: One quarter of organic chemistry. 3 hrs. and 1 lab.

4280 Design Analysis: Functional Apparel (3) A systematic approach to apparel design integrating aesthetic, psychological, social and physiological aspects of apparel problems for special reference groups. Garment specifications are translated for production. Prereq: 1170, 2170 and 3170. 2 hrs and 1 lab.

4410 Apparel Production Management (3) A management perspective of the apparel production industry. Emphasis on production planning, process, and management of human resources. Course work supplemented by plant tours and case studies on production problems. Field trips required.

4510 Teaching Materials (3) Investigation, preparation, and evaluation of teaching materials. For students planning to teach or do home demonstration work. Prereq: 3440, senior standing. 1 hr. and 2 labs.

4620 Introduction to Field Experience in Merchandising (2) Interviews with store personnel; placement and planning for field experience. Prereq: Economics 2110-30, junior standing, concentration in merchandising option, approval of program coordinator, and a minimum grade point average of 2.2. Open only to students who intend to enroll in 4630-40. May not be repeated.

4630 Field Experience in Merchandising (9) Off-campus, supervised experience in a cooperative program with business establishments which merchandise textiles and/or apparel. Prereq: 3510, 4110, 4620, 9 hrs. of marketing, senior standing, major in merchandising, and a minimum grade point average of 2.2; coreq: 4640. Offered fall quarter only.

4640 Methods in Field Experience (6) Investigation of training systems and store organization, analyses of jobs, and evaluation of field experience. Prereq: 4620, senior standing, major in merchandising, and a minimum grade point average of 2.2; coreq: 4630. Offered fall quarter only.


4710 Contemporary Developments (1-3) Student or staff initiated course for study of special topic(s) pertinent to the field; topics to be determined by students and instructor with departmental approval. Elective credit only. Prereq: Consent of instructor. May be repeated with departmental approval for credit up to 9 hrs.

4789-89-98 Honors: Textiles and Clothing (3,3,3) Individual problems for juniors and seniors showing special ability and interest in textiles and clothing. Admission only upon recommendation of head of department. Hrs. arranged.

GRADUATE

5000 Thesis

5002 Non-Thesis Graduation Completion (3-15)

5110 Textile Testing and Methods of Research in Textiles (3)
College of Law

Kenneth L. Penagar, Dean
Mary Jo Hoover, Associate Dean
Julia P. Hardin, Assistant Dean
N. Douglas Wells, Assistant Dean

The College of Law is, since 1981, conducted on the semester system.

The University of Tennessee College of Law commenced operation in 1890 and has continuously sought to provide high quality legal education in a university community. While the principal objective of the college is to prepare students for the private practice of law, it total mission is more broadly conceived. The college exposes students to the legal issues of our society enabling them to develop analytical skills in respect of decisional law and statutes, the ability to communicate effectively to others their knowledge of the law, an awareness of the historical growth of the law, a knowledgeable appreciation of the interrelationship of law and society, and the ability to use law as an implement of societal control and development. Students are thus equipped to serve their community not only as advocates and counselors, but as policy makers and active, responsible citizens.

The coordinated program of the college has three dimensions: teaching and learning, research into and appraisal of our legal systems and institutions, and service to the community. Each plays a significant role in the college as a modern law center.

The teaching and learning element of legal education at the college involves a cooperative classroom interaction between faculty and students in the analytical study of a host of questions and problems found in today's legal profession. These involve decisional law, statutory interpretation, administration regulation, techniques of trial and appellate advocacy, and the roles and responsibilities of the lawyer in advising and representing clients. While proper consideration is given to the problems of Tennessee law, the course of study is conducted with a view toward providing an awareness and understanding of the regional and national perspective to prepare our students for service in any state.

The college is also directly involved in providing service to the community of which it is a part. A major element of public service is centered in the Legal Clinic where students, under the guidance of skilled and experienced licensed practitioners, provide legal services to indigent persons of Knox County. Additionally, through research, consultation, and other services to legal institutions and groups within the state, the college seeks to participate in the development and improvement of the society in which its students may eventually practice law. The Public Law Institute is a primary example of this function.

In combination, the direction and objectives of the college lead to the development not of a narrow technician, but of a student of the law with the perspective, breadth, and understanding necessary for the accomplishment of the many tasks assigned by society to the legal profession.

The College of Law Building

Since 1950 the college has occupied a building especially designed for teaching, study, and research in the law. In the spring of 1971 the college occupied the new wing begun in the fall of 1969. The new addition has doubled the available facilities. The library, the classrooms, and the offices are air-conditioned. Adequate classrooms, courtrooms, seminar rooms, a private office for each full-time faculty member, the well-equipped offices of the Legal Clinic, and a spacious, well-lighted Law Library are contained in this modern building. Stack space for more than 200,000 volumes will permit one of the largest law book collections in the South.

Legal Clinic

The University of Tennessee Legal Clinic was established in 1947. Though the Legal Clinic provides legal assistance to indigent persons, it is designed primarily as a teaching device to correlate theory and practice. It introduces the student under faculty supervision to the law in practice through personal contact with clients and their problems. The Legal Clinic functions as a large law office in which the student gains experience in interviewing clients, writing legal letters, investigating and evaluating facts, preparing memoranda of law, preparing cases for trial or adjustment, and briefing cases. Classroom work supplements the handling of actual cases. The student is thus trained in the technique of law practice and the management of a law office. The ethical responsibilities of lawyers and their function as public servants are stressed. Under present rules of the Tennessee Supreme Court, students, under the direct supervision of the Legal Clinic staff, are certified to practice before all the courts of Tennessee.

The Law Library

The Law Library contains the official state reports of all states, the complete National Reporter system which covers all states and the federal courts, the Annotated Reports, standard sets of miscellaneous reports, the reports of the Canadian cases and of English cases from the yearbooks to date. In addition to these, there are adequate encyclopedias, digests and dictionaries, standard textbooks, law reviews, and current looseleaf services, totaling together more than 133,000 cataloged volumes. The library is under the supervision of a law librarian who is trained in law and library science. Law students also have the use of the collections in the University Main Library, which is located across the street from the Law Library, the Undergraduate Library a few blocks away, and other branch libraries.

Degree of Doctor of Jurisprudence

The degree of Doctor of Jurisprudence will be conferred upon candidates who complete, with the required average, six semesters of resident law study and who have 84 semester hours of credit, including all required courses. The required average is 2.0 and that average must be maintained on the work of all six semesters and also for the combined work of the grading periods in which the last twenty-eight (28) hours of credit were earned. Averages are computed on weighted grades.
Grades are on a numerical basis from 0.0 to 4.0. A grade of 0.9 or below is a failure. Eligible law students may receive credit towards the J.D. degree for acceptable performance in up to three (3) upper-level courses taken in other departments at the University of Tennessee. Course selection and registration are subject to guidelines approved by the law faculty, including the requirement that any such course be acceptable for credit towards a graduate degree in the department offering the course. Note: Students are advised to consult the University's degree requirements as stated in the front section of this catalog as well as the requirements for this college.

Dual J.D.-M.B.A. Degree Program

The College of Business Administration and the College of Law offer a coordinated dual degree program leading to the conferral of both the Doctor of Jurisprudence and the Master of Business Administration degrees. A student enrolling in the dual degree program must take fewer hours of course work than would be required if the two degrees were to be pursued separately, and by the Dual Degree Committee.

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 are recorded 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 College of Law 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 official academic record of the student maintained by the Registrar of the University shall show the actual grades assigned by the instructor without conversion.

Satisfactory/No Credit Option

(1) Course Eligibility

Required courses may not be taken on a Satisfactory/No Credit (S/NC) basis except as specifically designated.

(2) Satisfactory/No Credit

a. Election to take courses on a Satisfactory/No Credit basis must be made at the time of registration and cannot be changed thereafter. Students who register for a course Satisfactory/No Credit when they are ineligible to do so will be required to change to regular grading when the error is discovered.

b. Credit will be given for a course taken on a Satisfactory/No Credit basis only in semesters in which the student completes (receives a grade in) at least ten hours on a regular graded basis.

c. Students electing the Satisfactory/No Credit basis must meet all requirements imposed on students taking the course on a regular graded basis, e.g., attendance, term paper, recitation, etc.

d. Examinations and other work of students electing a Satisfactory/No Credit basis shall not be graded separately or differently from that of other students.

e. For purposes of Satisfactory/No Credit grading, Satisfactory shall mean a grade of at least 2.0.

f. A student electing Satisfactory/No Credit who makes 2.0 or above shall receive credit for the course, but the grade shall be recorded as S and will not be used in determining the grade average.

g. A student electing Satisfactory/No Credit who makes below 2.0 will receive an NC for the course and neither this grade nor the hours for the course will be used in computing the grade average or hours credit.

h. A maximum of two courses may be taken on a Satisfactory/No Credit basis.

Maintenance of a Satisfactory Record

No student will be excluded from the College of Law for academic reasons prior to the completion of two semesters of academic study. A full-time student who fails to achieve an overall average of at least 2.0 upon completion (receipt of a grade) of two semesters of academic study shall be excluded. Such exclusion shall occur regardless of whether the student has obtained permission to vary the first-year full course load.

Maximum Course Load Per Semester

The maximum course load for a law student is eighteen (18) hours in any one semester. During the Summer term the maximum course load is seven (7) hours.

Clinical Courses

A student may take no more than a total of two clinical courses for law credit and normally no more than one clinic course per semester. Clinical courses are 8746, 8756, 8775, 8785.

Policy for Graduate Students Taking 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 receive credit toward a degree upon approval of the College of Law and the major chairperson. The graduate student must register for the course which includes the S/NC option and file a written request for registration at the College of Law requesting an S/NC grade only. If a 2.0 or above is obtained in a law course, an S will be recorded on the transcript. If a student earns below a 2.0, an NC will be recorded and the course cannot be used toward meeting degree requirements. Grades for law courses will not be reflected in the cumulative average.

Different rules apply to the student enrolled in the Dual J.D.-M.B.A. Program. Grades must be earned according to the grading system of the respective college, e.g., numerical grades for law courses, letter grades for graduate courses. Refer to page xx for the grading scale acceptable toward meeting degree requirements. Cumulative GPA for law courses only will be carried until graduation, at which time both the graduate and the law cumulative records will be shown on the permanent record.

Admission

Information regarding admission, financial aid, academic policies, extracurricular activities, and student services is available in the College of Law Bulletin. Students interested in the college should obtain a copy of the Bulletin from the Admissions Office, The University of Tennessee, College of Law, 1505 West Cumberland Avenue, Knoxville, Tennessee 37996. Completed application should be received before February 1 of the year of expected admission.

Faculty

Professors:
Program of Instruction

The following program is designed to give the student an adequate preparation for the practice of law. From 12 to 15 hours of classroom work a week are required of all full-time students. The required courses will be taken as early in the law curriculum as possible or as scheduled by the law faculty. See statement of course availability at end of this section.

REQUIRED COURSES


8940 Civil Procedure II (3) Pleading; joinder of claims and parties; discovery, trials, verdicts, judgments and appeals; emphasis of Federal Rules of Civil Procedure.

8300 Constitutional Law I (3) Judicial review, limitations on judicial power, national legislative power, regulation of commerce, power to tax and spend; other sources of power; state power to regulate and tax, intergovernmental immunities; substantive due process; Congressional enforcement of civil rights.

8020 Contracts I (3) The basic agreement process and legal protection afforded contracts. Problems to offer and acceptance, interpretation, illegality, and the statute of limitations.

8030 Contracts II (3) Continuation of study begun in Contracts I. Concentrating on remedies, conditions, impossibility and frustration, third party beneficiaries, assignment and delegation, and discharge.

8040 Criminal Law (3) Course on substantive aspects of criminal law. General principles applicable to all criminal conduct, then specific analysis of particular crimes. Substantive defenses of crimes, including insanity, intoxication, mistake, necessity, legal duty, self-defense, and duress.

8070 Legal Process (2) Judicial process, brief survey of jurisdiction, venue, and procedure, legal history, case analysis, significance of precedence, influence of the judge as policy maker, adversary system, and the role and responsibilities of the lawyer as an advocate; legislative interpretation.

8860 Legal Profession (2) Role of the lawyer in society and ethical responsibilities implied in that role. Administration of the organized profession, solicitation, advertising, unauthorized practice, conflicts of interest, decision to represent or withdraw as counsel; fees, fees, fee-splitting, advocacy and its limitations, fees, and disciplinary procedures.


8140 Property II (3) The recording system, title assurance, escheats, nuisance, lateral support, water rights, zoning, and eminent domain.

8110-11 Research and Writing I, II, (1, 2) This two-semester sequential offering is designed to provide the student with a progressively more sophisticated involvement in legal research and writing. Fundamentals of legal bibliography with an emphasis upon technical techniques and research skills will be an integral part. Among the other components to be included are the drafting of a law office memorandum and other written materials. The preparation and presentation of an appellate argument (written and oral) will also be expected. Classes will be divided into small sections, with individual criticism given on all work submitted. Lectures on research, writing, and advocacy skills will be included. (8110 graded S/NC).

8180 Torts I (3) Intended interference with the person, business, and property; false imprisonment, negligence, affirmative duties, immunities, actual causation, and contributory causes.


Additional Required Courses

8860 Income Tax I (14) What is income; whose income is it; when is it income; how is it taxed (capital gains and losses, installment sales, tax deductions and credits; rates (corporate, estate, and trust).

Perspective Course Requirement: One course among the following is required for graduation: American Legal History; Comparative Law; Criminal Law Theory; Environmental Law; International Law; Judicial Prudence; Law and Economics; Law, Language and Ethics; Legal Imagination; and Tax Theory.

Writing Requirement: One seminar or upper-level course requiring substantial legal research paper under faculty supervision is required for graduation. This requirement may also be satisfied by a Directed Research paper approved by the Academic Standards Committee.

NOTE: No single course may be taken to satisfy both the Perspective Course Requirement and the Writing Requirement. These additional required courses may be taken at any time during the second or third year.

ELECTIVE COURSES


8125 Admiralty (2) Admiralty courts and their jurisdiction; death and injury to persons; special provisions concerning injury to property by negligence; carriage of goods by ships; principles governing collisions and liability.

8050 American Legal History (3) Examination of historical development of the law, legal institutions, legal professionalism and legal education from colonial times to present. Historical relationship of legal system to society emphasized.


8740 Business Associations (4) An introduction to the legal forms of cooperative business enterprise, including agency, partnership, limited partnership, and the corporation.

8760 Advanced Business Associations (2) Selected topics from the law of business associations. Prereq: 8740.

8615 Comparative Law (3) A general introduction to the civil law systems of France and Germany, focusing on legal institutions, methodology and aspects of the law of obligations and commercial law.

8280 Conflict of Laws (3) Jurisdiction, foreign judgments, choice of law, constitutional limitations, renvoi, and classification.

8310 Constitutional Law II (3) Freedom of expression, association and religion. Fourteenth Amendment rights excluding rights of criminally accused, excluding discrimination as to race, sex, etc., right to franchise and apportionment, concept of state action in matters of civil rights.

8650 Copyright, Patent and Trademark (3) Protection of the intellectual property under federal and state law; patents, trademarks and trade names, trade secrets, copyright, tax considerations, and international aspects.

8955 Criminal Law Theory (3) A study of the theoretical foundations of criminal law, including an examination of concepts of justice and morality and pertinent matters in the physical and behavioral sciences.

8980 Criminal Process (4) Examination of the constitutional and statutory rights of persons charged with crimes, including arrest, search and seizure, self-incrimination, right to counsel, electronic eavesdropping, entrapment, guilty pleas, fair trial, double jeopardy, and habeas corpus.


8905 Deeds of Estates (3) Nature, creation, transfer, termination, and modification of trusts; fiduciary administration; intestate succession; validity, execution, and revocation of wills; administration; ademption, advancements and contribution of wills.

9585 Directed Research (1-2) Hours to be arranged. Independent research by a student under direct supervision of an instructor, a student may take course maximum of once each year in last two years of study. Proposal must be approved by Academic Standards Committee.

8815 Discrimination and the Law (3) Comparison of race and other invidious discriminatory practices as they affect political participation, education, employment, housing and other social and economic activities as prohibited by the Fourteenth Amendment of post-Civil War Amendments to the Constitution.

8490 Environmental Law and Policy (3) Through methods of public policy analysis, course develops frameworks for understanding the responses of the legal system to environmental litigation. Clean Air Act, National Environmental Policy Act, and selected regulatory issues.

8420 Evidence (4) Rules regulating introduction and exclusion of oral, written, and demonstrative evidence, including relevancy, competency, impeachment, hearsay, privilege, judicial notice, presumptions, and burden of proof.

8360 Family Law (3) Survey of laws affecting the family. Preparation of wills, marriages, legal effects of marriage, support of legal system to environmental litigation. Clean Air Act, National Environmental Policy Act, and selected regulatory issues.

8460 Federal Courts (3) Jurisdiction of federal courts and conflicts between federal and state judicial systems, including nature of judicial power, federal questions, diversity, removal, jurisdictional amount, choice of state or federal law, habeas corpus, abstention, joining state proceedings on appeal to the Supreme Court of the United States, and of the state higher courts and of the state courts of limited jurisdiction, and of parties and claims.
lems of proving environmental impact of selected projects, interpretation and evaluation of scientific data, use of expert witnesses. Special environmental concerns of the region, e.g., TVA operations, strip mining, forest management, wildlife preserves. Prereq: 8490.

8400 Estate Planning Seminar (2) Problems of estate planning both inter vivos and testamentary. Advantages and disadvantages of various types of ownership. The law and practice of fiduciary administration, insurance, wills, future interests, trusts, corporations, partnerships, and gifts as related to estate planning. Research on assigned topics. Drafting of estate plan for hypothetical fact situations. Prereq: 8905 and 8840.


8545 Juvenile Law Seminar (2) Examines the unique history and philosophy of juvenile justice system. Considers jurisdiction, judicial and extrajudicial functions of juvenile court, and various dispositional alternatives. Students will read judicial options and materials from fields of history, sociology, and psychology. Knox County Juvenile Court serves as laboratory for students; professional staff from the Court participate in seminar on regular basis.

8550 Labor Relations Law Seminar (2) Study and discussion of selected labor relations law problems.

8995 Land Acquisition & Development Seminar (2) Alternative business forms will be assigned teams of students who will then prepare and present for seminar discussion all major documents (notes, deeds, prospectus, etc.) necessary to accomplish the acquisition or development of large pieces of raw land. Prereq: 8990.

8580 Law and Current Problems Seminar (2-3)

8935 Law and Medicine Seminar (2) Examination of medical profession's involvement in judicial process, including: (1) medical malpractice and alternatives to fault-based liability; (2) responsibilities for disposition and care of dead bodies and legal principles governing organ transplantation; (3) expert medical proof and testimony; (4) medico-legal aspects of euthanasia; (5) other more specific matters such as legal import of medical profession's various canons of ethics.

8850 Law and Mental Health Seminar (2) Introduction to psychiatric principles, role of psychiatrist, and relationship to role of legal counsel; assigned readings; field work in mental health clinic; jointly taught by law professor and psychiatrist.

8960 Office Practice Seminar (2) Techniques of law office management, methods and practice, including techniques in the preparation of various legal instruments, office accounting, interviewing and counseling, management of personnel.

8845 Seminar in the Professional Competence of the Lawyer (2) Exploration of typical situations in which malpractice claims arise, including third party claims, conflicts of interest, breach of fiduciary duties and the like; examination of difficult problems of proof including use of expert testimony, which is hallmark of much legal malpractice litigation.

8955 Trade Regulation Seminar (2) Study and discussion of selected problems arising under antitrust laws and laws applicable to regulated industries.

Course Offerings Subject To Change

The necessity of adjustments to accommodate changing conditions may dictate modifications in the course offerings and other features of the program described above. Accordingly, the college reserves the right to make such variation in its program as circumstances may require. Prospective students who are interested in the precise course offerings at a given time or who desire other special information should make inquiry in advance.

It is necessary to offer some courses and seminars only on an every-other-year basis. Choice is based on subject matter and past patterns of student enrollment.
The arts and sciences encompass the entire range of human knowledge, from the earliest records to the latest laboratory results. All that human beings have observed about themselves, about their societies, and about the natural world around them is of concern to one or another of the arts and sciences.

The curriculum of the College of Liberal Arts reflects this wide-ranging concern with the life of the mind. It emphasizes the breadth of human knowledge, perceived not only in terms of the traditional categories of the humanities and the natural and social sciences, but also in broader perspectives which extend across academic fields and reach beyond the boundaries of a college of liberal arts. It also stresses depth of learning, thereby seeking to acquaint the student with liberal arts. It also stresses depth of learning, reach beyond the boundaries of a college of sciences, but also in broader perspectives human knowledge, perceived not only in of the mind. It emphasizes the breadth of reflects this wide-ranging concern with the life of the mind, and in the life of the educated imagination. A liberally educated person is identified not so much by specific knowledge as by quality of mind and by creative response to the challenges of the times.

At the heart of a liberal education is an appreciation of and a familiarity with a great triad: language, literature, and the arts; history and society; science and mathematics. These three great wellsprings of human thought are sources of the programs of study offered students in the College of Liberal Arts.

Programs of Study

Granting the broad, general goals of a liberal education, students come into the college with a wide variety of specific educational and vocational objectives. Recognizing this diversity, the college offers a number of different programs of study leading to the baccalaureate degree and also several pre-professional curricula which prepare the student for advanced study but do not lead to a degree from this college.

Degrees Offered

(1) BACHELOR OF ARTS

The Bachelor of Arts is the basic liberal arts degree, representing the attainment of a broad knowledge of the arts and sciences as well as a comprehensive understanding of one or more areas of special interest. Four programs leading to this degree are open to the student:

(a) Basic Program—The program appropriate for most B.A. students, it is developed around the broad area requirements in the Triad plus intensive study in one or more of the specified departmental or interdepartmental major fields described below.

(b) Individualized Program—Designed for students whose educational goals are best met by a program tailored to their particular needs, it is similar to the Basic Program in broad area requirements but permits the student to develop an individual concentration incorporating work in two or more departments.

(c) College Scholars Program—Intended for a limited number of students who are especially highly qualified and motivated and who have been selected to undertake this honors-level program, the College Scholars Program permits the student maximum freedom to design a curriculum to meet particular interests and goals.

(d) Pre-Professional Program—The Pre-Professional Program is offered for those who wish to participate in one of the cooperative 3-1 curricula in the health sciences (medicine, dentistry, pharmacy, or medical technology). The student proceeds directly to specialized training in the chosen area after the third year of liberal arts study and offers the first year of professional study in lieu of a major concentration in the college in satisfying the requirements for the B.A. degree.

(2) BACHELOR OF FINE ARTS

The Bachelor of Fine Arts degree represents intensive study preparing students for graduate study and professional positions in art. The degree is offered with a major in studio art. Recommended course combinations for those who desire to concentrate in ceramics, graphic design/illustration, drawing, painting, fiber-fabrics, inter-area, watercolor, printmaking, or sculpture are available in the art department office.

(3) BACHELOR OF MUSIC

The program leading to the Bachelor of Music degree prepares students for graduate study and for positions in which a professional degree is required. The degree is offered with a major in music which has concentrations in music theory, composition, music history and literature, piano literature, and applied music (voice; organ; strings; woodwind; brass; and percussion instruments; multiple woodwind instruments; organ and church music; piano; studio music and jazz; Suzuki string pedagogy).
(4) BACHELOR OF SCIENCE IN CHEMISTRY

The Bachelor of Science in Chemistry is a professional degree designed in accordance with standards set by the American Chemical Society to train students to go directly into positions in the chemical industry or enter graduate study leading to positions in research and college teaching. Students may elect either the four-year resident program or a five-year cooperative program in which they alternate a quarter of study with a quarter of work in a chemical industry, thus gaining seven quarters of on-the-job experience while earning the degree.

Program Planning

Each student's academic program is highly individualistic, reflecting that person's special interests, goals, and aspirations. Usually it will reveal a growing intellectual sophistication and the development of particular motivations. On occasion, the student may become anxious; it gives indication of frustration and lack of clear direction. Viewed as a whole it may appear to be a miscellany of unrelated courses which were chosen almost capriciously; or it may be a carefully selected curriculum which the student brought to college in a way which represented for that individual the most appropriate and effective way of attaining educational goals.

The importance of program planning can hardly be overstressed. A few students enter the college with firm educational objectives in mind and their programs develop quite readily around these predetermined goals. Many, however, do not reach that stage of certainty until their academic careers are relatively far advanced. For these persons the exploration of possible directions and programs, in consultation with faculty advisers, is an important part of the educational process. It is essential for these students to develop their programs carefully and creatively in order that maximum flexibility in their ultimate decision making may be realized.

A basic decision, of course, is the degree to be sought. If it is one of the three professional degrees (Bachelor of Fine Arts, Bachelor of Music, or Bachelor of Science in Chemistry), the student's program will be somewhat circumscribed, for these degrees are necessarily more prescriptive than the general liberal arts degree. If the student chooses to work for the Bachelor of Arts degree, the three elements which make up the curricula leading to that degree will need to be kept in balance: the broad requirements in the Triad, the major area, and the elective courses which support and supplement the work in the first two categories. Most students find it desirable to lay a broad foundation by taking courses which will satisfy Triad requirements in the first two years, thus reserving most of the final years for in-depth study in the area of concentration. Elective courses may be taken at any time.

Advisers in the Liberal Arts Advising Center (220 Ayres Hall), in the various major departments, in the University Counseling Center, and elsewhere on campus are available to assist students with their program planning. In the final analysis, however, only the student can determine the program which will best satisfy particular needs.

Requirements for Degrees

Bachelor of Arts

As has already been stated, the general liberal and Triad requirements for the Bachelor of Arts, and it is the appropriate objective for most students in the college. Requirements for this degree and the several curricular programs which lead to it will now be discussed in detail.

Note: Students are advised to consult the University's degree requirements as stated in the front section of this catalog as well as the requirements for the college or department.

GENERAL REQUIREMENTS

Each student seeking a Bachelor of Arts degree must develop a program which includes the following:

1. A minimum of 180 credit hours;
2. At least 60 credit hours in courses numbered 3000 or above;
3. Appropriate work to satisfy the broad requirements of the Triad, counting no course for more than one Triad area (Basic Program, Individualized Program, and Pre-Professional Program only);
4. A major consisting of at least 36 credit hours in courses numbered 2000 or above as specified by the department or program in charge of the course in this major which has been used for Triad credit. (A course which satisfies a Triad requirement may serve, however, as prerequisite or corequisite to a major.) A minimum grade of C must be earned in every course counted as part of a major.

Students transferring from other institutions must complete at least 12 credits at The University of Tennessee, Knoxville, in each major awarded on this campus.

Multiple Majors: After the general requirements described above have been satisfied, additional majors may be recorded on the transcript without regard to course overlap among majors or among these additionals and Triad requirements. Students desiring multiple majors must first specifically declare this intent at the time they apply for graduation. Once a student has graduated, the establishment of additional majors becomes subject to University second-degree requirements.

Optional Minors: If desired, and at the time of applying for graduation, single or multiple minors may be recorded on the academic record without regard to course overlap among minors and majors or among minors and Triad requirements. Minors require a minimum of 24 credit hours in courses numbered 2000 or above. They are available in a wide variety of fields and may choose the courses that fit their interests. Multiple minors in which the student is enrolled are applied as follows:

Biochemistry Physical Sciences Portuguese

Women's Studies

Minors may be developed in other colleges or schools of the University, but they must be approved by the department or program in which the minor is proposed as well as by the Assistant Dean for Student Academic Affairs. At least 6 of the 24 credit hours required for a minor must be completed at The University of Tennessee, Knoxville.

A business minor is available to students who successfully complete 21 hours of the following required courses: Accounting 2110, 2120, Economics 2110-2120, and Statistics 2100. Also, 15 hours of upper-division hours in accounting, economics, or statistics may be used for this minor. Students are responsible for meeting prerequisites listed for any required upper-division courses taken in a particular concentration.

I. Basic Program

A. THE TRIAD:

Language, Literature, and the Arts; History and Society; Science and Mathematicians

Language, literature, and the arts play a vital role in shaping human experience and perception. They give expression to human thought and feeling and give form and order to a sense of the world. The written and spoken word, the dramatic motion and gesture of theatre, film, and dance, the sensual structures which address the eye and ear in painting and sculpture, architecture, and music—all of these help to define what is human.

It is important that every student of liberal arts become acquainted with these modes of experience and with the human skill. A basic competence in writing and reading is thus a minimal condition for understanding and relating to other activities.

The study of history is an integral part of a liberal education. Because human beings build on their experience, a clear understanding of the present requires a historical perspective. Such perspective may be developed by a number of courses, including the traditional surveys of western civilization or foreign cultures such as Asian history, Latin American history, history of the United States, and Afro-American history. More specialized courses in the history of particular segments of human experience, e.g., philosophy or religion, may also prove valuable.

A liberal education presupposes not only an awareness of the past but also a familiarity with contemporary social institutions, processes, and practices. From a wide variety of offerings in the social sciences the student may choose courses useful in acquiring that familiarity. Only by such knowledge can people of good will hope to maintain humane values in a world where industrialization, urbanization, and other dimensions of technological change challenge traditional patterns of individual and collective behavior.

Study of science and mathematics develops in the student an inquiring attitude toward the natural environment and confidence in the ability to understand scientific explanations of phenomena. These ends may be realized through an understanding of the empirical and the rational in scientific methods of inquiry and an awareness of the limitations of science and technology in solving problems. The student should attain a
knowledge of the way in which the development of science and technology has affected beliefs, philosophies, and the development of civilization.

**Specific Requirements in the Triad**

(1) **Language, Literature, and the Arts**

(a) **Writing Proficiency.**

Each student is required to demonstrate ability to use the English language effectively and coherently in one of the following four ways:

(i) By completing nine credits in English writing courses in one of the following series: (1) English 1010 or 1011, 1020, and three additional credits drawn from 1031, 1032, or 1033. Students who complete 1020 with the grade of A have the additional option to satisfy the remaining three credits in any 2000- or 3000-level writing course offered by the department. (2) English 1018, 1028, 1038. Students who obtain the grade of A or B in 1028 have the additional option, within 1036, to satisfy the remaining three credits in any 2000- or 3000-level writing course offered by the department. (3) English 1431, 1441, 1448.

(ii) By earning a score of 4 or 5 on the College Board Advanced Placement Test in English; or, with special permission, by earning a score of 3 on that examination and completing one 2000-level course in English at The University of Tennessee, Knoxville, with a grade of B or better.

(iii) By passing (normally after completing one year of high school study of the language) a proficiency examination in writing, administered by the Department of English in cooperation with the Committee on Writing Standards.

(iv) By completing three hours of freshman English followed by a minimum of six hours in courses which require substantial emphasis courses, identified by the Committee on Writing Standards. A list of those approved may be obtained in the office of the Department of English or the Liberal Arts Advising Center.

**Note:**

Students should normally take English in the first quarter of their registration and continue to take English or a writing-emphasis course in each succeeding quarter until this requirement is met.

(b) **Literature, Foreign Language, and the Arts.**

The student may select any one of the following three options to satisfy this requirement:

(i) Eight hours of literature in foreign language in the 2000-level or above. Prerequisite to this option is intermediate-level competence in the language, demonstrated by diagnostic (noncredit) proficiency examination or by completion of the 2000-level sequence in that language.

(ii) Intermediate-level competence in a foreign language demonstrated by diagnostic (noncredit) proficiency examination or by completing a 2000-level sequence (or an approved equivalent) in that language, and a minimum of two courses of literature in English (originally in English or in translation) drawn from the list of courses published by the Committee of Language, Literature, and the Arts, available in the Liberal Arts Advising Center. A minimum of two years of high school study will often qualify a student for entry into a 2000-level language sequence.

(iii) 24 hours in an integrated program in literature, art, and/or the arts, focusing either on (1) a particular nation or area other than the United States, or (2) a comparative study of literary and artistic modes, genres, or movements. Suggested program available by the Committee on Language, Literature, and the Arts and is available in the Liberal Arts Advising Center; students may also propose individual programs to the committee for consideration.

**Note:** In options (i) and (ii), those who take the diagnostic examination will not receive credit toward graduation but will be exempted from the portion of the requirement satisfied by the examination. Those who take the proficiency examination may earn up to 16 hours of credit toward graduation for previous study of the language, in addition to the hours of credit they earn for course work undertaken in the college. Normally two years of high school language study is regarded as equivalent to one year of college study. Students who have had four years of college study of the same language should be able to satisfy the requirement for intermediate-level competence in either option by examination and those who have had less than four years of study may be able to satisfy a portion of the requirement in this way, thus reducing the time required to satisfy this requirement. Full credit toward graduation is given for any language study undertaken successfully in the college regardless of the amount of previous study of that language.

Students who have had less than two years of study of the same language in high school are admitted with an entrance deficiency. Satisfaction completion of the final quarter of the first year sequence of college level foreign language study, normally in the freshman year, is necessary to remove this deficiency.

(2) **History and Society.**

Each student must complete 24 hours of course work in this area including:

(a) One eight-hour sequence from the several survey courses offered by the Department of History or in a comprehensive interdisciplinary sequence having a substantial emphasis on history;

(b) Eight hours in courses with emphasis on man and society which are not primarily historical in nature;

(c) The remaining hours may be taken in either sequence

A list of courses which satisfy this requirement is published by the Committee on History and Society and is available in the Liberal Arts Advising Center.

(3) **Science and Mathematics.**

Each student must complete 24 hours of course work in this area, including:

(a) One of the following two options:

(i) An eight-hour sequence in biological science; or

(ii) An eight-hour sequence in physical science.

(b) 16 hours drawn from additional courses in the biological and/or physical sciences or from designated courses in:

(iii) the history, philosophy, or social impact of science;

(iv) mathematics and logic.

Credit earned toward this requirement may be applied toward any one of the above four categories.

A list of courses which satisfy this requirement is published by the Committee on Science and Mathematics and is available in the Liberal Arts Advising Center.

B. **THE MAJOR**

In many ways the most important part of each student’s program is the major, for it is in this intensive study of one more or less limited fields of knowledge that the individual begins to find a niche in the world of intellectual endeavor. The major may be drawn from the offerings of a single department or it may bring together related concerns of two or more departments. In either case the student should work out a program of study which has a definite design and aims at some overall objective. Guidelines are published by each major department or interdepartmental committee to assist the student in ascertaining goals and to provide a framework within which to develop a particular program. Additional assistance in the form of personal counseling is available in the Liberal Arts Advising Center and from designated faculty advisors in each major department or area.

Requirements for the specific majors available to students in the Basic Program vary from a minimum of 36 to a maximum of 56 credit hours in courses numbered 2000 and above, including prerequisites and corequisites (i.e., supporting courses in other departments or areas). Insofar as is consistent with the objective of a total program balanced reasonably between broad area requirements in the Triad, the major, and supplementary courses, the student may elect as many courses as desired in any department or area.

Majors available in the Basic Program:

- Anthropology
- Art
- Art History
- Audiology
- Biology
- Botany
- Chemistry
- Computer Science
- Cultural Studies
- Economics
- English
- French
- Geography
- Geology
- German
- Greek
- History
- Human Services
- Italian
- Latin
- Mathematics
- Microbiology
- Music
- Philosophy
- Physics
- Political Science
- Psychology
- Religious Studies
- Russian
- Sociology
- Spanish
- Speech Pathology
- Speech & Theatre
- Statistics
- Zoology

C. **SUPPLEMENTARY ELECTIVE COURSES**

At least one-fourth of each student’s curriculum in the Basic Program will be made up of courses selected according to the individual’s interests to supplement and support the work being done in the major and in the Triad. This dimension of the student’s experience in the University represents that freedom within which total education may be rounded out and enriched. Elective courses should be chosen with care so that they will truly enhance the student’s total program and help in the achievement of well thought-out educational objectives.

Some of the choices which the student might make in selecting the elective courses are:
(1) Additional courses in the major field; (2) A related minor; (3) An area in the arts; (4) An off-campus quarter.

Only the student's imagination and initiative and the willingness to conceive and develop a totally meaningful academic program limit the choices of supplementary elective courses.

II. Individualized Program

The Basic Program described above will meet the educational needs of most of the students enrolling in the college. Some, however, come with particular strengths in their preparation or with special interests which do not coincide with the departmental or interdepartmental majors specified in the Basic Program. For these students the Individualized Program has been established as a means of attaining a closer correlation between student needs and academic programs.

Students in the individualized Program satisfy the broad requirements of the Triad, just as do those in the Basic Program. The point at which the greatest degree of individualization takes place, however, is in the area of concentration. Although the quantitative aspect of the area of concentration is the same as for the major in the Basic Program (i.e., a minimum of 36 hours in courses numbered above 2000), there is no restriction in principle on the choice of courses of which it is composed. The student may design a program, in consultation with an adviser, and submit it for consideration to the Committee on the Individualized Program. The proposed courses of study must have some clear central purpose, usually implemented through intensive work in two or three departments; an undirected scattering of courses will not be approved. For further information contact the Liberal Arts Advising Center.

III. College Scholars Program

A limited number of freshmen, entering transfer students with less than 60 credit hours, and resident students with less than 90 credit hours are invited each year to enter this distinguished program. Selection is based on previous academic record, test scores, recommendations, a written essay, and a personal interview. Admission is provisional for two quarters; continuation depends upon maintenance of a satisfactory record (normally 3.25 or above) and evidence of ongoing motivation and interest.

The College Scholars Program affords the highest degree of freedom to the student in developing a meaningful curriculum. Each program is worked out individually with a special adviser (tutor) who under ordinary circumstances continues to advise the student throughout the college career. Together they determine what kinds of course work and or other learning experiences will best fulfill the student's objectives, while at the same time achieving the kind of liberal education the college believes is important for every student. In the final two years of the program students will be heavily involved in independent study or research.

Further information and applications may be obtained from the Liberal Arts Advising Center.

IV. Preparation for the Health Professions

Pro-Dental
Pro-Dental Hygiene
Pro-Medical
Pro-Medical Record Administration
Pro-Medical Technology
Pro-Nursing
Pro-Physical Therapy
Other Health Professions

Pre-health professional programs are available for students who plan a career in one of the health professions. The programs preparing students for the study of medicine, dentistry, and pharmacy include the specified courses required for admission to the respective colleges of The University of Tennessee Center for the Health Sciences at Memphis (UTCHS), as well as those required for the Bachelor of Arts degree in the College of Liberal Arts at The University of Tennessee, Knoxville.* The pre-medical technology program prepares students to undertake professional training during the third year of study at UTCHS. Other pre-health professional programs--dental hygiene, medical technology, cytotechnology, nursing, pharmacy, and physical therapy—are offered for those students who are planning to pursue professional training in health professional areas which lead to an undergraduate degree from UTCHS but not to a degree from UTK.* Admission to any program at UTCHS or Knoxville is at the discretion of that program's admissions committee. Admission to The University of Tennessee and completion of a pre-health professional program in the College of Liberal Arts does not assure admission to any professional training program.

Because the opportunity for admission to most programs in the health professions is keen, pre-health professional students are encouraged to work towards the completion of a degree program in a major which will enable the individual to adapt to an alternative program in the event admission to the desired program is not achieved. The preparatory courses necessary for professional study can be incorporated into the chosen major program.

Students in a pre-health professional program should consult with a health professional adviser in the Liberal Arts Advising Center (218 Ayres Hall) for more information about the programs outlined below. Bulletins describing the various pre-health professional programs, including a detailed statement on requirements, may be obtained from the Health Professions Office, 218 Ayres Hall.

PRE-DENTAL PROGRAM

The college offers both three-year and four-year programs leading to the degree of Bachelor of Arts for students preparing for the study of dentistry. Both preparation programs are based upon the curriculum outlined below. In the three-year program the degree is granted upon completion of 180 or more credit hours while enrolled in the college, including a major of 36 or more hours in addition to the courses listed below. The requirement for a major is waived for those completing their fourth year at UTCHS. Students in either the three-or four-year program must complete the last 45 hours of credit in residence at The University of Tennessee, Knoxville, before entering UTCHS.

Although the B.A. degree is not required for admission to the College of Dentistry at Memphis, most of the students accepted into the study of dentistry have the baccalaureate degree before admission. Therefore, pre-dental students are encouraged to plan to complete all requirements for the B.A. degree before enrolling in the College of Dentistry.

Freshman

Hrs Credit
1English 1010-11; 1020, 1031 or 1032
...9
2Chemistry 1110-20-30
...12
3Math (1540) 1550-60 or 1840-50
...8
4Triad I (Language, Literature & the Arts)
...8
5Triad II (History and Society)
...12
6Sophomore
7Biology 1210-20-30 or Zoology 1118-28-38
...12
8Chemistry 3211-21-31 and 3218-29-39...
...12
9Triad I...
...12
10Triad II...
...8
11Elective
...4
12Junior
13Physics 2210-20-30
...12
14Speech 2311
...4
15Oral biology and or zoology.
...12
16Triad I...
...12
17Triad II...
...4
18Elective
...TOTAL: 135 hours

Senior
19Completion of major program and B.A. requirements and completion of one year at UTCHS...
...45
20Total: 180 hours

*Students wishing to prepare for professional training at institutions other than UTCHS should consult the catalog of those institutions to determine the specific preparation required for admission.

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1 Recommended courses in biology and zoology are genetics, microbiology, analytical chemistry, and bio-chemistry. Courses printed in italic are strongly recommended.

2 Recommended courses in biology and zoology are genetics, cell biology, and comparative vertebrate anatomy.

PRE-DENTAL HYGIENE PROGRAM

A Bachelor of Science in Dental Hygiene is granted by UTCHS upon completion of a program which includes 96 hours of prescribed courses in the College of Liberal Arts and six quarters of study at UTCHS. Students interested in the pre-dental hygiene program are encouraged to consult with a health professions adviser in the Liberal Arts Advising Center or the Coordinator of the Health Professions Office for more information. Bulletins describing the pre-dental hygiene program and requirements in detail may be obtained from the Health Professions Office, 218 Ayres Hall.

PRE-MEDICAL PROGRAM

The college offers both three-year and four-year programs leading to the degree of Bachelor of Arts for students preparing for the study of medicine. Both programs are based upon the program outlined below. In the three-year program the student must complete...
least 135 credit hours while enrolled in the college, and the B.A. degree is granted upon satisfactory completion of UTCHS first year of study at UTCHS. In the four-year program, the degree is granted upon completion of 180 or more credit hours while enrolled in the college, including a major of 36 or more hours in addition to the courses outlined below. The requirements for a major are waived for those taking their fourth year at UTCHS. Students in either the three-or-four-year program must complete the last 45 hours of credit in residence at UTCHS before enrolling UTCHS. Although the B.A. degree is not required for admission to the College of Medicine, most students accepted into the study of medicine have the baccalaureate degree before admission. Therefore, pre-medical students are encouraged to plan to complete all requirements for the degree before enrolling in the College of Medicine.

Freshman

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| Total (135)                                 | 39    |        |

Senior

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| Total (135)                                 | 44    |        |

PRE-MEDICAL TECHNOLOGY PROGRAMS

The college offers two programs leading to the study of medical technology:

1. The Science-Medical Technology Curriculum leading to the Bachelor of Arts degree with a major in medical technology from The University of Tennessee.

2. The Pre-Medical Technology Program leading to a degree of Bachelor of Science in medical technology from UTCHS.

Science-Medical Technology Curriculum

Curriculum is a three-year program consisting of a minimum of 135 credit hours in college. Students who complete this curriculum satisfactorily may apply for admission to the course of study in medical technology at The University of Tennessee Memorial Research Center and Hospital in Knoxville (UTMRCH). Successful completion of this course, which results in the award of 50 credit hours, makes the student eligible for a Bachelor of Arts degree with a major in medical technology from The University of Tennessee. In addition, a Certificate of Laboratory Training will be awarded by UTMRC. Students who then be eligible for examination by the Board of Registry of the American Society of Clinical Pathologists in order to be certified as registered medical technologists.

Freshman

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<td>Chemistry 3211-21-31 &amp; 3219-29-39</td>
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</tr>
<tr>
<td>Math 1840-50</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Triad I (Language, Literature, &amp; the Arts)</td>
<td>12</td>
<td></td>
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Sophomore

<table>
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<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Biology 2110-20-30 or Zoology 1118-28-38</td>
<td>12</td>
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<tr>
<td>Chemistry 3211-21-31 &amp; 3219-29-39</td>
<td>12</td>
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<tr>
<td>Math 1840-50</td>
<td>8</td>
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<tr>
<td>Triad I</td>
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Junior

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<tbody>
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| Total (135)                                 | 44    |        |

Senior

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<tbody>
<tr>
<td>Medical technology course of study at UTMRC</td>
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PRE-NURSING PROGRAM

The minimum requirements for admission to the College of Nursing at UTCHS is 80 hours of prescribed courses in the College of Liberal Arts. The program in Memphis, which leads to the Bachelor of Science in Nursing from UTCHS, is two years in length. Registered nurses who wish to work for a degree of Bachelor of Science in Nursing must complete 54 hours of prescribed courses to quality for admission with advanced standing.

Students interested in the pre-nursing program are encouraged to consult with a health professions adviser in the Liberal Arts Advising Center or the Coordinator of the Health Professions Office for more information. Bulletins describing the pre-medical technology programs and requirements in detail may be obtained from the Health Professions Office, 218 Ayres Hall.

PRE-NURSING PROGRAM

The college offers three programs preparing students for the study of pharmacy at UTCHS. The Bachelor of Science in Pharmacy degree is conferred by UTCHS upon completion of three years of professional study at Memphis following any of the three programs.

The two-year program prepares students to be admitted to the College of Pharmacy upon completion of 90 hours of a prescribed course of study in the College of Arts. Further information may be obtained from the Health Professions Office, 218 Ayres Hall.

The three-year and four-year programs, which lead to a B.A. degree from The University of Tennessee, Knoxville, as well as to the professional degree in pharmacy from UTCHS, are based upon the program outlined below. In the three-year program, the student must complete at least 135 credit hours while enrolled in the College of Liberal Arts, and the B.A. degree is granted upon satisfactory completion of the first year of study at Memphis. In the four-year program the degree is granted upon completion of 180 or more credit hours while enrolled in the college, including the last 45 hours in addition to the courses outlined below. The requirement for a major is waived for those taking their fourth year at UTCHS. Students in either the three-or-four-year program must complete the last 45 hours of credit in residence at The University of Tennessee, Knoxville, before enrolling in the College of Pharmacy.

Freshman

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
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<tbody>
<tr>
<td>Chemistry 1110-20-30</td>
<td>12</td>
<td></td>
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<tr>
<td>Math 1840-50</td>
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<td></td>
</tr>
<tr>
<td>Electives</td>
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<td></td>
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</tbody>
</table>

| Total (135)                                 | 30    |        |
College of Veterinary Medicine.

Veterinary Medicine is at the discretion of the degree will be conferred by the College of Veterinary Medicine. Students in this program does not assure admission to the admissions committee of that College; admission to and successful completion of program allows the gifted student greater opportunity for establishing a unique and its major are recorded as follows: Bachelor of Fine Arts Major: Studio Art ELECTIVES

A recommended sequence of courses from such areas as business, education, and sciences are designed to help the student combine art with other fields for possible careers in art administration, gallery and museum management, scientific illustration, non-certificate teaching, and other art related occupations. Up to 60 elective hours may be used by applying the 20 credit hour requirements of non-art electives (III.C.) to a career preparation sequence. See Option II under Electives. Counseling and programs of career preparation sequence. See Option III for a portfolio of work, (3) the proposed course of study, (4) a personal interview. A minimum grade-point average of 3.0, (2) a portfolio of work, (3) the proposed course of study, and (4) a personal interview. A minimum grade-point average of 3.25, at least 12 hours per quarter, and evidence of cortisol.

College of Liberal Arts

Freshman

Course Hours

Psychology 2500

4

Triad I (Language, Literature, & the Arts)

6

Triad II (History & Society)

4

Elective

3

Sophomore

Biological 1210-20-30 or Zoology 1118-28-39

12

Chemistry 2311-21-31 & 2319-29-39

12

Speech 2311

3

Triad I

6

Triad II

8

Elective

4

Junior

Accounting 2110

3

Physics 2210-20

8

Triad II

8

Electives...

12

Hours Credit

39

Senior

Completion of one year at UT College of Veterinary Medicine...

57

TOTAL: 201 hours

1Animal Science 2810 is highly recommended for students with limited or no personal animal experience.

OTHER HEALTH PROFESSIONS

Cytotechnology

4

Cytometry

4

Radiologic Technology

4

Veterinary Medicine

4

A library of materials about career opportunities in the health professions, including most allied health areas, has been developed and is located in the Health Professions Office, 218 Ayres Hall. Academic Advisers are available to assist students in planning their programs in order to meet the requirements for admission to other programs.

Bachelor of Fine Arts

The Bachelor of Fine Arts degree represents intensive study preparing the student for graduate programs and careers relating to art. A minimum of 189 credit hours are required for graduation. Although there are no specific concentrations within the major, guidelines for the following recommended programs are available in the departmental office: (1) ceramics, (2) graphic/design illustration, (3) drawing, (4) fibers/fabrics, (5) painting, (6) printmaking, (7) sculpture, and (8) watercolor. Inter-area concentrations are also possible. Transfer students are advised that a minimum of 28 hours in studio courses and 12 hours in upper-division hours in art history must be earned at The University of Tennessee, Knoxville. The Bachelor of Fine Arts degree and its major are recorded as follows:

Degree: Bachelor of Fine Arts Major: Studio Art ELECTIVES

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continuing motivation and interest must be maintained to remain in the program.

Each College Artist will normally enroll in one or more of the required courses each quarter and must participate in a public or private recital or performance each quarter. The reduced course load is designed to prepare students for graduate school or professional study in their area of specialization.

STUDIO HONORS COURSES

Courses are designated as studio honors courses in the Bachelor of Music curriculum. Students who meet the requirements for honors may be enrolled in any of these courses and may pursue a studio major or minor.

Bachelor of Music

The Department of Music offers the degree of Bachelor of Music in concentrations in music theory, composition, music history and literature, and applied music (vocal, piano, organ, and church music; woodwind, brass, and percussion instruments; multiple woodwind instruments; studio music and church music; strings; Suzuki string pedagogy). The study is designed to prepare students for graduate study or for positions in music for which a professional degree is required.

Students who plan to work for this degree are assigned an advisor in the Department of Music at the time they enter the program. Continuation in the program at the 3000 level requires the achievement of an average of 2.5 in all music courses taken. The minimum requirement for the degree is 180 credit hours, including the specified courses outlined below.

Note: In addition to the concentrations offered in the Bachelor of Music curriculum, a major in music with a concentration in either music history and literature or applied music is available in the Bachelor of Arts curriculum.

MUSIC THEORY

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
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</thead>
<tbody>
<tr>
<td>English 1010 or 1101, 1020, 1031 or 32</td>
<td>3</td>
</tr>
<tr>
<td>Music 1111-21-31</td>
<td>3</td>
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<tr>
<td>Music 1113-23-33</td>
<td>3</td>
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<tr>
<td>Music 1199</td>
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<td>Music 2000</td>
<td>3</td>
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<tr>
<td>Applied music</td>
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<td>Ensemble</td>
<td>3</td>
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<tr>
<td>Liberal arts elective (not in music)</td>
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Sophomore

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Junior

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Senior

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TOTAL: 180 hours

MUSIC HISTORY AND LITERATURE

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<tr>
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TOTAL: 180 hours

PIANO LITERATURE

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<tr>
<td>Music 1113-23-33</td>
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<td>3</td>
</tr>
<tr>
<td>Applied music</td>
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<tr>
<td>Ensemble</td>
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TOTAL: 180 hours

PIANO

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TOTAL: 180 hours
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<th>Hours Credit</th>
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<tr>
<td>Principal applied study</td>
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<tr>
<td>Ensemble</td>
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<tr>
<td>Music electives</td>
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</tr>
<tr>
<td>Music 2300</td>
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</tr>
<tr>
<td>Senior</td>
<td>Hours Credit</td>
</tr>
<tr>
<td>Music 1111-21-31</td>
<td>9</td>
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<tr>
<td>Music 1113-23-33</td>
<td>9</td>
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<tbody>
<tr>
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<td>Music electives</td>
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<td>Music 2300</td>
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<tr>
<td>Senior</td>
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<tr>
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**TOTAL: 180 hours**

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<tr>
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<td>English 1010 or 1011; 1020; 1031 or 32 or 33</td>
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<td>Music 2300</td>
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<td>Senior</td>
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### Curriculum Requirements

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**TOTAL: 185 hours**

### Suzuki String Pedagogy

- **Freshman**
  - **Hours Credit**
  - Music 1010 or 1011; 1020; 1031 or 32 or 33 | 9
  - Music 1111-21-31 | 9
  - Music 1113-23-33 | 3
  - Music 2340 | 3
  - Music 2341 | 3
  - Music 2300 | 3
  - Principal applied study | 12
  - Ensemble | 3
  - Liberal arts electives (not in music) | 4
  - Music 2000 | 0

- **Sophomore**
  - **Hours Credit**
  - Music 2111-23-31 | 9
  - Music 2112-23-33 | 3
  - Music 2310-20-30 | 9
  - Psychology 2520 | 3
  - Principal applied study | 12
  - Music 1040-50-60 | 3
  - Ensemble | 3
  - Liberal arts electives (not in music) | 3
  - Music 2000 | 0

- **Junior**
  - **Hours Credit**
  - Music 2340 | 3
  - Music 3112 | 3
  - Music 3113-23-23 | 6
  - Psychology 2540 | 4
  - Psychology 2560 | 4
  - Music 4009-19-29 | 6
  - Principal applied study | 12
  - Ensemble | 3
  - Junior recital | 0
  - Liberal arts electives (not in music) | 3
  - Music 2000 | 0

- **Senior**
  - **Hours Credit**
  - Principal applied study | 12
  - Ensemble | 3
  - Senior recital | 0
  - Music 4009-19-29 | 6
  - Music 4018 | 2
  - Music 4007-17-27 | 3
  - Liberal arts electives (not in music) | 6
  - Electives | 9
  - Music 2000 | 0

**TOTAL: 180 hours**

### Bachelor of Science in Social Work

- **Freshman**
  - **Hours Credit**
  - English 1010 or 1011; 1020; 1031 or 1032 or 1033 | 9
  - Music 1111-21-31 | 9
  - Music 1113-23-33 | 3

**TOTAL: 180 hours**

### Bachelor of Science in Chemistry

- **Students** who desire to major in chemistry may select either the curriculum leading to the degree of Bachelor of Arts or that leading to the degree of Bachelor of Science in Chemistry. This latter program is approved by the American Chemical Society and is designed to train students to go directly into the chemical industry. The program normally requires five years and involves a total of seven work quarters and twelve school quarters. Students are required to have at least a 2.5 average to enter and remain in the program. Some opportunity exists for students to enter the program later than the end of the freshman year. Students interested should make application to the head of the department at least one quarter in advance of the beginning of the first work period. Further information will be supplied on request.

**Curriculum Requirements**

- **Freshman**
  - **Hours Credit**
  - Chemistry 1110-20-30 | 12
  - Math 1840-50-60 or 1848-58-68 | 12

**TOTAL: 180 hours**

1. Two or three years of a single foreign language in order of preference, German, Russian, French, Chinese.
2. To be chosen from the following: Chemistry 4310, 4430, 4550, 4710. Biochemistry 410-20, 420-30.
3. At least eight hours of these electives must be in a science other than chemistry, the following courses are recommended: Physics 3710-20-30, 4210-20-30, 4310-30-30; Mathematics 4610-20-30, 4640, 4640-70; Computer Science 3510-20, 4550; Geology 4610; Mst. Engr. 4510-20, Zoology 3080; Botany 5210.

**Bachelor of Science in Social Work**

The degree of Bachelor of Science in Social Work is in harmony with the goal of general and liberal learning of the College of Liberal Arts. Social work majors are required to meet the same general education requirements as Bachelor of Arts majors (English Composition; Language, Literature and Arts; History and Society; Science and Mathematics). This aggregation of foundation Liberal Arts knowledge is considered essential to an adequate appreciation of the professional, career oriented thrust of the Social Work major.

- Students interested in pursuing the Bachelor of Science in Social Work should confer with the Director of the Social Work Program during the first academic year. Those completing the core curriculum of study will be prepared to engage in beginning professional social work practice and enter many graduate schools of social work with advanced standings. This degree is designed in accordance with standards set by the Council on Social Work Education.

**Freshman**

- **Hours Credit**
  - English 1010 or 1011; 1020; 1031 or 1032 or 1033 | 9
  - Triad I (Language, Literature, Arts) | 12
  - Triad II (History and Society) | 12
  - Triad III (Science and Mathematics) | 12

**Sophomore**

- **Hours Credit**
  - Social Work 2000 | 4
  - Human Services 3200 | 4
  - Science and Mathematics | 12
  - History and Society | 12

- **Junior**
  - Social Work 3400-10 | 8
  - Sociology 3910-20 | 8

- **Senior**
  - Social Work 4110 | 4
  - Social Work 4500-10 | 8
  - Psychology 2540-4 | 4
Preparation for Other Professions

Social Work

Students who wish to prepare for graduate professional training in social work will find a brief description of the program of the School of Social Work on page 56. Detailed information about courses and curricula, as well as requirements for admission, will be found in the catalog of the School of Social Work.

Teaching

Students in the College of Liberal Arts who wish to be certified for secondary school teaching must meet state certification requirements as well as degree requirements of the College of Liberal Arts and must be recommended for certification by the College of Education. The College of Education is approved by the National Council for Accreditation of Teacher Education (NCATE); recommendation for certification by the college, therefore, in effect certifies the student in 30 states.

Application for admission to the Teacher Education Program should be made during the second or third quarter of the sophomore year in the College of Education, 212 Claxon Education Building. Criteria for admission are: (1) a 2.2 cumulative grade point average; (2) satisfactory ratings in a speech and hearing exam as determined by tests administered by the Speech and Hearing Center; (3) a personality inventory; (4) satisfactory student conduct records; (5) a successful field experience.

One quarter during the senior year must be reserved for student teaching (Education C & I 4710-20). Application for student teaching must be filed not later than January 1 of the year preceding the academic year in which the student teaching will be undertaken. Those planning to student teach during the 1981-82 academic year must apply by January 1, 1981.

For additional information contact Teacher Certification Office, Room 212 Claxon Education Building.

NOTE: The same course may be applied both to certification requirements and to Triad or major requirements of the College of Liberal Arts.

Theology

Students planning to study theology should follow one of the Bachelor of Arts curricula. Any liberal arts major is acceptable for admission to most theological schools; strong preparation in literature, philosophy, history, religious studies, and social science is desirable. Students may wish to consult with faculty members in the Department of Religious Studies in planning their programs.

General Information

Admission to the College

For information regarding admission to the College of Liberal Arts, see page 28.

Course Load

The average course load for the college for any quarter is 14-16 credit hours. The University defines full-time undergraduate students as those who register for a minimum of 12 hours. The maximum number of hours which may be taken by liberal arts students is 17, exclusive of elective work in ensemble music and physical education. Exceptions to this rule will require approval by the Associate Dean for Student Academic Affairs (218 Ayres Hall).

Lower Division—Upper Division

Courses numbered at the 1000 and 2000 levels are considered lower division and are normally taken by students in the freshman and sophomore years. Courses numbered 3000 and above are upper division and are designed for students at the junior and senior levels.

Satisfactory/No Credit Courses

A few courses in the college are offered only on a Satisfactory/No Credit (S/NC) basis and students may elect to take others on this basis, except in areas where the option is specifically prohibited. Such courses, if successfully completed, will count as hours for graduation although neither S nor NC grades will be calculated in the student's grade point average. Satisfactory is defined as C or better work on the traditional grading scale and No Credit is defined as less than C. The following regulations apply:

(1) S/NC courses, except those offered only on this basis, may not count for Triad requirements or major and minor requirements unless specifically permitted by petition. This restriction applies also to major or minor prerequisites.

(2) The maximum number of S/NC elective hours which may be counted toward graduation is 30, exclusive of courses offered only S/NC, physical education courses, and/or satisfactory hours earned by examination, military service, etc.

(3) A student who desires to take a course S/NC should indicate that intention at the time of registration. A change from S/NC grading to regular grading or from regular grading to S/NC will not be permitted beyond the add deadline in each quarter. (Exceptions students who register for a course S/NC in a restricted area will be required to change to regular grading when the error is discovered.)

(4) A transfer student who has more than 30 S/NC or equivalent credit earned prior to admission to The University of Tennessee, Knoxville, may count all of these hours toward graduation but may not elect additional S/NC hours.

(5) A transfer student with S/NC or equivalent credit earned prior to admission to The University of Tennessee, Knoxville, in a course which satisfies a Triad requirement may count it for that purpose. In the case of a course which satisfies a major or minor requirement, statement (1) applies. The option of taking courses on a S/NC basis is provided to encourage the able student to venture beyond the limits of those courses in which the student does well and, motivated by intellectual curiosity, to explore subject matter that performance may be somewhat less outstanding than work in preferred subject fields.

Note: Students planning to seek admission to graduate or professional schools (especially in the health sciences) should discuss with their advisers possible limitations on exercise
of the S/NC option before registering for courses on this basis.

Off-Campus Study
Recognizing that learning is not restricted to formal classroom situations, the college provides for credit toward graduation for approved off-campus study. Such study may be undertaken only with prior approval of the faculty member and the department concerned. It may include certain kinds of work experiences, community involvements, working in political campaigns, etc. Credit per quarter will vary from 1-16 hours. Up to 24 hours of credit earned in this way may be applied toward a degree in the college, although individual departments may limit the number of hours which may be applied toward a specific major.

Independent Study
Certain educational goals may best be met through independent study done by an individual under the direction of a faculty member. Students who wish to do such independent work should obtain the approval of the faculty members and the departments concerned prior to embarking upon their study. Credit per quarter will vary from 1-16 hours. Up to 24 hours of credit earned in this way may be applied toward a degree in the college, although individual departments may limit the number of hours which may be applied toward a specific major.

Study Abroad and Foreign Study Courses
Several opportunities for study abroad are available to students in the college. One avenue is through group programs arranged and supervised by departments of the college on a full-quarter or summer terms basis. A second is through group programs conducted abroad by other academic institutions to which UTK students with approval may enroll for credit. Assistance in identification of and registration in such programs may be obtained through the Overseas Study Information Service located in the University's Division of International Education. A third opportunity is through individualized programs under the foreign study number 4101. The nature of this work, as well as credit for it should be negotiated by students prior to departure with the appropriate liberal arts departments. Credit will be awarded only after completion of all agreed upon requirements, and may vary from 1-16 hours in any one department. Up to 24 hours of such credit, exclusive of that earned in group programs offered by departments, could apply toward a degree in the college. Departments may in any of the above forms, however, limit the hours of credit which can be applied toward a given major.

Liberal Arts Advising Center
Academic advising for students of the college is offered through the Liberal Arts Advising Center, 220 Ayres Hall, as well as through the several major departments. The Advising Center is staffed on a regularly scheduled basis by members of the college faculty, each of whom has been trained for this specialized work. Students in their first quarter of residence are assigned to the Advising Center where they may relate themselves to a particular adviser of their choice or consult the person on duty at the time they need assistance. Most students continue in this relationship to the Advising Center until they have determined their major, normally by the beginning of the junior year, at which time they may be transferred for advising to a faculty member in the major department.

Student Academic Affairs Office
Academic assistance for students is also provided through the Student Academic Affairs Office, 218 Ayres Hall. This office serves primarily those students not assigned to the Liberal Arts Advising Center, helping them meet a variety of academic needs relating to the development of their academic programs, satisfying graduation requirements, etc. For those who are planning careers in the health sciences it provides a liaison with the Center for the Health Sciences.

Office of African and Afro-American Studies
The Office of African and Afro-American Studies, 802 Volunteer Blvd., Suite 416, cooperates with the various departments and colleges of the University with respect to the development of curricular changes and innovations which incorporate the Black experience into academic and extracurricular programs. It supplies information on financial assistance for Black students, and serves as the focal point for the coordination and development of an improved and expanded African and Afro-American Studies Program at the University.

Bureau of Public Administration
The University has established in the college a Bureau of Public Administration for the purpose of promoting sound governmental administration through research, publication, and consultation. Offices and staff are established by the University within the Department of Political Science serves as director of the Bureau of Public Administration.

Psychological Clinic
The Psychological Clinic is an outpatient psychodiagnostic and treatment center established by the University within the Department of Psychology. It provides advanced graduate training for students in clinical psychology and also serves as a training facility for graduate students in the School of Social Work. Referrals for treatment come from many sources, including self-referrals and referrals by relatives and friends and by various social and mental health agencies. Treatment services are available to anyone regardless of residence, sex, age, race, or citizenship.

University Theatres
The Department of Speech and Theatre offers a full schedule of dramatic presentations in three different theatres. The Clarence Brown Theatre has outstanding facilities for proscenium and open staging and for film productions, and, in a separate Studio Theatre, for laboratory productions. Carousel Theatre is designed for arena staging and can be converted for open-air performances in the summer.

Instructional Facilities
The college carries on its varied teaching and research activities in more than two dozen principal buildings in two areas of the campus, as well as in a number of converted residences which provide office, studio, or clinical space. The older of the two clusters of buildings is the "Hill," and includes Ayres Hall (psychology and mathematics), Austin Peay (psychology), Hesler (biological sciences), Physics (physics and astronomy), Geology-Geography (geology and geography), and Dabney and Beuchler (chemistry). West of "The Hill" is a recently built group of buildings for the humanities, social sciences, and fine arts: McClung Tower and the Humanities-Social Sciences classroom building (classics, English, foreign languages, history, human services, philosophy, political science, religious studies, sociology, and speech and theatre), the Music Building (music), and the Hearing and Speech Center (audiology and speech pathology). In this area also are the McClung Museum and the Clarence Brown and Carousel Theatres, as well as the Undergraduate Library. Anthropology is housed in South Stadium, and art utilizes several small buildings for its studies.

College Offices
The College Administrative Office is in 226 Ayres Hall. The Student Academic Affairs Office is in 218 Ayres Hall. The Liberal Arts Advising Center is in 220 Ayres Hall.
4400, 4420, 4430, 4440, 4550, 4560, 4740.
(b) Physical: 3070, 3900, 3920, 3930, 4190, 4190, 4560, 4790. (c) Archaeology: 3610, 3620, 3630, 3640, 3660, 4400, 4600, 4750, 4560.

A minor in archaeology consists of 27 hours including the 2510, 2520, 2530 introductory courses.

2510 Human Orgins (4) Non-technical survey of man's primate background, fossil primates, fossil man, and living races of mankind.

2520 Prehistoric Archaeology (4) Survey of prehistoric cultures with emphasis on the evolution of human societies and the historical development of anthropological and archaeological thought. Required of all students planning on careers in archaeology. Emphasis on the application of cultural and biological data. Prerequisites: 2510 or 2520 recommended.

2530 Human Culture (4) Introduction to ethnology: survey of nature of culture and society and similarities and differences in man's material culture, social, economic, and political organizations, ideology, art, and language.

2540 Introduction to Linguistic Anthropology (4) Basic linguistic concepts. Aspects of language studied by anthropologists and sociologists.

3010 Prehistoric Humans and Their Lifeways (3) A study of the development of humans and their cultural behavior from earliest evidence of humans to the end of the Paleolithic. Emphasis on the interaction between cultural and biological development and adaptation. Prerequisite: 2510 or 2520 recommended.

3070 Genetics and Society (3) (Same as Botany 3070). Genetics and society: an introduction to genetics and the impact of genetic science on society.

3333 Visiting Lecture Program (3) Developed around lectures by visiting scholars in physical anthropology, cultural anthropology, or archeology. Offered fall quarter with subsidization on rotating basis. May be repeated. Maximum credit 9 hours.

3410 Principles of Cultural Anthropology (3) Basic concepts and objectives in study of culture. Range of cultural phenomena and approaches to its study. Recommended.

3440 Religion of Primitive Peoples (3) Religions of non-literate peoples. Place of religion in their social and cultural systems. Recommended.

3460 Human Osteology (4) Intensive examination of the human skeleton. Prerequisite: 2510 or consent of instructor. Recommended: 2530.

3900 Human Osteology (4) Intensive examination of the human skeleton. Prerequisite: 2510 or consent of instructor. 3 hrs 1 lab.

3920 Principles of Physical Anthropology (3) Survey of materials and methods in physical anthropology. 2510 recommended.

3930 The Biology of Races of Man (3) Processes of racial differentiation; criteria of significant differences among existing stocks; influence of biology and culture in race formation; analysis of studies concerning blood groups, race mixture, constitution, growth, and nutrition. 2510 recommended.

3950 Human Identification (3) Introduction to techniques in identification of human skeletal material in forensic medicine.

4011 Foreign Study (1-16) See page 185.

4012 Off-Campus Study (1-16) See page 185.

4023 Independent Study (1-16) See page 185.

4111 Non-Western Education: Anthropological Approaches (3) Analysis of educational practices in various cultures, an exploration of the role of education in the development of societies.

4240 Applied Cultural Anthropology (3) Application of anthropological theory, methods, and findings in programs of community and national development, public health, international aid, and military assistance. Examination of roles of anthropologists, values and ethics in intervention schemes, and organization of planned change in applied programs. Intensive analysis of selected case studies. Prerequisite: 2530.

4250 Medical Anthropology: Lecture (3) Survey of medical and cultural anthropology in North and South America. Focus on health and cultural aspects of health, disease, treatment, and related concepts. Focus on analyses and descriptions of anthropological fieldwork.

4250 Medical Anthropology: Lecture (3) Survey of medical and cultural anthropology in North and South America. Focus on health and cultural aspects of health, disease, treatment, and related concepts. Focus on analyses and descriptions of anthropological fieldwork.

4300 Readings in Anthropology (1-9) Intensive reading, problem oriented. For anthropology majors with senior standing. Other students by permission of instructor. May be repeated to a maximum of 9 credit hours.

4340 Field Work in Archaeology (3-9) Practicum work surveying, excavating, processing, and analyzing data; intensive reading. Prerequisites: 2510-20-30 and consent of instructor. May be repeated to a maximum of 9 credit hours.

4360 Field Work in Physical Anthropology (3-9) Practicum in the collection and analysis of human biological data. May be repeated for credit. Prerequisites: 2010-20-30, and consent of instructor. May be repeated for a maximum of 9 credit hours.

4410 Cultural Ecology (3) Survey of concepts and methods in studying dynamic interaction between cultures and their environments. Topics include ecological theory, methods of analysis, and application from selected case studies. Prerequisite: Anthropology 2520 or 2530, or 3410, or consent of instructor.

4420 Dynamics of Culture (3) Culture change: innovation, diffusion, and acculturation; cultural continuity and stability. Prerequisite: 2530 or consent of instructor.

4440 Personality and Culture (3) Analysis of relationships between individual, social, and cultural factors. Application of psychological techniques in crosscultural studies. Cultural differences and their influence on group behavior. Prerequisite: 2530 or consent of instructor.

4440 Urban Anthropology (3) Survey of theoretical and methodological issues as anthropologists encounter researching cross-cultural urban settlements. Focus is on anthropological perspective and urban problems and planning. Prerequisite: 2540 or consent of instructor. (Same as Urban Studies 4440.)

4480 Current Trends in Anthropology (3) Analytical integrative review in symposium of current debates, research directions, theories, fieldwork methods, and general assumptions of the four subfields of anthropology: archaeology, physical anthropology, linguistics, and cultural anthropology. Required of anthropology majors in senior year. Prerequisite: Senior standing.

4550 Indians of the Southeastern United States (3) Survey of Southeastern Indian cultures; emphasis on aboriginal adjustment to environment; lifeways of Southeastern American Indian groups prior to Euro-American contact. Prerequisites: 2530, 3540, or consent of instructor.

4560 Cherokee Ethnology (3) Intensive survey of ideology and material aspects of Cherokee culture existing at time of first European contact.

4560 Method and Theory in American Archaeology (3) Historical development of New World archaeology with emphasis on theory and field techniques. Prerequisite: 2520 or consent of instructor.

4610 African Prehistory (3) Survey of cultural history in Africa. Emphasis on origins and evolution of human activity to time of European contact. Prerequisite: 2520 or consent of instructor.

4640 Zoarchaeology (3) Basic osteological studies of vertebrate classes; emphasis on aboriginal man's utilization of native animals in his subsistence and culture. Identification, analysis, and interpretation of archaeologically derived molluscan and vertebrate remains.

4650 Archaeology of Southeastern United States (3) Intensive study of prehistoric American Indian. Special emphasis on Southeastern prehistory. Prerequisite: 3070 or consent of instructor.

4660 Prehistory of Northwest North America (3) Survey of archaeological research and prehistoric cultures in Northern Great Basin, Columbia Plateau, Northwestern Plains, and Northwest Coast. Prerequisite: 2520 recommended.

4730 American Folklore (3) Anthropological perspectives on folklore of geographical regions and ethnic groups of the United States. Prerequisite: 3700 or consent of instructor.

4740 Southern Appalachian Folk Culture (3) A survey of the settlement history and economic develop-
4741 Research in Southern Appalachian Folk Culture (3) Research-oriented course dealing with a wide range of traditional culture in southern Appalachian settlement patterns, folk housing, economy, clothing, beliefs, speech, art, song, dance, and oral traditions and customs. Consent of instructor.

4760 Italian Folklore (3) (Same as Romance Languages 4760)

4870 Cherokee Language (3) Linguistic survey of structure of the Cherokee language.

4930 Physical Growth and Constitution (3) Comparative growth patterns throughout the life cycle of man; skeletal and dental maturation; sex differences in growth; human constitutional types. Prereq: 2810 or consent of instructor. Biology 2110 strongly recommended.

4940 Biology of Native Americans (3) American Indian origins and evolution from standpoint of skeletal remains and morphology and genetics of living populations. Emphasis on North American Indians. Prereq: 2510 or consent of instructor.

4950 Primate Studies (3) Survey of field and laboratory investigations of comparative anatomy and non-human primate behavior. Prereq: 2510 or consent of instructor.

4950 Primate Paleontology (3) Survey of fossil primate forms; origin and evolution of major primate lineages, emphasizing the earliest Hominid and related forms. Prereq: 2510. Recommended: Zoology 4380.


4975 Human Paleontology Laboratory (1) Detailed examination of casts and other materials pertinent to study of human paleontology. Prereq or coreq: 4970.

GRADUATE

The general requirements for the master's and doctoral degrees are given in the Graduate Catalog.

5000 Thesis

5103 Studio Fundamentals (4) Development of observational skills and perception of reality. Fundamentals of processes of art disciplines (painting, sculpture, graphics, interior design) and color. Primarily for art, architecture, interior design, and art education majors.

5105 Studio Fundamentals (4) Real space and volume. Primarily of art, architecture, art education, and interior design and housing majors.

5110 Education in Cultural Perspective (3)
1150 Introduction to Crafts (4) Presence of art in immediate environment; design used in daily living by cultures different from ours; emphasis on awareness of design construction of 2 hrs. and 2 labs.

1705 Experiencing Art (4) Form and meaning in visual arts. Lecture discussion. Especially for non-majors.

1815 World Art I (4) Art from ancient, classic and imperial civilizations; art in service of Buddhism, Christianity, and Islam; art as observation of natural world. Course content is drawn from art of Europe, Asia, and America in periods from prehistory to 1400.

1825 World Art II (4) Study through slides and lectures of works of great artists from Leonardo da Vinci and Michelangelo to Matisse and Picasso.

2004 Special Topics (1-4) Student or instructor initiated course offered at convenience of Department. May be repeated.

2006 Special Topics (2-4) Student or instructor initiated course offered at convenience of department. Prereq: Determined by department. May be repeated. Maximum credit 15 hours.

2008 Honors: Art (4) Intensified study for the exceptional student. May be repeated for a maximum of 24 credit hours.

2105 Survey of Drawing (4) Further exploration and refinement of drawing with more emphasis on composition and technique. Prereq: 1115.

2106 Special Topics in Drawing (4) Student or instructor initiated course offered at convenience of department. Prereq: Determined by department. May be repeated. Maximum credit 16 hours.

2115 Life Drawing (4) Further development of drawing and observational skills with special emphasis on structure and dynamics of human figure and of the figure in environment. Prereq: 2105. May be repeated. Maximum credit 8 hours.


2205 Introduction to Painting (4) Capacities of oil and acrylic. Prereq: 1115, 1125, 1135 for art majors; none for non-art majors.

2206 Special Topics in Painting (4) Student or instructor initiated course offered at convenience of department. Prereq: Determined by department. May be repeated. Maximum credit 16 hours.

2215 Painting I (4) Techniques of expression in oil and acrylic. May be repeated. Maximum credit 8 hours. Prereq: 2205 for art majors, none for non-art majors.


2256 Special Topics in Fiber and Fabrics (4) Student or instructor initiated course offered at convenience of department. Prereq: Determined by department. May be repeated. Maximum credit 16 hours.


2265 Fiber Design II: Non-Woven (4) Application of interlocking, coiling, and twining in contemporary fiber constructions. Prereq: 2255. May be repeated. Maximum credit 8 hours.

2270 Fabric Design II: Screen Printing (4) Utilization of paper, resist, cut-film, and photo stencils in design

2271 Fiber Design II: Weaving (4) Application of warp-controlled and loom-controlled constructions in fiber loom weaving. Prereq: 2255. May be repeated. Maximum credit 8 hours.

2272 Introduction to Watercolor (4) Capacities of transparent watercolor. Prereq: 1115, 1125, 1135 for art majors, none for non-art majors.

2273 Watercolor II (4) Techniques that make watercolor a major medium of expression. May be repeated. Maximum credit 8 hours. Prereq: 2205 for art majors, none for non-art majors.

2274 Introduction to Sculpture (4) Problems in clay modeling, clay construction, and basic plaster casting techniques.

2276 Special Topics in Sculpture (4) Student or instructor initiated course offered at convenience of department. Prereq: Determined by department. May be repeated. Maximum credit 16 hours.

2278 Sculpture: Mixed Media (4) The use of two or more of the sculptural techniques, joined to create dimensional form. Possibilities include casting, m-delta, modeling, construction and found objects. May be repeated. Maximum credit 8 hrs.

2280 Sculpture: Metal Casting (4) Introductory metal casting methods in bronze or aluminum. May include lost wax, styrofoam sand, ceramic shell casting methods. May be repeated. Maximum credit 8 hours.

2282 Sculpture: Welding and Metal Fabrication (4) Introduction to metal fabrication/arc and oxyacetylene weicng and other joining techniques in steel sculpture. May be repeated. Maximum 8 hours.

2284 Sculpture II (4) Development of skills and experience in particular area of sculpture as agreed by student and instructor. May be repeated. Maximum credit 8 hours. Prereq: 2405.

2286 Sculpture: Life Modeling (4) Modeling techniques in clay and wax, working from figure. Possibilities of expression with human figure as subject. Emphasis on modeling process as both observational and material handling technique. Students desiring to cast their work are advised to do so in 2415 or 3415 taken after this course. Prereq: 1115, 1125, 1135, or consent of instructor. May be repeated. Maximum 8 hours.

2286 Introduction to Wood Sculpture (4) Exploration of wood as a major medium. Introduction to power tools and basic skills in laminating, finishing, carving, and using joints. Prereq: 1115-25-35 for art majors, none for non-art majors.

2288 Wood Sculpture: Studio Projects (4) Application of laminating and carving skills in design utilizing utilitarian and nonutilitarian art objects. Prereq: 2286. May be repeated. Maximum credit 8 hours.


2292 Special Topics in Graphic Design/Illustration (4) Student or instructor initiated course offered at convenience of department. Prereq: Determined by department. May be repeated. Maximum credit 16 hours.


2294 Advertising Design (4) Fundamentals of lettering and layout for newspaper, magazine, television, outdoor advertising. Non-art majors only.

2295 Production (4) Theory and practice of mechanical preparation of art work for various printing processes, Emphasis on skills and craftsmanship. Prereq: 2295.

2296 Printing and Layout (4) Introduction to art of photography.

2297 Introduction to Printmaking (4) Relief, lithography, intaglio, and screen printing.

2298 3D Intaglio II (4) Metal plate intaglio printing in traditional and contemporary techniques of etching, drypoint, mezzotint, and photopolymer. May be repeated. Maximum credit 8 hours.

2299 Lithography II (4) Exploration of stone and aluminum plate lithography applying traditional and contemporary printing techniques. May be repeated. Maximum credit 8 hours.

2305 Introduction to Metal Design (4) Basic techniques of jewelry and metalworking. Prereq: 1115, 1125, 1135 for art majors, none for non-art majors.

2306 Special Topics in Metal Design (4) Student or instructor initiated course offered at convenience of department. Prereq: Determined by department. May be repeated. Maximum credit 16 hours.

2307 Metal Design II: Jewelry (4) Additional jewelry and metalworking techniques including casting, stonesetting, and forming. Prereq: 2286. May be repeated. Maximum credit 8 hours.

2316 Black Art (4) Black art history in America. 19th century to contemporary trends.

2321 Introduction to Photography (4) Introduction to the art of black and white photography. Field and studio shooting, history of photography, basic developing and enlarging techniques.

2325 Film Design (4) Introductory theory and practice of film making. Emphasis on graphic elements through use of motion picture camera. May not receive credit for both 2116 and 2935.


2329 Special Topics in Ceramics (4) Student or instructor initiated course offered at convenience of department. Prereq: Determined by department. May be repeated. Maximum credit 16 hours.

2330 Ceramics II: Handbuilding Techniques (4) Prereq: 2290.


3008 Honors: Intermediate Art (4) Intensified study for the exceptional student. May be repeated for a maximum of 24 credit hours.

3105 Drawing I (4) Development of personal drawing techniques and concepts through class problems. May be repeated. Maximum credit 12 hours. Prereq: 8 hours of credit in 2215 for art majors; consent of instructor for non-art majors.

3115 Drawing II (4) Development of personal drawing techniques and concepts through class problems. May be repeated. Maximum credit 12 hours. Prereq: 2115.

3119 Design Resources (4) Sources, development, and application of design as it relates to visual arts. Design proceedings, tools, and materials utilized in developing design resources. Prereq: Completion of studio core.

3215 Painting III (4) Individual expression with varied media on canvas. May be repeated. Maximum credit 12 hours. Prereq: 2115.

3216 Sculpture III (4) Individual expression with varied media on canvas. May be repeated. Maximum credit 12 hours. Prereq: 2115.

3250 Design Resources (4) Sources, development, and application of design as it relates to visual arts. Design proceedings, tools, and materials utilized in developing design resources. Prereq: Completion of studio core.


3256 Fiber Design II: Spinning and Dyeing (4) Application of spinning in development of yarns from natural materials. Dyeing yarns chemically. Prereq: 2255 or 2275.

3270 Fabric Design III: Individual Class Projects (4) Prereq: 2280 or consent of instructor. May be repeated. Maximum credit 8 hours.

3275 Fiber Design III: Individual Class Projects (4) Prereq: 2280 or consent of instructor. May be repeated. Maximum credit 8 hours.
4616 Lithography IV (4) Extensive use of aluminum plates, color combine printing, photographic techniques. May be repeated. Maximum credit 12 hours.
4617 Screen Printing (4) Traditional hand cut and photographic stencils; combine printing on paper and other surfaces. May be repeated. Maximum credit 12 hours.
4656 Special Topics in Metal Design (4) Student or instructor initiated course to be offered at convenience of department. Prereq: Determined by department. May be repeated. Maximum credit 6 hours.
4855 Studies in Art History (2) Concentration in selected areas. Prereq: 16 hours of art history and consent of instructor. May be repeated. Maximum credit 6 hours.
4956 Special Topics in Ceramics (4) Student or instructor initiated course offered at convenience of department. Prereq: Determined by department. May be repeated. Maximum credit 12 hours.
4960 Ceramics IV: Advanced Projects (4) Prereq: 3960. May be repeated. Maximum credit 12 hours.
4970 Glaze Calculation (4) Prereq: Senior or graduate standing and consent of instructor.
4971 Klin Construction (4) Prereq: Senior or graduate standing and consent of instructor.

The following courses are offered periodically ONLY at the Pi Beta Phi Arrowmont School of Arts and Crafts, Gatlinburg, Tennessee. Content varies with faculty. Students should check specific course content as printed in the Arrowmont timetable published each spring.

2104 Drawing (1-4) Beginning to intermediate. May be repeated.
2204 Painting (1-4) Beginning to intermediate. May be repeated.
2254 Fiber Processes (1-4) Beginning to intermediate. May be repeated.
2264 Fiber Constructions (1-4) Beginning to intermediate. May be repeated.
2274 Fabric Surface Design (1-4) Beginning to intermediate. May be repeated.
2284 Fabric Construction (1-4) Beginning to intermediate. May be repeated.
2304 Watercolor (1-4) Beginning to intermediate. May be repeated.
2404 Sculpture (1-4) Beginning to intermediate. May be repeated.
2504 Graphic Design/Illustration (1-4) Beginning to intermediate. May be repeated.
2604 Printmaking (1-4) Beginning to intermediate. May be repeated.
2654 Metal Design (1-4) Beginning to intermediate. May be repeated.
2664 Enameling (1-4) Beginning to intermediate. May be repeated.
2904 Photography (1-4) Beginning to intermediate. May be repeated.
2954 Ceramics (1-4) Beginning to intermediate. May be repeated.
4104 Drawing (1-4) Intermediate to advanced. May be repeated.
4204 Painting (1-4) Intermediate to advanced. May be repeated.
4254 Fiber Processes (1-4) Intermediate to advanced. May be repeated.
4264 Fiber Construction (1-4) Intermediate to advanced. May be repeated.
4274 Fabric Surface Design (1-4) Intermediate to advanced. May be repeated.
4284 Fabric Construction (1-4) Intermediate to advanced. May be repeated.
4304 Watercolor (1-4) Intermediate to advanced. May be repeated.
4404 Sculpture (1-4) Intermediate to advanced. May be repeated.
4504 Communication Design (1-4) Intermediate to advanced. May be repeated.
4604 Printmaking (1-4) Intermediate to advanced. May be repeated.
4654 Metal Design (1-4) Intermediate to advanced. May be repeated.
4664 Enameling (1-4) Intermediate to advanced. May be repeated.
4684 Photography (1-4) Intermediate to advanced. May be repeated.
4694 Ceramics (1-4) Intermediate to advanced. May be repeated.

GRADUATE

There are two advanced degrees available in this department: Master of Arts and Master of Fine Arts. In addition to meeting requirements of the Graduate School, applicant must have an undergraduate major in art or outstanding proficiency. Examples of work will be requested. For additional information regarding these programs, write to the head of the department.

5000 Thesis

5002 Non-Thesis Graduation Completion (3-15)
5011-21-31 Exhibition in Lieu of Thesis (3,3,3)
5101 Foreign Study (1-12)
5102 Off-Campus Study (1-12)
5103 Independent Study (1-12)
5115 Graduate Drawing I (2-6)
5125 Graduate Drawing II (2-6)
5215 Graduate Painting I (2-6)
5225 Graduate Painting II (2-6)
5255 Graduate Fiber and Fabrics I (2-6)
5275 Graduate Fiber and Fabrics II (2-6)
5315 Graduate Watercolor I (2-6)
5325 Graduate Watercolor II (2-6)
5415 Graduate Sculpture I (2-6)
5425 Graduate Sculpture II (2-6)
5515 Graduate Graphic Design/Illustration I (2-6)
5525 Graduate Graphic Design/Illustration II (2-6)
5615 Graduate Printmaking—Lithography I (2-6)
5616 Graduate Printmaking—Intaglio I (2-6)
5617 Graduate Printmaking—Screen Printing I (2-6)
5625 Graduate Printmaking—Lithography II (2-6)
5626 Graduate Printmaking—Intaglio II (2-6)
5627 Graduate Printmaking—Screen Printing II (2-6)
5715 Reading and Research in Art History (2)

5770 Seminar in Art History (4)
5855 Graduate Ceramics I (2-6)
5975 Graduate Ceramics II (2-6)
5990 Seminar in Art Criticism (4)
5999 Projects in Lieu of Thesis (10)

Asian Studies
See Cultural Studies.

Astronomy
See Physics and Astronomy.

Audiology and Speech Pathology (160)

Professors:
H. L. Luper (Head), Ph.D. Ohio State; S. Adler, Ph.D. Ohio State; C. W. Asp, Ph.D. Ohio State; P. J. Carmey, Ph.D. Iowa; D. M. Lipscomb, Ph.D. Washington; V. I. Nabelek, Ph.D. Czech Technical (Prague); H. A. Peterson, Ph.D. Illinois; B. Silverstein, Ph.D. Purdue.

Associate Professors:
S. B. Burchfield, Ph.D. Michigan State; C. G. Maiel, M.Ed. Texas.

Assistant Professors:

Instructors:

UNDERGRADUATE

General Information. One of society's most significant developments has been the acquisition of organized systems of communication. Basic to most human language systems has been dyadic oral-aural communication. The Department of Audiology and Speech Pathology has been organized to study communication with special attention to variations considered abnormal or different. Many of the courses offered in the department cover information that students may need to know about the communication process. Students in speech pathology should consult the head of their department for additional information regarding these programs.

5000 Thesis

5002 Non-Thesis Graduation Completion (3-15)
5011-21-31 Exhibition in Lieu of Thesis (3,3,3)
5101 Foreign Study (1-12)
5102 Off-Campus Study (1-12)
5103 Independent Study (1-12)
5115 Graduate Drawing I (2-6)
5125 Graduate Drawing II (2-6)
5215 Graduate Painting I (2-6)
5225 Graduate Painting II (2-6)
5255 Graduate Fiber and Fabrics I (2-6)
5275 Graduate Fiber and Fabrics II (2-6)
5315 Graduate Watercolor I (2-6)
5325 Graduate Watercolor II (2-6)
5415 Graduate Sculpture I (2-6)
5425 Graduate Sculpture II (2-6)
5515 Graduate Graphic Design/Illustration I (2-6)
5525 Graduate Graphic Design/Illustration II (2-6)
5615 Graduate Printmaking—Lithography I (2-6)
5616 Graduate Printmaking—Intaglio I (2-6)
5617 Graduate Printmaking—Screen Printing I (2-6)
5625 Graduate Printmaking—Lithography II (2-6)
5626 Graduate Printmaking—Intaglio II (2-6)
5627 Graduate Printmaking—Screen Printing II (2-6)
5715 Reading and Research in Art History (2)
Additional recommended courses for speech pathology majors are: Audiology and Speech Pathology 4520, 4460, 4470, 4750, Anthropology 2530 or 3410, Psychology 2600, 2620, 2830, 2540, 3150, Special Education 4080, 4341, 4342, 4110, 4120, 4130, 4610, and Child and Family Studies 4810.

A major in audiology consists of Audiology and Speech Pathology 3010, 3040, 3050, 3200, 3310, 3710, 4040, 4450, 4720, 4930 plus not less than 10 nor more than 22 credit hours from the following: 3065, 4320, 4460, 4470, and 4550.

Additional recommended courses for audiology majors are Psychology 2500, 2520, 2540, and 3150.

1261 English Pronunciation for Foreign Students (3) (Same as English 1261.)
3010 Basic Acoustics in Speech and Hearing (3) Fundamental aspects of acoustics in speech and hearing including physics of sound. Prereq: Consent of instructor.
3040 Introduction to Speech Pathology and Audiology (3) Nature, etiology, and incidence of speech, hearing, and language disorders.
3050 Speech Science I: Phonetics (3) Basic phonetics including recognition and production of spoken English sounds with analysis of their formation; acoustic characteristics of speech and speech perception.
3065 Speech Science II (4) Anatomy and physiology of speech production mechanisms. Prereq: 3050.
3200 Speech and Language Development (4) Speech and language development in the normal child including development of distinctive features and implications of this process for diagnosis of speech and language development. Prereq: Psychology 3560 or Educational Psychology 2430 recommended.
3310 Articulation Disorders (4) Etiology, diagnosis, and treatment of articulatory defects. Prereq: 3040, 3050, or consent of instructor. (Same as Special Education 3310.)
3710 Audiology I (3) Fundamental aspects of auditory anatomy and physiology. Introduction to disorders of hearing and their remediation. (Same as Special Education 3710.)
4040 Appraisal of Speech and Language Disorders (4) Diagnostic procedures for children and adults with speech and language problems including observation and practice with diagnostic tests. Prereq: 3040, 3050, or consent of instructor. (Same as Special Education 4040.)
4070 Free Association (4) Oral and written free association as process for diagnosing and treating communication disorders. Includes didactic self-analysis.
4103 Independent Study (1-16) See page 185.
4190 Speech Development of the Hearing Impaired (3) Prereq: 3050. (Same as Special Education 4190.)
4200 Practicum in Speech Development of the Hearing Impaired (3) (Same as Special Education 4200.)
4210 Language Development of the Hearing Impaired I (3) (Same as Special Education 4210.)
4220 Language Development of the Hearing Impaired II (3) (Same as Special Education 4220.)
Introduction to the Psychology and Education of the Hearing Impaired I (3) (Same as Special Education 4230.)
4310 Stuttering (3) Nature and treatment. Review and integration of various theories. Prereq: 3040 or consent of instructor. (Same as Special Education 4310.)
*4320 Introduction to Clinical Practice in Speech Pathology (3) Prereq: 3040, 3050, 3110, 4040, and consent of instructor. S/NC. (Same as Special Education 4320.)
4330 Clinical Practice in Speech Pathology (1-6) Prereq: 4320 and consent of instructor. S/NC. (Same as Special Education 4330.)
4340 Clinical Practice in Speech Pathology (1-6) Prereq: 4320; may be repeated for credit. S/NC. (Same as Special Education 4340.)

*ADMISSION TO CLINICAL TRAINING IN SPEECH PATHOLOGY AND AU迪OLOGY Students who wish to enroll in clinical practice courses in audiology and speech pathology must apply for admission at the Hearing and Speech Center prior to the initial practicum enrollment. Clinical advisories may be limited due to available supervisory staff, clinical facilities and caseloads. A grade of "C" or better in each prerequisite course is required for clinical practice enrollment. Once admitted to clinical training, students will be continued in the program so long as they are clinically and academically successful. Academic success is defined as a grade of "C" or better in each course taken in the Department of Audiology and Speech Pathology. Clinical success is defined as performance judged as "adequate" on at least 75 percent of the clinical contact hours assigned during each quarter's enrollment. Failure to meet either the clinical or academic success criteria for two successive quarters automatically removes the student from clinical practice enrollments.
4400 Voice Disorders (4) Etiology, diagnosis, and treatment of voice disorders. Prereq: 3040, 3050, or consent of instructor. (Same as Special Education 4400.)
*4450 Clinical Practice in Audiology (1-6) Prereq: 4720 and 4930. (Same as Special Education 4450.)
4460 Clinical Practice in Audiology (1-6) Prereq: 4450, 4720, and 4930. (Same as Special Education 4460.)
4470 Clinical Practice in Audiology (1-6) Prereq: 4460, 4720, and 4930. May be repeated. Maximum credit 9 hours. (Same as Special Education 4470.)
4520 Speech Pathology (3) Independent study of special problems in speech pathology. Prereq: Consent of instructor.
4550 Problems in Speech Pathology (3) Prereq: Consent of instructor.
4620 Birth Defect Syndromes and Language Retardation (3) Examination of research literature relevant to birth defects and language retardation including clinical, educational, and socio-emotional implications of such disorders. Prereq: 4610 or consent of instructor.
4630 Practical Applications of Language Habilitation Techniques (3) Discussion and demonstration of various methods and procedures used in treating language retarded children. Prereq: 4610 or consent of instructor.
4640 Parent Participation in Language Habilitation Programs (3) Nature of counseling and educational relationships with parents of exceptional children including emotional support for families, behavior management strategies, home training methods. Prereq: 4610 or consent of instructor.
4645 Family Therapy in Language Pathology (3) Discussion of the importance of family dynamics in the treatment of language pathology. Prereq: Consent of instructor.
4650 Speech and Language of the Culturally Different Child (3) Discussion of speech and language differences of children of various racial and ethnic groups; their causes and their effects upon educational programs.
4660 Topics in Language Retardation and Its Habilitation (3) Lectures on selected topics by representatives of such fields as speech and language, early childhood education, educational psychology, genetics, and psychology. Prereq: 4610 or consent of instructor.
4720 Audiology II (4) Basic principles of clinical audiology: pure-tone, speech, masking, and overview of special auditory tests. Prereq: 3710. (Same as Special Education 4720.)

4930 Aural Rehabilitation: Speechreading and Auditory Training (3) Discussion of rehabilitation of acoustically impaired by maximizing use of residual hearing and utilization of speechreading as a receptive communicative process. Prereq: 4720. (Same as Special Education 4900.)
4940 Introduction to the Verbo-Tonal System (4) Prereq: 3710; 4930 and 3050 recommended. (Same as Special Education 4940.)

GRADUATE
5000 Thesis
5052 Non-Thesis Graduation Completion (3-15)
5040 Advanced Clinical Practice in Audiology (1-6)
5045 Practicum in Hearing Aid Orientation and Communication Counseling (1-6)
5050 Practicum in Verbo-Tonal Habilitation (1-6)
5051 Practicum in Aural Rehabilitation (1-6)
5060 Neural Bases of Speech and Language (3)
5070 Anatomy and Physiology of Hearing (3)
5071 Electrophysiological Assessment of Auditory Function (2)
5100 Comparative Anatomy of Peripheral Auditory Structures (3)
5110 Introduction to Research in Speech and Hearing (3)
5117 Instrumentation in Audiology and Speech Pathology (3)
5119 Laboratory in Instrumentation in Audiology and Speech Pathology (1)
5200 Seminar on Stuttering (3)
5201 Aphasia (3)
5220 Seminar: Articulation Disorders (3)
5230 Seminar: Voice Disorders (3)
5320-30-40 Advanced Clinical Practice in Speech and Language Disorders (1-6, 1-6, 1-6)
5350-60-70 Advanced Clinical Practice in Speech Diagnoses (1-6, 1-6, 1-6)
5380 Cerebral Palsy (3)
5381 Adult Dysarthria (3)
5390 Cleft Palate (3)
5440 Amplification for the Hearing Impaired (4)
5450 Sound Measurement and Audiometer Calibration (3)
5451 Noise and Audiology (3)
5460 Advanced Audiology (3)
5470 Impedance Measurement in Audiology (2)
5490 Practicum in Hearing Conservation (1-6)
5500 Seminar in Audiology (3)
5503 Special Auditory Tests (3)
5505 Special Problems in Audiology (1-6)
5520 Seminar in Speech Pathology (3)
5540 Seminar in Language Pathology (3)
5550 Special Problems in Speech Pathology (1-3)
5560 Independent Study in Speech Pathology (1-3)
minimum requirement, at least 8 hours must be chosen from the group Botany, Microbiology, and Zoology. Prerequisites to this concentration are Biology 1210-20 or Botany 1110-20 or 1118-26 or Zoology 1118-28 and Chemistry 1110-20-30. Corequisites are Math 1841-51 or 1550-60 (Math 1841-51 is recommended choice); Physics 1210-20 or 2210-20.

Note: Students majoring in biology are advised to exercise care in fulfilling the science and mathematics Triad requirements. Math 1841-51 (or in some cases 1550-60) and chemistry 1118-26 or equivalent (20 hours altogether) must be completed by biology majors. Students majoring in biology are advised to consider completion of a physical science minor (page 223).

Minor: Consists of Biology 3110-20-30 and 12 hours of upper-division courses chosen from the list below. Biochemistry 4110-20, 4119-29; Botany, any 3000- or 4000-level courses; Microbiology, any 3000- or 4000-level courses; Zoology, any 3000- or 4000-level courses except 3010-20-30. (In meeting the upper-division minimum requirement, not more than 10 hours may be credited from any one biological science area, and not more than 4 hours of research courses may be credited.) Prerequisites to the minor are introductory biology courses (Biology 1210-20-30 or Botany 1110-20 or 1118-26 or Zoology 1118-28-30). Corequisites are Chemistry 1110-20-30 and Biology 1118-28.

Note: Certain upper-division courses require organic chemistry or other prerequisites; consult the catalog description in each case.

1210-20-30 General Biology (4,4,4) 1210—Biology of cells: chemical basis of life, cell structure and function, energy metabolism, photosynthesis, DNA, RNA, and protein synthesis, monera, protista, and fungi. 1220—Biology of plants and animals; survey of plant kingdom, structure and function of plant tissues, plant growth and reproduction, survey of the animal kingdom, reproduction and development in animals, animal tissue and organ systems. 1250—Genetics, evolution, populations and ecology. May be taken in any sequence. Students who receive credit for 1210-20-30 may not also receive credit for Biology 1110-20-30, 1118-26 or Zoology 1118-28-39.

3110 General Genetics (4) Classical and modern principles of heredity. Prereq: Biology 1210-20 or Botany 1118-28 and equivalent of 2 of Biology 1010-20 or satisfactory ACT scores; Chemistry 1110-20-30. 3 hrs and 1 additional class meeting. May be taken in any sequence or combination with 3120 and 3130.

3120 Cell Biology (4) Organization and function of the cell. Prereq: Same as 3110. 3 hrs and 1 additional class meeting. May be taken in any sequence or combination with 3110 and 3130.

3130 General Ecology (4) Relations between organisms and their environment, including human environmental problems. 3 hrs and 1 additional class meeting. Prereq: Same as 3110. May be taken in any sequence or combination with 3110 and 3130.

4510 Scientific Illustration (3) Introduction to design and production of graphs, charts, for scientific illustration. Prerequisites: 1210-20-30 or equivalent and consent of instructor. Artistic talent assumed. Prereq: Advanced standing in a science curriculum; consent of instructor.

Black Studies
See Cultural Studies.

Botany (198)


Vanderbilt; L. W. Jones, Ph.D., Texas; J. N. McCormick (Director of Ecology Program), Ph.D. Emory; F. H. Norris (Emeritus), Ph.D. Ohio State; R. H. Petersen, Ph.D. (Columbia); A. J. Sharp (Emeritus), Ph.D. Ohio State; H. H. Sturtevant, Ph.D. Georgia (part-time); P. L. Wales, Ph.D. Texas.

Associate Professors: C. C. Amundson, Ph.D. Colorado; J. D. Caponetti, Ph.D. Harvard; A. S. Helman, Ph.D. Ohio State; R. H. Henke, Ph.D. Miami (Ohio); L. G. Hickok, Ph.D. Massachusetts, K. W. Hughes, Ph.D. Utah; O. J. Schwarz, Ph.D. North Carolina State; W. O. Smith, Ph.D. Duke.

Assistant Professors: S. C. Menear, Ph.D. North Carolina State; E. E. Schilling, Ph.D. Indiana; D. K. Smith, Ph.D. Tennessee.

Instructor: K. D. McFarland, M.S. Ohio University.

UNDERGRADUATE

Major: Consists of Biology 3110-20-30; 23 hours of upper-division coursework at the college level. Prerequisites to this major are Biology 1210-20-30 or Botany 1110-20 or 1118-26 or Zoology 1118-28-30. Corequisites are Math 1841-51 or Math 1550-60; Physics 1210-20-30 or Physics 2210-20-30 or Chemistry 2211-21-31, 2319-29-39, or Geology 1410-20 plus 4 additional hours of Geology.

Minor: Consists of Biology 3110-20-30 and 15 upper division hours in botany. Not more than 3 hours from 3050, 3070, 3090 are allowed for minor credit. Prerequisites to this minor are Botany 1110-20, 1140 or 1118-28, or Biology 1210-20-30. Corequisites are 4 hours of upper-division courses in a related biological science (zoology, microbiology, biochemistry, agricultural botany, forestry, or plant and soil science).

1110-20 Fundamentals of Botany (4,4,4) Nature and development of plants, including processes, structure, life histories, inheritance, ecology, and importance to man. Emphasis in sequence is desirable. Two 1-hour discussions and approximately 3 hours audio-tutorial laboratory per week. Students may not receive credit for both Botany 1110-20 and Biology 1210-20-30.

1118-28 Honors: Fundamentals of Botany (6,6) Honors credit is available for qualified students beginning the course. Open to freshmen with a score of 27 on the ACT or 1270-20 on the SAT. Three 2-hour lecture-discussion periods. Must be taken in sequence. Students may not receive credit for both Botany 1118-26 and Biology 1210-20-30.

1119-29 Laboratory in Fundamentals of Botany (2,2) Students with two years of high school biology and satisfactory ACT scores may, with the consent of the department, obtain the freshman year sequence and enter Biology 1110-20-30 directly (see course listings under Biology).

1120-20 Plants in Evolution (4,4,4) Monera to angiosperm: emphasis on evolutionary relationships, morphology, and development. Not for botany graduate credit. Prereq: 6 hours in biological sciences.

3090 Field Botany (4) Study of plants in natural environments including plant identification, collection, preservation, and basic ecological concepts. Prereq: 6 hours in biological sciences. Not for botany graduate credit.

3091-32 Field Botany (4,4) Emphasis on fall and winter flora, respectively. Prereq: 3090. Need not be taken in sequence.

3090 Socio-Economic Impact of Plants (3) Significance of plants in concerns such as forestry, bioenergy, agricultural cultures, evolution of cultivated plants, and role of plants in present civilizations. Occasional field trips. Not for botany graduate credit.

3070 Genetics and Society (3) An introduction to genetics, anthropological, and evolution with emphasis on their implications for human society. Not for botany graduate credit. (Same as Anthropology 3070.)

3090 Biology and Human Affairs (3) Basic biological principles involved in deterioration and preservation of an environmental region and human impacts of the region. Occasional field trips may survive. Not for botany graduate credit. (Same as Zoology 3090.)

3130 Introductory Plant Pathology (4) (Same as Entomology and Plant Pathology 3130.)

3210 Introductory Plant Physiology (4) Organizational physiology of plants, with special emphasis on organelles, morphology, metabolism, elements of metabolic processes, effects of age, light, natural rhythms, temperature, and other environmental factors. Lecture and lab. Not for botany graduate credit. Prereq: One year general chemistry and one year biological science.

3300 Biological Oceanography (3) Distribution of biotic factors in the seas and their effect on plankton growth; composition of zoo- and phytoplankton and processes affecting each; food web in the sea; role of hypothermic regions; regulation of planktonic life. Prereq: Chemistry 1110-20-30 and either Biology 1210-20-30 or Botany 1110-20 or Geology 2710.

4000 Tutorial in Botany (1-3) Individual, independent study under guidance of selected staff. By application only. May be repeated with consent of department. Maximum credit 6 hours.

4017 Field Mycology (3) Field experience on identification of higher fungi. Frequent field trips emphasizing field recognition of species and habitats. Laboratory sessions for discussion and practice with techniques and literature for accurate identification. Prereq: 6 hours of botany. Recommended: Botany 3010-20.

4021 Field Bryology (3) Field experience on identification of bryophytes and mosses. Frequent field trips emphasizing field recognition of species and habitats. Laboratory sessions for discussion and practice with techniques and literature for accurate identification. Prereq: 6 hours of botany. Recommended: Botany 3010-20.

4022 Field Lichenology (3) Field experience on identification of lichens. Frequent field trips emphasizing field recognition of species and habitats. Laboratory sessions for discussion and practice with techniques and literature for accurate identification. Prereq: 6 hours of botany. Recommended: Botany 3010-20.

4023 Field Agrostology (3) Field experience on identification of grasses. Frequent field trips emphasizing field recognition of species and habitats. Laboratory sessions for discussion and practice with techniques and literature for accurate identification. Prereq: 6 hours of botany. Recommended: Botany 3010-20.

4030 Mechanisms of Plant Speciation (3) Processes of plant speciation emphasized. Occasional field trips, classification, drift, hybridization, variation in populations, establishment of population barriers, and other aspects of plant speciation. Prereq: 3010-20 and Biology 3110.

4045 Aquatic Vascular Plants (3) Field experience on identification of aquatic vascular plants. Frequent field trips emphasizing field recognition of species and habitats. Laboratory sessions for discussion and prac-
4050 Synantherology (3) Field experience on identification of composite. Frequent field trips emphasizing field recognition of species and habitats. Laboratory sessions for discussion and practice with techniques and literature for accurate identification. Prereq: 6 hours of botany. Recommended: Botany 3010-20.


4061 Field Phycology (3) Field experience on identification of fresh water algae. Frequent field trips emphasizing field recognition of species and habitats. Laboratory sessions for discussion and practice with techniques and literature for accurate identification. Prereq: 6 hours of botany. Recommended: Botany 3010-20.

4075 Botanical Photography (3) Emphasis on photography of natural history subjects and achievement of technical and aesthetic skills and knowledge to produce illustrations for class, seminar, or public lecture. Landscape, habitat, close-up, and small object photography, in color, using 35 mm format emphasized. Limited shared equipment available. Student encouraged to use own equipment. Film and processing costs paid by student. Photos processed and critiqued in class. Prereq: 6 hours of botany. Recommended: Botany 3010-20.

4080 Field Botany (3) Field experience on identification of ferns and fern allies. Frequent field trips emphasizing field recognition of species and habitats. Laboratory sessions for discussion and practice with techniques and literature for accurate identification. Prereq: 6 hours of botany. Recommended: Botany 3010-20.


4240 Paleobotany (4) (Same as Geology 4240.)

4310 Plant Ecology (4) Interactions between individual species, communities and their environments. Circulation of energy and matter in ecosystems. Weekly field trips or laboratory periods, and at least two weekend field trips. Prereq: 3030 or equivalent.

4410-20-30 Undergraduate Research Participation (2,2,2) Experience in active research projects under supervision of staff members. Prereq junior or senior standing, minimum grade average 3.0, consent of instructor.

4710-20-30 Senior Seminar (1,1,1) At least 2 hours of 4710-20-30 are required of botany majors. Prereq: Senior standing.

4830 Field Measurements in Plant Ecology (3) Practice in the use of field and laboratory instruments for the measurement of environmental factors, plant functions, and/or community characteristics. Data collection will be followed by analysis and interpretation of data. Visits to highly instrumented field sites will be included. Prereq: 3030 or equivalent; 1 year of physics and chemistry recommended.

GRADUATE

5000 Thesis

5002 Non-Thesis Graduation Completion (3-15)

5003-04 Non-Thesis Research (3,3)

5011 Mycology (4)

5012 Morphology and Evolution of Phycocyanes (4)

5021 Bryology (4)

5022 Lichenology (4)

5031 Vascular Plant Taxonomy (4)

5061 Phycology (4)

5065 Phytoplankton Ecology (4)

5070 Principles of Biological Illustration (3)

5080 Pteridology (4)

5090 Morphology and Evolution of Basidiomycetes (4)

5120 Agroecology (4)

5153 Advanced Morphology of Flowering Plants (4)

5160 Biocytogenetics (4)

5210 Advanced Plant Physiology I (3)

5220 Advanced Plant Physiology II (3)

5235 Advanced Plant Physiology III (3)

5230 Quaternary Problems (4)

5310-20-30 Special Problems in Botany (1-4,1-6,1-6)

5420 Plant Geography (4)

5500 Analysis of Plant Communities (4)

5510 Marine Ecology (3)

5510-20-30 Seminar in Teaching of College Botany (1,1,1)

5540 Seminar in Botany (1)

5510-20-30 Systems Ecology (3,3,3)

5710 Plant Cytology (4)

5810 Cytogenetics (4)

5820-21-22-23-24 Methods and Instrumentation in Laboratory Investigations (1,1,1,1,1)

5830 The Field Research Problem (4)

5850-51-52-53-54 Methods and Instrumentation in Field Investigations (1,1,1,1,1)

5870 Experimental Plant Genetics (4)

5910-20 Developmental Plant Morphology (3,1)

6000 Doctoral Research and Dissertation

6010 Advanced Topics in Morphology of Vascular Plants (2-4)

6060 Advanced Topics in Cryptograms (2-4)

6120 Photobiology (3)

6310 Advanced Topics in Cytology and Cell Biology (2-3)

6320 Ecosystems of the World (3)

6420 Advanced Topics in Genetics (2-4)

6620 Seminar in History of Botany (2)

6820 Advanced Topics in Plant Physiology (2-4)

6830 Advanced Topics in Botany (2-4)

6930 Advanced Topics in Systematic Botany (2-4)

Chemistry (235)

Professors: G. Maramont (Head), Ph.D. Louisiana State, J. E. Bloor, Ph.D. Manchester (England), N. S. Bowman, Ph.D. Princeton; C. A. Buehler (Emeritus), Ph.D. Ohio State, W. E. Bull, Ph.D. Illinois; J. O. Chambers, Ph.D. Kansas; J. A. Dean (Emeritus), Ph.D. Michigan, J. F. Eastham, Ph.D. California (Berkeley); W. H. Flettcher, Ph.D. Minnesota; G. W. Kabaik, Ph.D. Purdue; C. W. Keenan, Ph.D. Texas; D. C. Kleinlein, Ph.D. Princeton; J. W. Larsen, Ph.D. Purdue; M. H. Lietzke, Ph.D. Wisconsin, R. M. Magid, Ph.D. Yale; R. M. Pagni, Ph.D. Wisconsin; J. R. Peterson, Ph.D. California (Berkeley); G. K. Schweitzer, Ph.D. Illinois; D. A. Shinya (Emeritus), Ph.D. Iowa State; H. A. Smith (Emeritus), Ph.D. Harvard; W. T. Smith (Emeritus), Ph.D. Ohio State; W. A. Van Hook, Ph.D. Johns Hopkins; E. J. Varner, Ph.D. Williams, J. D. Kovac, Ph.D. Yale; M. J. Magid, Ph.D. Tennessee; F. M. Scheil, Ph.D. Indiana.

Assistant Professors: F. A. Grimm, Ph.D. Cornell, J. W. Kistler, Ph.D. Wisconsin; A. Lane, Ph.D. California (Berkeley); L. J. Magid, Ph.D. Tennessee; F. M. Scheil, Ph.D. Indiana.

Undergraduate Professors: J. L. Adock, Ph.D. Texas; S. D. Alexandaratos, Ph.D. California (Berkeley); J. D. Kovac, Ph.D. Yale; M. J. Sepaniak, Ph.D. Iowa State; C. Woods, M. Ph.D. North Carolina State.

Undergraduate

For information regarding the Bachelor of Science degree in chemistry and the cooperative program in chemistry, see page 183.

There are two alternative routes for the student to take in designing a program for a B.A. degree with a major in chemistry.

Concentration A is designed to prepare the student for a career as a professional chemist or for entrance into graduate school in such fields as chemistry, biochemistry, geochemistry, etc. This program has similarities to that leading to the degree of Bachelor of Science in Chemistry (page 183), but with more opportunity for selection of electives outside the department and outside of science. Unlike the Bachelor of Science in Chemistry degree, the B.A. degree using Concentration A is not approved by the Committee on Professional Training of the American Chemical Society.

Concentration B is designed for students who have career objectives in fields other than chemistry, but in fields where chemistry has direct applications, such as medicine, dentistry, pharmacy, law, business, and ecology. This concentration, supplemented by appropriate courses from other areas, is suitable for students planning careers in these areas. Concentration B is specifically designed to provide more elective hours which may be employed in fields which are related to chemistry. Concentration B is not appropriate for students intending to become professional chemists.

The prerequisites consist of Chemistry 1110-20-30, Mathematics 1840-50-60, 2840-50, Physics 2510, 2310-20. The concentration consists of Chemistry 2140, 2149, 3211-21-31, 3219-29-39, 3410-20-30, 3429 plus at least 10 hours of additional upper-division work in chemistry, including one of the following courses: Chemistry 4110, 4210, 4220, 4310, 4420, 4510, 4550. (Up to six hours of biochemistry 4000 level and above or geography 4610 may be included at the 4000 level, but not required.) Math 2860 is highly recommended as an elective for majors in this concentration.

Concentration B is designed for students who have career objectives in fields other than chemistry, but in fields where chemistry has direct applications, such as medicine, dentistry, pharmacy, law, business, and ecology. This concentration, supplemented by appropriate courses from other areas, is suitable for students planning careers in these areas. Concentration B is specifically designed to provide more elective hours which may be employed in fields which are related to chemistry. Concentration B is not appropriate for students intending to become professional chemists.

The prerequisites consist of Chemistry 1110-20-30, Mathematics 1840-50-60 or 1840-50-60, and any one of the following natural science options: (a) Physics 2210-20-30 or 2510, 2310-20; (b) Geology 1510-20; (c) Biology 1210-20-30; (d) Biology 3110-20 and Microbiology 3700, 5150; (e) Botany 1110-20. The concentration consists of Chemistry 2140, 2149, 2510, 2311-21-31, 3219-29-39, 4910-20-30, 4925, plus at least 10 hours of additional upper-division work in chemistry, including at

College of Liberal Arts

Graduate

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least one of the following courses: Chemistry 4110, 4210, 4220, 4310, 4420, 4510, 4550 (Up to six hours of biochemistry 4000 level and above or Geology 4610 may be applied to this 10 hour requirement). A minor in chemistry shall consist of the successful completion of 24 hours of chemistry courses numbered 2000 and above including 3140 or 3400 (4 hours) and at least one of the following sequences:

- Chemistry 3211-21-31, 3219-29-39 (12 hours) or Chemistry 3410-20-30 (9 hours) or Chemistry 4140 (3 hours).

Placement in Freshman Sequences: The sequence which meets all requirements of a year of general chemistry and is a prerequisite for upper-division courses is 1110-20-30. The 1500 and 1600 series have more limited applications. The 1500 series emphasizes organic and biochemistry and may be used as a prerequisite only for 2230 and 3610. The 1600 series is for non-science majors and does not provide an adequate background for any additional courses in chemistry.

It is possible to move from one sequence to another if permission for substitution is obtained in advance. For example, a student who finds a need to complete the 1110 series after having completed 1510 may substitute 1510 for 1110 with approval of the chemistry department. Take 1120 followed by 1130. However, no single quarter of the 1500 or 1600 sequences may be substituted for 1120 or 1130. Credit may be received for only one of the courses 1110, 1510, or 1610.

In any chemistry course above the freshman level which has Chemistry 1110-20-30 as a prerequisite, 1510-20-30 may be used as a prerequisite with approval of the chemistry department.

Chemistry 1118-28-38 is an honors course designed for the student who has already made considerable progress in science. Class size may be limited to promote faculty-student interaction. Selection is based on ACT scores, high school chemistry grade, and if necessary, performance on a placement examination to be given during the first class meeting. A student receiving a passing grade below B in 1118 will complete the year's work by taking 1120-30. A student receiving a grade of C or D in 1128 will not be eligible for 1138 and must take 1150 to get the full 12 hours of credit.

Beginning students who have had high school chemistry and who have had additional experience (e.g. summer institute study, special needs program, or some laboratory) are invited to apply during the summer to the head of the department for permission to take a proficiency examination in one or more quarters of freshman chemistry. If a satisfactory grade is made on the examination, credit will be allowed for the quarter (or course) for which the exam was taken.

**1110-20-30 General Chemistry (4,4,4) General course in descriptive, theoretical, and quantitative aspects of chemical structure, energy, and reaction mechanisms.**

**1118-28-38 Honors: General Chemistry (4,4,4) (See explanation above).**

**1410 Chemistry for Nurses (4) Inorganic, organic, and biochemistry. 3 hours and 1 lab.**

**1420 Chemistry for Nurses (4) Aromatic compounds and biological chemistry. Prereq: 1410. 3 hours and 1 lab.**

**1510-20-30 General Chemistry (4,4,4) Introductory course with emphasis on topics relating to living systems. 1510—Bonding and molecular structure, gas laws, liquid and solid state, solutions, colloids. 1520—Acids and bases, their properties and reactions, equilibria, and kinetics. Introduction to organic chemistry, alkanes, unsaturated and aromatic hydrocarbons. 1530—Structures and reactions of various functional groups. Introductory biochemistry—amino acids and proteins, carbohydrates, lipids, and nucleic acids. Must be taken in sequence. 3 hours and 1 lab.**

**1610-20 Chemistry and Society (4,4,4) Chemistry for non-science majors emphasizing role of chemistry in dealing with current social concerns. 1610—Basic principles including particle nature of substances, their structure, and chemical changes. 1620—Impact and utilization of chemical principles in modern society with selected topics in principles leading to an understanding of inorganic chemistry; quantum theory of the atom, principles of molecular structure and chemical reactions.**

**1410 Analytical Chemistry (3) Principles and practice of quantitative measurements in chemical systems. Acid-base equilibria, oxidation reduction systems, complexometric titrimetry, elementary spectrophotometry, potentiometric methods, application of titrimetric analysis.**

**1419 Analytical Chemistry (1) Experiments on topics discussed in 1410. Prereq or coreq: 2140. 1 lab.**

**2230 Elements of Organic Chemistry (4) Brief treatment of organic chemistry with emphasis on compounds of biological interest. Prereq: One year of general chemistry.**

**3219-29-39 Organic Chemistry Laboratory (1,1,1) Synthesis and characterization of organic and inorganic compounds. Required for students not having credit for the lecture.**

**3211-21-31 Organic Chemistry (3,3,3) Compounds of carbon and their reactions, reaction mechanisms, spectroscopic and other physical properties. Must be taken in sequence. Prereq: 1110-20-30. Corresponding laboratory (3219-29-39) is coreq for students not having credit for the laboratory.**

**3219-29-39 Organic Chemistry Laboratory (1,1,1) Experiments on topics discussed in 3211-21-31. Corresponding lecture (3211-21-31) is coreq for students not having credit for the lecture.**

**3310 Molecular Basis of Polymers (3) Molecular structure of polymers as opposed to small molecules, polymerization reactions, polymer structures, and molecular characterization of polymers. Not for credit by chemistry majors or minors.**

**3410-20-30 Physical Chemistry (3,3,3) 3410—Behavior of ideal and real gases, statistical thermodynamics. Introduction to chemical equilibrium, 3420—Chemical equilibria, phase equilibria, and properties of solutions. Kinetic theory of gases, 3430—Kinetics of chemical reactions, introduction to quantum mechanics, application to simple systems. Molecular spectroscopy and structure. Prereq: One year of 2000-level physics and Math 1860, 2840-50; or equivalent.**

**3429-39 Physical Chemistry Laboratory (1,1) Gases, liquids, chemical equilibria, solutions, physical properties, reaction kinetics, and electrochemistry. Prereq or coreq: Corresponding courses (3420 and 3430).**

**3511-21-31 Principles of Organic Chemistry (3,3,3) Structure and reactivity of aliphatic and aromatic compounds emphasizing reactions of synthetic utility. Use of spectroscopic and physical techniques to elucidate reaction mechanisms. Recommended for chemistry majors and students planning careers in physical or biomedical sciences. Must be taken in sequence. Prereq: 1110-20-30. Corresponding laboratory: 3519-29-39 or 3519, 3529-39 is a coreq; latter is recommended.**

**3529-39 Organic Chemistry Laboratory (1,1) Experiments on topics discussed in 3511-21-31.**

**3531-32 Chemistry 4311-21-31, 4319-29-39 (12 hours)**

**4170 Gases and kinetic theory of gases. Prereq: 2140-49.**

**4210 Advanced Analytical Chemistry (3) Chemical separations including chromatography, ion exchange, spectrophotometric, and spectrometric techniques.**

**4220 Advanced Analytical Chemistry (3) Electroanalytical methods of analyses (including potentiometry, coulometry, polarography, and voltammetry); magnetic resonance methods; mass spectrometry; x-ray absorption and fluorescence techniques.**

**4420 Physical Inorganic Chemistry (3) Theoretical principles leading to an understanding of inorganic chemistry; theory of the atom, principles of molecular structure, and elementary nuclear chemistry.**

**4421 Advanced Analytical Chemistry Laboratory (1) Experiments on topics discussed in 4220. Coreq: 4220.**

**4510 Organic Qualitative Analysis (3) Identification of pure organic compounds and mixtures. Prereq: 3231; Prereq or Coreq: 4920 or 3420.**

**4640 Chemical Instrumentation (4) Principles of chemical instrumentation; practice in the design and construction of chemical instrumentation.**

**5400 Intermediate Inorganic Chemistry (3) Application of theoretical concepts to the interpretation of their chemical states, and their reactions. Prereq: 4420.**

**5540 Organic Reaction Mechanisms (3) Prereq: 3211-21-31, 3219-29-39.**

**610-20 Advanced Chemical Experimentation (2,2) Laboratory courses in application of modern experimental techniques to solution of chemical problems. Synthesis and characterization of organic and inorganic compounds with emphasis on independent study using advanced techniques. Prereq: 3231-39 or 3231-3539, 3430-39, 4220. Students who receive credit for 4610 may not also receive credit for 4510.**

**6400 Chemical Instrumentation (4) Principles of chemical instrumentation; practice in the design and construction of chemical instruments. 2 hrs and 2 labs.**

**710 Research in Chemistry (2) Open to senior majors, non-cumulative. 2 credits.**

**910-20 Biophysical Chemistry (3,3) Physical chemical principles with applications to biologi-
cal systems. Must be taken in sequence. Not open to students having 3410-20-30, 4910—Gas laws, first, second, and third laws of thermodynamics; equilibrium. 4920—Solution chemistry; electrochemistry; kinetics; nuclear chemistry. 4930—Elementary quantum chemistry; optical and magnetic spectroscopy; light scattering; macromolecular properties. Prereq: 1110-20-30, Math 1540-50 or equivalent.

4029 Biophysical Chemistry Laboratory (1) Experiments in topics discussed in 4010-20-30. Coreq: or Prereq: 4020. 1 lab.

GRADUATE

Students majoring in chemistry for the M.S. or Ph.D. degree are required to present a thorough examination on one year each of general, analytical, organic, and physical chemistry with a satisfactory record. Students lacking any of these prerequisites may be admitted with appropriate deficiencies which must be removed without graduate credit.

For students minoring in chemistry, the prerequisite is two years of chemistry including quantitative analysis.

The master's and doctoral degree requirements are found in the Graduate Catalog. The department offers specialization in areas for the Ph.D.: analytical, energy, environmental, inorganic, organic, physical, theoretical, chemical physics, and polymer science.

5000 Thesis

6110-20-30-35 Advanced Organic Chemistry (3,3,3)
6129 Advanced Organic Chemistry Laboratory (3)
6139 Spectroscopic Characterization of Organic Compounds (2)
6140 Introductory Polymer Chemistry (3)
6150 Kinetics of Polymerization (3)
6160 Organic Chemistry of Polymers (3)
6170 Physical Chemistry of Polymers (3)
6220 Analytical Chemistry of Environmental Pollutants (3)
6240 Chemical Instrumentation (4)
6250-60-70 Advanced Analytical Chemistry (3,3,3)
6340-50 Quantum Chemistry (3,3)
6410-20-30 Advanced Physical Chemistry (3,3,3)
6450 Statistical Thermodynamics (3)
6511 Survey of Inorganic Chemistry (3)
6521 Survey of Analytical Chemistry (3)
6531 Survey of Organic Chemistry (3)
6550 Industrial Chemical Research (3)
6560-20-30 Chemical Basis of Energy Conversion (1,1,1)
6570-20-30 Theoretical Inorganic Chemistry (3,3,3)
6580 Nuclear Chemistry (3)
6911-21-31 Chemistry Seminar (1,1,1)
6000 Doctoral Research and Dissertation
6111 Selected Topics in Organic Chemistry (3)
6130 Natural Product Chemistry (3)
6150 Theoretical Organic Chemistry (3)
6160 Physical Organic Chemistry (3)
6165 Orbital Symmetry Control (3)
6175 Organic Photochemistry (3)
6190 Organometallic Chemistry (3)
6210 Advanced Analytical Spectroscopy (3)
6211 Selected Topics in Analytical Chemistry (3)
6311 Selected Topics in Polymer Chemistry (3)
6320 Natural Polymers (3)
6411 Selected Topics in Physical and Theoretical Chemistry (3)
6420 Nuclear Magnetic Resonance (3)
6430 Photochemistry and Radiation Chemistry (3)
6450 Electrochemistry (3)
6475 Electronic Structure of Radicals (3)
6480 Statistical Thermodynamics (3)
6495 Advanced Chemical Kinetics (3)
6510 Thermodynamics of Solutions (3)
6520 Magnetic Resonance (3)
6711 Selected Topics in Inorganic Chemistry (3)
6730 Topics in Quantum Chemistry (3)
6750 Molten Salt Chemistry (3)
6810 Vibrational Problems in Molecular Spectra (3)
6820 Molecular Vibration-Rotation Theory (3)
6811 Selected Topics in Nuclear Chemistry (3)

Chinese

See Cultural Studies (Asian Studies).

Classics (257)

Professors:
H. C. Rutledge (Head), Ph.D. Ohio State; A. Rapp (Emeritus), Ph.D. Illinois.

Associate Professors:
G. G. Gesell, Ph.D. North Carolina (Chapel Hill); J. E. Shelton, Ph.D. Vanderbilt.

Assistant Professors:
C. P. Craig, Ph.D. North Carolina (Chapel Hill); S. D. Martin, Ph.D. Michigan; D. W. Tandy, Ph.D. Yale.

Greek

UNDERGRADUATE

A major in Greek consists of 39 hours of language courses numbered above 2000, but including Classics 4220. Nine hours from the following general courses may be substituted for language courses at the discretion of the department: Classics 3210-20-30, 3310, 3320, 3330; 4101 may be taken for a maximum of 6 hours. Greek language courses numbered above 2000 may be substituted for a maximum of 9 hours of Latin courses with consent of department.

The Latin minor consists of 24 hours in language courses numbered above 2000, but including Classics 4220. Six hours from the following general courses may be substituted: Classics 3210-20-30, 3310, 3320, 3330.

Placement Examination: Students who transfer to UTK from other colleges and students who enter with high school units in Latin should register for the courses in which they would normally be placed on the basis of such credits. During the first week of the quarter a placement test will be given, and students will be advised if a change in registration is indicated by the results.

Proficiency Examinations: Students who have acquired a knowledge of Latin through private study or tutoring should request a proficiency test. A student who earns a grade of B or better in this examination is eligible for credit toward graduation. A student who omits any course in a sequence may receive credit for it by passing the appropriate proficiency examination.

Certification for Teaching Latin in Tennessee. Consult Certification Clerk, Room 212, Claxon Education Building.

1110-20-30 Beginning Latin (3,3,3) Must be taken in sequence.

2611-21 Intermediate Latin (4,4) 2511—Readings from the age of Cicero. 2521—Vergil's Aeneid. Open to those who have had at least two years of high school Latin, or equivalent.

3140 Ovid (3) Prereq: 3 or 4 years of high school Latin or 2521.

3150 Plautus and Terence (3) Prereq: 3 or 4 years of high school Latin or 2521.

3160 Catullus (3) Prereq: 3 or 4 years of high school Latin or 2521.

3440 Livy (3)

3450 Pliny and Martial (3)

3460 Elegiac Poets (3)

4120 Horace, Satires and Epistles (3)

4140 Cicero and Techniques of Latin Prose Composition (4) Recommended for Latin majors and minors, especially those intending to teach or pursue graduate work. Works of Cicero studied as models for prose composition.

4310 Selected Readings from Latin Literature (3)

4320-30 Selected Readings from Latin Literature (3,3) May be repeated for credit.
4340 Horace, Odes (3)
4350 Tacitus (3)
4360 Lucius (3)
4370 Readings in Medieval Latin (3)

GRADUATE

5410-20-30 The Latin Epic. Lucius, Virgil, Lucan (3,3,3)
5510-20-30 Roman Comedy. Plautus, Terence (3,3,3)

GENERAL COURSES

2710 Scientific and General Vocabulary from Greek (3) Study of word roots and words in English language derived from Greek. Designed to build general vocabulary with special emphasis on scientific and technical terminology.

2720 Scientific and General Vocabulary from Latin (3) Study of word roots and words in English language derived from Latin. Designed to build general vocabulary with special emphasis on scientific and technical terminology.

2730 Medical Terminology (3) Prepares the student to make sense of, and so more easily remember, the roots of complex medical words through a knowledge of the simple classical roots which combine to form most medical vocabulary.

2740 Word Power: Basic Vocabulary from Greek and Latin (3) Vocabulary building from Greek and Latin basic consonant, non-technical vocabulary. Exercises in English etymology.

2810 Greek Life (4) Manners and customs, social and economic aspects of classical civilization; family, politics, laws, finance, commerce.

2820 Roman Life (4) Description same as for Greek Life 2420.

2910 Early Greek Mythology (3) Comprehensive study of Greek myths through readings, lectures, and discussion with emphasis on significance for Greek thought and religion. Slides and tapes illustrate influence of Greek myths on art, music, and literature of ancient Greek and later cultures. (Same as Religious Studies 3210.)

3220 Greek Mythology in the Classical Period (3) Use of myth in literature, history, religion, philosophy, and art of Classical Age of Greece, and change of attitude toward myth from earlier periods. Familiarity with basic Greek myths is assumed. Readings, lectures, slides, and discussion. (Same as Religious Studies 3220.)

3230 Roman Mythology (3) Myths created by Romans, as well as those the Romans borrowed from Greeks, with reference to Roman attitude toward history, religion, and society. Readings, lectures, slides, and discussion. (Same as Religious Studies 3230.)

3310 Art and Archaeology of the Aegean Bronze Age and Early Greece (3) Troy, the Cyclades Islands, Greece mainland, and Crete. Emphasis on palaces of Crete and Mycenae, Tiryns, and Pylos, their fall, the following Dark Age, and rebirth of Greek civilization. Illustrated lectures.

3320 Art and Archaeology of Archais and Classical Greece (3) Survey of development of Greek architecture, sculpture, and painting from 650 B.C. to death of Alexander. Illustrated lectures.

3330 Art and Archaeology of Hellenistic Greece and Rome (3) Hellenistic Greece, Etruscan, and Roman sculpture, painting, and architecture with attention to city planning. Illustrated lectures.

3340 Cities of the Greek and Roman World (3) Archaeological survey of Greek and Roman cities from 3000 B.C. to 500 A.D. with emphasis on development of city planning and quality of life. Such cities as Mycenae, Athens, Priene, Alexandria, Rome, and Lepcis Magna will be studied.

3530 Shires and Sanctuaries of the Greek and Roman World (3) Survey of major shrines and sanctuaries of Greek and Roman world with emphasis on archaeological remains. Such sites as Olympia, Epidaurus, Paestum, Cumae, Praeneste, and Baalbek will be considered. Readings in selected classical authors aid to understanding of place of great shrines and sanctuaries in Greek and Roman life.

3510 Early Greek Literature in English Translation (3) Epic and lyric poetry, including Homer and Sappho, and Herodotus' History of Persian Wars.

3520 Classical Greek Literature in English Translation (3) History, philosophy, and drama of Golden Age from its brilliant rise to its tragic decline in Peloponnesian War.

3530 Roman Literature in English Translation (3) Poetry and prose of major Latin authors, with attention to Greek background. Selections made from early comedy through literature of Augustan Age and of later Empire.

4010 Greek Drama in English Translation (3) Survey of dramatic masterpieces of Greek literature.

4101 Foreign Study (1-16) See page 185.

4210 Teaching of Latin (3) Carries no language credit. (Same as Educ. C & I 6565.)

4220 Seminar in Classical Studies (3) Special problems in literatures and other arts of Greece and Rome. For graduate students and advanced undergraduates. May be repeated for credit with consent of department.

4230 Classical Mythology and Its Uses (3) Intensive review and survey of Greek and Roman mythology for graduate students and advanced undergraduates. Emphasis on uses of classical mythology in literature, music, and plastic arts, especially of modern times.

4510 Selected Readings in Latin Literature in Translation (3) Content varies; may be repeated for credit with consent of department.

4610 Studies in Classical Archaeology (3) Variable content course offering subject matter not taught in an existing course, or concentrating on one aspect of the existing survey. May be repeated for credit to a maximum of 9 hours. Prerequisites according to topic.

GRADUATE

5620 Problems in Old World Archaeology (3) Comparative Literature

See Cultural Studies.

Computer Science (266)

Professors:
F. W. Donaldson, Ph.D. Texas (UT); T. Feagin (Head), Ph.D. Texas; T. R. Gregory, Ph.D. Illinois; G. R. Sherman, Ph.D. Purdue; M. G. Thomas, Ph.D. Duke.

Associate Professors:

Assistant Professors:
J. R. B. Cockett, Ph.D. Leeds, UK; R. W. Heller, Ph.D. Missouri Southern; D. L. Matuszak, Ph.D. Texas; M. R. O'Keenon, Ph.D. Clarkson; D. L. Perry, Ph.D. Ohio State; D. W. Straight, Ph.D. Texas.

Instructors:

Space Institute.

UNDERGRADUATE

Computer science offers an undergraduate major and minor as well as a Master of Science degree (for details, see Graduate Catalog). Information about computer science programs may be obtained from the departmental office, 8 Ayres Hall, or from the Liberal Arts Advising Center, 220 Ayres Hall.

Major: Computer Science 1610 and 1620 are prerequisites to a major in computer science which consists of 2215, 2610, 2710, 3155, 3520, 4510, 4550, and an additional 15 hours to be selected from intermediate and advanced courses. Also required are Math 2840-50-60 and Statistics 3450.

Minor: A minor in computer science consists of 2610, 2710, and an additional 18 hours of upper division computer science courses.

Acceptance and Progression: Acceptance to the major or minor in computer science is competitive and is based on the resources available in the department. Factors considered in the decision are both subjective and objective. Included is consideration of overall grade point average, grades earned in computer science courses required in the lower division curriculum of the major or minor, the seriousness of purpose and interest in departmental programs as exemplified by regular and orderly progress through the prescribed curriculum without abuse of withdrawal and course repeat privileges. The standards applied may be adjusted from time to time to balance overall demand with available departmental resources.

A student enrolled in lower-division courses in the department may progress to the major or minor program only after completing the lower-division coursework prescribed by the department. Students who have completed the required lower-division computer science courses with a minimum GPA of 3.0 and wish to progress to the major or minor program must apply to the departmental office. This must be done as soon as the stated requirements are met so that a decision can be reached prior to the Advanced Registration date for the next quarter. Those who are not accepted into the C.S. Degree program will be counseled and advised of educational alternatives.

For computer science majors who have taken at least three computer science courses at UTK, grades in all computer science courses from UTK will be averaged. If a course is repeated, all grades received for the course will be counted. If a course in which a student has received an A or B is later retaken, only the first A or B is counted; no subsequent grades will be counted.

If a student's computer science average as described above falls below 2.5, the student will be given a warning. If after one more quarter's grades have been received the student's computer science average has not risen to 2.5, the student will not be allowed to graduate with a major in computer science.

A student who desires to be readmitted to the major after being withdrawn as described above must attain an average in computer science courses (computed as described above) of at least 2.7.

The policy applies to all computer science courses taken during or after Winter Quarter, 1980. This policy will be enforced by the Department of Computer Science. This policy will not change the present method of recording grades and grade point averages on the student's permanent academic record maintained in the records office.

Introductory and Service Courses

1410 Introduction to Business Oriented Programming (3) Current and potential uses of computers as tools in the business environment with emphasis on learning FORTRAN programming. Not for com-
computer science majors. Students may not receive credit for both 1410 and 1510. Intended primarily for students in College of Business Administration.

1510 Introduction to Programming—FORTRAN (4) Introduction to computer systems, capabilities of a computer; applications in artificial intelligence, humanities, social sciences, sciences and engineering; computing in foreign languages. Graphical representation and learning. Prereq: 2620 and Math 2860. (Same as Math 3155.)


2215 Discrete Structures (3) Introduction to discrete structures useful in computer science. Sets, set logic, relations, functions, proof techniques, induction, logic. Graphical representations and algorithms. Prereq: 1620 and Math 1500. (Same as Math 2215.)

2510 Programming Techniques in FORTRAN (3) Problem formulation and solution. External devices and direct access input and output. For students who have learned sequential programs and data structures in a high-level language. Prereq: 1510 or 1610 or 1510 or consent of instructor.

2710 Machine Organization (3) Elementary computer structure, operations, addressing, assembly language programming, representation of data, microprogramming. Prereq: one course in computer programming.


3150 Introduction to Numerical Algorithms and Programming (3, S) Roots of equations, systems of linear equations, least-squares data fitting, numerical integration, numerical methods for ordinary differential equations. Introduction to programming in FORTRAN. 3150 and 3155 may not both be taken for credit; students with a knowledge of FORTRAN should take 3155. Prereq or coreq: Math 2860. (Same as Math 3150.)

3180 Logic Design of Digital Systems (3) Introduction to Boolean algebra and design of combinational circuits. Presents gate and flipflop characteristics. Design of combinational circuits. Topics in discrete structures useful in computer science. Introduction to computer systems architecture and system components to include basic storage, instruction set, memory, interconnection, input and output, control systems. Instruction set capabilities and machine language programming. Prereq: 2710 or 2710 or Elem. Eng. 3101, 3 hrs. including biweekly lab. (Same as Elec. Eng. 3180.)


3910 Commercial Computer Concepts and Control (3) Elements, operation and control of computers in a business environment. Topics include input, storage, data manipulation, output, flowcharting and error control. Prereq: 3410 and Accounting 3210.

4310 Statistical Data Processing (3) FORTRAN language for organization and analysis of scientific data. BPS: Statistical computing, basic statistical analyses such as frequency distributions, percentiles, data reduction correlation and regression, analysis of variance, computer printout for credit for computer science majors. Prereq: Statistics 2100 or equivalent.

4390 Independent Study in Computer Science (1-3) Special project in area of student's primary interest. To be directed by computer science faculty, perhaps jointly with student’s faculty adviser. Prereq: Consent of instructor. May be repeated. Maximum credit 9 hours.

4340 Interactive Statistical Data Processing (3) Statistical data processing using interactive computer terminals. Topics include programs for data entry, Mathcad, and statistics program, such as StatPack, editors, and FORTRAN. Not for credit for computer science majors. Prereq: Statistics 2100 or equivalent and Computer Science 4310 or knowledge of a procedure-oriented language such as FORTRAN.

4350 Interactive Computer Graphics (3) Point plotting, vector generation, interactive graphical techniques, two- and three-dimensional transformation, perspective, hidden line elimination, shading, software and hardware system design. Discussion of use of these techniques in design, problem solving, and application of the techniques to a variety of computer graphics applications. Prereq: Senior standing in computer science, electrical engineering, or geography and a knowledge of computer programming, or consent of instructor. (Same as Elec. Engr. 4750 and Geography 4750.)

4620 Introduction to Pattern Recognition (3) (Same as Elec. Engr. 4820.)

4630 Digital Image Processing (3) (Same as Elec. Engr. 4830.)

4650 Small Computer Systems (3) (Same as Elec. Engr. 4850.)

4740 Analysis and Management of Computer Installations (3) Analysis and design of computer systems; implementation, justification, personnel in systems; perspective on systems. Prereq: 3520 or equivalent.

4890 Special Topics In Computer Science (1-4) Maximum credit 9 hrs. with consent of department. Prereq: recommendation of Comp. Sci. staff.

GRADUATE

5000 Thesis

5002 Non-Thesis Graduation Completion (3-15)

5010 Computer Assisted Instruction (3)

5050 Computer Modeling and Simulation of Physical Systems (3)

5100 Immigration to Computer Science (5)

5109 Immigration to Computer Science Practicum (2)

5175 Introduction to Logic Design (3)

5210 Artificial Intelligence (3)

5250 Medical Computing (2)

5430 Advanced Compiler Design (3)

5455 Finite Difference Methods for Partial Differential Equations (3)

5456 Finite Element Methods (3)

5475 Advanced Topics In Numerical Partial Differential Equations (3)

5570 Database Management Systems (3)

5655-65-75 Numerical Mathematics (3,3,3)
In addition, courses from at least two other departments must be selected.

For further information consult the Chairperson of the Afro-American Studies Committee, Mr. Marvin Peck.

**Afro-American Studies (022)**

1510-20 Elementary Swahili (4,4) Taped language program. Must be taken in sequence.

2010-20 Introduction to Afro-American Studies (4,4)

3140-50-60 Directed Readings in Afro-American Studies (1,1,1) Designed for students who are interested in doing intensive reading in some area of Black studies which is defined by the student and the instructor. Prereq: 2010 (or 2020) and consent of instructor.

3330 Prejudice and Racism in the United States (4) (Same as Sociology 3330.)

3490 African Religions (4) (Same as Religious Studies and Anthropology 3490.)

3550 Religion and Racism in America (4) (Same as Religious Studies 3550.)

3560 Black Religion in America (4) (Same as Religious Studies 3560.)

3630 History and Philosophy of Afro-American Education (4) (From Slavery to 1954).


4101 Foreign Study (1-16) See page 185.

4102 Off-Campus Study (1-16) See page 185.

4103 Independent Study (1-16) See page 185.

4200 Senior Seminar on Pan-Africanism (4) Explores concepts and philosophers of Pan-Africanism and implication of the ideology for various societies.

4310 Research in Afro-American Studies (4) Deals with Black experience and research process.

4500 Current Issues and Topics in Afro-American Studies (3-4) Problems, topics, and issues in area of Black Studies. Consent and credit determined by instructor. May be repeated. Maximum credit 12 hours.

4810 Afro-American Families (3) (Same as Child and Family Studies 4810.)

4830 Afro-American Women in American Society (4) Historical and contemporary socio-econo-political factors in American society as they relate to the Black woman. History 1950-60 recommended. Prereq: Consent of instructor.

4880 Afro-American Psychology (3) (Same as Psychology 4880.)

Approved Area Courses

**Anthropology**

Anthropology 3530 Peoples and Cultures of Africa (3)

Anthropology 3930 Biology of the Races of Man (3)

Art 2725 Black Art (4)

**CFS 4310 The Afro-American Family (3)**
Asian Studies (145)

The Asian Studies concentration consists of 36 quarter hours: Asian Studies 2510-20 plus 28 additional credits from Asian Studies or approved departmental courses. The latter should constitute a coherent program, including a minimum of one course (3 or 4 hours) from each of the following three areas:

(a) art, Asian culture, literature, and music;
(b) economics, geography, history, and political science;
(c) anthropology, philosophy, religious studies, and sociology.

Students who prefer to use Asian Studies 2510-20 for Triad or elective credit may, with permission of the program chairperson, substitute 8 additional upper-division hours in acceptable courses for the required sequence in the concentration.

The Asian Studies minor consists of 24 quarter hours: Asian Studies 2510-20 plus 16 additional credits from Asian Studies or approved departmental courses. The latter should include at least one course (3 or 4 hours) from each of the following areas:

(a) art, Asian culture, literature, and music;
(b) economics, geography, history, and political science;
(c) anthropology, philosophy, religious studies, and sociology.

Students who prefer to use Asian Studies 2510-20 for Triad or elective credit may, with permission of the program chairperson, substitute 8 additional upper-division hours in acceptable courses for the required sequence in the minor.

It is strongly recommended that students planning to attend graduate school take an appropriate Asian language through the intermediate level.

Further information may be obtained from the chairperson of the Asian Studies Committee, Dr. Walter Neale.

1431-32 Spoken Arabic I, II (4,4) Must be taken in sequence. Sequence will vary depending on instructor.

2431-32-33 Elementary Modern Standard Arabic I, II, III (4,4,4) Must be taken in sequence. Three class meetings and two laboratory periods. May be repeated once for credit.

2510-20 Asian Civilization (4,4) Introduction to Asian civilization by comparative study of development of religion, social institutions, and high culture in India, China, Japan, and the Islamic world. 2510—Rise of ancient and classical periods of Indian literary history.

2531-32-33 Elementary Chinese (4,4,4) Taped language program. Must be taken in sequence.

2631-32-33 Elementary Japanese (4,4,4) Taped language program. Must be taken in sequence.

2731-32-33 Elementary Persian (4,4,4) Taped language program. Must be taken in sequence.

2831-32-33 Elementary Modern Hebrew (4,4,4) Taped language program. Must be taken in sequence.

3310 Indian Culture (4)

3320 Chinese Culture (4)

3330 Japanese Culture (4)

3340 Islamic Culture (4)

3351-32-33 Intermediate Modern Standard Arabic I, II, III (4,4,4) Taped language program. Prereq: 2531-32-33 or equivalent or consent of instructor. Must be taken in sequence.

3610 Islamic Literature in English Translation (4) A survey of some of the major genres and masterpieces of Islamic literature—epic poetry, drama, court poetry, modern novel. Major concentration is on the ancient and classical periods of Indian literary history.

3631-32-33 Intermediate Japanese (4,4,4) Prereq: 2531-32-33 or equivalent or consent of instructor. Must be taken in sequence.


3670 Islamic Literature in English Translation (4) Survey, from origins to modern period of major Islamic literatures, especially Arabic, Persian, and Turkish. Readings include The Arabian Nights, The Ruba'iyat of Omar Khayyam, and Gibran's The Prophet. Available for graduate credit.

3731-32-33 Intermediate Persian (4,4,4) Taped language program. Prereq: 2531-32-33 or equivalent or consent of instructor. Must be taken in sequence.

3831-32-33 Intermediate Modern Hebrew (4,4,4) Taped language program. Prereq: 2631-32-33 or equivalent or consent of instructor. Must be taken in sequence.

4010-30-30 Readings in Asian Literature (4,4,4) Prereq: Mastery of intermediate-level of Japanese, Chinese, Arabic, or Sanskrit and consent of instructor.

4012 Selected Topics in Asian Studies (4) Content varies. May be repeated. Maximum credit 12 hours.

4531-32-33 Advanced Chinese I, II, III, IV (4,4,4) Taped language program. Prereq: 3631-32-33 or equivalent or consent of instructor.

4631-32-33 Advanced Japanese (4,4,4) Class will include conversation, drill, and composition practice with native speaker. Must be taken in sequence. Prereq: 3631-32-33 or equivalent.

4740-50-60 Elementary Sanskrit (4,4,4) (Same as Religious Studies 4740-50-60).

4770-90 Intermediate Sanskrit (4,4,4) (Same as Religious Studies 4770-90).
Asian Studies 4010-20-30 Readings in Asian Literature (4,4,4)
Music 4260 Introduction to Ethnomusicology (3)
(b) Economics, Geography, History, and Political Science
Economics 4232 The Political Economy of Asian Development (3)
Geography 3870 Geography of Asia (4)
History 3780-90 History of the Middle East (3,3)
History 3785 Contemporary Middle East (4)
History 3800 North Africa since 1830 (3)
History 3810-20-30 History of East Asia (3,3,3)
History 4791 Modernization of the Middle East (3)
History 4792 Historical Writers in Islamic History (3)
History 4811-21 History of Japan (4,4)
History 4870 Cultural History of China (3)
History 4880 History of Modern China (3)
History 4890 History of Contemporary China (3)
Political Science 3621-22 Politics of Asian States (4,4,4)
Political Science 3641 Government and Politics of Middle East and North Africa (4)
Political Science 3795 Contemporary Middle East (4)
(c) Anthropology, Philosophy, Religious Studies, and Sociology
Anthropology 3510 Peoples and Cultures of Mainland Asia (3)
Anthropology 4510 Peoples of China I: Chinese Society after 1839 (3)
Anthropology 4570 Peoples of Southeast Asia (3)
Anthropology 4590 Peoples of Japan (3)
Philosophy 3650 Philosophy and Religion in India (4)
Philosophy 3660 Buddhist Philosophy and Religion (4)
Philosophy 3671 Religion and Philosophy in China (4)
Religious Studies 3850 Philosophy and Religion in India (4)
Religious Studies 3860 Buddhist Philosophy and Religion (4)
Religious Studies 3871 Religion and Philosophy in China (4)
Religious Studies 3872 Religion and Society in Japan (4)
Religious Studies 3880 Islam (4)
Religious Studies 3760 Eastern Religions and Western Thought (3)
Religious Studies 3770 Zen Buddhism (3)
Religious Studies 4070 Topics in Eastern Religions (4)
Religious Studies 4960 Tradition, Change and Modernity in Asia (4)
Sociology 3627 Religion and Society in Japan (4)
Sociology 4060 Tradition, Change and Modernity in Asia (4)

Cinema Studies
Minor: Consists of English 2690 and Art 2935 plus sixteen additional hours of approved area courses. It is strongly recommended that English 2690 and Art 2935 be taken before selection of electives provided for in the minor.
For further information consult the chairperson of the Cinema Studies Committee, Dr. Ferdinand A. Hilenski.

Approved Area Courses
Art 3935 Film Design (4)
Broadcasting 3870 TV Film News (3)
Broadcasting 4030-40 Television Production (3,3)
Comparative Literature 4032 Topics in Film and Literature (3)
English 3233 Film and American Culture (3)
English 3440 Literature and Film (3)
English 4090 Topics in Film Study (3)
Italian 3340 The Italian Cinema (3)

Comparative Literature (280)
A concentration in comparative literature consists of 36 hours including Comparative Literature 4010, 4012-22-32, 9 hours of literature in a foreign language in courses numbered 5000 and above, and one classics course selected from Classics 4010, 4230, 4510. The remaining 12 hours should include literature courses, either in English or in a foreign language, numbered 3000 and above, from at least two of the following departments: English, Germanic and Slavic Languages, Religious Studies, Romance Languages (certain courses in Philosophy and Speech and Theatre may be substituted with the approval of the chairperson of the Comparative Literature Program). Students concentrating in comparative literature are strongly encouraged to acquire a working knowledge of a second foreign language, especially if they hope to pursue comparative literature on the graduate level.
A minor in comparative literature consists of 24 hours including Comparative Literature 4010, two courses from Comparative Literature 4012-22-32, 6 hours of literature in a foreign language in courses numbered 3000 and above, and 3 hours of literature numbered 3000 and above, either in English or in a foreign language, from at least two of the following departments: Classics (4010, 4230, 4510), English, Germanic and Slavic Languages, Religious Studies, and Romance Languages (certain courses in Philosophy or Speech and Theatre may be substituted with the approval of the chairperson of the Comparative Literature Program). Minors in comparative literature are strongly encouraged to continue their study of a foreign language beyond the minimum requirement.
For further information, consult the chairman of the Comparative Literature Committee, Dr. Harry C. Rutledge.

2010 Introduction to Comparative Literature (4)
Basic knowledge, techniques, and sources necessary to compare literatures of various cultures, ages, and nations.

3010 Computer Techniques for Literary Study (3)
Introduces students to the growing field of computer research in literary study. Students will learn to write programs in BASIC which have literary research applications. Students will study the specific kinds of literary analysis for which a computer is a useful tool. Projects include the following: indexing and bibliography, concordances, syntactic analysis, content analysis, authorship attribution, text editing, and stylistic analysis. No previous computer knowledge or background is assumed or required.

3236-37 Special Themes in Literature (3,3) (Same as English 3236-37)

4010 Methodology of Comparative Literature (3)
Research and writing of comparative literary study. Major project will be preparation of seminar paper in comparative literature. Prereq: 2010 and one course from 4012-22-32 or consent of instructor.

4012-23-32 Special Topics in Comparative Literature (3,3,3) Content varies; may be repeated for credit.

5012 Comparative Theories of Literature (3)

5022 Approaches in Comparative Literature (3)

5032 Studies in Comparative Literature (3)

Approved Area Courses
Classics 3210-20-30 Greek and Roman Mythology (3,3,3)
Classics 4010 Greek Drama in English Translation (3)
Classics 4510 Selected Reading in Latin Literature in Translation (3)
English 3411-12-20-30 Modern Drama (3,3,3,3)
English 3710 Literature of the English Bible (3)
courses in these languages may be applied to the respective division listed above.

For further information, consult Dr. H. C. Rutledge (Classics) or Dr. W. L. Humphreys (Religious Studies).

Latin American Studies (600)

Concentration consists of 36 hours including Spanish 3310-20-30 or Portuguese 3510-20, History 3870-80-90, Political Science 3625-26, and Geography 3860 or 3790 and 7 hours of acceptable elective courses in any of the participating departments or in the Latin American studies sequence 2510-20 (4,4) or Independent Research 4010.

Two years of Spanish or Portuguese or a practical working knowledge acquired independently are a prerequisite.

Minor: Consist of 24 quarter hours selected from Geography 3860 or 3790, History 3870-80-90, Political Science 3625-26, Spanish 3310-20-30 or Portuguese 3510-20, and the Latin American studies sequence 2510-20 or Independent Research 4010.

For further information, consult the chairperson of the Latin American Studies Committee.

2510-20 Introduction to Latin American Studies (4,4) Introduction to societies of Latin America with special emphasis on dominant culture patterns, social changes, and impact of nationalism. 2520-Latter 19th century and the Modern period.

4910 Independent Research in Latin American Studies (6-9) Directed research in any topic fully related to Latin American studies to be undertaken by a student off-campus, normally in a Latin American country. The research must be approved and evaluated by the Latin American Studies Committee and directed by a faculty member involved in the study of the Latin American area. Credit to vary according to the scope and length of the project.

4970 Senior Seminar (3-4) Selected topics in Latin American studies. May be repeated with consent of instructor.

Linguistics (623)

This concentration offers a broad exposure to the various fields of linguistics (including historical, descriptive, and theoretical linguistics) along with an opportunity to study areas where linguistics overlaps with other disciplines such as psycholinguistics, sociolinguistics, speech pathology, and the like. It is designed to prepare a student for graduate work in linguistics or related areas, or to serve as a general survey of language and linguistics. It provides the additional possibility of emphasizing the teaching of English as a second language for the student interested in employment at the B.A. level.

The requirements of this concentration are:

Corequisites

(a) A 3000-level sequence or its equivalent of a foreign language. (This can be accomplished by electing Option I of the Language, Literature, and Arts section of the Triad requirements. The following languages offer sequences which fulfill Option I: French, German, Greek, Italian, Latin, Russian, Portuguese, Spanish.) By special permission of the Linguistics Committee, certain language-related courses may be substituted for a 3000-level sequence of the foreign language.

(b) Two quarters of a non-Indo-European language to be selected from the following:

Russian Studies 3141-51 (Hebrew); Arabic 2510-20; Asian Studies 2531-32 (Chinese); Asian Studies 2631-32 (Japanese).

Concentration

The concentration shall consist of 38 hours distributed as follows:

(a) 32 hours composed of: Audiology and Speech Pathology 3050; French, German, Russian, or Spanish 4250-60-70; English 3330, 3332, 4440; Speech 4811; Linguistics 4020-30.

(b) 6 hours of the following, selected in consultation with the Linguistics Committee:

Anthropology 3800; Audiology and Speech Pathology 3200, 4650, 5651, 5790; Educational Curriculum and Instruction 3562-63; Special Education and Rehabilitation 5230, 5510-20-30; English 3340, 4450, 4460, 4471, 4481, 5150, 5170-80; German 4310-20; 4810-20-30, 5710-20-30; Linguistics 4000; Russian 4310-20-30; Philosophy 4650; Psychology 4650, 4860, 5890-70; French 4210-20-30, 5110-20-30; Spanish 4210-20-30, 5110-20-30.

(c) Other hours may be substituted in (b) by approval of the Linguistics Committee.

Minor

A minor in linguistics shall consist of 27 credit hours composed of 9 from section (b) of the major selected in consultation with the Linguistics Committee, and 18 hours as follows: Audiology and Speech Pathology 3050; Linguistics 4020-30; English 3332; French, German, Russian, Spanish 4250-60.

NOTE: In addition to the above listed courses for the concentration and the minor there are occasionally offerings in the Honors Series or in graduate seminars which may be substituted for certain requirements subject to written approval of the Linguistics Committee and the Office of the Dean.
For further information consult the chairman of the program, Dr. Bethany Dumas.

2000 Language, Linguistics and Society (3) Introduction to linguistics with focus on language development and use of language by individuals and groups.

3330 Introduction to Study of English Language (4) (Same as English 3330).  
3331 Cultural History of the English Language (3) (Same as English 3331).  
3332 Modern English Grammar (3) (Same as English 3332).  
4000 Topics in Linguistics (3) Content varies. May be repeated. Maximum credit 9 hours.

4020-30 Historical Linguistics, Neogrammarian School, and Growth of Structuralism (3,3) 4020—Traces development of scientific approach to linguistics from Jacob Grimm and Franz Bopp through 19th century. 4030—Traces change in linguistic interest brought about by Saussure’s Cours and growing impact of anthropology and behaviorism on linguistic studies.

4250 Introduction to Descriptive Linguistics (3) (Same as French, German, Russian, and Spanish 4250).

4260 Introduction to Historical and Comparative Linguistics (3) (Same as French, German, Russian, and Spanish 4260).

4270 Introduction to Romance Linguistics (3) (Same as French and Spanish 4270).

4271 Introduction to Slavic Linguistics (3) (Same as Russian 4271).

4440 Sociolinguistics (3) (Same as English 4440).

4450 Dialectology (3) (Same as English 4450).

4460 Special Topics in English Linguistics (3) (Same as English 4460).

4471-81 English as a Second or Foreign Language (3,3) (Same as English 4471-81).

Medieval Studies (674)

A concentration in Medieval studies focuses upon culture and society from the collapse of the Roman Empire to the 16th century. Such a concentration offers the opportunity to deepen one’s self-awareness and broaden one’s view of the range of human possibilities by studying a very different and remote culture—its conditions of life, social and political institutions, values and ideas, and modes of perception and expression.

A concentration in Medieval studies consists of Medieval Studies 2010 and 4010 and 28 hours of upper-division courses concerning primarily the Medieval experience, divided among the following three categories: (1) history, philosophy, political science, and religious studies; (2) language and literature; (3) the arts—history of art, architecture, music, and speech and theatre. Courses should not be selected at random but should either form a related pattern (for example, courses in the literature and history of Medieval England or Italy, etc.), or should revolve around a particular discipline, or two closely related disciplines (for example, courses in the history of art and architecture). A minor in Medieval studies consists of Medieval Studies 2010 and 4010 and 16 additional hours distributed among the categories listed above for the major. Each student’s program, major or minor, must be approved in advance by the Medieval Studies Coordinating Committee, chairperson Dr. Thomas J. Heffernan.

It is strongly recommended that students selecting the Medieval studies concentration choose a foreign language option for the Triad requirement (Options 1 or 2). Latin is the most appropriate language for students and is essential for those who plan to continue their studies in graduate school. In addition, students planning to go on to graduate school are strongly advised to supplement their Medieval studies concentration with extensive work in one of the traditional disciplines.

2010 Medieval Civilization (4) Introduction to basic themes in medieval experience, approached from interdisciplinary points of view and including philosophy and religion, art and architecture, language and literature, social and political history.

4010 Seminar in Medieval Studies (4) interdisciplinary treatment of selected topics.

Upper-division courses for the concentration in Medieval studies may be chosen from the list of courses below.

Category #1

History, Philosophy, Political Science, and Religious Studies.

History 3060 History of Western Religious Thought and Institutions (4)

History 3411 Renaissance (3)

History 3710 History of Germany (3)

History 3780 History of Middle East (3)

History 4011 European History Colloquium (3) (when subject is part of medieval culture and society)

History 4500 History of Medieval England (3)

History 4710-20 Medieval History (3,3)

Philosophy 3121 Medieval Philosophy (4)

Political Science 3802 Studies in Political Thought (4)

Religious Studies 3070 History of Western Religious Thought and Institutions (4)

Religious Studies 3411 Renaissance and Reform (4)

Religious Studies 4610 Topics in Western Religious Thought and Institutions (4) (when subject is part of medieval culture and society).

Category #2 Language and Literature

Classics 4310 Selected Reading from Latin Literature (3) (readings in Latin)

Classics 4370 Readings in Medieval Latin (3) (Same as Classics 4370).

Comparative Literature 4012-22-32 Special Topics in Comparative Literature (3,3,3) (when subject is part of medieval culture and society.)

Comparative Literature 4050-60-70 Dante and Medieval Culture (3,3,3)

English 3331 Cultural History of the English Language (3) (Same as English 3331).

English 4410 Introduction to Study of English Language (3) (no language requirement)

English 4420 History of English Language (3) (no prerequisites)

English 4930-40 Chaucer (3,3) 4930—The Canterbury Tales, 4940—Troylus and Criseyde and early poems. (Same as English 4930-40.)

French 3210 French Literature in English Translation (3)

French 4350-60-70 Medieval French Literature (3,3,3) (readings in French)

German 3210 German Literature in English Translation (3-4)

German 4310 History of German Language (3) (readings in German)

Italian 4010 Italian Drama in English Translation (3) (or in Italian)

Italian 4050-50-70 Dante and Medieval Culture (3,3,3) (readings in English or Italian)

Italian 4330 History of Italian Language (3) (readings in Italian)

Category #3 The Arts

Architecture 4130 Seminar in Medieval Architecture (4)

Art 3704 History of Medieval Art (4)

Art 3705 Northern European Painting, 1350-1600 (4)

Art 3715 Early Italian Renaissance Art, 1300-1500 (4)

Music 4200 Independent Study in Music History and Literature (1-3) (when subject is part of medieval culture and society)

Music 4280 The Mass to 1600 (3)

Music 4290 Gregorian Chant (3)

Theatre 3252 History of the Theatre (4)

Russian and East European Studies (687)

Prerequisites to the major are the completion of Russian 2110-20-30 and Russian 2640-50. (It is suggested that students planning to major in Russian and East European Studies satisfy Option 2 of the Language, Literature and Arts section of the Triad. Russian 2110-20-30 can be used to satisfy part of that Option. Russian 2640-50 can be used to satisfy Part A of the History and Society section of the Triad.) The major consists of 42 hours distributed as follows: Geography 3880; six hours from History 3470-80-90; Philosophy 3550; Political Science 3591 and four additional hours from Political Science 3632, 3780, 4815, 5370, and 5390; Russian 3110-20-30; Russian 4010 (Selected Topics in Russian and East European Studies); and any eight additional hours in courses numbered 3000 or above from the list “Approved Area Courses” which can be obtained from the chairman of the Russian and East European Studies Committee, Dr. Donald Fries.

4010 Selected Topics in Russian and East European Studies (3) An interdisciplinary seminar on a selected topic using a comparative approach.
Urban Studies (985)
A concentration in urban studies consists of 40 quarter hours, including Urban Studies 2500 and 3000, at least 4 hours of Urban Studies 4000, and 28 hours from the urban studies curriculum provided below. The urban studies minor consists of 24 quarter hours, including Urban Studies 2500 and 3000 plus 16 hours from the urban studies curriculum provided below. For further information consult the chairperson of the Urban Studies Committee, Dr. Samuel Wallace.

2500 Interdisciplinary Urban Studies (4) Fundamental perspectives of various disciplines toward the city, urbanism as a way of life, and urbanization as an ongoing process. Stresses the multidimensional nature of urban studies.

3000 Selected Topics in Urban Studies (4) May be repeated with consent of the committee. Maximum credit 12 hours.

3750 The Urban Polity (4) (Same as Political Science 3750).

4000 Directed Field Work (1-16) Participant observation and other directed field research in selected sites and organizations. May be done in a concentrated manner, such as a summer, or over the course of an academic year. Minimum of four credits required for a concentration in urban studies. May be repeated. Maximum credit 16 hours.

4100 Survey of Planning (3) (Same as Planning 4100).

4330 Urban Ecology (4) (Same as Sociology 4330).

4440 Urban Anthropology (3) (Same as Anthropology 4440).

4670 Cities and Urbanization in American History (4) (Same as History 4670).

4900 Aspects of Urban Environment (4) (Same as Architecture 4900).

Urban Studies Curriculum:
For the concentration and minor, courses may be selected to meet the following requirements from the following:

Anthropology:
3450 Community Studies in Complex Culture (3)
4440 Urban Anthropology (3)

Architecture:
2000 Man-Environment Systems I (4)
3930 Behavioral Approaches to Environmental Design (6)
4900 Aspects of Urban Environment (4)

Geography:
3000 Man, Location, and Behavior (4)
3430 Urban Geography (4)

History:
4670 Cities and Urbanization in American History (4)
4740 The City In Europe (3)

Planning:
4100 Introduction to Planning (3)

Political Science:
3750 The Urban Polity (4)
3790 Urban Policy Process (4)

Real Estate and Urban Development:
3610 Principles of Real Estate and Urban Development (3)
4120 Urban Growth and Land Use (3)
4130 Problems of Urban Development (3)

Sociology:
3410 Urban Environment (4)
3420 Urban Problems (4)
4330 Urban Ecology (4)
4530 Community Organization (4)

Women’s Studies (944)

Minor: Consists of Women’s Studies 2010-20 and 16 hours of appropriate courses numbered 3000 or above. Courses approved for the Women’s Studies minor are listed below. Students may petition the Women’s Studies Committee for approval of courses other than those listed. For further information consult the chairperson of Women’s Studies, Dr. Martha Lee Osborne, at the Women's Studies office, 206 Alumni Hall, 974-2408, or in the Philosophy Department, 807 McClung Tower, 974-3196 or 974-3255.

2010-20 Women’s Studies (4) Explores basic knowledge and sources necessary to understand current and past societal experiences of women. 2010 utilizes perspective of humanities; 2020 employs that of social sciences.

4000 Topics in Women’s Studies (4)
Supporting courses from several departments and colleges on the UTK campus include:

Black Studies 4830 Black Women in American Society (4)

Child and Family Studies 2120 Sex Roles and Marriages (3)

English 3310 Women Writers in England and America (3)

French 3340 Women in French Culture (4)

History 4280 Women in European History (4)

History 4290 Women in American History (4)

History 5130 Topics in Women's History (3) (graduate course; variable content)

Music 3095 Women in Music (3)

Philosophy 3430 The Concept of Woman (4)

Philosophy 3435 Philosophy of Feminism (4)

Public Health 4430 Women's Health (3)

Psychology 4870 Contemporary Research in the Behavior of Women (4)

Sociology 3150 Gender in Society (4)

Speech and Theatre 4560 Rhetoric of the Women’s Rights Movement (4)

Educational and Counseling Psychology 4110 Psychology of Sex Role Development (3)

Educational and Counseling Psychology 5110 Psychology of Women (3)

Cultural Studies (270)

1000 Selected Topics (2-4) May be repeated. Maximum credit 8 hours.

4000 Selected Interdisciplinary Cultural Topics (1-12) Acceptable for credit in any cultural studies concentration or minor except Black studies. Registration by consent of director of cultural studies and the respective chairperson. See pages 185 and 198.

4101 Foreign Study (1-16) Acceptable for credit in any cultural studies concentration or minor except Black studies. Registration by consent of director of cultural studies and the respective chairperson. See pages 184 and 198.

4103 Independent Study (1-18) Acceptable for credit in any cultural studies concentration or minor except Black studies. Registration by consent of director of cultural studies and the respective chairperson. See pages 185 and 199.

GRADUATE

5101 Foreign Study (1-12)

5102 Off-Campus Study (1-12)

5103 Independent Study (1-12)

Ecology (278)

Dewey L. Bunting, Chairman


The graduate program in ecology offers Master of Science and Doctor of Philosophy degrees. This interdepartmental program provides advanced courses in contemporary ecology for students from undergraduate programs in basic and applied biology, agriculture, social sciences, mathematics, and engineering. Research opportunities in both fundamental and applied ecology are intended to prepare students for academic careers as well as professional positions in industry or government. The Environmental Sciences Division of the Oak Ridge National Laboratory, the Tennessee Valley Authority, and the National Park Service provide advisers and research facilities. The Great Smoky Mountains, Cumberland Plateau, valley and ridge topography, TVA lakes, and wild rivers provide a spectrum of natural habitats and consequent biological diversity which is truly unique. In addition, faculty research programs provide opportunities for student research elsewhere on this continent and abroad.

The graduate program in ecology offers Master of Science and Doctor of Philosophy degrees. This interdepartmental program provides advanced courses in contemporary ecology for students from undergraduate programs in basic and applied biology, agriculture, social sciences, mathematics, and engineering. Research opportunities in both fundamental and applied ecology are intended to prepare students for academic careers as well as professional positions in industry or government. The Environmental Sciences Division of the Oak Ridge National Laboratory, the Tennessee Valley Authority, and the National Park Service provide advisers and research facilities. The Great Smoky Mountains, Cumberland Plateau, valley and ridge topography, TVA lakes, and wild rivers provide a spectrum of natural habitats and consequent biological diversity which is truly unique. In addition, faculty research programs provide opportunities for student research elsewhere on this continent and abroad.
ADMISSION
Requirements for admission to this program are: (1) admission to the Graduate School of The University of Tennessee; (2) at least 12 quarter hours of college chemistry, 9 quarter hours of college mathematics, 4 quarter hours of ecology at the upper-division level, and the Graduate Record Examination. Application forms for admission should be obtained from the Graduate School. Inquiries concerning the admission and degree requirements should be addressed to the Chairman, Graduate Program in Ecology, University of Tennessee, Knoxville, Tennessee 37916.

5000 Thesis (1-15)
5100 Special Problems in Ecology (1-3)
5210-20-30 Principles of Ecology (2,2,2)
5310 Ecology for Planners and Engineers (3)
5320 Implementation of Environmental Policy (3)
5610 Environmental Toxicology (3)
5640 Techniques in Environmental Toxicology (3)
6000 Doctoral Research and Dissertation (3-15)
6100 Special Topics in Ecology (3)
6110 Seminar in Animal Behavior (2)
6120 Seminar in Aquatic Ecology (2)
6130 Seminar in Physiological Ecology (2)
6140 Seminar in Community Ecology (2)
6150 Seminar in Radiation Ecology (2)
6160 Seminar in Systems Ecology (2)
6431 Current Topics in Environmental Toxicology (1)

Economics (283)
See faculty list, page 89. UNDERGRADUATE
The program in economics combines a broad liberal education with the rigorous study of current issues of the day such as employment, inflation, poverty, wealth, and the benefits and costs of economic growth. Courses offered in the Department of Economics of the College of Business Administration provide opportunity for a major or minor in economics in the College of Liberal Arts. See page 90 for description of the courses available. Requirements for a major in economics consist of: (1) Economics 2110, 2120, and 2130 or equivalent honors courses, and (2) a minimum of 33 additional hours in upper-division economics courses. Economics 3110 (or the sequence 3111 and 3112) plus 3120 are required as part of the upper-division work and should be taken as early in the upper-division program as possible. A minor consists of: (1) Economics 2110, 2120, 2130, and (2) 15 additional hours in economics at the upper-division level. Minors are encouraged to include Economics 3110 and 3120. In addition, certification to teach economics in secondary schools is available. Students with such an interest should consult the Certification Clerk, Room 212, Claxton Education Building as early in their program as possible to determine the appropriate requirements.

GRADUATE
See pages 88-89 in the College of Business Administration. The department offers the following degrees:

M.A., M.A.C.T., M.S., and Ph.D. Also, the MBA degree with a concentration in economics is offered.

English (339)
Professors: J. B. Traynor (Head), Ph.D. Princeton; P. G. Adams, Ph.D. Temple; E. B. Brandt, Ph.D. (Auburn); R. M. Kelty, Ph.D. (North Carolina); K. Curry (Emeritus), Ph.D. Yale; R. Y. Drake, Jr., Ph.D. Yale; J. H. Fischer, Ph.D. Pennsylvania; J. A. Hanson (Emeritus), Ph.D. Illinois; R. D. May, Ph.D. Duke; K. L. Knickertuber (Emeritus), Ph.D. Yale; B. L. Logan (Emeritus), Ph.D. Illinois; D. F. Miller (Emeritus), Ph.D. Virginia; R. B. Miller, Ph.D. Brown; R. E. Parker (Emeritus), Ph.D. California (Berkeley); A. R. Penner, Ph.D. Colorado; J. E. Reese (Chancellor), Ph.D. Kentucky; N. J. Sanders, Ph.D. Shakespeare Institute, Stratford-on-Avon; D. J. Schneider, Ph.D. Northwestern; W. F. Shur, Ph.D. North Carolina; P. L. Soper (Emeritus), Ph.D. Cornell; B. T. Stewart, Ph.D. Northwestern; E. W. Stockton (Emeritus), Ph.D. Harvard; R. H. Walker, M.A. Texas; T. V. Westhor, Ph.D. North Carolina; J. M. White, I. M. Cambrige, N. Wright (Emerita), Ph.D. Yale.

Associate Professors: J. A. Artstube, Ph.D. Duke; L. B. Baghurst, Ph.D. Chicago; D. A. Carr, Ph.D. North Carolina; D. R. Cox, Ph.D. Missouri; K. B. Dumas, Ph.D. Arkansas; J. E. Gill, Ph.D. North Carolina; D. F. Goslee, Ph.D. Yale; N. M. Goslee, Ph.D. Yale; T. J. A. Hofferman, Ph.D. Cambridge; M. A. Lofaro, Ph.D. Maryland; C. J. Meland, Ph.D. Michigan; D. L. Pyse, Ph.D. California, (Sante Cruz); M. P. Richards, Ph.D. Wisconsin; F. K. Robinson, Ph.D. Texas.

Assistant Professors: K. H. Adams, Ph.D. Florida; D. L. Denniston, Ph.D. Brown; P. G. Hammmontes, M.A. Tennessee; G. S. Hutchinson, Ph.D. Indiana; M. Kallet, Ph.D. Rutgers; M. L. Keene, Ph.D. Texas; I. Leki, Ph.D. Illinois; M. Newfield, M.A. Cornell; E. J. Stillman, Ph.D. Pennsylvania; S. M. Watt, Ph. D. Illinois.

Instructors: P. S. Adams, M.A. Tennessee; W. J. Curtis, M.A. Tennessee; C. M. Hoffman, M.A. Iowa; M. S. Lewis, Ph.D. Tennessee; E. D. Overbay, M.A. Virginia; M. H. Simpson, M.A. Oregon; P. A. Tschant, M.A. New Mexico State.

*Young Professor
John C. Hodges Professor

UNDERGRADUATE
General Prerequisites and Corequisites: English 1010 or 1011; 1020; 1031 or 32 or 33 or the equivalents are prerequisites to all sophomore and upper-division courses in English. Two courses in English at the 2000 level are prerequisite to any of the three English concentrations. The equivalent of the second year (2000 level) of a foreign language is a corequisite for any of the three English concentrations.

English for Non-Majors: The department welcomes non-majors both in its sophomore introductions to literature (2510-2680) and also in its 3000-4000 level courses in language, literature, and creative writing. Of particular interest to students in other fields are Special Themes in Literature (3236-37), Forms of Popular Literature (3233-34), Language and Other Fields (3230-31), and Technical Writing (4140-50). For prerequisites and other advice, consult specific course descriptions below and departmental advisers.

Majors: A minimum of 36 quarter hours is required in 3000-4000 level courses as indicated for the concentration below.

Concentration in Literature: Twelve English courses at the 3000-4000 level including:

(1) English 3042;
(2) at least three courses in major figures of periods before 1800;
(3) at least two courses concerned with approaches other than literary history, such as literary forms or modes, theories of criticism, or other unifying approaches other than literary history.

Concentration in Creative Writing: Twelve English courses at the 3000-4000 level including:

(1) one of the 3000-4000 level creative writing courses followed by the corresponding 4000-level course in the same genre;
(2) four other courses in creative writing at either the 3000 or 4000 level;
(3) two courses in non-fiction writing, film, or English language;
(4) four courses in literature.

Concentration in the English Language: Twelve English courses at the 3000-4000 level including:

(1) English 3330;
(2) five courses in linguistics and the English language selected from among those offered by the English department and, with English adviser approval, from Psychology 4660, Anthropology 3800, or Linguistics 4020;
(3) two additional courses in language, literature, or writing;
(4) four courses in literature.

Individualized Program: The Director of Undergraduate Studies is empowered to approve individualized programs developed by students in consultation with their English advisers. These programs need not necessarily fulfill all of the requirements listed above.

Honor Programs: For students who qualify for this program, the English department offers individualized study in the senior year culminating in a senior thesis and a comprehensive examination. If the thesis and examination both receive grades of B or better, the student will be graduated with Honors in English. Interested students should consult their advisers or the Director of Undergraduate Studies.

Minor: An English minor consists of 24 quarter hours and includes:

(1) English 1011 or 1011-
(2) five courses in linguistics and the English language including:
(3) at least one course in a particular field of study; and
(4) at least two courses in writing or the English language.

For prerequisites and other advice, consult specific course descriptions below and departmental advisers.

Certiﬁcation for Teaching: Students planning to teach English in the public schools should consult the Certiﬁcation Clerk, Room 212, Claxton Education Building.

Departmental Course Information: In the English Office, 316 McClung Tower, students may obtain a booklet describing current English courses and listing the courses to be offered each quarter throughout the academic year. The booklet is available in advance of University term schedules.

1010 English Composition (3) Expository writing recommended for students with ACT English scores at or below cutoff point (currently 14) set by the English Department. Emphasis on invention, organization, style, and revision; intensive study of essays for meaning and ways of expressing meaning; conferences on individual writing problems. A, B, C, T, N, W grading. Students may not receive credit for both 1010 and 1011.

1011 English Composition (4) Expository writing recommended for students who lack the ACT English
1919 Writing Workshop (1) Self-paced laboratory course only for students remediated to it at the beginning of the quarter by their English Composition teachers. Individual instruction in grammar, mechanics, sentence patterns, reading comprehension, summary writing, and paragraph development. A, B, C, I, NC, W grading. Students may not receive credit for both 1010 and 1011.

1411 English Composition for Foreign Students (3) 2 For students whose native language is not English. Emphasis on paragraph and composition organization with attention to gram- matical correctness. English 1411 replaces English 1010 for undergraduate foreign students. Prereq: 1221 or recommended background in English Proficiency Reading Comprehension. A, B, C, I, NC, W grading.


1020 English Composition (3,3) 2 Application of writing skills to areas of special interest. Study and practice of research writing; individual conferences. Prereq: 1010. Students receiving a A in 1020 may elect to complete a year's work in English composition with any 3000- level writing course. A, B, C, I, NC, W grading.

1031-32-33 English Composition (3,3,3) 2 Application of writing skills to areas of special interest. Study and practice of research writing; individual conferences. Prereq: 1010-20-31, 1032, 1033.

1261 English Pronunciation for Foreign Students (3,3) 2 Rapid review of English grammar structures and pronunciation with intensive level of English 1211. Required also of students on the English Proficiency Examination demon- strated for this course are permitted to register for only one more a year's work in English composition; no more than one may be taken for credit. 1031—Writing about modern literature. 1032—World literature in short stories, plays, and poetry. 1033—Writing and language: how we are influenced by verbal manipulation in education, politics, and religion. Emphasis on formulations and technical writing. A, B, C, I, NC, W grading.

1018-38-38 Honors: English Composition (3,3,3) 2 Open only to those students selected on the basis of placement scores and high school record. Students should and work load the same as regular sequence. 1018—Expository writing based on study of non-fiction prose. Introduction to research writing. 1038—Analyti- cal and research writing based on study of great literature. Students receiving a grade below B in 1018 will continue into 1038 for a year's work in English composition by taking 1020 and one course on the 1030 level. Students receiving a grade of A or B also receive credit and a grade of no less than B in 1028 and may continue into 1038; all students with A's and those with B's and consent of department have additional option of completing a year's work in English composition with any 3000- level writing course. A, B, C, I, NC, W grading.

1211 Written and Oral English for Foreign Students (3) 2 Rapid review of English grammar structures and pronunciation with intensive oral, aural, and written drill. Required during the first quarter of residence of all foreign students and those who receive credit for English 1211. A, B, C, I, NC, W grading. Students registered for this course are permitted to register for only one more a year's work in English composition with any 3000-level writing course. A, B, C, I, NC, W grading.

1212 Written and Oral English for Foreign Students (3) 2 Emphasis on the more advanced structures of English grammar and on paragraph writing. Required during the first quarter of residence of foreign students who on English Proficiency Examination demon- strate need for work in English structure, but not at the intensive level of English 1211. Required also of foreign students who complete 1211. A, B, C, I, NC, W grading. Students registered for this course are permitted to register for only two more a year's work in English composition with any 3000-level writing course. A, B, C, I, NC, W grading.


1365-66-67 English 1018-28-38 Honors: English Composition (3,3,3) 2 Application of writing skills to areas of special interest. Study and practice of research writing; individual conferences. Prereq: 1010. Students receiving an A in 1020 may elect to complete a year's work in English composition with any 3000-level writing course. A, B, C, I, NC, W grading.

1365-66-67 English 1018-28-38 Honors: English Composition (3,3,3) 2 Application of writing skills to areas of special interest. Study and practice of research writing; individual conferences. Prereq: 1010. Students receiving an A in 1020 may elect to complete a year's work in English composition with any 3000-level writing course. A, B, C, I, NC, W grading.

1020 English Composition (3,3) 2 Application of writing skills to areas of special interest. Study and practice of research writing; individual conferences. Prereq: 1010. Students receiving a A in 1020 may elect to complete a year's work in English composition with any 3000-level writing course. A, B, C, I, NC, W grading.

1031-32-33 English Composition (3,3,3) 2 Application of writing skills to areas of special interest. Study and practice of research writing; individual conferences. Prereq: 1010-20-31, 1032, 1033.

1261 English Pronunciation for Foreign Students (3,3) 2 Rapid review of English grammar structures and pronunciation with intensive oral, aural, and written drill. Required during the first quarter of residence of all foreign students and those who receive credit for English 1211. A, B, C, I, NC, W grading. Students registered for this course are permitted to register for only one more a year's work in English composition with any 3000-level writing course. A, B, C, I, NC, W grading.

1211 Written and Oral English for Foreign Students (3) 2 Rapid review of English grammar structures and pronunciation with intensive oral, aural, and written drill. Required during the first quarter of residence of all foreign students and those who receive credit for English 1211. A, B, C, I, NC, W grading. Students registered for this course are permitted to register for only two more a year's work in English composition with any 3000-level writing course. A, B, C, I, NC, W grading.

1212 Written and Oral English for Foreign Students (3) 2 Emphasis on the more advanced structures of English grammar and on paragraph writing. Required during the first quarter of residence of foreign students who on English Proficiency Examination demon- strate need for work in English structure, but not at the intensive level of English 1211. Required also of foreign students who complete 1211. A, B, C, I, NC, W grading. Students registered for this course are permitted to register for only two more a year's work in English composition with any 3000-level writing course. A, B, C, I, NC, W grading.

1251 English Pronunciation for Foreign Students (3) 2 Sounds and intonation patterns of American English with emphasis on the English Proficiency Examination or credit on the English Proficiency Examination. A, B, C, I, NC, W grading. Students registered for this course are permitted to register for only two more a year's work in English composition with any 3000-level writing course. A, B, C, I, NC, W grading.

1365-66-67 English 1018-28-38 Honors: English Composition (3,3,3) 2 Application of writing skills to areas of special interest. Study and practice of research writing; individual conferences. Prereq: 1010. Students receiving an A in 1020 may elect to complete a year's work in English composition with any 3000-level writing course. A, B, C, I, NC, W grading.

1365-66-67 English 1018-28-38 Honors: English Composition (3,3,3) 2 Application of writing skills to areas of special interest. Study and practice of research writing; individual conferences. Prereq: 1010. Students receiving an A in 1020 may elect to complete a year's work in English composition with any 3000-level writing course. A, B, C, I, NC, W grading.

1020 English Composition (3,3) 2 Application of writing skills to areas of special interest. Study and practice of research writing; individual conferences. Prereq: 1010. Students receiving a A in 1020 may elect to complete a year's work in English composition with any 3000-level writing course. A, B, C, I, NC, W grading.

1031-32-33 English Composition (3,3,3) 2 Application of writing skills to areas of special interest. Study and practice of research writing; individual conferences. Prereq: 1010-20-31, 1032, 1033.
sophomores with instructor's consent. 3840—How to find an idea, and present an idea. 3860—How to convince a reader through logical and emotional appeals.

3860 Special Topics in Writing (3) Original writing integrated with reading, usually taught by professional authors. Topics vary. May be repeated. Maximum credit 9 hours.

3870 Writing the Screenplay and the Television Play (3) Advanced, specialized course in dramatic writing. Completion of English 3450-60-70 is desirable, but students with active interest in the medium are invited to seek consent to enroll.

3910-20-30 Comparative Literature (3,3,3) 3910—Ancient. 3920—Medieval and Renaissance. 3930—Modern.

3940 Novel of the Contemporary Western World (3) Proust, Joyce, Mann, and others.

4010-20 Shakespeare (3,3) 4010—Early plays, c. 1590-1601, including Richard II, Henry IV, Twelfth Night, and Hamlet. 4020—Later plays, 1601-1613, with emphasis upon tragedies and dramatic romances.

4042-43 Topics in Mode and Genre (3,3) Content varies. Special topics in principal forms and modes of British and American literature, e.g., comedy, tragedy, epic, lyric, satire, etc. May be repeated with consent of department. Maximum credit 6 hours each.

4045-46 Topics in Literary Theory and Criticism (3,3) Prereq: 3450 and consent of instructor. Further development of skills acquired in basic writing fiction course. May be repeated with consent of department. Maximum credit 6 hours each.

4050-60-70 American Novel (3,3,3) 4050—From early sentimental novels through Brown, Cooper, and Kennedy, and major figures to 1875. 4060—Henry James and Mark Twain through early works of Faulkner and Hemingway. 4070—Early thirty to present.

4090 Topics in Film Study (3) Content varies. In-depth study of particular director, film genres, national cinema movements, or other topics. May be repeated with consent of department. Maximum credit 6 hours.

4101 Foreign Study (1-16) See page 185.

4102 Off-Campus Study (3-12) See page 185.

4103 Independent Study (1-12) See page 185.

4118-28-38 Honors: Senior (0.5,9) Admission by consent of department. 4118-28-39 Honors: Junior (0.5,5) Admission by consent of department. 4118-28-38 S.

4140-50 Technical Writing (3,3) 4140—For students planning careers in physical, life, and health sciences, engineering, agriculture, and forestry. Writing of proposals, laboratory and progress reports, abstracts, and journal articles. 4150—Writing of scientific feature articles in which data are marshalled and analyzed for human interest.

4250 Advanced Fiction-Writing (3) Further development of skills acquired in basic writing fiction course. Prereq: 3450 and consent of instructor.

4254 Writing the Detective and Mystery Story (3) Instruction and writing cover entire crime field—suspense, police procedural, private eye, spy, and adventure fiction. Prereq: 3450-50-70 or consent of instructor.

4256 Writing Science Fiction and Fantasy (3) Survey of general development and basic texts of science fiction, speculative fiction, and fantasy. Exercises in writing in genres, in accordance with techniques learned in basic fiction writing course.

4270 Advanced Poetry Writing (3) Further development of skills acquired in basic poetry writing course. Prereq: English 3470 or consent of instructor.


4440 Sociolinguistics (3) Exploration of language patterns in terms of correlations between them and their social context. Examination of effects of language upon culture, and vice versa. Prereq: English 3530 or consent of instructor. (Same as Linguistics 4440.)

4450 Dialectology (3) Theories and methodologies of dialect research, fieldwork, and analysis. Prereq: 3340 or consent of instructor. (Same as Linguistics 4450.)

4455 Varieties of English (3) Theories, methodologies, and findings of English and American dialectology with emphasis on implications for cultural pluralism. Prereq: English 3350 or consent of instructor.

4460 Special Topics in English Linguistics (3) May be repeated for credit with consent of department. (Same as Linguistics 4460.)

4471-81 English as a Second or Foreign Language (3,3) 4471—Applied linguistics in teaching and learning of English as second or foreign language. Phonological and grammatical structure of present-day English. Analysis of differences (phonological, grammatical, and lexical) between English and another language. Prereq: Second year of a foreign language. 4472—Materials and methods of language teaching, with emphasis on preparation of materials and structured teaching situations. Theory of testing language competence and performance, with emphasis on construction of tests. Team teaching with an experienced member of the staff. Prereq: 4471. (Same as Linguistics 4471-81.)

4510-20-30 Black Literature (3,3,3) Trends and developments.

4551 Southern Literature through the Nineteenth Century (3) Southern writing from colonial period to end of 19th century, including frontier humorists and local color writers.

4552 Southern Literature in the Twentieth Century (3) Modern Southern literature, emphasis on Faulkner and Agrarians, Faulkner, and more recent writers such as Welty, O'Connor, and Porter.

4660 Emerson and Thoreau (3)

4680 American Humor through Mark Twain (3)

4721-31-41 Ballad and Folk Tale (3,3,3) 4721—Study of traditional English and Scottish popular ballads and their North American variants; 4731-Study of Native American ballad and folktale; 4741—The folk narrative: functions, categories, and patterns of storytelling.

4850 Milton (3) Emphasis on major poems.

4860 Seventeenth-Century Prose and Poetry (3) Bacon and Donne to Marvell.

4930-40 Chaucer (3,3) 4930—The Canterbury Tales. 4930—Trollop and Crusoe and early poems.

GRADUATE

5000 Thesis

5002 Non-Thesis Graduation Completion (3-15)

5101 Foreign Study (1-12)

5102 Off-Campus Study (1-12)

5103 Independent Study (1-12)

5140 Teaching Freshman Composition (3)

5150 Old English Prose (3)

5170-80 History of the English Language (3,3)

5210-20-30 Readings in American Literature from Colonial Period to Present (3,3,3)

5240 Readings in Black American Literature (3)

5250 Fiction Writing (3)

5255 Writing of Advanced Non-Fiction Prose: The Gener (3)

5270 Poetry Writing (3)

5280 Special Topics in Writing (1-3)

5290 Analysis of Technical Writing (3)

5310 Rhetoric and Composition: History and Theory (3)

5410-20 Readings in Middle English Literature (3,3)

5510-20 Readings in Literary Criticism from Plato and Aristotle to Present (3)

5610-20-30 Readings in English Literature of Nineteenth Century (3,3,3)

5710-20-30 Readings in English Literature of Eighteenth Century (3,3,3)

5810-20-30 Readings in English Literature of Renaissance (3,3,3)

5860 Introduction to Literary Research (3)

5910-20-30 Readings in English and American Literature of Twentieth Century (3,3,3)

6000 Doctoral Research and Dissertation

6110-20-30 Studies in Elizabethan Literature (3,3,3)

6140 Studies in Old English Language and Literature (3)

6150 Old English Poetry (3)

6160 Beowulf (3)

6170 Studies in Middle English (3)

6181-82-83 Studies in the English Language (3,3,3)

6210-20-30 Studies in American Literature (3,3,3)

6241 Studies in Colonial American Literature (3,3,3)

6242 Studies in Colonial American Literature (3)

6270-80 Studies in American Fiction (3,3)

6310-20-30 Studies in Victorian Literature (3,3,3)

6410-20-30 Studies in Chaucer (3,3,3)

6510-20-30 Studies in Spenser and Milton (3,3,3)

6550 Studies in Mode and Genre (3)

6590 Special Topics (3)

6619-20-30 Studies in English Romanticism (3,3,3)

6710-20-30 Studies in Eighteenth-Century Literature (3,3,3)

6810-20-30 Studies in Drama and Theatre (3,3,3)

6860 Textual Bibliography and Criticism (3)

6910-20-30 Studies in Twentieth-Century Literature (3,3,3)

FRENCH

See Romance Languages.

Geography (415)

Professors: S. R. Dumper (Head), Ph.D. Tennessee; C. S. Alkan, Ph.D. Georgia; E. H. Hammond, Ph.D. California (Berkeley); R. G. Long (Emeritus), Ph.D. Northwestern; C. W. Minkel (Dean for Graduate Studies), Ph.D. Syracuse; T. H. Schmude, Ph.D. Wisconsin.

Associate Professors: T. L. Bell (Assistant Dean for Research), Ph.D. Iowa; L. W. Brinkman, Jr., Ph.D. Wisconsin; J. R. Carter, Ph.D. Georgia; C. T. Paludan, Ph.D. Colorado; B. A. Radack, Ph.D. Northwestern; J. B. Rehder, Ph.D. Louisiana State.

Assistant Professors: T. J. Blasing (Adjunct), Ph.D. Wisconsin; R. A. Foresta, Ph.D. Rutgers; L. M. Pulsipher, Ph.D. Southern Illinois.

UNDERGRADUATE

Major: Eight hours in courses numbered at the 1000 or 2000 level are recommended as an introduction to a major which consists of
Concerning development and significance of systems
service activities. Locational patterns in agriculture, manufacturing, and concepts, theories, and practices in location planning.

Examples of problems and approach in geographic analysis and synthesis. Emphasis on character of geographic data, area sampling, generalization, classification, regionalization, and questions of scale.

Historical Geography of the United States Survey of changing human geography of United States during four centuries of settlement and development. Emphasis upon changing population patterns, development of agricultural regions, and patterns of urban development. Not open to students who have taken 4250-60.

Principles of Geomorphology (Same as Geology 4510.)

Geography of Soils (4) Soils as physical systems and their relationship to environments. Investigation of specific cases of role of soil in management of environmental systems.

Industrial Geography (4) Factors affecting location of manufacturing activities, with emphasis on the United States. Prereq: 3410 or consent of instructor.

Geography of Agriculture (4)

Cartographic Design and Production (4) Introduction to principles of design and production, and reproduction of maps. 3700 recommended. 2 hours and 2 labs.

Data Mapping (4) Automated techniques of representing surfaces, using geographic information systems. 3700 and knowledge of a computer language recommended.

Advanced Cartographic Map production from design through color proofs. Prereq: 3700, 4710, and 4720 or consent of instructor.

Remote Sensing: Types and Applications (4) Basic principles and uses of aerial photography and other remote sensing techniques. Emphasis upon value of various types of imagery for geographic interpretation and simple mapping. Prereq: Consent of instructor.

Interactive Computer Graphics (3) (Same as Computer Science 4750 and Electrical Engineering 4785.)

Practicum in Cartography/Remote Sensing (2-6) Supervised practice in production of maps and other graphic materials in Department of Geography's Cartographic Services Laboratory or a similar organization. Prereq: Written consent of instructor prior to registration.

Proseminar in Geography (4) Overview of major themes in geography, especially trends over past 20 years. Designed for undergraduates majors and minors; not open to graduate students. Prereq: Completion of at least 12 hours of major or minor requirements for geography.

Graduate The general requirements for the master's and doctoral degrees are given in the Graduate Catalog.

Thesis

Non-thesis Graduation Completion (3-15)

Colloquium in Geography

Foreign Study

Off-Campus Study

Geography 3700, 4100, and 4990, and an additional 28 hours selected from courses at the 3000 and 4000 levels. At least one course must be selected from each of groups A, B, C, and D below:

A. Physical Geography: 3510, 3520, 3520, 4550.

B. Economic Geography: 3410, 3430, 3490, 3410, 3430, 4550.

C. Cultural Geography: 3450, 3600, 3610, 3660, 4240.

D. Regional Geography: 3790, 3800, 3810, 3830, 3840, 3870, 3880, 3910, 3920, 3930, 3940.

For those pursuing a program leading to professional employment or graduate study in geography, 4210 and/or a senior project under 4103 are/is strongly recommended.

Minor: Eight hours in courses numbered at the 1000 or 2000 levels are recommended as an introduction to the minor which consists of 24 hours selected from courses at the 3000 and 4000 levels.

Students wishing to major or minor in geography are strongly urged to consult with a departmental advisor. Through choices available within the structure of the major and by appropriate selection of electives outside the department, each student may develop a coherent program in accordance with specific interests and needs. Such programs might emphasize particular aspects of geography itself or might develop interdisciplinary themes such as natural environment and resources, urban and regional planning, or the culture, history, or economy of a particular area. A useful technical or vocational specialty program is available which emphasizes cartography and remote sensing.

Introduction to Geography (4,4) Selected problems or situations of contemporary interest are studied in depth, illustrating geographical points of view and techniques. Need not be taken in sequence. Not open to students who have taken 1110 and 1120, respectively.

Geography of the Natural Environment (4,4) Characteristics and processes of earth's surface and lower atmosphere; their interaction to produce world pattern of distinctive environments significant to man. Not open to students who have taken 1710.

Introductory Cultural Geography (4) Basic concepts of culture. Patterns and distributions of cultural phenomena including geography of languages, religions, cultural regions, population, settlements, and forms of economy.

Geographic Economic Geography (4,4) The significance of location, pattern, and environment in economic activities. Emphasis: 2110-agriculture; 2120-energy, minerals, and manufacturing; 2130—transportation and trade. Need not be taken in sequence.

Man, Location, and Behavior (4) Types of human behavior, such as shopping patterns, commuting, residential mobility, trade, and regional consciousness, as they relate to distance, natural environment, and culture. Order and regularity in pattern of human use of earth's surface.


Urban Geography (4) Concepts and theories concerning development and significance of systems of cities and regional morphology of cities. Not open to students who have taken 4660.

Rural Geography (4) Geographical appraisal of rural areas of the United States, including small towns and urban fringes. Problems and potentials of rural America.

Geography of Resources (4) Study of factors related to variation in resource availability from time to time and from place to place, with particular emphasis upon energy and metallic resources.

Meteorology (4) Introduction to dynamic atmosphere and resulting weather events. Nature of individual weather elements and their measurement, and analysis over time and space.

Climatology (4) Overview of general circulation system leading to world pattern of climates. Climatic change and modification, and interrelationship of climate and human activity.

The Land-Surface System and Man (4) Nature and regional variations in relationships among surface form, water, vegetation, and surface materials. Man as evaluator and agent of change.

Geography of Population (4) World population patterns; regional socio-economic characteristics and demographic trends; relationship to resource base.

Political Geography (4) Importance of geographic factors for understanding political relationships within and among nations; spatial implications of political decision-making processes; geography of administrative units.

Cultural Geography (4) Basic concepts of culture; methods and background of cultural geography; world patterns of cultural phenomena.

Maps and Aerial Photographs (4) Introduction to scales, sources, uses, design, and production of maps, aerial photos, and other forms of spatial images.

Middle America (4) Covers Mexico, Central America, and the West Indies. Not open to students who have taken 3740, 3770, or 3780.

Geography of South America (4) Not open to students who have taken 3730, 3750, or 3780.

Geography of Europe (4)

Geography of Africa (4) Survey of major physical, cultural, and economic characteristics of Africa with particular emphasis on the area to the south of the Sahara.

Geography of Australia and Oceania (4) Survey of major physical, economic, and social characteristics of Australia, New Zealand, and of impact of western civilization on selected island groups of Southwest Pacific.

Geography of Asia (4) A survey of the physical, cultural, and economic characteristics of the countries of Asia, excluding the Soviet Union. Not open to students who have taken 3850, 3860, or 3900.

Geography of the Soviet Union (4)

Regional Geography of United States and Canada (4) Major physical, economic, and social distributions as they interrelate to give distinctive character to regions of United States and Canada. Not open to students who have taken 3710 or 3720.

Geography of the American South (4) Geographical appraisal of southeastern United States, including physical environment and human resources. Origin and development of contemporary economic and cultural traits of the area.

Geography of Tennessee (4)

Geography of Appalachia (4) Interrelation of physical, economic, and social patterns to give distinctive character to the region and its parts, especially southern Appalachia. Appalachia in perspective in the current American scene.

Geography of Transportation (4) Geographic examination of transportation systems, emphasizing transport of people on highways and by public facilities. Related geography of transportation systems to changing geography of cities and urban hinterlands.

Quantitative Methods in Geography (4) Geographic applications of statistical techniques, point pattern analysis, and analysis of areal units. Prereq: Mathematics 3000 or consent of instructor.

Foreign Study (1-16) Prereq: Written consent of instructor required prior to registration. See page 165.

Off-Campus Study (1-16) Prereq: Written consent of instructor required prior to registration. See page 185.

Independent Study (1-16) Prereq: Written consent of instructor required prior to registration. See page 185.

Problems in Geographical Method (4) Examples of problems and approach in geographic analysis and synthesis. Emphasis on character of geographic data, area sampling, generalization, classification, regionalization, and questions of scale.

Historical Geography of the United States Survey of changing human geography of United States during four centuries of settlement and development. Emphasis upon changing population patterns, development of agricultural regions, and patterns of urban development. Not open to students who have taken 4250-60.

Principles of Geomorphology (4) (Same as Geology 4510.)

Geography of Soils (4) Soils as physical systems and their relationship to environments. Investigation of specific cases of role of soil in management of environmental systems.

Industrial Geography (4) Factors affecting location of manufacturing activities, with emphasis on the United States. Prereq: 3410 or consent of instructor.

Geography of Agriculture (4)

Cartographic Design and Production (4) Introduction to principles of design, construction, and reproduction of maps. 3700 recommended. 2 hours and 2 labs.

Data Mapping (4) Automated techniques of representing surfaces, using geographic information systems. 3700 and knowledge of a computer language recommended.

Advanced Cartographic Map production from design through color proofs. Prereq: 3700, 4710, and 4720 or consent of instructor.

Interactive Computer Graphics (3) (Same as Computer Science 4750 and Electrical Engineering 4785.)

Practicum in Cartography/Remote Sensing (2-6) Supervised practice in production of maps and other graphic materials in Department of Geography's Cartographic Services Laboratory or a similar organization. Prereq: Written consent of instructor prior to registration.

Proseminar in Geography (4) Overview of major themes in geography, especially trends over past 20 years. Designed for undergraduates majors and minors; not open to graduate students. Prereq: Completion of at least 12 hours of major or minor requirements for geography.

Graduate General requirements for the master's and doctoral degrees are given in the Graduate Catalog.
5150 Introduction to Geographical Research (3)
5160 Research Design and Field Problems (4-6)
5170 Geographic Concept and Method (3)
5200 Special Problems in Geography (2-6)
5250 Topics in Historical Geography (3)
5260 Advanced Cultural Geography (3)
5310 Topics in Regional Geography of United States (3)
5320 Topics in the Geography of the American South (3)
5410 Advanced Topics in Economic Geography (3)
5530 Metamorphic Petrology (4)
5540 Terrigenous Clastic Sedimentary Petrology (4)
5550 Carbonate Sedimentology (4)
5590 Terrigenous Sedimentary Petrology (3)
5640 Clay Mineralogy (4)
5690 Cathodoluminescence Petrography (2)
5610 Advanced Paleontology (4)
5710 Palynology (4)
5720 Paleontological Nomenclature and Techniques (4)
5730 X-ray Diffraction: Single Crystal Techniques (3)
5860 Clay Mineralogy (4)
5870 Thermodynamics for Geologists (3)
5900 Cathodoluminescence Petrography (2)
5910 Advanced Paleontology (4)
5920 Paleontological Nomenclature and Techniques (4)
5930 Strata-bound and Stratiform Sulfide Deposits (4)
5940 Ore Petrology (4)
5950 Regional Studies in Geology (3)
5960 Coal Depositional Environments (4)
5970 Regional Geomorphology (4)
6000 Doctoral Research and Dissertation
6110 Seminar in Stratigraphic Geology (3)
6210 Seminar in Paleontology (3)
6310 Seminar in Structural Geology (3)
6410 Seminar in Mineralogy (3)
6510 Seminar in Petrology (3)
6610 Seminar in Economic Geology (3)
6710 Seminar in Geochemistry (3)
6810 Seminar in Geomorphology (3)

Geological Sciences

Professors:
K. R. Walker (Head), Ph.D., Yale; H. J. Klepper (Emeritus), Ph.D., Ohio State; C. C. Kopp, Ph.D., Columbia; K. C. Milna, Ph.D., Western Ontario; R. E. McLaughlin, Ph.D., Tennessee; L. A. Taylor, Ph.D., Lehig; G. J. Walls (Emeritus), Ph.D., North Carolina.

Associate Professors:
D. W. Byerly, Ph.D., Tennessee; M. Clark, Ph.D., Pennsylvania State; H. Y. McSwain, Ph.D., Harvard.

Assistant Professors:
R. W. Anseth, Ph.D. Northwestern; T. W. Broadhead, Ph.D., Iowa; P. A. Dallouc, Ph.D., Minnesota; S. G. Driese, Ph.D., Wisconsin; T. C. Lebinko, Ph.D., Caltech; N. J. Woodward, Ph.D., Johns Hopkins.

The Department of Geological Sciences provides training for (1) those who plan careers as professional geologists in industry, federal and state surveys, education, or other fields which utilize earth scientists; and (2) those who seek a general knowledge of geology and its relationship to other sciences, engineering, business, law, and other disciplines.

The requirements set forth below are designed to provide geology majors with a broad base from which qualified students may proceed into advanced study in one or more of the branches of geology or related minor fields. Because a wide range of elective courses is available, it is essential that each student be in regular consultation with a departmental adviser. A list of advisers is available in the departmental office.

UNDERGRADUATE

Major: Geology 1410, 1420, 1430 are prerequisite to a major which consists of Geology 3180, 3190, 3260, 3310, 3360, 3370, and at least 24 hours additionally in upper-division courses in geology chosen to include at least 12 hours from among the following courses: Geology 3510, 4110, 4115, 4250, 4510, and 4610. Geology 4310 and/or 4440 (or equivalent) are strongly recommended for students planning to become professional geologists. A minimum of one quarter enrollment for undergraduate credit in Geology 5350, the departmental seminar, is required during the senior year.

Because of the interdisciplinary nature of geology and the prerequisites for advanced study, students who major in geology are required to take the following allied science and mathematics courses: Biology 1210-20, Chemistry 1110-20, Mathematics 1940-50, Physics 2210-20 or 2510, and 2310-20. It is recommended that students take additional courses beyond the elementary level in at least one of the above allied fields.

Minor: Geology 1410, 1420, 1430 are prerequisite to a minor which consists of at least 24 hours in courses numbered 2000 or above.

Geology (424)

1410-20 General Geology I, II (4,4) 1410—Introduction to study of the earth, its composition, structure, and processes that change it. 1420—Emphasizes development of life and physical events through Mesozoic Era. Must be taken in sequence.

1430 General Geology II (4) Continuation of 1410-20. To be taken concurrently with 1420. 1 lab per period.

2210 History of Life on Earth (4) Chronological account of origin and evolution of life, its environment, and societal patterns. Not intended for geology majors. 3 hours and 1 lab or field period.

2310 Resources Crises—Minerals and Energy (4) Exploration and estimation of reserves and resources. Distinctive features, present status, and future trends of minerals industry. Examination of conventional and alternative energy resources. Resource crisis and possible solutions. National policies on minerals and energy. Not for geology majors. May be taken by geology majors, but credits will not count toward major requirements.


2510 Introductory Environmental Geology (4) Geologic problems involving earth environments and resources, and geologic parameters associated with their control and misuse. Prereq: 1420 or consent of instructor. 2 lectures and 2 lab or field periods.

2610 Introductory Geology for Engineers (3) Materials and structures of the earth. For College of Engineering students only. 2 lectures and 1 lab or field period.

2710 Introductory Oceanography (4) Introduction to study of oceans including origin and development of ocean basins and physical and biological processes within ocean basins and their contained water and sediment masses. 1410 recommended.

3180 Mineralogy (4) Introduction to crystallography and study of minerals. Laboratory includes hand specimen, chemical, and X-ray methods of identification. Prereq: 1410, Chemistry 1110-20 or equivalent. 3 lectures and 1 lab.

3190 Introduction to the Petrographic Microscope (1) Introduction to the petrographic microscope and optical methods for minerals identification. To be taken concurrently with 3310. 1 lab per week. S/N grading only.

3210-20 Invertebrate Paleontology (4,4) Systematic study of important invertebrate fossil groups. 3210—Porifera to Annelida, including cnidarians, echinoderms, brachiopods, and conodonts. 3220—Molluscs through lesser Chordata, including arthropods and echiurids. May be taken separately or in sequence. Prereq: 3260, Biology 1210-20 or consent of instructor. 3 lectures and 1 lab or field period.

3250 Paleobiology (4) Introduction to principles and materials of paleobiology as applied to interpretation of earth history. Prereq: 1420. 3 lectures and 1 lab or field period.

3370 Geological History of Land Organisms (4) Geological history and development of terrestrial biota and ecosystem with special emphasis on fossil record of land plants and vertebrates. Prereq: Biology 1210-20 or consent of instructor. 3 lectures and 1 lab or field period.

3380 Geological History of Life on Earth (4) History of life on earth, its composition, structure, and processes that change it. Examination of conventional and alternative energy resources. Resource crisis and possible solutions. National policies on minerals and energy. Not for geology majors. May be taken by geology majors, but credits will not count toward major requirements.

3510 Introductory Environmental Geology (4) Geologic problems involving earth environments and resources, and geologic parameters associated with their control and misuse. Prereq: 1420 or consent of instructor. 2 lectures and 2 lab or field periods.

3600 Stratigraphy-Sedimentation (4) Introductory study of stratigraphic principles and practices of sedimentary processes and interpretation of depositional environments. Prereq: 1420 and 3180. 3 hours and 1 lab.

3670 Structural Geology (4) Introductory discussion of structures such as folds, faults, joints, cleavage, and primary structures. Laboratory work includes thrust and block diagrams, cross sections, and areal contour maps, etc. Prereq: 1420, Math 1840-50 or equivalent. 3 hours and 1 lab.

3710 Origin and Evolution of the Continents and Ocean Basins (4) Introductory study of origins and changes that have occurred in earth's crust with emphasis on modern concepts of continental drift and plate tectonics. Prereq: 1420.

3810 Regional Geology of the United States (3) Survey of geologic histories of various geologic provinces of the United States, emphasizing integration of their stratigraphic and tectonic framework. Prereq: Geology 1420-20 or equivalent.

4110 Principles of Economic Geology (4) Formation of mineral deposits, physical characteristics, and origin of different types of mineral deposits, metal-
logonetic concepts, 3 hrs. and 1 lab. Prereq: 3180, 3190, 3191 or equivalents. Recommended: 4610.

4115 Elementary Applied Geophysics (4) Basic principles of electrical, seismic, gravity, and magnetic surveying. Recommended: 1420, Physics 2220 or 3230, 2 lectures and 1 lab.

4130 Sedimentology (4) Introduction to physical processes of sedimentation: transport of sediments and formation of sedimentary structures, river, wind, waves, and ocean circulation. Prereq: 3180, 3 lectures and 1 lab.

4230 Paleocology (4) Principles of environmental analysis. Geologic and fossil records and associated lithologies. Prereq: 3260 or consent of instructor. 3 hours and 1 lab.

4240 Paleobotany (4) Survey of fossil record of plants and particular emphasis on (1) comparative morphol- ogy and evolutionary trends in major plant groups and (2) chronological succession and geographic distribution of past floras on earth. Prereq: 1420 or 2210; Botany 3010-20 or consent of instructor. 3 hours and 1 lab or field period. (Same as Botany 4240.)

4250 Evolution of Higher Taxa (4) Discussion of current evolutionary theory in context of paleontology; patterns of evolution in fossil organisms at family level or higher. Prereq: 3260. 3210-20 also recommended. 2 lectures, one 2-hour seminar.

4260 Biostratigraphy (3) Principles of application of paleontologic data to stratigraphic study, codification of stratigraphic nomenclature, and recommended practice. Prereq: 3260 and 3360. 1 lecture plus one 2-hour seminar.

4270 Micropaleontology (4) A survey of geologically stratigraphically important microfossils and their biostratigraphic association known. Special emphasis is given fossil mollusks, protists, and palynomorphs. Prereq: 3260 or consent of instructor.


4308 Electron Microprobe and X-Ray Fluorescence Analysis (3) Application of electron microprobe and X-ray fluorescent techniques as analytical tools for the determination of the chemistry of solid particles such as minerals and rocks. Prereq. or coreq.: 4307 or consent of instructor.

4309 X-Ray Diffraction Methods (3) Application of X-Ray in identifying crystalline substances, including powders, natural and artificial crystals, and specific minerals. Prereq. or coreq.: 4307 or consent of instructor. 2 hours and 1 lab.

4310 Geologic Mapping (4) Interpretation of maps and methods of geologic mapping. 3 lectures and 1 lab or field period. Prereq.: 12 hours of geology.

4311 Quaternary Geology of North America (4) Geologic processes, stratigraphy, sedimentology, and geomorphology of glaciated and unglaciated North America and oceans. Prereq.: 1410 or consent of instructor. 2-3 hours and 2 labs.

4322 Quaternary Paleocology (4) Study of pollen and plant-macrofossils of characteristic vegetation and climate change during Quaternary. Prereq. Consent of instructor. Two 2-hour lectures.

4330 Quaternary Field and Lab Techniques (4) Techniques for environmental characterization and reconstructions, including pollen and plantmacrofossil identification, description of site stratigraphy, and sedimentology. Prereq: 1410 or consent of instructor. 2 lectures and 2 labs.

4370 Tectonic Styles (4) Elements, habitats, and geotectonic causes of basic styles of tectonic deformation presented on maps, sections, aerial photos, and fabric diagrams. 3 lectures and 1 seminar or lab. Prereq.: 3570 or consent of instructor.

4440 Field Geology (8) Five weeks’ field course, first term summer quarter. Advanced undergraduates or first-year graduates in geology. Employs entire time of students. A report is required, to be submitted no later than end of fall quarter. Prereq.: 12 hours of geology and consent of instructor.

4450 Geologic Photography, Photogrammetry and Remote Sensing (4) Principles of terrestrial, airborne, and satellite geologic remote sensing, including photog- raphic principles and practice, geometry of terrestrial and aerial photography, and principles of nonphotographic remote sensing systems.

4510 Principles of Geomorphology (4) Gradational processes acting at earth's surface and landforms produced. Prereq.: 1420-20, 3 hours and 1 lab.

4520 Process Geomorphology (4) Gradational processes operating on and near the earth's surface, applied geomorphology, and field work in geomorphology. Prereq.: 1430 and 4510. 3 hrs and 1 lab or field period.

4550 Optical Mineralogy (4) Identification of minerals and determination of crystal-chemical parameters using petrographic microscope.

4610 Principles of Geochemistry (4) Application of chemical principles to geologic problems. Emphasis on crystal chemistry and relation between basic atomic structure and distribution and behavior of elements in the earth's crust. Prereq. Chemistry 1110-20 or equivalent required. Recommend 3310.

4650 Mineral Phase Equilibria (3) Principles of phase chemistry and application of phase equilibrium studies in rock-forming mineral systems as aid to understanding conditions of formation and modification of rocks. Prereq.: 4610 or consent of instructor.


4710 Petrophysics (3) Fluid, heat, electric current, and ionic flow through rock masses in a potential field. Stress-strain behavior of rock as a function of temperature and pressure. 3 lectures per week. Prereq.: Math 1830, Physics 1330. Recommended: Math 2610 and 2820.

4770 Evolution of Oceans and Continents (4) Introduction to studies of origin and changes that have occurred in earth's crust with emphasis on modern concepts of continental drift and plate tectonics. Prereq.: 1430.

4780 World Geology of Petroleum (4) Geological habitat of petroleum deposits, methods of exploration and reserve assessment, geology and global distribution of known and potential reserves. Prereq.: 1410 or equivalent and 3160 or equivalent.

4790 Uranium Deposits (4) Distribution, characteristics, and origin of different types of uranium deposits. Prospecting and evaluation of uranium deposits, with special reference to domestic potential resources. Prereq. 4110 or consent of instructor. 3 hours and 1 lab/field/semester period.

4810 Special Problems in Geology (4-14) Prereq.: Consent of instructor. May be repeated. Maximum credit 4 hours.

GRADUATE
The general requirements for master's and doctoral degree are given in the Graduate Catalog.

5000 Thesis
5050 Geochronology of Ore Mineral Deposits (3)
5069 Experimental Geochemistry Laboratory (1-3)
5210 Special Problems in Geology (1-4)
5290 Quaternary Problems (4)
5310 Depositional Environments and Models for Exploration (4)
5340 Seminar in Local Stratigraphy (1)
5350 Selected Topics in Geology (1)
5370 Petrofabric Analysis (4)
5460 Photogeologic Interpretation (4)

5470 Plate Tectonics and Orogeny (4)
5520 Igneous Petrology (4)
5530 Metamorphic Petrology (4)
5540 Terrigenous Clastic Sedimentary Petrology (4)
5590 Carbonate Sedimentology (4)
5625 X-Ray Diffraction: Single Crystal Techniques (4)
5640 Clay Mineralogy (4)
5650 Thermodynamics for Geologists (3)
5690 Cathodoluminescence Petrography (2)
5710 Advanced Paleontology (4)
5720 Palaeontological Nomenclature and Techniques (4)
5820 Strata-bound and Stratiform Sulfide Deposits (4)
5830 Magmatic Mineral Deposits (4)
5840 Ore Petrology (4)
5850 Regional Studies in Geology (3)
5860 Coal Depositional Environments (4)
5815 Regional Geomorphology (4)
6000 Doctoral Research and Dissertation
6110 Seminar in Stratigraphic Geology (3)
6210 Seminar in Paleontology (3)
6310 Seminar in Structural Geology (3)
6410 Seminar in Mineralogy (3)
6510 Seminar in Petrology (3)
6610 Seminar in Economic Geology (3)
6710 Seminar in Geochemistry (3)
6810 Seminar in Geomorphology (3)

Germanic and Slavic Languages

Professors:
H. Krabbe (Head), Ph.D. Ohio State; J. E. Falew, Ph.D. Pennsylvania; H. W. Fuller (Emeritus), Ph.D. Wisconsin; R. L. Hiller (Emeritus), Ph.D. Cornell; J. C. Osborne, Ph.D. Northwestern; M. P. Rice, Ph.D. Vanderbilt.

Associate Professors:
J. S. Elliott, Ph.D. Michigan; D. M. Fieno, Ph.D. Indiana; N. A. Lauckner, Ph.D. Wisconsin; D. E. Lee, Ph.D. Stanford; G. J. Mellor, Ph.D. Chicago.

Assistant Professors:
C. Hodges, Ph.D. Chicago; U.C. Ritzenhoff, Ph.D. Connecticut.

Instructor:
M. H. Harris, M.A. Illinois.

UNDERGRADUATE
Placement Examination: Students who have had previous work in German or Russian either in high school or in another college should register for the course in which they would normally be placed. During the first week of the quarter a placement test will be given, and students will be advised if a change in registration is indicated.

Proficiency Examinations: Students who have acquired a knowledge of German or Russian through private study, tutoring,
residence in foreign countries, or the like, should request a proficiency test. A student earning a grade of C or better on such a test will receive credit for a limited number of courses. Superior students are encouraged to proceed as rapidly as their achievement permits. Students who omit any course in a sequence may receive credit for it by passing a proficiency test.

Foreign Study: Students are encouraged to study abroad. The department is prepared to recommend summer study programs and junior year abroad programs for students who are interested in foreign study. Credits from recognized foreign study programs can readily be transferred to UTK. For qualified students, the department also offers German 4101 Foreign Study and Russian 4101 Foreign Study. See page 185. Students should consult the department before registering for the foreign study course.

German Major: Majors or minors in German should carefully prepare their programs in consultation with a departmental faculty advisor. German 2110-20-30 or the equivalent is a prerequisite. The major shall consist of at least 36 hours of German in courses numbered above 3000, usually including German 3110-20-30 (or 3410-20), 3810-20-30, 9 hours of German literature in courses numbered above 3000, excluding 3010-20-30 and courses in English translation. It is recommended that German majors also have History 1510-20 or 3710-20-30 and 8 hours of Sophomore English. Majors are also strongly urged to consider a minor in some other area of the humanities.

German 2110-20-30 or its equivalent is a prerequisite to the minor. The minor shall consist of at least 24 hours of German courses numbered above 3000, which normally include German 3110-20-30 (or 3410-20-30), and 15 additional hours of courses numbered above 3000, excluding 3010-20-30 and courses in English translation.

Russian Major: Russian majors should carefully prepare their programs in consultation with the departmental faculty advisor. Russian 2110-20-30 or the equivalent is a prerequisite to the major. Russian 2640-50 is a corequisite to the major. The major consists of 36 hours of Russian courses, including 3110-20-30, 3610-20-30, 9 hours from Russian 3210-20-21-30-40-5060, and 9 hours of courses numbered 4000 and above. It is recommended that majors also take History 3470-60-90 and 9 hours of Sophomore English. Majors are urged to consider a minor in some other area of the humanities.

Minor: Russian 2110-20-30 is a prerequisite to the minor. The minor itself consists of 27 hours of Russian courses, including 9 hours from Russian 2640-50 and/or 3210-20-21-30-40-50-60 and 18 hours to be taken from Russian 3110-20-30, 3610-20-30, and courses numbered 4000 and above.

Russian and East European Studies. See Cultural Studies.

Certification for Teaching German and Russian in Tennesseee Consult Certification Clerk, Room 212 Claxton Education Building.

German (433)

1110-20-30 Elementary German (3,3,3) Must be taken in sequence.

1510-20 Elementary German (4,4) Must be taken in sequence.

1518-2518-28 Honors: Elementary and Intermediate German (6,6,6) Honors course for students of superior ability. Freshmen are admitted on the basis of high school average and performance on the American College Testing Program. Upperclass students must have a B average. A grade of C or above must be achieved in 1518 in order to continue with German 2518. A student not in the grade of D or better in 1518 may continue with German 1520. This sequence is equivalent to 1510-20 or 1110-20-30 and 2110-20-30 and it consists of a transfer of the student to enter all 3000-level German courses.

1530 Elementary German through Individualized Instruction (1-8) Same materials as in German 1510-20, but student may proceed at own pace, with a minimum of one credit hour per quarter. With completion of four hours student has option of transferring to 1520. May be repeated. Maximum credit 8 hours.

2110-20-30 Intermediate German (3,3,3) Must be taken in sequence.

3010-20-30 Elements of German for Upper-Division and Graduate Students (3,3,3) Elements of language, elementary and advanced readings. Open to graduate students preparing for language examinations, and upper-division students desiring knowledge of the language. Undergraduate credit only. No credit for students having completed 1510-20 or 1110-20-30.

3040 Elementary Dutch (3) Prereq: Reading knowledge of German. Primarily for graduate students in German. No graduate credit allowed.

3110-20-30 Introduction to German Literature (3,3,3) Prereq: 2130 or equivalent.

3810-20-30 Conversation and Composition (3,3,3) Prereq: 2130 or equivalent.

ADVANCED UNDERGRADUATE AND GRADUATE

4101 Foreign Study (1-16) See page 185.

4102 Off-Campus Study (1-16) See page 185.

4103 Independent Study (1-16) See page 185.

4110-20-30 Studies in Classical and Modern Writers (3,3,3) Content varies. May be repeated for credit with consent of department. Prereq: 9 hours of 3000 courses (exclusive of 3010-20-30, or courses in English translation) or equivalent.

4140-50 Selected Topics in German Literature from 1750 to the Present (3,3,3) Prereq: 9 hours of 3000 courses (exclusive of 3010-20-30, or courses in English translation) or equivalent.

4160 Studies in German Authors (3) Life and works of a single outstanding German literary figure. Content varies. May be repeated for credit. Prereq: 9 hours of 3000 courses (exclusive of 3010-20-30, or courses in English translation) or equivalent.

4170 Theatrical German (1-3) Performance in one or more German plays. May be repeated for credit with consent of department. Prereq: 2130 or equivalent or consent of instructor.

4210-30 Studies in German Literary Types (3,3,3) (4210—Lyric poetry. 4220—Drama. 4230—Narrative prose. 4240—Satire. 4250—Romans to the present. Students opting for 4 hours credit will be expected to present an appropriate amount of extra work above that required for 3 hours.

4240 Old Norse Literature in English Translation (3-4) Prose readings of sagas of Scandinavian kings, great Icelandic family sagas, and Vinland sagas, narrating discovery of America around the year 1000. Mythological and heroic poems of the Edda. No foreign language credit.

4250 Modern German Drama in English Translation (3) From Lessing to present. No foreign language credit.

4270 Modern German Novel in English Translation (3) From 1900 to present. Remarque, Hesse, Mann, Kafka, Frisch, Boll, Grass. No foreign language credit.

4280 Goethe's Faust in English Translation (3-4) Chronological survey of Brecht's dramatic works and theatrical writings in English translation. No foreign language credit.

4310 Dramas of Bertolt Brecht (3-4) Chronological survey of Brecht's dramatic works and theatrical writings in English translation. No foreign language credit.

4320 Novels of Hermann Hesse (3-4) Study and analysis of Hesse's major novels in English translation. No foreign language credit.

4330 Dramas of Ibsen and Strindberg (3-4) Study of two principal forerunners of 20th-century drama. Works are read in English translation. No foreign language credit.

4340 Special Topics in German Literature in English Translation (1-4) Topics and credit hours vary and are announced in advance. Student suggestions for topics are welcome. No foreign language credit. May be repeated for credit.

GRADUATE

The Department of Germanic and Slavic Languages offers three advanced degrees. They are Master of Arts (M.A.), Master of Arts in College Teaching (M.A.C.T.) in German, and Doctor of Philosophy (Ph.D.) in German Linguistics and Literature. The requirements for these degrees are set forth in the Graduate Catalog.
Studies (3) Interdisciplinary seminar on selected topics varies. Prerequisite: Russian Composition and Conversational Russian. Prereq: 9 hours of 3000 courses (exclusive of 3010-20-30, 3210-20-30-40-50-60-70, 3310 or equivalent). May be repeated for credit.


4250 Introduction to Descriptive Linguistics (3) (Same as German, French, Spanish, and Linguistics 4260.)

4271 Introduction to Slavic Linguistics (3) (Same as Linguistics 4271)

4310-20-30 Advanced Studies in Russian Language (3,3,3) intended primarily for students majoring or minoring in Russian interested in language and linguistics. Includes problems in morphology and syntax, stylistics and translation techniques, and history of Russian language as well as other special problems of advanced students of Russian. May be repeated. Maximum credit 9 hours each.

4410-20-30 Directed Readings in Russian (3,3,3) Intended primarily for students participating in program in Russian and East European Area Studies, course will involve individual study relating to student's major field. Prereq: 9 hours of 3000-level courses in Russian (exclusive of 3010-2030, 3210-20-30-40-50-60, 3310 or equivalent).


GENERAL COURSES

2640-50 Background and Main Currents of Russian Culture (4,4) A broad interdisciplinary approach to the appreciation of the language, religion, literature, art, music, history, geography, and social problems of Russia. No knowledge of Russian required. May not be taken for foreign language credit.

2610 Nineteenth-Century Russian Literature in English Translation (3-4) Realism and the novel; selection from works of Pushkin, etc.

3200 Works of Leo Tolstoy in English Translation (3-4) War and Peace, Anna Karenina, and other works.

3211 Works of F.M. Dostoevsky in English Translation (3-4) Crime and Punishment, Brothers Karamazov and other works.

3220 Twentieth Century Russian Literature in English Translation (3-4) Russian modernism and literature under the Soviets.

3240 The Russian Drama in English Translation (3-4) Selections from works of Tyrnogubov, Gogol, Ostrovsky, Turgenev, Chekhov, and others.

3250 The Works of Ivan Turgenev and Anton Chekhov in English Translation (3-4)

3260 Russian Folklore in English Translation (3-4)

3270 Russian Philosophical and Theological Thought (4) An account of the development of philosophical and theological thought in Russia from the Middle Ages to the Revolution. Special emphasis on the expression of this thought in Russian literature and literary criticism. No knowledge of Russian required. (Same as Philosophy 3270 and Religious Studies 3270.)

3280 Special Topics in Russian Literature in English Translation (4) Topics vary and are announced in advance. Student suggestions for topics are welcome. No foreign language credit. May be repeated.

3281 Contemporary Slavic Literature in English Translation (3-4) Survey of Polish, Czech, Yugoslav, and Russian fiction since 1960, with emphasis on first three.

Greek

See Classics.

Hebrew

See Religious Studies.

History (462)

Professors: P. H. Bergeron, Ph.D. Vanderbilt; E. V. Chmielewski, Ph.D. Harvard; R. E. Duncan, Ph.D. California (Berkeley); D. F. Gerber, Ph.D. Harvard; Y. P. Hao, Ph.D. Harvard; A. G. Haas, Ph.D. Chicago; R. W. Hawkins (Emeritus), Ph.D. California (Berkeley); C. O. Jackson (Associate Dean, Liberal Arts College), Ph.D. Emory; M. M. Klein2, Ph.D. Columbia, R. G. Landen (Dean, Liberal Arts College), Ph.D. Princeton.


Instructor: D. B. Moreau, M.A. UTK.

+Benwood Distinguished Professor.

History is a rewarding subject for students seeking a general education. History majors traditionally have done well in a number of careers, such as law, business, journalism, public service, teaching and research, library and archival fields, and ministry. Many students majoring in other subjects take history courses: to develop their skills in thinking, writing, reading, and speaking; to assist them in their search for personal identity; and to help them in their lifelong effort to understand change, continuity, and the links between past, present, and future.

Major: Majors in history should prepare their programs in consultation with a department faculty advisor. History 1510-20 (or their honors equivalents), or 1610-20, are prerequisites to a major which consists of 41 hours, including: (1) 9 hours of History 2510-20 (or their honors equivalents); (2) 3 hours of a thematic course, History 2515; and (3) 30 upper-division hours. The distribution of the upper-division courses shall be in such a way that they include at least: (1) one course dealing predominantly with a period prior to 1750, and (2) two courses in each of the following areas: 1) United States, 2) Europe and Latin America, and 3) Africa-Africa. It is highly recommended that majors take History 4010, and History Colloquium.

Minor: History 1510-20 (or honors equivalent) is requisite to a minor which consists of 24 hours of courses numbered 2000 or above, including at least: (1) 1 hours...
junior level discussion course in which the content will change of Black community institutions to the challenges of experience from 1890. The Afro-American struggle in America; the institution of slavery; free Negroes; (4,4) Interaction of Western World and non-Western 1610-20 A History of World Civilization since 1450 (4,4) Consent of department required.

1518-20 A History of World Civilization since 1450 (4,4) Interaction of Western World and non-Western peoples since the 15th century. 1610—ca. 1450-1800.

1518-20 A History of World Civilization since 1450 (4,4) Interaction of Western World and non-Western peoples since the 15th century. 1610—ca. 1450-1800.

1520-28 Honors: History of the United States (4,4) Consent of department required.

1520-28 Honors: History of the United States (4,4) Consent of department required.


1510-20 Development of Western Civilization (4,4) 1510—Augustus to 1715. 1520—1715 to present.

1518-28 Honors: Development of Western Civilization (4,4) Consent of department required.

1518-28 Honors: Development of Western Civilization (4,4) Consent of department required.

The Department of History offers honors sections of the Western Civilization and United States history survey course. Some entering freshmen are invited to participate. Honors interested students may apply. These survey courses are open to non-majors. An honors major requires successful completion of three special courses at the junior level (25) and a senior thesis (4018-4028). The honors major consists of 50 hours, including 41 hours as outlined above, plus 3008-38.42. All rising seniors who are declared history majors with an overall GPA at least 3.0 are invited to join the Junior-Senior Honors Program. Students interested in honors work should consult the department's honors coordinator.

Departmental Course Information: Students can obtain additional information about the content and availability of history courses in the departmental office, 1101 McClung Tower, or by talking to any history department. The department also prepares a course description brochure for each quarter.


Russian and East European Studies. See Cultural Studies.

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Russian and East European Studies. See Cultural Studies.
tion in England and on such figures as Thomas More, Elizabeth I, and Mary, Queen of Scots. 4520—Emphasis on such topics as Puritanism, the English Civil War, the Restoration, the Glorious Revolution and the Scientific Revolution, and on such figures as the Stuart kings, Oliver Cromwell, Milton, Hobbes, and Locke.

4551 Great Britain from Burke to Bright (1780-1848) (3)

4570 Twentieth-Century Britain (3) The emergence of the Welfare State, the political impact of the Labour movement, World War II, and the Cultural Revolution, 1885-1985.

4610-20-30 The American Frontier and Westward Movement I, II, III. Settlement and development of the "West" throughout American history.

4641-51 American Mind, Mood and Society (3,3) Surveys social and cultural history and thought from mythology behind colonization to the major beliefs and values which form the foundation of present-day life in the United States. 4641—Colonial period to 1865.

4681 Studies in American Social and Cultural History and Thought (3) An intensive examination of specific themes, problems, or ideas.

4710-20 Medieval History (3,3) 4710—Age of Chivalry, 500-1000. The pattern of early medieval herosm, its social and intellectual assumptions, the individuals who exemplify it, and the continuing harsh environment of the early Middle Ages. 4720—Age of Chivalry: 1000-1300. The emergence of chivalry— from the heroes of the feudal epics of the 11th century to the questing knights of the 13th century romances.

4741 Italian City-States, 1250-1500 (3) Evolution of urban civilization in northern and central Italy in medieval and Renaissance periods. Architectural and townscapes forms studied in socioeconomic as well as cultural contexts. Florence is primary focus, but other major city-states are also included.

4791 Modernization of the Middle East (3) Advanced reading and discussion course which examines key facets of political, economic, and social dynamics in contemporary Middle East with emphasis on institution building, elites, and ideology. Prereq: 2795 or consent of instructor.

4811-21 History of Japan (3,4)

4840 History of Mexico (3)

4850 History of the Caribbean (3) Caribbean region from discovery and colonization to contemporary times.

4870-80-90 History of China (3,3,3) 4870—Cultural History of China. Chinese high culture from Confucius to Mao-Tse-Tung. Traditional religion, philosophy, fine arts, and literature (including a novel); cultural legacy under communism: similarities and differences between Chinese and Western cultures. 4880—To 1850. Emphasis on uniqueness of Chinese experience, its influence on Japan and the West, and its relevance in today's world. 4890—Modern China since 1850. The Chinese Revolution in context: imperialism, reform, nationalism, communist movement, Mao-Tse-Tung, and China in today's world. No previous knowledge of China required.


GRADUATE

A student who enrolls in the Graduate School with intention of obtaining an advanced degree in history shall have completed an undergraduate major in history or its equivalent.

The Master's Program

General requirements for the Master of Arts and Master of Arts in College Teaching degrees are found in the Graduate Catalog.

The Doctoral Program

General requirements for the doctoral degree are found in the Graduate Catalog.

5000 Thesis

5002 Non-Thesis Graduation Completion (3-15)

5015 Periods in European History (3)

5016 Periods in American History (3)

5101 Foreign Study (1-12)

5102 Off-Campus Study (1-12)

5103 Independent Study (1-12)

5211-12-13-14-15-16-17-18-19 M.A. Reading Courses (3,3,3,3,3,3,3,3)

5221-22-23-24-25 M.A. Reading Courses (3,3,3,3,3)

5240 Introduction to Historical Research (3)

5250 European Historiography (3)

5260 American Historiography (3)

5271-72-73 Teaching of College History (0,0,3)

5290 Philosophy and Methodology (3)

5290 Quantitative Analysis of Historical Data (3)

5300 Topics In History (3)

5310 Topics In Women's History (3)

5320 Topics In Historical Editing (3)

5360 Topics In American Foreign Relations (3)

5410 Topics In Early Modern European History (3)

5440 Revolution and Restoration in Central Europe, 1780-1850 (3)

5444 Topics In French History (3)

5445 Topics In Nineteenth-Century European History (3)

5450 Topics In Twentieth-Century European History (3)

5480 Topics In Russian History (3)

5610 Topics In Tudor-Stuart England (3)

5520 Topics In Modern English History (3)

5550 Reaction and Reform In England, 1789-1848 (3)

5560 Anglo-Irish Relations (3)

5640 Topics In American Social and Cultural History (3)

5645 Topics In American Urban History (3)

5650 Topics In American Urban Movement (3)

5660 Topics In Negro History (3)

5670 Topics In American Colonial History (3)

5675 Topics In the Early National Period of American History (3)

5680 Topics In Nineteenth-Century American History (3)

5690 Topics In Twentieth-Century American History (3)

5720 Topics In Medieval History (3)

5740 Topics In European Urban History (4)
College Scholars each year. 3018—humanities, 3028—science and mathematics, 3038—history and society. May be repeated. Maximum 12 hrs. S/N grading only.

3118-29-38 Honors: Junior—Colloquium (2-4,2-4,2-4) Small group studies of selected topics. May be repeated.

4101 Honors: Foreign Study (1-16) See page 195 and Director of Special Programs. Primarily for College Scholar Students.

4102 Honors: Off-Campus Study (1-16)See page 185 and Director of Special Programs. Primarily for College Scholar Students.

4103 Honors: Independent Study (1-16) See page 185 and Director of Special Programs. Primarily for College Scholar Students.

4118-29-38 Honors: Senior—Colloquium (2-4,2-4,2-4) Small group studies of selected topics. May be repeated.

4998 Honors: College Scholars Studies (2-16) Designed for College Scholars working on their senior thesis, project, or performance. May be repeated for a total of 24 credit hours.

**Human Services**

Professor: R. F. Kronick (Head), Ph.D. Tennessee.

Associate Professor: M. W. DeVoe, Ed.D. VPI & SU.

Assistant Professors: M. W. DeVoe, Ed.D. VPI & SU; T. McClain, Ph.D. South Carolina; J. D. McLean, Ph.D. Chicago.

**Human Services (532)**

The Program in Human Services was established in 1971 for the purpose of providing education, training, and experience, at the undergraduate level, for individuals interested in working to enhance and increase the well-being of our society and of the individuals it comprises. The course of study provided by the faculty is also appropriate for individuals who wish primarily to improve their understanding of themselves and of the society in which they live.

Graduates of the program are at work in a wide variety of settings, ranging from nursery schools to nursing homes, and are confronted with the human consequences of problems such as crime, poverty, alcoholism, child abuse, and discrimination. Many of our graduates enter graduate and professional schools, seeking advanced degrees in fields as diverse as guidance counseling, physical therapy, hospital administration, law, medicine, and social work. The Human Services Program is approved by the Council for Standards in Human Service Education (CSHSE).

The curriculum of the program includes required courses, elective courses, advising, and supervised experience in one or more human service agencies or organizations. Students pursuing a major in human services will take 2990, 3100, 3300, 4220, 4229, and 4400—preferably in the order given—and one course from each of the four lists of courses given below; total hours' credit for the major will vary from 48 to 52, due to differences in the number of hours' credit awarded for different courses on these four lists.

1. Culture and Personality

   - American Studies 3010; Anthropology 3430, 3800, 3930, 4240, 4430, 4740; Audiology & Speech Pathology 4250, 4650; Child and Family Studies 3210, 3220, 4810; Educational Psychology 4110, 4900; Geography 3610; Psychology 3120, 3550, 3650, 4510; Sociology 3130, 4820; Speech 3021, 3030.

2. Complex Organizations.

   - Geography 3610; Political Science 3565, 3566, 4665, 4666; Psychology 4520; Religious Studies/Sociology 4940; Sociology 3010, 3620, 4030, 4560.

3. Research and Statistics.

   - Computer Science 3010; Philosophy 3720, 4720; Psychology 3150; Sociology 3910, 3920.

4. Community and Society.

   - Economics 3230, 3410; Anthropology 3070, 3045; Child and Family Studies 3515, 3520, 4610; Geography 3000, 3450; Home Economics 3110; Human Services 4920; Philosophy 3350, 3440, 3611; Political Science 3710, 3720, 3730, 3760, 4580, 4590; Public Health 3330; Religious Studies 3550, 3600, 3610; Rural Sociology 3420; Sociology 3160, 3220, 3330, 3350, 3420, 3510, 3690, 4330, 4530, 4540, 4930; Special Education 5490, 5620.

Total Credit Hours: 48-52

2690 Introduction to Human Services (4) General field of human services with an emphasis on related societal values; contemporary issues in human services.

3100 Social Welfare as a Social Institution (4) Specific social welfare institutions examined in depth in relation to human needs, structure, program, and service approaches. 2690 recommended.

3200 Peoples and Problems of Appalachia (4) Course designed to provide better understanding of Appalachian peoples, by exploring their life style and institutions from contemporary human services points of view. Special emphasis placed on political and economic structures of region. Recommended: Anthropology 4740.

3620 Thinking about People (4) Intended to facilitate development of thoughtful, informed, and empathic attitudes toward human beings—those providing service as well as those receiving service.

3900 Information Assessment and Interpretation (4) The knowledge and skills of information gathering and assessment for human services are examined in depth in relation to human services practice. Emphasis is placed on formulating questions, identifying relevant data, using related resources, interpreting information, and applying this information in a practical setting.

4102 Off-Campus Study (1-16) Off Campus Study (1-16) Application filed no later than the first week of the quarter prior to the quarter of enrollment. For additional information, see page 185.

4103 Independent Study (1-16) Application filed no later than the first week of the quarter prior to the quarter of enrollment. For additional information, see page 185.

4220 Human Services Methodologies (4) Introduction to some specific helping skills essential to administration and delivery of human services.

4229 Special Topics in Human Services (4) Examination of specific issues, methods, values, and trends which have implications for helping practitioners, e.g. art therapy, behavior modification, counseling skills, self-awareness training. Content varies; topic to be determined by instruction. May be repeated up to 12 credit hours.

4400 Human Services Field Work (8 or 16) Practical field experiences in appropriately organized and directed human service settings. Designed to offer the student the opportunity to learn and develop specific helping skills and to become exposed and involved in the roles and functions of human services: to provide some direct services in a supervised learning situation. Application filed no later than the first week of the quarter prior to the quarter of enrollment. For majors...
only. May be repeated. Maximum 16 hours. 16 hours required. S/N. Coreq: Consent of Instructor.

**Social Work (906)**

Associate Professor: F. R. Baskind, (Director), Ph.D. A.C.S.W., Connecticut
Assistant Professors: F. R. Baskind, M.S.W., V. G. Williams, M.S.W., A.C.S.W., Howard.

Major: Social Work 2000 (4), 3400-10 (4,4), 4110-20-30 (4,4,4), 4200 (4), 4500-10 (4,4), 4800-20-30 (8,8,8). The major consists of 52 hours. Preliminary acceptance into the major depends on successful completion of Social Work 2000. Corequisite courses include: Human Services 3200; Psychology 2520, 2540. 12-20; no less than two courses from the following: Sociology 3130, 3150, 3220; Black Studies 3300. Students who graduate from this program are prepared for beginning professional practice as a social worker. The program follows Council on Social Work Education Accreditation Standards.

2000 **Introduction to Social Work and Social Welfare** (4) Introduction to the profession of social work and to the social welfare system. Designed to assist students to develop an awareness of the knowledge, skills, and values of the social welfare profession, and to consider their ability for a career in social work.


4110-20-30 (4,4,4) Social Work Practice I (4) Essential theory, values, and skills of professional social work intervention. Emphasis on direct social work practice with individuals, groups, and families. Specific focus on professional work with clients characterized by social and economic deprivation. To be taken in sequence. Prerequisites: Social Work 3400, Psychol. 2540. Coreq: Social Work 4120-30.

4120 Social Work Practice II (4) Essential theory, values, and skills of professional social work intervention. Emphasis on direct social work practice with individuals, groups, and families. Specific focus on professional work with clients characterized by social and economic deprivation. To be taken in sequence. Concurrent skills laboratories. Prerequisite: Full acceptability into major. Coreq: Social Work 4110-20-30.

4130 Social Work Practice III (4) Essential theory, values, and skills of professional social work intervention. Emphasis on direct social work practice with individuals, groups, and families. Specific focus on professional work with clients characterized by social and economic deprivation. To be taken in sequence. Concurrent skills laboratories. Prerequisite: Full acceptability into major.

4200 Social Welfare Policies and Issues (4) Specific social welfare policies examined in depth in relation to human behavior, social policy, program, and service approaches. Special focus on developing an analytical framework and social change efforts. Prerequisite: Full acceptability into major. Coreq: Social Work 4200.

4221 Human Service Methodologies - II (4) A continuation of 4220 with emphasis on general helping skills essential to the administration and delivery of human services. Coreq: 4220.

4500-10 Field Practice in Social Work I, II (4,4) An eight hour per week supervised agency field practice in which students can apply classroom material to social work practice situations in order to develop professional skills, values, and attitudes. A weekly faculty led seminar focuses on the integration of knowledge with practice. To be taken in sequence. Only for social work majors. Prerequisite: Social Work 4200, Coreq: Social Work 4310, 4110.

4520-30 Field Practice in Social Work III, IV (8,8) An sixteen hour per week supervised agency field practice in which students learn how to integrate theory and practice and critically examine use of self as a professional helping person. Weekly faculty directed seminars. Prerequisite: Full acceptability into major. Coreq: Social Work 4200-30.

**Italian**

See Romance Languages.

**Japanese**

See Cultural Studies (Asian Studies).

**Latin**

See Classics.

**Latin American Studies**

See Cultural Studies.

**Linguistics**

See Cultural Studies.

**Mathematics (641)**

Professors: J. S. Bradley (Head), Ph.D. Iowa; G. E. Albert (Emeritus), Ph.D. Wisconsin; J. H. Carruth, Ph.D. Louisiana State; C. E. Clark, Ph.D. Louisiana; R. E. Cline, Ph.D. Purdue; R. J. Daverman, Ph.D. Wisconsin; D. J. Dessart, Ph.D. Maryland; D. E. Dobbs, Ph.D. Cornell; E. D. Eaves (Emeritus), Ph.D. Texas; H. Frandtson, Ph.D. Illinois; R. T. Gregory, Ph.D. Illinois; T. G. Hallam, Ph.D. Missouri; D. B. Hinton, Ph.D. Tennessee; A. S. Householder (Emeritus), Ph.D. Chicago; L. S. Hrusch, Ph.D. Florida State; H. T. Matthews, Ph.D. Tulane; R. N. McComb, Ph.D. Duke; D. D. Miller (Emeritus), Ph.D. Michigan; B. S. Rajput, Ph.D. Illinois; C. K. Roddy1, Ph.D. Indian Institute of Technology; P. W. Schaefer, Ph.D. Maryland; F. W. Stallman, Ph.D. Giessen (Germany); W. R. Wade, Ph.D. California (Riverside); C. G. Wagner, Ph.D. Duke.

Associate Professors: D. F. Anderson, Ph.D. Chicago; V. A. Doupalis, Ph.D. Harvard; G. S. Jordan, Ph.D. Wisconsin; R. J. Kozmic1, Ph.D. Ohio State; G. A. Klassen, Ph.D. Nebraska; Y. Kuo, Ph.D. Cincinnati; W. H. Row, Jr., Ph.D. Wisconsin; R. J. Rowlett, Ph.D. Virginia; S. M. Schlechter, Ph.D. Berkeley; G. A. Sod1, Ph.D. California (Berkeley); K. Soni, Ph.D. Oregon State; R. F. Soni, Ph.D. Oregon State; K. R. Stephenson, Ph.D. Wisconsin; J. W. Walsh, Ph.D. SUNY (Binghamton).

Instructors: V. Alexiades, Ph.D. Delaware; L. Balles, Ph.D. Cornell; L. Banker, Ph.D. Florida State; J. Cohen, Ph.D. Washington; S. Elener, Ph.D. Cornell; L. J. Gross, Ph.D. Cornell; O. Karakashian, Ph.D. Harvard; S. Lenzert, Ph.D. Kentucky; M. Miller, Ph.D. Illinois; S. Mulay, Ph.D. Purdue; H. Simpson, Ph.D. California Institute of Technology; C. Sundberg, Ph.D. Wisconsin.

1Space Institute, Tulalipana.

**UNDERGRADUATE**

**Placement Information for Freshman Courses:** Students who need more than one year of mathematics should plan to take 1840 (or 1842) as a sophomore year of mathematics, unless the student has completed the equivalent of 1840 in high school. Students who complete 1840 (or 1842) are two years of high school algebra, one year of geometry, and one semester of trigonometry or equivalent. Students who have an ACT score below 26 in mathematics are urged to complete 1700 with a grade of B or better before taking 1840 (or 1842). Students who have not had high school trigonometry should take 0150 before (or concurrently with) 1840 (or 1842). Students who present an ACT score of at least 26 in mathematics and a high school average of at least 3.00 are eligible for the honors course 1848. Prospective mathematics majors who meet these requirements are encouraged to enroll in 1848. (Exceptions to the eligibility criteria for 1848 are possible. Interested students should see the department head in Ayres Hall, Room 124.)

The prerequisites for 1540 are two years of high school algebra or one year of algebra and one year of geometry. Students who present an ACT score below 18 in mathematics may take 1540 but are advised to take Math 0110 in the Evening School (or equivalent elsewhere), and make at least B, or to make a passing grade in Math 0110 and 0150 in the Evening School (or equivalent elsewhere). Students who have taken two years of high school algebra and one year of high school geometry and who present an ACT score in mathematics of at least 26 (or those who earned at least a B in high school algebra and geometry, and present an ACT score in mathematics of at least 24) are encouraged to omit 1540 and begin with 1580.

Students who have a deficiency in algebra or geometry must remove the deficiency by taking the appropriate refresher course(s) in the Evening School (or equivalent elsewhere).

No student who has received credit for Mathematics 1840 with a grade of C or better may subsequently receive credit for Math 1540 or 1700. No student who has received a grade of C or better in Mathematics 1550 may subsequently receive credit for Mathematics 1550.

**Honors Courses:** The current practice of the department is to offer honors versions (1848-58-68 and 2848-58-68) of 1840-50-60 and 2840-50-60 in sequence, fall-winter-spring, each year. In addition to these regularly offered honors courses, the department may subsequently offer honors versions (1848-58-68 and 2848-58-68) of any course in the department whose number has zero as the last digit may be offered in any quarter. In this case, the last digit will be changed to eight and the title will be preceded by the word "Honors." A drop in enrollment and on the student's transcript. These honors courses may be offered upon the initiative of interested faculty, students, or the department head (in all cases subject to the approval of the department head).

**Proficiency Examinations:** Students who have taken calculus in high school are encouraged to inquire at the Mathematics Office, Ayres 121, about the possibility of taking a proficiency examination for one or more courses from the calculus sequence 1840-50-60. If a satisfactory grade is made on the examination(s), credit will be awarded for the appropriate course(s).

**Advanced Mathematics Courses:** Include 3090 and all courses numbered 3140 or above, except 3281, 3282, and 3170.

**Major:** To major in mathematics, a student must complete the following four requirements:

1. Math 1540-60 (or 2848-58-68) and 3810.
2. Students who complete 2586
substitute any 3 hour advanced mathematics course for 3810.

2. One three-quarter sequence (9 hours) from one of the following areas, and one two-quarter sequence (6 hours) selected from a different area:
   a. Combinatorial mathematics: 3780-90;
   b. Topology: 3920-30;
   c. Algebra: 4050-60, or 4120-50-60, or 4150-60;
   d. Numerical mathematics: 4225-35-45, or 4225-35, or 4225-45;
   e. Complex analysis: 4250-60;
   f. Real analysis: 4510-20-30, or 4610-20;
   g. Differential equations: 4610-20-30, or 4610-20;
   h. Probability and statistics: 4850-60-70, 4850-60, or 4750-60-70, or 4750-60;
   i. Computer science: 4710-20, 4720-20, 4110-20, 4210-20; Statistics 3460.

3. Fifteen additional hours of advanced mathematics courses as defined under the heading, Advanced Mathematics Courses above. In satisfying this requirement, a student may substitute not more than 6 hours of courses from the following list, for advanced mathematics courses: Computer Science 4510, 4710; Educational Curriculum and Instruction 3741, 3772, 3785, 3792-20, 4110-20, 4210-20; Statistics 3460.

4. Senior seminar, 4910 or 4920.

Honors Program:
An Honors Program in mathematics will consist of at least 27 hours of mathematics courses numbered 4000 or above, except 4710, including at least 6 hours of honors courses (courses numbered such that the last digit is 0). Students who satisfy the major requirements (categories 1 through 4 above) and complete the Honors Program with an overall grade point average of at least 3.4, 3.6, or 3.8 will be graduated with Honors, High Honors, or Highest Honors in Mathematics, respectively.

In exceptional cases, other courses of similar level may be accepted in place of the six hours of honors courses.

A student who wishes to be considered under the Honors Program will apply the quarter before he or she expects to graduate (but in the spring, if graduation is to be in December). Applications will be held the 27 hours to be offered, including the honors courses or their proposed substitutes. Students taking more than 27 hours of qualifying courses may select those to be listed. A note of successful completion will be added to the student's transcript.

Students interested in planning an Honors Program should consult their advisers as early as possible.

Minor: Consists of 2840-50-60 (or 2848-58-68) and at least 12 hours of advanced mathematics courses, as defined under the heading, Advanced Mathematics Courses.

Program Planning for Majors:
Mathematics majors have considerable freedom in determining how they will meet the requirements of the major. This is necessary, since mathematics majors may select from a variety of possible careers. In order to meet this diversity of needs, the mathematics faculty has designed a variety of sample programs which majors may wish to follow.

Programs are available to prepare students:

a. for employment in business or industry, whether in numerical mathematics and computer science, operations research, probability, statistics, or any other area requiring an understanding of business and applied statistics, or actuarial science;

b. for graduate work in pure mathematics, applied mathematics, computer science, operations research, or statistics;

c. for teaching, at the school or college level;

d. for careers in business, law, medicine, or any other area requiring training in mathematics.

These programs, along with other useful information for majors, are published in a Program Planning Guide, which is available on request at the department office, room 121.

1050 Trigonometry (5) Plane trigonometry with emphasis on identities and other analytic aspects used in calculus. For students who enter with deficiency in high school trigonometry. 3 hours per week. No college credit.

1540 College Algebra (4) Sets, real and complex number systems, exponents and radicals, fundamental algebraic operations, theory of equations, polynomial inequalities, relations, functions, graphs. No student who has received credit for Math 1840 with a grade of C or better may subsequently receive credit for Math 1540 or 1700. Six hours of 1840 or 1540 or one year of algebra and one year of geometry.


1560—Determinants, matrices, systems of linear equations and inequalities, Cramer's Rule, linear programming, trigonometric functions, applications, arithmetic and geometric series, simple and compound interest, annuities, exponential and logarithmic functions, law of growth, applications. Prereq: 1550 or equivalent.

NOTE: No student who has received a grade of C or better in Mathematics 1550 may subsequently receive credit for Mathematics 1550.

NOTE: Students with an adequate high school background in algebra are advised to begin the 1540-50-60 sequence with 1550.

1700 Precalculus Mathematics (4) Function concept and use of functional notation. Properties of functions and their graphs. Polynomial, exponential, logarithmic, and trigonometric functions. No student who has received credit for Math 1540 with a grade of C or better may subsequently receive credit for Math 1540 or 1700. Prereq: Two years of high school algebra, and the equivalent of one-half year of trigonometry or taking Mathematics 1541 concurrently.

1840-50-60 Single Variable Calculus (4,4,4) Functions, graphs, slope of a curve, definition of a derivative, limits, derivatives of algebraic functions, implicit differentiation, differentials, continuity, applications of derivatives, maxima and minima. Indefinite integral, area, definition of definite integral, Fundamental Theorem of Calculus, application of the definite integral, logarithmic, exponential, and trigonometric functions and their derivatives. Techniques of integration, plane analytic geometry, polar coordinates. Must be taken in sequence. NOTE: No student who has received credit for Math 1840 with a grade of C or better may subsequently receive credit for Math 1540 or 1700. Prereq: Two years of high school algebra, one year of geometry, and one semester of trigonometry, or equivalent.

1841-51 Calculus for Biological Sciences (4,4,4) Course for students whose intended major is in an area of the life sciences. Functions, graphs, differentiation and integration of algebraic, exponential, functional equations, applications of the derivative and definite integral, growth curves, Taylor polynomials, Newton's method; rectangular, trapezoidal, and Simpson's rules for numerical integration; Euler's method for initial value problems. One year of high school algebra, one year geometry, and one semester of trigonometry or equivalent.

1848-58-68 Honors: Single Variable Calculus (4,4,4) Honors Course for students with strong mathematical background. Emphasis on applications, selected on basis of placement test scores and high school record. Students receiving a grade below B in 1848-50 or 1841-51 may subsequently receive credit by taking 1850-60. Special sections of 1858 will be made available for students who perform well in 1840. Must be taken in sequence.

1900 Selected Topics (4) Applications of definite integration; approximate integration; simultaneous linear equations; matrix inversion; elementary linear programming; infinite series; descriptive statistics and finite probability. This course is especially recommended for architecture majors. Prereq: 1840-50. A student wishing to continue the study of calculus after taking 1900 should consult the mathematics department.

2012 Basic Concepts of Elementary Mathematics (4) Sets, theory of arithmetical operations, elementary probability and statistics, number theory, the transcendental number pi, elementary analytic geometry. Applications. May not be taken for credit after or concurrently with 1540, 1550, 1840, 1841, 1842, and 1845. Prereq: 2412-50-62 Single Variable Calculus with Computer Support (5,5,5) Same coverage of calculus as 1840-1850 supplemented with computer. Elementary FORTRAN is introduced and applied to problems from following areas: computer algorithms and their operation; application of limits to definition of derivative, approximation via differentials; approximate solution of equations; applications of integrals and Newton's method; rectangular, trapezoidal, and Simpson's rules for numerical integration; Euler's method for initial value problems. One year of high school algebra, one year geometry, and one semester of trigonometry or equivalent.

2120-1-2-3 Structure of the Number System (3,3,3) 2110—Set theory, whole numbers, integers. 2120—Inverses, order properties, rational numbers. 2130—Elementary number theory, rational and irrational numbers. Euclidean geometry. Must be taken in sequence. Prereq: 1 year of high school algebra and at least sophomore standing in elementary education, College of Education, or consent of instructor.

2215 Discrete Structures (3) Prereq: 1620 and Math 1840. (Same as Computer Science 2215.)

2610 Introduction to Differential Equations (2) Variables separable, homogeneous, exact, and linear first order equations, integrating factors. Second order linear equations with constant coefficients. Prereq: 1840.


Prerequisites: If specific courses are listed below as prerequisites, equivalent preparation satisfactory to the instructor will be an acceptable substitute. Graduate standing is prerequisite to enrollment in courses numbered above 2840. Undergraduates working towards a major in mathematics with a view to taking advanced work are strongly advised to include 4510-20-30 and 4150-60 during the junior or senior year.

3000 Elementary Quantitative Methods (4) Elementary course designed to prepare students in social and life science courses for quantitative courses in their department. Treats basic topics in probability and statistics with calculus. Prereq: 2840. Undergraduates working towards a major in mathematics or taking courses numbered above 2840-50-60. Must be used to meet requirements for majors or minors in mathematics; nor is it available for credit to students in College of Business Administration.

3050 Elementary Probability and Statistical Analysis (3) Combinatorial problems; sample spaces, sets,
and events; statistical independence, axiomatic probabil-
ity theory; random variables and their distributions; simple random processes. Prereq: 1550-60 or equivalent. Does not satisfy the requirements of a major or minor in mathematics.

3060 Elementary Statistical Analysis (3) Elementary probability; graphical and numerical methods to summarize and describe data, probability functions, measures of central tendency and dispersion, basic terms and principles of inferential statistics. Prereq: Math 1550-60 or equivalent. Does not satisfy the requirements of a major or minor in mathematics.

3090 Polynomials and Rings (3) An introduction to abstract algebra, beginning with study of integers followed by the more general notions of rings, integral domains, and fields. Emphasis is given to certain ring theoretic properties shared by integers and polynomials over fields. Prereq or coreq: Math 3100 or consent of instructor.

3100 Logic and Sets (3) Elements of mathematical logic; elementary algebra of sets. Primarily for students in the College of Education. Prereq: 1 year of college mathematics. Does not satisfy the requirements of a major or minor in mathematics.

3110 Real Number System (3) Laws of arithmetic; rational and irrational numbers; fields. Primarily for students in the College of Education. Prereq: 1 year of college mathematics. Does not satisfy the requirements of a major or minor in mathematics.

3140 Mathematical Modeling (3) Survey of construction and development of mathematical models used in science and engineering and studied may draw upon Markov chains, linear optimization, graph theory, or differential and integral equations. Mathematics develops and computer simulation are used to model and associated scientific problem that it approximates. Projects emphasized. Prereq: 2840-50-60.

3150 Introduction to Numerical Algorithms and Programming (3) (Same as Computer Science 3150.)

3155 Introduction to Numerical Algorithms (3) (Same as Computer Science 3155.)

3220 History of Mathematics (3) Survey of development of mathematics, from ancient to modern times. Not acceptable for satisfying requirements for a major or minor in mathematics. Prereq Math 1860 or 2550 or equivalent.

3310 Advanced Euclidean Geometry (3) Triangles and circles, constructions, modern concepts. Prereq: 1 year of college mathematics.

3320 Non-Euclidean Geometry (3) Foundations of geometry. Elliptic and hyperbolic plane geometry. Prereq: 1 year of college mathematics.

3330 Transformational Geometry (3) Fundamental transformations studied may include certain standard topics such as elementary set operations, continuous functions, homeomorphisms, continuity, and topological invariants. Must be taken in sequence. Prereq: 3810 or 2860 or consent of instructor.

3390 Studies in Mathematics (1-4) Credit determined at registration. May be repeated for credit with consent of department. Maximum credit 9 hours. Prereq: Consent of instructor.

4050-60 Matrix Algebra and Applications (3,3) Vector spaces, linear transformations, eigenvalues and eigenvectors, diagonalization of matrices, singular value decomposition and the least squares problem, vector and matrix norms. Jordan canonical forms, evolution of linear systems, quadratic forms and variational principles, related topics. Must be taken in sequence. Prereq: 2860.

4070 Matrix Algebra and Applications (3) Topics to be chosen at the discretion of instructor.

4102 Off-Campus Study (1-16) See page 185.

4120 Linear Algebra (3) Abstract vector spaces, linear transformations and their matrices, systems of linear equations and determinants, inner products, and diagonalization of symmetric matrices. Prereq: 2860 or 4050.

4150-50 Abstract Algebra (3,3) Equivalence relations and partitions, properties of integers, elementary theory of groups and rings, polynomial rings, integral domains; divisibility, unique factorization domains, fields. Must be taken in sequence. Prereq: 2860.

4225 Numerical Solution to Equations and Numerical Approximations (3) Introduction to computation, numerical errors, formula, consequence. Prereq: 3150 or 3155 or 4610 or 4225. (Same as Computer Science 4225.)

4225 Numerical Methods for Ordinary Differential Equations (3) Interpolation by polynomials and piecewise polynomials, quadrature, singularity and multistep methods for differential equations. Stability, consistency, and convergence. Current algorithms, variable step size and order, stiff systems. Boundary value problems. Prereq: 3150 or 3155 or 4610 or 4225. (Same as Computer Science 4225.)

4245 Numerical Linear Algebra (3) Review of vector spaces, orthogonality, norms, linear operators, eigenvalues, eigenvectors, Iterative methods for linear equations, Orthogonal polynomials, Gram-Schmidt, QR, LU, and singular value decompositions. Prereq: 3150 or 3155 or 4610 or 4225. (Same as Computer Science 4245.)

4250-40 Introduction to Complex Analysis (3,3) Complex numbers, Cauchy-Riemann equations, Cauchy's theorem, Taylor and Laurent series, residues and contour integration. Complex variables. Schwarz-Christoffel transformations, the Dirichlet problem, applications (steady temperature flows, electrostatics, fluid flow), additional topics in complex function theory. Must be taken in sequence. Prereq: 2860; one 4000-level mathematics course recommended.

4510-20-30 Introduction to Analysis (3,3,3) Real number system, functions, sequences, limits, continuity, uniform continuity, differentiation, Taylor's formula, functions of several variables, implicit function theorem. Multiple integrals, infinite series, sequences and series of functions, uniform convergence, Taylor series. Should be taken in sequence. Prereq: 2860.


4550 Partial Differential Equations (3) Fourier series; Fourier integral; orthogonal functions; the vibrating string solution. Separation of variables. Green's functions, and Fourier series. Separation of variables method with applications in cylindrical coordinates, spherical coordinates, and Laplace equation. Prereq: 2860 or 4050. Must be taken in sequence.

4640 Calculus of Finite Differences (3) Real difference equations; application to problems in engineering and physics. Prereq or coreq: 4610.

4650-60-70 Introduction to Mathematical Statistics (3,3,3) Introduction to probability theory, random variables and their distributions; correlation, regression, and statistical independence; foundations of sampling theory; significance tests. Must be taken in sequence. Prereq: 2860.

4710 Vector Analysis (3) Fundamental operations, basis vectors, dot and cross products, directional derivatives, divergence, curl, gradient, line integrals, surface integrals, divergence theorem, Stokes theorem. Prereq: 2860. Does not satisfy the requirements of a major or minor in mathematics.

4750-60-70 Introductory Probability Theory (3,3,3) Elementary combinatorial analysis, probability distributions in discrete sample spaces, conditional probability and stochastic independence, binomial, Poisson, hypergeometric, and normal distributions. Expectation, conditional expectation, and characteristic function of random variables, infinite sequences of random variables, the weak and strong laws of large numbers, and the central limit theorem. Prereq: Math 2860 or equivalent. Does not satisfy the requirements of a major or minor in mathematics.

4810 Elementary Number Theory (3) Divisibility; congruence, congruence classes, Euclid's algorithm, the Chinese remainder theorem, primality, greatest common divisors, least common multiples, fundamental theorem of arithmetic, continued fractions, quadratic reciprocity. Prereq: 2860 or consent of instructor.

4910 Senior Seminar (1-2) Credit determined at registration. May be repeated for credit with consent of department; student may earn a maximum of 4 credit hours from 4910 and 4920 combined. Prereq: Senior standing.

4920 Senior Seminar (1-2) Credit determined at registration. May be repeated for credit with consent of department; student may earn a maximum of 4 credit hours from 4910 and 4920 combined. Prereq: Senior standing.

4980 Readings in Mathematics (1-3) Open to supervisors and department head. Independent study with faculty guidance. May be repeated. Maximum credit 9 hours.

4990 Studies in Mathematics (1-4) Credit determined at registration. May be repeated for credit with consent of department; maximum credit 9 hours. Prereq: Consent of department head. Indepedent study with faculty guidance. May be repeated. Maximum credit 9 hours.

4990 Studies in Mathematics (1-4) Credit determined at registration. May be repeated for credit with consent of department; maximum credit 9 hours. Prereq: Consent of department head. Independent study with faculty guidance. May be repeated. Maximum credit 9 hours.

GRADUATE

The Department of Mathematics offers four advanced degrees. In general, a student should choose to be a candidate for any one of these the student can pursue.
must first be admitted to the Graduate School. The Master of Arts and Master of Science degree programs presuppose a bachelor’s degree with a major in mathematics. The Master of Mathematics degree is intended primarily for teachers of high school mathematics. Applicants for admission to this program must take the Graduate Record Examination and must have either (a) certification for teaching secondary mathematics, or (b) successful elementary or secondary school teaching experience. The Doctor of Philosophy degree program presupposes a bachelor’s or master’s degree with a strong major in mathematics. This program is intended to train professional mathematicians for a career of teaching and scholarly work in colleges and universities or work in industry. Further details on all of these programs are in the Graduate Catalog.

5000 Thesis
5002 Non-Thesis Graduation Completion (3-15)
5011 Elementary Functions from an Advanced Standpoint for Teachers (3-4)
5012 Differential Geometry for Teachers (3-4)
5013 Geometry for Teachers (3-4)
5014 Analysis for Teachers (3-4)
5015 Probability and Statistical Inference for Teachers (3-4)
5050-60-70 Mathematical Logic (3,3,3)
5051 Introductory Business Mathematics (3)
5052 Mathematics for Business Decisions (3)
5110-20-30 Theory of Functions of Complex Variables (3,3,3)
5150-60-70 Foundations of Analysis (3,3,3)
5210-30-40 Theory of Functions of a Real Variable (3,3,3)
5250-60 Applied Linear Algebra (3,3)
5270 Stability Theory and Liapunov’s Direct Method (3)
5310-20-30 Introduction to Higher Geometry (3,3,3)
5370-60-90 Mathematical Principles of Fluid Mechanics (3,3,3)
5430 Integral Equations (3)
5440 Calculus of Variations (3)
5450-60-70 Introduction to Partial Differential Equations (3,3,3)
5455 Finite Difference Methods for Partial Differential Equations (3)
5465 Finite Element Methods (3,3,3)
5470-80-90 Theory of Matrices in Numerical Analysis (3,3,3)
5540-50-60 Applied Probability (3,3,3)
5570-80 Mathematical Systems Theory (3,3,3)
5590 Theory of Rings (3)
5610-20-30 Mathematical Methods in Physics (3,3,3)
5640 Numerical Methods in Physics (3)
5655-65-75 Numerical Mathematics (3,3,3)
5710-20-30 Tensor Analysis (3,3,3)
5750-60-70 Advanced Mathematical Statistics (3,3,3)
5775 Combinatorial Algorithms (3)
5810-20-30 Number Theory (3,3,3)
5840-50-60 Mathematical Ecology (3,3,3)
5870-80-90 Introduction to Ordinary Differential Equations (3,3,3)
5910-20-30 Elementary Topology (3,3,3)
5940-50-60 Applied Probability (3,3,3)
5970-80 Mathematical Systems Theory (3,3,3)
5990 Graduate Reading in Mathematics (1-3)
6010-20-30 Probability Theory (3,3,3)
6040-50-60 Theory of Groups (3)
6060-70-80 Mathematical Principles of Fluid Mechanics (3,3,3)
6090-10-12 Advanced Ordinary Differential Equations (3,3,3)
6160-60-80 Theory of Semigroups (3,3,3)
6170 Theory of Groups (3)
6191 Seminar Analysis (1-3)
6192 Seminar Topology (1-3)
6193 Seminar Algebra (1-3)
6194 Seminar Foundations (1-3)
6195 Seminar Applied Mathematics (1-3)
6600 Doctoral Research and Dissertation
6710-20-30 Functional Analysis (3,3,3)
6730-40-50 Harmonic Analysis (3,3,3)
6840-50-60 Partial Differential Equations (3,3,3)
6910-20-30 Modern Algebra (3,3,3)
6940-50-60 Introduction to Algebraic Topology (3,3,3)
6990 Seminar Analysis (1-3)
6991 Seminar Topology (1-3)
6992 Seminar Algebra (1-3)
6993 Seminar Foundations (1-3)
6994 Seminar Applied Mathematics (1-3)
6995 Seminar Seminar in Numerical Mathematics (1-3)

Medieval Studies
See Cultural Studies.

Microbiology

Professors:
A. Brown (Head), Ph.D. Chicago; R. W. Beck, Ph.D. Wisconsin; J. M. Becker, Ph.D. Cincinnati; R. J. Courtney, Ph.D. Syracuse; T. C. Montile, Ph.D. Maryland; J. C. Mundt (Emeritus), Ph.D. Michigan State; W. S. Rigby, Ph.D. Yale; B. T. Rouse, Ph.D. Guelph (Canada); B.V.Sc., Bristol (England); J. M. Woodward (Emeritus), Ph.D. Kansas; C. J. Wust, Ph.D. Indiana.

Associate Professors:

Assistant Professors:
D. A. Bemis, Ph.D.; R. N. Moore, Ph.D. Texas-Austin; K. M. Sirokin, Ph.D. Michigan State; G. Stacey, Ph.D. Texas-Austin.

UNDERGRADUATE

Major: Consists of Biology 3110, 3120, Biochemistry 4110, 4120, Microbiology 3200, 3519, 3700, and 3770, and 18 hours of upper-division courses in microbiology of which 4 hours must be laboratory courses. Prerequisites to the major are Biology 1210-20-30 and Chemistry 1110-20-30. Corequisites are Chemistry 2211-21-21, 2216-26, and Mathematics 1841-51 or 1540-50-60. Students intending to do postgraduate work should take Mathematics 1841-51 and Physics 2210-20-30.

Microbiology (684)

2110 Microbiology for Student Nurses (4) Introductory course offered only to student nurses in diploma program of hospitals affiliated with The University of Tennessee. Microbiological principles as they apply to nursing care of the patient, epidemiology of infection, and principles of immunity and allergy. 3 hours and 1 lab.

2910 General Microbiology (3) General properties of bacteria, viruses, and fungi including study of pathogenesis, immunity, and applied bacteriology. The combination of 2910-2911 or 2912-2919 meets the needs of programs that require one-quarter course in microbiology. Coreq: 2912 or 2916.

2911 Microbes in Action (1) Discussions, demonstrations, and films relating to the subject matter of 2910. Students do not receive credit for 2911 if 2919 has been taken. Prereq or coreq: 2910.

2919 Laboratory in General Microbiology (2) Laboratory exercises designed to accompany 2910. Open only to students in the College of Nursing, veterinary medicine, food technology, food science, nutrition, or food systems administration. Others by consent of instructor. Students do not receive credit for 2919 if 2911 has been taken. Prereq or coreq: 2910.

3200 Medical Microbiology (3) Disease producing microorganisms including bacteria, viruses, and fungi; basic principles and mechanisms involved in resistance to infectious disease. Prereq: Chemistry 1110-20-30, Biology 3120; coreq: 3519, Biology 3110.

3519 Introductory Microbiology Laboratory (2) Basic techniques for examination, cultivation, and identification of microorganisms. Coreq: 3200 or 3700.


3810 Food Bacteriology (3) Standard methods for examination, cultivation, and identification of bacteria associated with food fermentation and food spoilage. Prereq: 2910 or 3700 and Chemistry 2230 or 3211. 2 hours and 2 labs.

3819 Food Bacteriology Laboratory (2) Laboratory methods for examination, cultivation, and identification of bacteria associated with food fermentation and food spoilage. Prereq: 2919 or 3519; coreq: 3810.

3820 Yeasts and Molds (3) Morphology, taxonomy, and physiology of yeasts, actinomycetes, and fungi of industrial importance. Prereq: 2910 or 3700, or consent of instructor. 2 hours and 2 labs.

3829 Yeasts and Molds Laboratory (2) Laboratory methods for examination and cultivation of yeasts and molds. Prereq: 2919 or 3519; coreq: 3820.

4010 Biology of Soil Microorganisms (4) Same as Entomology and Plant Pathology 4010.

4011 Foreign Study (1-16) See page 185. No more than 3 hours may be applied toward a major or minor in microbiology. May be repeated. Maximum credit 16 hours.

4021 Foreign Study (1-16) See page 185. No more than 3 hours may be applied toward a major or minor in microbiology. May be repeated. Maximum credit 16 hours.

4101 Off-Campus Study (1-16) See page 185. No more than 3 hours may be applied toward a major or minor in microbiology. May be repeated. Maximum credit 16 hours.
5011-12-13-14-15-16 Microbiology courses in Molecular Techniques (1,1,1,1,1,1)
5130 Topics in Taxonomy (3)
5310 Selected Topics in Microbiological Research (3)
5320 Advanced Microbiology for Secondary Education Instructors (4)
5360 Topics in Immunology and Immunechemistry (4)
5441-42-43-44-45-46 Clinical Microbiology (6,6,6,6,6,6)
5450 Non-Thesis Graduation Completion (3-15)
5510-20-30 Research Problems (3,3,3)
5670 Microcell Biology (3)
5730 Pathogenesis of Infectious Disease (3)
5750 The Oncogenic Viruses (3)
5760 The Bacterial Viruses (3)
5819 Molecular Genetics Laboratory (3)
5820 Microbiology of Foods (3)
5829 Experimental Microbiology Ecology (3)
5850 Seminar in History of Microbiology (1)
5910-30 General Seminar (1,1,1,1)
6000 Doctoral Research and Dissertation
6130 Seminar in Immunology (1)
6230 Seminar in Microbial Pathogenesis (1)
6330 Seminar in Microbial Pharmacology (1)
6340 Seminar in Microbial Genetics (1)
6350 Seminar in Virology (1)
6360 Seminar in the Filamentous Fungi (1)
6370 Current Topics in Environmental Microbiology (2)
6410 Concepts of Immunity (3)
6420 Current Topics in Biological Membrane Research (1)
6720 Advanced Topics in Microbial Physiology (3)
6730 Advanced Topics in Microbial Pathogenesis (3)
6740 Advances in Virology (3)
6760 Advanced Topics in Microbial Genetics (3)
6810-20-30 Problem Seminar (1,1,1)

Medical Technology (669)
Courses in this major are open only to qualified students who have completed the first three years of the Science-Medical Technology Curriculum, described on page 178, and who have been approved by the Pre-Medical Advisory Committee.

4011-12 Microbiology (6,6) Laboratory work in bacteriology, mycology, and parasitology. Emphasis on pathogenic bacteria and fungi, their sources, methods of culture, techniques of identification, and evaluation of antibiotic sensitivity. Gross and qualitative chemical examination of feces and methods of identification of protozoa and helminth parasites of man.

4021-22 Clinical Chemistry (6,6) Clinical aspects of biochemistry, including overview of principles and instrumentation with emphasis on practical laboratory application of analytical procedures, specimen collection and handling, significance of results, and quality assurance. Includes blood gas analysis, including radioimmunoassay, and analysis of blood and other body fluids for enzymes, hormones, and other constituents of clinical interest, utilizing both automated and manual techniques.

5031-32 Hematology and Clinical Microscopy (6,6) Principles, theories, and instrumentation related to the qualitative and quantitative evaluation of cellular elements of blood and other body fluids; factors of hemostasis, quantitative chemical analysis of urine, and renal function studies. Emphasis is placed on microscopic identification of cells and the significance and correlation of laboratory data.

6041-42 Immunohematology (4,4) Theory and practice in blood bank techniques, seroagglutination, and production and testing of blood components for transfusion. Safety control methods standard to an efficient blood bank.

6043 Clinical Serology and Immunology (2) Performance and interpretation of broad range of clinical serological and immunological procedures with emphasis on principles and clinical correlation. Formal lecture series included.

6500 Nuclear Medicine (1) Physical characteristics, detection and use of short half-life radioactive materials. Emphasis placed on in vivo diagnostic medical uses and radiation safety.

6506 Histology (1) Overview of techniques of preparation of tissue for microscopic evaluation and basic histology in clinical diagnosis.

6701 Orientation and Basic Techniques (1) Designed to facilitate transfer of student from campus to hospital community and clinical laboratory. Introduction to technical terminology, ethics, and health team concept. Orientation to basic techniques of methods of study include procedures for collection and handling of specimens, principles of operation of many laboratory instruments, review of laboratory math, and introduction to quality control procedures. Portions of course extend over entire clinical year.

6702 Principles of Supervision and Education in Medical Technology (1) Seminars in basic principles of management, supervision, and education theories and methods. Comprehensive examination covers entire course.

Music (698)


The Department of Music offers curricula leading to the Bachelor of Music degree, which is designed to prepare students for graduate study and for professional positions, and the Bachelor of Arts degree with a major and minor in Music, designed for those
ENSEMBLES

Ensemble participation during each quarter of residence is required of all students studying applied music: String, woodwind, brass, and percussion students must meet the following ensemble requirements: (1) string students must participate in orchestra each quarter; (2) woodwind; brass, and percussion students must acquire a minimum of six credits in any of the following ensembles: marching band; concert band, campus band, symphony orchestra, jazz ensemble; (3) voice students must acquire a minimum of six credits in any of the following ensembles: Concert Choir, Chamber Singers, University Chorus, Women's Chorale.

A student's preference for musical organization will be honored whenever possible, but factors considered in making the assignment will include playing ability, specific needs of various organizations, and previous performance experience at the University.

3600-5600 Small Ensemble (1,1) May be repeated for credit.
3601-5601 Woodwind Choir (1,1) May be repeated for credit.
3602-5602 Brass Choir (1,1) May be repeated for credit.
3604-5604 Jazz Ensemble (1,1) May be repeated for credit.
3606-5606 Trombone Choir (1,1) May be repeated for credit.
3607 Tuba Ensemble (1) May be repeated for credit.
3610-5610 Percussion Ensemble (1,1) May be repeated for credit.
3611 Marimba Choir (1) May be repeated for credit. (Also 5611)
3612-5612 Baroque Ensemble (1,1) May be repeated for credit.
3620-5620 UT Singers (1,1) May be repeated for credit.
3630-5630 Chamber Singers (1,1) May be repeated for credit.
3632-5632 Collegium (1,1) May be repeated for credit.
3634-5634 Saxophone Choir (1,1) May be repeated for credit.
3640-5640 Opera Theatre (1,1) May be repeated for credit.
3643-5642 Opera Workshop (1,1) May be repeated for credit.
3650-5650 Concert Band (1,1) May be repeated for credit.
3652-5652 Campus Band (1,1) May be repeated for credit.
3654-5654 Varsity Band (1,1) May be repeated for credit.
3656-5656 Laboratory Band (1,1) May be repeated for credit.
3657-5657 Marching Band (1,1) May be repeated for credit.
3670-5670 Symphony Orchestra (1,1) May be repeated for credit.
3680-5680 Concert Choir (1,1) May be repeated for credit.
3682-5682 University Chorus (1,1) May be repeated for credit.
3687-5687 Women's Chorale (1,1) May be repeated for credit.
3699-5699 Accompanying (1,1) May be repeated for credit.

RADIAN

The Department of Music offers the Master of Music degree in performance, composition, and music theory, choral conducting, and Suzuki techniques, and the Master of Arts degree in musicology and music theory. See the Graduate Catalog for admission and the Q requirements.

5000 Theatrical Conducting Project (1-3)
5001 Choral Graduation Completion (3-15)
5002 Non-Thesauri Seminar (3)
5010 Organ Literature of Voice (2,2,2)
5012-22-32 Pedagogy Seminar (3)
5020 Piano Literature Seminar (3)
5030 Choral Literature for Singers (2,2,2)
5033-34-35 Advocacy Seminar (3)
5040 Vocal Literature Seminar (2,2,2)
5041-42-43 Vocal Literature (3)
5050 Graduate Recital Performance (3)
5051 Opera Performance Music Performance (3)
5052 Vocal Chamber Club (3)
5054 Lecture-Recital for Instrumental Conductors (3)
5055-56 Practicum for Conducting (1,1)
5057 Instrumental Conducting Seminar (3)
5060 Seminar in Choral Performance (3)
5061 Choral Conducting (3)
5070 Opera Production (1-3)
5080 Instrumental Conducting Performance (1-3)
5090 Special Topics in Performance (1-3)
5100 Independent Study in Music Theory (1-3)
5114 History of Music Theory (3)
5116 Musical Styles (3)
5121 Analytical Techniques (3)
5125 Practicum in Computers and Music Research (3)
5150 Seminar in Music Theory (3)
5200 Independent Study in Music History and Literature (1-3)
5210 Introduction to Music Research (3)
5220 Music Bibliography (3)
5270 Composer Seminar (3)
5316 Band Literature (3)
5350 Music in the Middle Ages (3)
5352 Music in the Renaissance (3)
5353 Music in the Baroque Period (3)
5355 Music in the Classic Period (3)
5357 Music in the Romantic Period (3)
5359 Music in the Twentieth Century (3)
5400 Musical Aesthetics (3)
5597 Composition with Electronic Media (1-3)
5611 Marimba Choir (1)

Organizational Psychology Program
See Graduate School.

Philosophy (745)

Professors:
J. W. Davis (Head), Ph.D. Emory; R. E. Aquila, Ph.D. Northwestern; L. B. Celik, Ph.D. Nebraska; R. B. Edwards, Ph.D. Emory; G. C. Graber, Ph.D. Michigan; M. H. Moore (Emeritus), Ph.D. Chicago; D. Van de Vate, Ph.D. Yale.

Associate Professors:

Assistant Professors:
H. P. Harnly, Ph.D. Georgia; E. R. Jones III, Ph.D. Chicago; J. E. Nott, M.A. Ohio State; S. J. Reaven, Ph.D. California (Berkeley); J. W. Summers, Ph.D. Tulane.

Philosophy seeks to understand humans, the world, their relations. It involves (1) use of logical and scientific methods, (2) appreciation of all values, (3) history of ideas, (4) philosophical systems.

Philosophy is an appropriate major for students wishing a broad education, and those preparing for careers as writers (whether journalistic or literary), lawyers, ministers, teachers, in various types of political and government service, and in non-technical positions in business and industry.

A major in philosophy implies a balanced program in the humanities, natural and social sciences. Graduate students should read French or German, preferably both; other ancient or modern languages are useful and necessary for some advanced work.

UNDERGRADUATE

Major: 36 hours in courses numbered 2000 and above. Majors should discuss their programs with a member of the philosophy faculty.

Minor: 24 hours in courses numbered 2000 and above. It is suggested that minors discuss their programs with a member of the philosophy faculty.


1510 Introduction to Philosophy: Human Nature and Values (4)
1520 Introduction to Philosophy: Consciousness and Reality (4) May be taken before 1510.
1600 Topics in Philosophy (4) May be repeated once for credit.
2310 Elementary Ethics (4) Theories of ethical values.
2410 Art and Experience (4) Introduction to various understandings of art.
2510-20 Elementary Logic (4,4) 2510—Traditional or modern deductive logic, informal fallacies, uses of...
language, definitions. (3810 is recommended as introductory for students with mathematical aptitude.)

2520-Inductive reasoning, elements of scientific movements in philosophy.

19th Century Philosophy (4)

3141 Nineteenth-Century Philosophy (4)

3151 Contemporary Philosophy (4) Survey of recent works.

3810 Introductory Symbolic Logic (4) Techniques for formal analysis of deductive reasoning (propositional logic and quantification theory).

3910 Contemporary Aesthetics (4) Philosophical discussion of contemporary art.

4000 Special Topics (4) A student-instructor-initiated course to be offered at convenience of department. Subject matter to be determined by mutual consent of students and instructor with approval of department. Prerequisites to be determined by department. May be repeated for credit.

4010 Foreign Study (1-16) See page 185

4020 Off-Campus Study (1-16) See page 185.

4030 Independent Study (1-16) See page 185.

4111-21 Modern Religious Philosophies (4,4) (Same as Religious Studies 4111-21)

4115 Combinations: (4,4,4)

4120 Aristotle (4) Prerequisite: 8 hours of philosophy or consent of instructor.

4130 Intermediate Ethics (4) Topics in meta-ethics and normative ethics.

4135 Advanced Topics in Ethics (4) Prerequisite: 8 hours of philosophy or consent of instructor.

4140 Plato (4) Prerequisite: 8 hours of philosophy or consent of instructor.

4150 Continental Rationalism (4) Prerequisite: 8 hours of philosophy or consent of instructor.

4170 British Empiricism (4) Prerequisite: 8 hours of philosophy or consent of instructor.

4200 Kant (4) Prerequisite: 8 hours of philosophy or consent of instructor.

4250 Advanced Topics in Existentiology (4) Prerequisite: 8 hours of philosophy or consent of instructor.

4280 Symbolic Logic (4) Axiomatic calculus and first-order logic. Prerequisite: 810 or equivalent.

4290 Intermediate Symbolic Logic (4) Prerequisite: 8 hours of philosophy or consent of instructor.

4510 Advanced Topics in Existentialism and Phenomenology (4) Prerequisite: 8 hours of philosophy or consent of instructor.

4520 Philosophy of Mind (4) Prerequisite: 8 hours of philosophy or consent of instructor.

4530 Philosophy of Language (4) Prerequisite: 8 hours of philosophy or consent of instructor.

4550 Philosophy of Nature (4) Prerequisite: 8 hours of philosophy or consent of instructor.

4710 Philosophy of Natural Science (4) Consideration of standard topics pertinent to natural science including reduction of theories and teleological explanation. Familiarity with symbolic logic is recommended. Prerequisite: 3770 or two years of natural science.

4720 Philosophy of Social Science (4) Examination of methods of inquiry and modes of explanation of social sciences. Prerequisite: 3770 or two years of social science.

4810 Metaphysics (4) Prerequisite: 8 hours of philosophy or consent of instructor.

5000 Thesis

5002 Non-Thesis Graduation Completion (3-15)

5050 Symbolic Logic (4)

5060 Philosophy of Logic (4)

5101 Foreign Study (1-12)

5102 Off-Campus Study (1-12)

5103 Independent Study (1-12)

5110-20-30-40-50-60 Studies in History of European Philosophy (4,4,4,4,4,4)

5260 Studies in the History of American Philosophy (4)

5310-20-30 Studies in Value and Normative Theories (4,4,4)

5355 Orientation to Medical Ethics (2)

5365 Applied Ethical Theory (4)

5370 Topics in Medical Ethics (4)

5375 Clinical Medical Ethics (4)

5410 Philosophy of History (4)

5430 Philosophy and Literature (4)

5450 Problems of the Self (4)

5460 Philosophy of the Mind (4)

5510-20 Studies in Epistemology (4,4)

5560 Philosophy of Science (4,4)

5610 Recent Developments in Philosophy of Religion (4)

5710 Studies in Metaphysics (4)

5810 Social and Political Philosophy (4)

5940 Lakeshore Clinical Residence (6)

6950 Clinical Practicum in Medical Ethics (4-12)

6000 Doctoral Research and Dissertation

6110-20-30 Seminars in History of European Philosophy (4,4,4)

6150 Seminar in History of American Philosophy (4)

6250 Seminar in Philosophy of Religion (4)

6310 Seminar in Axiology (4)

6370 Advanced Topics in Medical Ethics (4)

6510 Seminar in Epistemology (4)

6550 Seminar in Philosophy of Science (4)

6950 Advanced Residence in Philosophy of Medicine (4-12)

**Physical Sciences**

**Major:** None offered.

**Minor:** Consists of the following courses:


**Prerequisites for the minor in Mathematics 1840-50 and Chemistry 1110-20.** The physical sciences minor is designed particularly for students majoring in one of the biological sciences and/or preparing for graduate studies in a biological science or medicine.

Math 2840 is a prerequisite for these courses.

**Physics and Astronomy**

**Professors:**

Physics 2318-28-38 as a graduation requirement. Transfer students from other schools or departments may substitute 2510 and 1330 for 1310-20-30 or 1318-28-38.

A major in physics with a concentration in health physics: Physics 2310-20 or 2318-28, 3210-20, 3710-20-30, 4210-20, 4710-20-30, and Math 2840-50-60. It is suggested that students also take Chemistry 1110-20-30, 3211-21-31, 3219-29-39, and 12 hours of an approved biological science.

Minor: A minor in physics shall consist of Physics 2310-20-30 or 2318-28-38 and 15 hours from physics and astronomy courses numbered 3000 and above. Substitution provisions in the major statement also apply to the minor.

An Engineering Physics Curriculum is also offered. The program is described on page 159 and listed in tabular form on page 132.

1210-20-30 Introductory Physics (4,4,4) General course for students whose major falls outside the physical sciences. Concepts of physics developed by observation of phenomena and logic rather than mathematical derivation. Course topics include mechanics, heat, and energy. In second quarter wave motion, sound, electricity, and magnetism, and light. In the third quarter student may select an area of specialization. It is recommended that the courses be taken in sequence. 1210-20 represents a survey of classical physics and is recommended as an introduction to the discipline for liberal arts non-science majors.

1310-20-30 Fundamentals of Physics: Mechanics and Heat (4,4,4) First course in physics for engineers and liberal arts majors in mathematics and the physical sciences. Basic Engineering 1310-20 is equivalent for graduation purposes. Must be taken in sequence. Coreq: Math 1840-50-60. 3 hours of lecture, 2 hours of lab.

1318-28-38 Honors: Fundamentals of Physics: Mechanics and Heat (4,4,4), Honors course designed for physics and engineering physics majors and for qualified students from other disciplines. Must be taken in sequence. Coreq: Math 1840-50-60. 3 hours of lecture, 2 hours of lab.

1410-20-30 Nature of the Physical World (4,4,4) Introduction to course in concepts and principles of physical sciences which enables a student to establish a unified picture of the physical universe. In the first two quarters the principles of mechanics, electricity, and wave motion are developed and applied to such varied fields as solar systems, atomic and molecular behavior, radiation, weather and climate in the atmosphere and in the earth's crust, and to stellar and galactic phenomena. In the third term these principles are applied in more detail to topics as nuclear energy, energy, atmospheric and oceanic phenomena, drifting continents, and science and society. May be taken out of sequence with consent of instructor. 4 hours including demonstration lab.

1450 Physics of Athletic Activity (4) Principles of physics, particularly mechanics and heat, are introduced. Discussion of these ideas will emphasize their role in physical activities, particularly sport-related. Course topics include statics, equilibrium, linear and circular motion, momentum, force, work, and energy. 4 hours lecture and demonstration.

1810 Physics of Music (4) Production, transmission, and reception of sound waves. Frequency, intensity, timbre. Basic acoustics of instruments and voice. 4 hours lecture and demonstration.

2210-20-30 Elements of Physics (4,4,4) Mechanics, properties of fluids, heat. 2220—Electricity and magnetism, sound waves. 2330—Optics, atomic and nuclear physics, radiation protection. Basic physical principles, not required for pre-medical, pre-dental, pre-pharmacy, and pre-veterinary programs. Math 2310-20 or 4111-20-30 or Math 1840-50 (or equivalent honors courses). 3 hours of lecture and 3 hours of lab.

2240-50-60 Elements of Physics for Architects (4,4,4) Statics, dynamics, properties of fluids; coreq: Math 1840 or 1560. 2250—Heat and thermodynamics, sound and wave motion, optics; coreq: Math 1850 or 1560. 2260—Electricity and magnetism, alternate energy topics. Basic physical principles with applications particularly as applied in architecture. Limited to students in School of Architecture. Should be taken in sequence. 3 hours of lecture. 3 hours of lab.

2310-20-30 Fundamentals of Physics: Electricity, Waves and Optics, Modern Physics (3,3,3) Required of all engineering students. 2310—Electricity. 2320—Waves and Optics. 2330—Modern Physics. Must be taken in sequence. Prereq: 1310-20-30 or Basic Engineering 1310-20-30, or Physics 2310; coreq: Math 2310 or Math 2840-50. 3 hours of lecture, 2 hours of laboratory and recitation per week.


2510 Mechanics (5) Statics, kinematics, Newton's laws, momentum, energy, rotation. 4 hours of lecture-recitation. Prereq: Math 1840-50 or equivalent. 2510 satisfies prerequisites for Physics 2310, although physics major should also take Physics 1330 as a prerequisite.

2520-20-50 Mechanics (3,3,3) 3210—Statics, kinematics and dynamics of a particle; 3220—Statics, kinematics, and dynamics of systems of particles and rigid bodies; 3250—Lagrangian and Hamiltonian equations of motion. Must be taken in sequence. Prereq: 2320 and Math 2860.

3320 Heat and Thermodynamics (3) Concepts of temperature and heat; laws of thermodynamics; applications of laws to thermodynamic and chemical problems. Prereq: 2320 or 2330 and calculus; 3210-20 or instructor's consent.

3610-20 Electronics (3,3) Electronic components and circuits of interest to physicists. Prereq: 2310-20 or 2350 or Math 1310-20 in core 1338-28-38, 1310-20-30, and Engineering 1310-20-30. 2318—Electricity; 2328—Waves and Optics; 2338—Modern Physics. Coreq: Math 2610, 2840-50. 3 hours of lecture-discussion, 2 hours of lab per week.

3630 Nuclear Electronics Laboratory (3) Elementary circuits of interest in nuclear instrumentation are designed and built, and their characteristics are tested as a function of various parameters. Prereq: 381100.


3990 Junior Seminar (1-3) Topic of current interest. May be repeated for credit with consent of department.


4140 Elementary Nuclear Physics (3) General properties of nuclei, two-nucleon systems, nuclear forces, nuclear models, nuclear reactions, nuclear disintegration and beta-decay, nuclear spin and magnetism. Prereq: 3730 or 4120.

4160 Physical Acoustics (4) Considerations fundamental to detailed investigation of any branch of acoustics; propagation of acoustic waves in the in-fracosmic, the audible, the ultrasonic, and the hyper-sonic ranges of frequencies. 3 hours and 1 lab. Prereq: 3250-30-50.

4190-20 Electricity and Magnetism (3,3,3) Intermediate level electrostatics; steady and alternating currents; laws of electromagnetism; Maxwell's equations; radiations of electric and magnetic fields, induced currents and refraction; electromagnetic fields of moving charges. Must be taken in sequence. Prereq: 2320 or 2290 and 2850-50. 3 hours of lecture and 2 hours of lab.
4230-40 Modern Optics (4,4) 4230-Geometrical optics: reflection and transmission of light at a dielectric interface; paraxial theory of interfaces; lenses, mirrors, etc. 4280-40 Theoretical solid-state physics: photonics, superconductivity, and condensed matter physics.

5110-20-30 Atomic Physics Laboratory (3,3,3) Experiments in fundamental particle properties, photoelectricity, conduction of electricity through gases, atomic and molecular spectroscopy, X-ray. Prereq or coreq: 3710-20-30 labs.

5450-50 Experimental Nuclear and Radiation Physics (4,4) Interaction of charged particles and electromagnetic radiation with matter; theory and characteristics of various detectors; statistics of counting, radioactive properties, and techniques. Experiments illustrate recent techniques for investigating the nucleus and nuclear radiation. 1 hour of lecture, 6 hours of lab. Prereq: 2330.

4580 Principles of Non-Destructive Testing (3) Detection and characterization of discontinuities in materials by non-destructive physical measurements. Ultrasonic, electromagnetic, holographic, and penetrating radiation techniques. Prereq: 2310-20-30 or consent of instructor. (Same as Engineering Science and Mechanics 4580.)


4710-20-30 Introduction to Health Physics (3,3,3) Radioactivity, interaction of electromagnetic radiation with matter, radiation quantities and units, point kernel and extended sources, X-rays and gamma rays, neutron activation, interaction of charged particles with matter, stopping power, range-energy relations, counting statistics, shielding, dosimetry, waste disposal, criticality prevention, radiation biology, and ecology. Prereq: 3730.

4918-28-38-48-58-68-78-88-98 Honors: Research and Independent Study (1 hour each) Designed for excellent undergraduate majors. Provides opportunity for research and independent study with faculty guidance. Special consent of department required. Maximum credit 9 hours.

4990 Senior Seminar (1-3) Topic of current interest. May be repeated for credit with consent of department.

GRADUATE General requirements for the major's degree and doctoral program are found in the Graduate Catalog.

5000 Thesis

5002 Non-Thesis Graduation Completion (3-15)

5080 Graduate Research Participation (3)

5110-20-30 Introduction to Theoretical Physics (3,3,3)

5210-20-30 Advanced Modern Physics (3,3,3)

5310-20-30 Advanced Dynamics (3,3,3)

5410-20-30 Electromagnetic Theory (3,3,3)

5440 Experimental Methods of Infrared and Raman Spectroscopy (3)

5510-20-30 Advanced Thermodynamics and Statistical Mechanics (3,3,3)

5560-20-30 Mathematical Methods in Physics (3,3,3)

5640 Numerical Methods in Physics (3)

5720 Physics of Polymolecular Molecules (3)

5911-31 Special Problems in Teaching of Physics (3,3)

5990 Seminar (1,3)

6000 Doctoral Research and Dissertation

6110-20-30 Quantum Mechanics (3,3,3)

6210-20-30 Nuclear Structure (3,3,3)

6310 Electromagnetic Theory of Light (3)

6320 Special Relativity (3)

6330 General Relativity (3)

6420 Advanced Topics in Classical Theory (3)

6430 Advanced Topics in Quantum Theory (3)

6500-10 Electrical Conduction in Gases and Plasma Physics (3,3,3)

6610 Interaction of Electrons with Gases (3)

6620 Interaction of Electrons with Solids (3)

6630 Interaction of Radiation with Matter (3)

6710-20-30 Advanced Solid State Physics (3,3,3)

6810 Vibrational Problems in Molecular Spectra (3)

6820 Molecular Vibration-Rotation Theory (3)

**Political Science (801)**

Professors: T. D. Uings (Head), Ph.D. Iowa; R. S. Avery (Emeritus), Ph.D. Northwestern; D. H. Carlsd, Ph.D. North Carolina; L. S. Greene (Emeritus), Ph.D. Wisconsin; V. R. Irissell, Ph.D. Chicago; D. D. Nimmo, Ph.D. Vanderbilt; H. Pilla, Ph.D. Utah; N. M. Robinson, Ph.D. Syracuse; T. A. Smith, Ph.D. Ohio State; O. H. Stephens, Jr., Ph.D. Johns Hopkins; D. M. Wellborn, Ph.D. Texas.


Assistant Professors: W. Fierman, Ph.D. Harvard; P. K. Freeman, Ph.D. Wisconsin; D. F. Olshfski, Ph.D. Temple; J. M. Scheb, Ph.D. Florida; M. Winn, Ph.D. Washington.

ASSOCIATE DEAN FOR MINOR AFFAIRS

BUREAU OF PUBLIC ADMINISTRATION

Professor: T. D. Uings (Director), Ph.D. Iowa.

Associate Professor: M. R. Fitzgerald, Ph.D. Oklahoma.

Assistant Professors: P. K. Freeman, Ph.D. Wisconsin; D. F. Olshfski, Ph.D. Temple.


UNDERGRADUATE A major consists of 40 hours that must be distributed as follows:

(1) Eight hours at the 2000 level in political science or in political science courses not used for Triad credit but included on the History and Society list.

(2) Thirty-two hours in political science courses numbered at 3000 and above. Upper-division courses on the Triad list may be included. These 32 hours must include at least one course in each of the four areas of the discipline: United States Government and Politics/Public Administration; Comparative Government and Politics; International Relations; and Political Theory and Methodology.

A minor consists of 24 hours that must be distributed as follows:

(1) Eight hours at the 2000 level in political science or in political science courses not used for Triad credit but included on the History and Society list.

(2) Sixteen hours in political science courses numbered at 3000 and above. Upper-division courses on the Triad list may be included.

Honor in Political Science: The Honors concentration encourages highly motivated students to obtain a superior liberal education and more rigorous preparation in the discipline. Admission is selective. The Honors concentration is usually a two year program and consists of 56 hours, including:

1. Eight hours at the 2000 level in political science or in political science courses not used for Triad credit but included on the History and Society list.

2. Forty-eight additional hours in political science courses including:
   a. Political Science 5918-28-38
   b. Political Science 4918-28-38
   c. 24 additional hours numbered 3000 and above. These 48 hours must include at least one course in each of four areas of the discipline: United States Government and Politics/Public Administration; Comparative Government and Politics; International Relations; and Political Theory and Methodology. Upper-division courses on the Triad list may be included.

To graduate with Honors in Political Science, the student must have a GPA of at least 3.3 in Political Science, and an overall GPA of at least 3.0.


Asian Studies. See Cultural Studies.

Latin American Studies. See Cultural Studies.

Russian and East European Studies. See Cultural Studies.

2020 Introduction to Political Science (4) A variety of the basic substantive concepts and concerns of political science.

2510-20 United States Government and Politics (4,4) First course: the Constitution, federalism, separation of powers, campaigns and elections, parties, interest groups, the media, public opinion. 2520—Institutions: executive, legislative, judiciary, and bureaucracy at national, state, and local levels.

2518-28 Honors: United States Government and Politics (4,4) Honors course designed for students of superior ability and interest. Entrance into 2518 requires a B average; selected entering freshmen will be accepted on the basis of placement scores and high school record. A grade of B in 2518 is necessary for entrance into 2528.

2530 Tennessee Government and Politics (4)

2550 Governments in Knox County (4) Analysis of political institutions and processes in Knox County.

United States Government and Politics/Public Administration

3545 United States Constitutional Law: Sources of Power and Restraining (4) Analysis of judicial review, constitution, powers of Congress, and Congress, federalism, sources of regulatory authority, and constitutional protection of political rights. 2510-20 desirable as preceding courses.

or more hours of upper-division psychology courses.  

(Congestion in Academic Psychology)  
Designed to prepare students for advanced work in the professional college-level teaching areas of psychology.  
Prerequisites to the major include Psychology 2518-28 (or 2500 together with 2 courses from 2520-30-40), Mathematics 1540-50-60 or 1840-50-60, and Biology 1210-20-30. The major consists of Psychology 3150 or 4150, 8 hours of laboratory, field, or practicum courses (including 3-5 hours of upper-division courses of which 12 hours must be in courses at the 4000 level).  

Minor: A minor in psychology shall consist of Psychology 2500 and 20 additional hours from 2520-30-40 or 2518-28 which are approved by the psychology faculty. For each credit hour, a maximum 6 hrs.  

Maximum credit 16 hours. See Page 185.  

2540 Psychology of the Individual (4) Study of individuals, their behavior, and the progressive changes in behavior that occur in natural environments; introduction to personality, developmental and abnormal psychology. Recommended: 2500.  

3120 Social Psychology (4) General survey of theories, methods, and research findings on individual behavior in a social context. Prereg: 2500.  

3129 Social Psychology Laboratory (2) Prereg: 3120; recommended prereg: 3319.  

3140 Environmental Psychology (3) Influence of physical surroundings on individual experience, interpersonal relations, and social systems. Includes such topics as noise, temperature, crowding, air pollution, urban settings. Prereg: 2500 or equivalent recommended.  

3150 Psychological Statistics (4) Introduction to basic statistical methods used in behavioral sciences. Not open to students with credit in Statistics 2100, Mathematics 3000, Sociology 3920, or equivalent. Prereg: 2 years of high school algebra or one course in college algebra.  

3210 Learning and Thinking (4) Study of theoretical and empirical basis of learning and thinking. General psychology recommended.  

3219 Laboratory in Learning and Thinking (2) Prereg: 3210, recommended prereg: 3319.  

3220 Motivation and Emotion (4) Current theories, approaches, and their development.  

3240 Psychology of Music (4) Introduction to psychological study of musical forms and instruments. Theories of rhythm, melody, and their relation to the psychology of spoken language. Recommended prereg: 2520.  

3319 Introduction to Research in Psychology (3) Basic techniques of research in behavioral science, including experimentation and naturalistic observation.  

3500 Child Psychology (4) Origin and principles of behavior in infancy and childhood; physical, intellectual, social, emotional, and language behavior of the normal child. 2540 recommended. (Same as Educ Psych. 5550.)  

3559 Laboratory in Child Psychology (2) Field and laboratory studies of child development. Prereg: 3550 and recommended prereg: 3319.  

3618-26 Human Relations (3,2) Experience and study of human relations in dyads and small and large groups. S/NC.  

3650 Abnormal Psychology (4) Constitutional and environmental factors in abnormal behavior; neurotic and psychotic reactions. Technical discussion of diagnostic and therapeutic methods. 2540 recommended.  

3720 Ethology and Sociobiology (3) Basic concepts of the evolutionary approach to behavior with special reference to controversial issues in applications to psychology, the social sciences, and the arts.  

4101 Foreign Study (1-18) See page 185.  

4102 Off-Campus Study (1-18) See page 185.  

Psychology (830)  

Professors: W. W. Calhoun (Head), Ph.D. California (Berkeley); G. M. Burghardt, Ph.D. Chicago; A. G. Burstein, Ph.D. Chicago; J. F. Byrns, Ph.D. Pennsylvania; C. P. Cohen, Ph.D. Kansas; E. E. Curten (Emeritus), Ph.D. Columbia; H. J. Fine, Ph.D. Syracuse; S. J. Handler, Ph.D. Rochester; J. F. Lubar, Ph.D. Chicago; J. M. McAlone, Ph.D. Duke; E. O. Milton (Director, Learning Research Center) (Emeritus), Ph.D. Michigan; R. K. Newton, Ph.D. Tennessee; H. R. Pollio2, Ph.D. Michigan; N. L. Reach, Ph.D. Pennsylvania; F. Samejima, Ph.D. Keio (Japan); R. R. Shadrer, Ph.D. Tennessee; W. S. Verplank (Emeritus), Ph.D. Brown; R. G. Wagner, Ph.D. Washington; J. A. Waberly, Ph.D. Syracuse.  

Associate Professors: J. B. Barlow, Ph.D. Pennsylvania; E. A. Elliott, M.S. Tennessee; D. S. Freeman, Ph.D. Tennessee; M. G. Johnson, Ph.D. Johns Hopkins; J. Kandlakia, Ph.D. Tennessee; J. E. Lawler, Ph.D. North Carolina; K. A. Lawler, Ph.D. North Carolina; S. Loucks, Ph.D. Pennsylvania; J. W. Lounsbury, Ph.D. Michigan State; A. McIntyre, Ph.D. Yale; W. G. Morgan, Jr., Ph.D. Tennessee; M. J. O'Connell, Ph.D. Tennessee; R. S. Saudargas, Ph.D. Florida State; E. D. Sundstrom, Ph.D. Utah; C. L. Travis, Ph.D. California (Davis).  

Assistant Professors: N. W. Dye, Ph.D. Tennessee; J. W. Erickson, Ph.D. Tennessee; D. S. Freeman, Ph.D. Tennessee; R. S. Friedlander, Ph.D. Georgia State; K. R. Lounsbury, Ph.D. Michigan State; M. A. Pentez, Ph.D. Syracuse.  

Honorary  

*Alumni Distinguished Service Professor  

UNDERGRADUATE  

Major: Concentration in General Psychology Designed to give students a broad and current background in the science and application of psychological methods and principles. It is particularly suited for students who plan careers in areas such as business, law, and journalism, or who for other reasons desire a liberal education concentrating on psychology. Psychology 2500 and two courses from 2520-30-40 or 2518-28 are prerequisite to a major consisting of Psychology 3150 or 4150, at least 4 hours of laboratory, field, or practicum courses, and 32 more hours of upper-division psychology courses.  

(Congestion in Academic Psychology)  
Designed to prepare students for advanced work in the professional college-level teaching areas of psychology. Prerequisites to the major include Psychology 2518-28 (or 2500 together with 2 courses from 2520-30-40). Mathematics 1540-50-60 or 1840-50-60, and Biology 1210-20-30. The major consists of Psychology 3150 or 4150, 8 hours of laboratory, field, or practicum courses (including 3-5 hours of upper-division courses of which 12 hours must be in courses at the 4000 level).  

Minor: A minor in psychology shall consist of Psychology 2500 and 20 additional hours from 2520-30-40 or 2518-28 which are approved by the psychology faculty. For each credit hour, a maximum 6 hrs. Maximum credit 16 hours. See Page 185.  

2540 Psychology of the Individual (4) Study of individuals, their behavior, and the progressive changes in behavior that occur in natural environments; introduction to personality, developmental and abnormal psychology. Recommended: 2500.  

3120 Social Psychology (4) General survey of theories, methods, and research findings on individual behavior in a social context. Prereg: 2500.  

3129 Social Psychology Laboratory (2) Prereg: 3120; recommended prereg: 3319.  

3140 Environmental Psychology (3) Influence of physical surroundings on individual experience, interpersonal relations, and social systems. Includes such topics as noise, temperature, crowding, air pollution, urban settings. Prereg: 2500 or equivalent recommended.  

3150 Psychological Statistics (4) Introduction to basic statistical methods used in behavioral sciences. Not open to students with credit in Statistics 2100, Mathematics 3000, Sociology 3920, or equivalent. Prereg: 2 years of high school algebra or one course in college algebra.  

3210 Learning and Thinking (4) Study of theoretical and empirical basis of learning and thinking. General psychology recommended.  

3219 Laboratory in Learning and Thinking (2) Prereg: 3210, recommended prereg: 3319.  

3220 Motivation and Emotion (4) Current theories, approaches, and their development.  

3240 Psychology of Music (4) Introduction to psychological study of musical forms and instruments. Theories of rhythm, melody, and their relation to the psychology of spoken language. Recommended prereg: 2520.  

3319 Introduction to Research in Psychology (3) Basic techniques of research in behavioral science, including experimentation and naturalistic observation.  

3500 Child Psychology (4) Origin and principles of behavior in infancy and childhood; physical, intellectual, social, emotional, and language behavior of the normal child. 2540 recommended. (Same as Educ Psych. 5550.)  

3559 Laboratory in Child Psychology (2) Field and laboratory studies of child development. Prereg: 3550 and recommended prereg: 3319.  

3618-26 Human Relations (3,2) Experience and study of human relations in dyads and small and large groups. S/NC.  

3650 Abnormal Psychology (4) Constitutional and environmental factors in abnormal behavior; neurotic and psychotic reactions. Technical discussion of diagnostic and therapeutic methods. 2540 recommended.  

3720 Ethology and Sociobiology (3) Basic concepts of the evolutionary approach to behavior with special reference to controversial issues in applications to psychology, the social sciences, and the arts.  

4101 Foreign Study (1-18) See page 185.  

4102 Off-Campus Study (1-18) See page 185.  

Psychology 4103, 4107, 4109, and 4110 are courses of independent study and research taken by consent of instructor only. Course requirements, meeting times, and grading procedures are established by agreement between the student and a member of the psychology faculty. For each credit hour, a student may expect to spend from two to three hours per week for the quarter. No more than 24 credit hours may be earned in these courses 4103, 4107, 4109, 4110 combined.  

4103 Independent Study (1-18) May be repeated. Maximum credit 16 hours. See Page 185.  

4107 Experience in Individual Instruction (1-4) Experience as a proctor in individualized instruction. Prereg: Consent of instructor. May be repeated. Maximum 6 hrs.
4109 Undergraduate Research (1-16) May be repeated for credit to a maximum of 16 hours. Prereq: Consent of instructor.

4110 Undergraduate Participation in Community Research (1-16) May be repeated. Maximum credit 18 hours.

4115 Psychology of Sex Role Development (3) (Same as Educational and Counseling Psychology 4110).

4120 Topics in Social Psychology (4) Intensive analysis of selected research topics. Prereq: 3120 or Sociology 3130. (Same as Sociology 4120).

4150 Probability Models in Psychology (4) Introduction to use of probability models in theory of binary test items, differential psychology, comparison of different populations in specific psychological parameters. Individual choice behavior, and testing of psychological hypotheses in human and animal behavior; reliability theory and regression theory. Prereq: Math 1580 or 1860 or consent of instructor.

4230 Sensory Processes and Perception (4) Survey of sensory and perceptual processes with emphasis on audition and vision. Prereq: 3150; 2520 recommended.

4239 Laboratory in Sensory Processes and Perception (2) Prereq: or coreq: 4230.

4460 Organizational-Industrial Psychology (3) Cannot be taken for credit by students who have credit for Management 3460. (Same as Management 4460.)

4510 Personality Theories (4) Prereq: 3650.

4520 Personality and Social Systems (4) Prereq: 2540.

4610 Group Processes (3) Study and experience of theory and techniques of group processing and facilitation. Those participating in 4610 are expected to continue into 4620 and 4630. Prereq: 3616-26 and consent of instructor.

4620-30 Seminar in Group Processes (3,3) Didactic and laboratory experience for those qualified for further training as group facilitators. Prereq: 4610 and consent of instructor.

4640 Psychological Tests and Measures (4) Theory and construction of individual and group measures; survey of various methods of assessment of intelligence, personality, special abilities, and educational achievement. Prereq: 3150.

4850 Symbolic Processes (4) Logic of signs and symbols; directed and associative thinking; memory, problem solving, and concept formation; nature, use, and development of language. Prereq: 3210 or consent of instructor.

4860 The Psychology of Language (4) Theories and descriptions of phonology, syntax, and semantics as applied to psychology and related disciplines. 4650 or linguistics background recommended.

4870 Cognitive Development (4) Theory and research on development of language and thinking in children and adolescents. Prereq: 3210 or 3650.

4710 Physiological Psychology (4) Nervous system and physiological correlates of behavior. Prereq: One year of biology or zoology and Psychology 2520.

4719 Physiological Psychology Laboratory (4) Laboratory studies of nervous system and physiological correlates of behavior. Coreq: 4710.

4720 Comparative Animal Behavior (4) Methods and principles. (Same as Zoology 4720.)

4729 Comparative Animal Behavior Laboratory (4) Laboratory and field studies. Coreq: 4720. (Same as Zoology 4729.)

4750 Evolution and Ontogeny of Social Behavior (4) Genetic, evolutionary, ecological, and developmental processes as they apply to social organization and dynamics of vertebrates. Prereq: Consent of instructor.

4770 Psychology and the Law (4) Psychological aspects of the legal system. Prereq: Junior Standing.
Religious Studies (863)

Professors:
C. H. Reynolds (Head), Ph.D. Harvard; F. S. Lusby, B.D. Colgate (Rochester); D. L. Dungan, Th.D. Harvard; W. L. Humphreys, Th.D. Union; D. E. Linge, Ph.D. Vanderbilt; R. V. Norman, Jr, Th.D. Colgate (Rochester); D. L. Dungan, Th.D. Union.

Assistant Professors:
J. L. Fitzgerald, Ph.D. Chicago, M. W. Harris, Ph.D. Harvard; M. L. Levering, Ph.D. Harvard; L. M. Tober, Ph.D. Vanderbilt; Adjunct, J. O. Hodges, Ph.D. Chicago; T. Patton, M.A. Yale.

UNDERGRADUATE
Major: Two options are available in religious studies. One religious studies 2000-level course is a prerequisite for either option, and Religious Studies 4650 is required in both options.

The basic option consists of 36 hours of courses at the 3000 level or above (including 4650) with a minimum of 12 hours selected from courses listed below under History and Literature of Religions and a minimum of 12 hours selected from courses listed below under Problematic of Religion. Majors are invited to discuss their programs with a member of the religious studies faculty.

The student-initiated option is to be specified in an individual program defined in consultation between each student and the Department of Religious Studies. At least 36 hours of courses at the 3000 level or above (including 4650) are required for this major. Students whose educational goals would best be served by such a major are encouraged to construct their own plans of study as early as possible. The student-initiated option is recommended for persons who plan to pursue graduate study in religion or a closely related field. Further details are available in the department office, located in 501 McClung Tower, or from any member of the religious studies faculty.

History and Literature of Religion:
3060-70-80, 3110, 3120, 3210-20-30, 3270, 3311-12, 3330-40, 3340, 3341-50, 3510-20, 3550, 3560, 3565, 3600, 3660, 3671, 3672, 3680, 3710, 3711, 3713, 3770, 4220, 4210, 4310, 4450, 4480, 4570, 4810-20-30.

Problematic of Religion:
3011, 3021, 3600-10, 3611, 3620, 3690, 3715, 3720, 3740, 3750, 3760, 3790, 4101, 4102, 4103, 4111-21, 4370-71, 4410, 4450, 4460, 4810-20-30, 4850, 4900, 4950.

Minor: Twenty-four hours of courses at the 3000 level and above. It is suggested that students minoring in religious studies discuss their programs with a member of the department faculty.

1010 Introduction to Religions (4) Introduction to living religious traditions in a variety of cultural settings.
1020 Current Themes in Religious Studies (1) Introduction to the study of religion through consideration of selected contemporary themes, problems or controversies. Variable content. May be repeated for a maximum of 3 credit hours.
2610 Introduction to Religion (4) Introduction to the study of religion through selected historical traditions, East and West.
2611 Introduction to Ancient Near Eastern Religions (4) Introduction to study of religion through selected ancient Near Eastern and Mediterranean traditions.
2612 Issues in Religious Studies (4) Introduction to study of religion through selected religious problems and alternatives.

HISTORY AND LITERATURE OF RELIGION
3060-70-80 History of Western Religious Thought and Institutions (3,3,3) 3060—First century to 5th century. 3070—5th century to 10th century. 3080—10th century to 12th century. 3090—12th century to 15th century. 3091—15th century to 17th century. 3092—17th century to 18th century. (Same as History 3060-70-80.)
3110 Ancient Israel's Historical and Religious Traditions (4) Political, religious and cultural history and traditions of ancient Israel from earliest period to Exile.
3120 The Rise of Judaism (4) Political, religious, and cultural history and traditions of exilic and post-exilic Israel and early Judaism through 135 A.D. Later literature of Old Testament, Apocrypha, and Dead Sea Scrolls.
3121 Religious Traditions of Ancient Egypt (4) Religious and cultural traditions of ancient Egypt from Old Kingdom to Hellenistic period.
3131 Religious Traditions of Ancient Mesopotamia (4) Religious and cultural traditions of ancient Sumerians, Babylonians, and Assyrians.
3140 Early Greek Mythology (3) (Same as Classics 3210.)
3220 Greek Mythology in the Classical Period (3) (Same as Classics 3220.)
3230 Roman Mythology (3) (Same as Classics 3230.)
3270 Russian Philosophical and Theological Thought (4) (Same as Russian 3270 and Philosophy 3270.)
3511-12 Images of Jesus (4,4) Introduction to ancient and modern portrayals of Jesus, understood within their cultural milieus. Must be taken in sequence.
3340 Judaism in the Common Era. (3) Survey of literature and traditions of Judaism in the Common Era.
3411-12 The Reformation (3,3) 3411—Renaissance, 3412—Reformation, Counter Reformation, and Wars of Religion, 1517-1618. (Same as History 3411-12.)
3440 Religion of Primitive Peoples (3) (Same as Anthropology 3440.)
3490 African Religions (4) Examination of religions of the indigenous peoples of Africa, including a study of functions of myth, rites, and symbols and an inquiry into how certain political movements in Africa have been and are influenced by religious sensibilities. (Same as Anthropology 3490 and Black Studies 3490.)
3510-20 Religion in America (4,4) Not a survey but a representative profile of religion in America, past and present, organized each quarter around theme or problem. May be taken independently.
3560 Religion and Racism in America (4) Historical and critical survey of role played by religion in supporting and criticizing American racial injustice. (Same as Black Studies 3560.)
3560 Black Religion in America (4) Historical and critical examination of formation and development of black religious thought and institutions in America. (Same as Black Studies 3560.)
3650 Philosophy and Religion in India (4) (Same as Philosophy 3650.)
3660 Buddhist Philosophy and Religion (4) (Same as Philosophy 3660.)
3671 Religion and Philosophy in China (4) (Same as Philosophy 3671.)
3672 Religion and Society in Japan (4) (Same as Sociology 3672.)
3680 Islam (4) Origin and early history; rapid spread as a world faith; development of Muslim theology and culture, interaction with modern cultures.
3710 Literature of the English Bible (3) (Same as English 3710.)
3711 Literature of the English Bible (3) (Same as English 3711.)
3770 Zen Buddhism (3) Examination of historical, philosophical, and meditational materials of Zen. Special emphasis upon Zen theories of emptiness, no-mind, sudden enlightenment, and the Koan.
4200 Classical Indian Systems of Philosophy: The Moksha Tradition. Basic writings and philosophic problems of the traditions of Samkhya, Yoga, and Vedanta. Prerequisite: Religious Studies 3650 or 3660. (Same as Philosophy 4200.)
4210 Topics in Ancient Israelite and Ancient Near Eastern Religions (4) (Same as Classics 3110) or consent of instructor. May be repeated once for credit.
4310 Jesus and Paul Compared (4) Jesus’ teaching and activity in context of first-century Palestinian Judea...
4111-21 Modern Religious Philosophies (4,4) Exam-

4103 Independent Study (1-16) See page 185.

4114-15 Feuerbach, Marx, Nietzsche, Russell, and

Critical consideration of influences of Hindu and

study of literature.

4370 Theoretical Issues in Medical Ethics (4) (Same as Philosophy 4370.)

4770-80-90 Intermediate Sanskrit (4,4,4) Introduction to

grammar of classical Sanskrit and reading of an-
nnotated selections of epic and classical Sanskrit. 
(Same as Asian Studies 4770-50-60.)

4770-80-90 Intermediate Sanskrit (4,4,4) Advanced

grammatical constructions and reading of epic and
classical religious and narrative materials (e.g.
Bhagavad Gita, Lokavijaya, Ramayana,
Katha-sahasravara), Prereq: 4760 or consent of instruc-
tor. (Same as Asian Studies 4770-80-90.)

4840 Readings in Selected Language Related to

Religious Studies (3-4) Prereq: Consent of instructor. 
May be repeated. Maximum credit 12 hours.

Romance Languages

Professors:

E. B. Arretre, Ph.D. California (Berkeley); C. W.
Cobb, Ph.D. Tulane; J. C. Elliott, M.A. Illinois; W. H.
Hoffin, Jr. (Head), Ph.D. Florida State; T. B. Irving
(Emeritus), Ph.D. Princeton; F. D. Maurino (Emeritus),
Ph.D. Columbia; M. Petrovska, Ph.D. Kentucky; J. O.
Swain (Emeritus), Ph.D. Illinois; A. M. Vazquez-Sig, 
Ph.D. Minnesota; G. E. Wade (Emeritus), Ph.D. Ohio 
State; A. H. Wallace, Ph.D. North Carolina.

Associate Professors:

W. F. Byess (Emeritus), Ph.D. Wisconsin; R. M. E.
DeRycke, Ph.D. Illinois; M. H. Handelsman, Ph.D.
K. D. Levy, Ph.D. Kentucky; C. R. M. Pinsky, 
Ph.D. California (Berkeley); Y. M. Washburn, Ph.D.
North Carolina.

Assistant Professors:

E. J. Claxton, Ph.D. California (Berkeley); E. J.
Campion, Ph.D. Yale; D. M. DiPuccio, Ph.D. Kansas; 
C. K. Duncan, Ph.D. Illinois.

Instructors:

C. G. Cox, M.A. Tennessee; M. T. Rabot, Cert. de 
Lc. Poitiers; P. A. Wilson, M. A. Tufts.

Placement Examination: Students who have had or more year's work in French, Italian, or

Spanish in high school or one year's work in

another college should register in French or

Spanish 2110 or in French, Italian, or Spanish

2510. During the first week of the quarter a

placement test will be given, and students will

be advised if a change in registration is

indicated.

Proficiency Examinations: Students who have

acquired a knowledge of French, Italian,

Spanish through private study, tutoring, 

participation in French, Italian, or Spanish before being 

accepted for a major's program, or (2) qualify

by demonstrating, during the first week of the

quarter, not less than a minimum ability

equivalent to a grade of middle C on the

current examination in French or Spanish 

2130 or French, Italian, or Spanish 2520. 

Advanced students should take examinations

under more than one instructor, and must have an adequate knowledge of the language. 

Latin American Studies. See Cultural 

Studies.

Certification for Teaching French or Spanish in 

Tennessee

Consult Certification Clerk, Room 212

Clayton Education Building.

French (405)

Major: Consists of 36 hours in courses 

numbered 3110 or above. Students whose primary interest in literature must have the 

following courses (or their equivalent, with 

consent of the department): 3110-20-30 or 

3810-20-30 (aspects or survey of literature, 9 

hours); 3410 or 3420 or 3430 (intermediate 

comparative study, 3 hours); 4210 (phonetics, 3 hours); 4220 or 4230 (advanced 

grammar, 3 hours); 9 hours of literature at the 

4000 level; 9 additional hours selected from 
courses in literature, language, or civilization. 

Students whose primary interest is language must have the following courses (or their
Cultural forces which produced the French nation; art, literature, architecture, music under Francis I; emergence of classicism; and the culture. 2620—Arts of the Age of Reason; trends in French culture during the Age of Revolution and Age of Romanticism, in bourgeois art of 19th century, and in modern movements of surrealism, dadaism, and pop art. Consent of instructor. 3000 French Transition (3) Development of linguistic skills necessary for satisfactory work in courses above 3000. Recommended for students who feel they would benefit from additional training beyond 2130 and 2520 in basic skills of reading, speaking, and writing French.

3100-20-30 Elements of French for Upper-Division and Graduate Students (3,3,3) Elements of language, elementary and advanced readings. Open to graduate students preparing for language examinations, and upper-division students desiring reading knowledge of the language. Undergraduate credit not for credit for those having had 1110-20-30, 1510-20, or equivalent. No auditors.

3110-20-30 Aspects of French Literature (3,3,3) Study (not usually chronological) of various periods of the literature; emphasis upon the genres (poetry, novel, drama) varies. Prereq: 2130, 2520, or equivalent. Recommended for literature majors.

3210-20-30 French Literature in English Translation (3-4,3-4,3-4) 3210—From the origins through the Renaissance; life of St. Alexis; Song of Roland; Romance of the Rose, Rabelais, Du Bellay. 3220—The Classical period and the Age of Reason; The great dramatists, La Princesse de Clèves, Voltaire, Rousseau. 3230—The 19th and 20th centuries: Balzac, Flaubert, Proust, Camus. No change in credit hours after add deadline. Option of 4 hours credit must present appropriate amount of extra work above that required for 3 hours.

3240 Women in French Culture (4) Role of women in shaping French history and culture. Feminists (George Sand); royal mistresses (Mme. de Maintenon); intellectuals (Mme. de Stael); actresses (Sarah Bernhardt); scientists (Marie Curie). Same as Women Studies 3240.


3410-20-30 Intermediate Composition and Conversation (3,3,3) Grammatical analysis of modern French prose; review of grammatical principles and their application in translation from English to French, both written and oral; exercises in free composition. Prereq: 2130 or 2520.

3450 Composition and Conversation for Careers in Business (3) Analysis of contemporary French language as it applies to business transactions. Understanding and composing business letters; oral communication; and basic elements of French Culture related to good business practices. Only one of the courses, 3430 or 3450, may be applied toward the major. Prereq: 3410-3420 or permission of instructor.

3810-20-30 Survey of French Literature (3,3,3) Chronological study of various genres (poetry, novel, drama) by periods, from medieval period to the present. Prereq: 2110-30-20:30. May be in place of 3110-20-30. Prereq: 2130, 2520 or equivalent.

4001-02-03 Introduction to Consecutive and Simultaneous French Translation (3,3,3) 4001—Oral translation into English; 4002—Consecutive Translation and oral and written French. 4003—Simultaneous Translation to and from French. Training of students with intermediate or advanced knowledge of French for consecutive and simultaneous oral translation from French into English, and vice versa, on a variety of topics consent of department and Graduate Students. 4030-3430 or 4040 may be applied toward the major. Prereq: 3410-3420 or permission of instructor.

4040-20-30 French Literature of the Seventeenth Century (3,3,3) Prereq: 2130, 2520, or equivalent.

4150 Theatrical French (3-3) Performance in one or more French plays. May be repeated for credit with consent of department. Prereq: 2130, 2520, or equivalent, and consent of instructor.

4160-70-80 Advanced Conversation (2,2) Intensive training in prepared and spontaneous conversations. Subjects range from travel and current events to literature and aspects of national culture. Prereq: Completion of 9 hours of courses on 2000 level.

4210 Phonetics (3) Prereq: 2130, 2520, or equivalent.

4220-30 Advanced Grammar (3,3) Prereq: 2130, 2520, or equivalent.

4250 Introduction to Descriptive Linguistics (3) Phonetics and phonemics, morphology and syntax. Types of languages, linguistic groups, dialects, and dialect geography. Application of descriptive linguistics—field linguistics, dialect study; its practical use in learning languages and in language teaching. Introduction to transformational grammar. Prereq: 9 hours of upper-division English or 9 hours of upper-division courses in a modern or ancient language (exclusive of German and French 3010-2030, courses in literature in translation, and general courses in Latin and Greek required to knowledge of these languages), or consent of department. (Same as German, Russian, Spanish, and Linguistics 4250.)

4260 Introduction to Historical and Comparative Linguistics (3) Same as German, Russian, Spanish, and Linguistics 4260.

4270 Romance Linguistics (3) Development of classical Latin through vulgar Latin into major Romance languages. (Same as Spanish and Linguistics 4270.)

4310-20-30 French Literature of Eighteenth Century (3,3,3) Prereq: 2130, 2520, or equivalent.

4350-60-70 Medieval French Literature (3,3,3) Medieval works in modern French texts. Prereq: 2130, 2520, or equivalent.

4340-20-30 French Civilization (3,3,3) Prereq: 2130, 2520, or equivalent.

4610 Readings in French Literature (3)

4710-20-30 French Literature of Twentieth Century (3,3,3) Prereq: 2130, 2520, or equivalent.

GRADUATE General requirements for the master's program are given in the Graduate Catalog.

5000 Thesis

5002 Non-Thesis Graduation Completion (3-15)

5011 Techniques in Literary Analysis (3)

5101 Foreign Study (1-12)

5102 Off-Campus Study (1-12)

5103 Independent Study (1-12)

5110-20-30 Old French (3,3,3)

5121 College Teaching of Romance Languages (3)

5161-8-71 Bibliography and Methods of Research (1,1,1)

5190-20-30 French Literature of the Sixteenth Century (3,3,3)

5211-21-31 Seventeenth Century French Literature (3,3,3)

5241 French Theatre of the 18th and 19th Centuries (3)

5310-30-30 French Directed Readings (3,3,3)

5350-60-70 The Philosophes (18th Century) (3,3,3)

5410-20-30 The French Novel (3,3,3)

5450-60 Lyric Poetry of Nineteenth Century (3,3,3)

232 College of Liberal Arts
5470 Baudelaire and the Symbolists (3)
5610-20-30 Trends in Contemporary French Literature (3,3,3)
5650-60 Advanced Syntax and Stylistics (3)
5670 Problems in Linguistics: Romance Languages (3)
5710-20-30 Seminar in French Literature (3,3,3)
5910 Literary Criticism: Foundations of Romance Criticism (3)

**Italian (584)**

**UNDERGRADUATE**

Major: Consists of 36 hours of courses numbered 3110 or above, to include the following (or equivalents, with consent of the department): 3410-20-30 (advanced grammar, composition, and conversation, 9 hours); 3110-20-30 or 3510-20 (aspects of Italian literature, at least 8 hours); 9 hours of literature at the 4000 level; 10 additional hours selected from courses in literature, language, or civilization. Students may substitute Foreign Study (4101) for certain courses; students with special interests, such as comparative literature, may make certain substitutions with consent of the department.

Minor: Consists of 24 hours in courses numbered 3110 or above, to include the following: 3410-20-30 (advanced grammar, composition, and conversation, 9 hours); 3110-20-30 or 3510-20 (aspects of Italian literature, at least 8 hours); 7 additional hours selected from courses in literature, language, or civilization.

Courses in Italian literature in English translation may not be counted toward either a major or a minor.

1110-20-30 Elementary Italian (3,3,3) Must be taken in sequence. Three class meetings and 2 laboratory periods.

1510-20 Elementary Italian (4,4,4) Must be taken in sequence. 4 class meetings and 2 laboratory periods.

2110-20-30 Intermediate Italian (3,3,3) Must be taken in sequence. Three class meetings and 2 laboratory periods.

2510-20 Intermediate Italian (4,4,4) Must be taken in sequence. 4 class meetings and 2 laboratory periods.

2610-20-30 Paremio Italian Culture (4,4,4) 2010—Survey of Italian culture from Roman era through the 17th century. 2020—Survey of Italian culture in the 18th, 19th, 20th centuries.

3110-20-30 Aspects of Italian Literature (3,3,3) Prereq: 2130, 2520, or equivalent. Recommended for literature majors.

3310 Italian Literature in English Translation (3-4) Sicilian School, the Florentine School, Dante, Petrarch, Boccaccio, Machiavelli, Ariosto, Tasso. No change in credit hours after deadline. Option of 4 hours credit must present appropriate amount of extra work above that required for 3 hours.

3340 The Italian Cinema (3) Italian film masterpieces of such directors as Rossellini, DeSica, Fellini, Visconti, literature and socio-political relations; the Italian image in America.

3410-20-30 Advanced Grammar, Composition, and Conversation (3,3,3) Laboratory work, drills, and tapes. Prereq: 2130, 2520, or equivalent.

3510-30 Aspects of Italian Literature (4,4,4) Prereq: 2130, 2520, or equivalent. Recommended for literature majors.

4010-20 Italian Drama in English Translation (3,4,3-4) 4010-La commedia dell'arte and major works of Machiavelli, Metastasio, Alfieri, Goldoni. 4020—20th-century theatre: operatic drama, the Grottesco, Pirandello, De Filippo, Fratt. No change in credit hours after deadline. Option of 4 hours credit must present appropriate amount of extra work above that required for 3 hours.

4050-60-70 Dante and Medieval Culture (3,3,3) Readings and lectures in English for students majoring or minoring in other departments. Readings, reports, and term papers in Italian for students majoring or minoring in Italian. (Same as Comparative Literature 4050-60-70.)

4101 Foreign Study (1-16) See page 185.

4220 Petrarch (3) Prereq: 3130, 3520, or equivalent.

4230 Boccaccio (3) Prereq: 3130, 3520, or equivalent.

4410-20 Literature of the Rinascimento (3,3) From Pulci to Tasso, the Quattrocento and the Cinquecento. Prereq: 3130, 3520, or equivalent.

4530 The Modern Novel (3) Prereq: 2130, 2520, or equivalent.

4610 Contemporary Theatre (3) Prereq: 2130, 2520, or equivalent.

4620 Contemporary Poetry (3) Prereq: 2130, 2520, or equivalent.

4630 Contemporary Prose (3) Prereq: 2130, 2520, or equivalent.

4760 Italian Folklore (3) Folk arts, music, traditions, rituals, and lore of Italy from Middle Ages to present. (Same as Anthropology 4760.)

**GRADUATE**

See Graduate Catalog for requirements.

**5010 Techniques in Literary Analysis (2)**

5101 Foreign Study (1-12)

5102 Off-Campus Study (1-12)

5161-1-72 Bibliography and Methods of Research (1,1,1)

5610-20-30 Readings In Italian Literature (3,3,3)

5710-20-30 Seminar in Italian Literature (3,3,3)

**Portuguese (811)**

**UNDERGRADUATE**

Major: A minor only is offered in Portuguese, consisting of 8 hours in the 3510-20 sequence (aspects of Portuguese literature) and 18 hours in the 4310-20-30 sequence (directed readings in Brazilian and Portuguese literature, a course of variable content which may be repeated for credit).

Students may substitute Foreign Study (4101) for any of the above courses.

1510-20 Elementary Portuguese (4,4,4) Must be taken in sequence. 4 class meetings and 2 laboratory periods.

2510-20 Intermediate Portuguese (4,4,4) Must be taken in sequence. 4 class meetings and 2 laboratory periods.

3000-01 Advanced Portuguese (3,3,3) An accelerated class for beginning students of Portuguese who already have a strong background in Spanish, French, or Italian. Conversation and reading with a quick survey of grammar. Introduction to the culture and literature of Portugal and Brazil. Prereq: Permission of instructor.

3510-30 Aspects of Portuguese Literature (4,4,4) Prereq: 2520 or equivalent. Recommended for literature majors.

4101 Foreign Study (1-16) See page 185.

4310-20-30 Directed Readings in Brazilian and Portuguese Literature (3,3,3) May be repeated with consent of instructor.

**GRADUATE**

5101 Foreign Study (1-12)

5102 Off-Campus Study (1-12)

5103 Independent Study (1-12)

**Spanish (924)**

**UNDERGRADUATE**

Major: Consists of 36 hours in courses numbered 3310 or above. Students whose primary interest is literature must have a minimum of 9 hours chosen from the following sequences: 3110-20-30 (aspects of Spanish literature, 9 hours); or 3310-20-30 (aspects of Spanish American literature, 9 hours); or 3410 plus 3420 or 3430 (composition and conversation, 6 hours); or 4210 (phonetics, 3 hours); 9 hours of literature at the 4000 level; 3 hours of civilization; sufficient additional hours selected from courses in literature, language, or civilization to fulfill the major requirement.

Students whose primary interest is language must have a minimum of 9 hours chosen from the following sequences: 3110-20-30 (aspects of Spanish literature, 9 hours); or 3310-20-30 (aspects of Spanish American literature, 9 hours); or 3410 (composition and conversation, 3 hours); or 4210 (phonetics, 3 hours); 9 hours selected from courses 3420-30 (composition and conversation), 4220-30 (advanced grammar, or 4250-60-70 (linguistics); 3 hours of literature at the 4000 level; 3 hours of civilization; sufficient hours selected from courses in literature, language, or civilization to fulfill the major requirement.

With either of the above options, students may substitute Foreign Study (4101) for certain courses; students with special interests such as comparative literature, may make certain substitutions with consent of the department.

Minor: Consists of 24 hours in courses numbered 3110 or above, including a minimum of 8 hours chosen from the following sequences: 3110-20-30 (aspects of Spanish literature, 9 hours); 3310-20-30 (aspects of Spanish American literature, 9 hours); or 3410 (composition and conversation, 3 hours); 4210 (phonetics, 3 hours); sufficient additional hours selected from courses in literature, language, or civilization to fulfill the minor requirements. Students pursuing a minor are strongly advised to consult with a departmental advisor.

Courses which are the equivalents of the foregoing may be substituted with consent of the department; but courses in Spanish literature in English translation may not be counted toward either a major or a minor.

1110-20-30 Elementary Spanish (3,3,3) This sequence strongly recommended for students intending to take upper-division courses in Spanish. Must be taken in sequence. 3 hours and 2 labs.

1510-20 Elementary Spanish (4,4,4) Must be taken in sequence. 4 class meetings and 2 laboratory periods.

2110-20-30 Intermediate Spanish (3,3,3) This sequence strongly recommended for students intending to take upper-division courses in Spanish. Must be taken in sequence. 3 hours and 2 labs.

2510-20 Intermediate Spanish (4,4,4) Must be taken in sequence. 4 class meetings and 2 laboratory periods.

2518-28 Honors: Intermediate Spanish (4,4,4) Honors courses for students of superior ability in Spanish. Incoming freshmen are admitted on the basis of a diagnostic test, high school average, and performance on the ACT. Class held to a maximum of 15 so that each student may receive more attention. Students follow enriched program with continuous emphasis upon speaking ability and with special emphasis on reading, including literary selections. Must be taken in sequence. Students who earn an A or B in 2528 automatically receive credit for Spanish 3300. Prereq: Spanish 1110-20-30. 1510-20, 1518-28, or equivalent.
Spanish
See Romance Languages.

Speech and Theatre


Assistant Professors: R. S. Ambler, Ph.D. Ohio State; L. J. DeCuir, M.F.A. Wisconsin; C. J. Vail, C. M. Kaseta, M.F.A. Brandeis; R. T. Church, Ph.D. Temple University; L. C. Harman, M.F.A. Wisconsin; P. E. Schnait, M.A. University of Illinois (Chicago).

UNDERGRADUATE

Major: The major, speech and theatre, offers two areas of concentration as follows:

Concentration in Theatre: Theatre 1200-30-40 is prerequisite to a concentration which consists of Theatre courses numbered 2000 and above, 12 hours of which may be cognate areas approved by the department and 24 of which must be in courses numbered 3000 and above.

Concentration in Speech and Theatre: The major, speech and theatre, consists of Theatre 1201-21, Theatre and Speech 1441 are prerequisite to a concentration which consists of two courses from Speech 2021, 2311 (or 3551 by permission), 2331, 2351, and 30 additional hours in speech courses numbered 2000 and above, 12 hours of which may be cognate areas approved by the department and 24 of which must be in courses numbered 3000 and above.

See Romance Languages.

3211 Public Speaking (4) Basic principles of speech preparation and delivery.
3311 Argumentation and Debate (4) Recommended: 2311.
3251 Interpersonal Communication (4) Communication theory in its application to self-talk, casual communication, structured communication, and intimate communication.
3261 Business and Professional Speaking (4) Basic principles of oral communication within organizations; listenership skills, interviewing techniques, formal presentation (including technical papers and reports), conference planning, selecting and employing visual aids, informal communication systems, communicating corporate image, and other aspects of business and professional communicating.
2410-20-30 Intercollegiate Forensics (1,1,1) Supervised work in tournament debate and individual events. Prereq: Consent of instructor.
3011 Persuasion (4) Persuasive theory: psychological, sociological, and cultural dimensions.
3021 Group Communication (4) Communication theory in its application to small groups, especially discussion groups involving evaluation and non-verbal communication, business communication.
3031 Non-verbal Communication (4) Exploration of non-verbal communication from human communication perspective, usage and coding of non-verbal behavior, research strategies and theoretical approaches.
3041 Communication Projects (1-4) Intensive application of communication theory covered in other Speech Communication courses. Includes the areas of persuasion and interpersonal communication. May be repeated. Maximum 4 credit hours.
3601 Fundamentals of Organizational Communication (4) A study of communication behavior, theory and skills in organizational settings; upward, downward and lateral communications in dyads and groups.
3410-20-30 Intercollegiate Forensics (1,1,1) Continuation of 2410-20-30. Prereq: Consent of instructor.
3551 Persuasive Speaking (4) Speech forms; principles and practice of speech composition.
4222 Advanced Argumentation and Debate (4) Prereq: 2251 or consent of instructor.
4461 Quantitative Research Methods in Speech Communication (4) Designing experiments; planning field studies; using statistical analysis.
4541 Rhetorical Theory and Criticism (4) Survey of Western rhetorical theory; contemporary approaches to criticism of public address.
4560 Rhetoric of the Women's Rights Movement (4) Historical and critical study of public address. Prereq: 2331 or consent of instructor.
4691 British Oratory (4) Historical and critical study of British public address.
4591 Persuasive Uses of Imaginative Literature (4) Topics in social and political uses of novels, plays and poems.
4811 Advanced Phonetics (4) Phonetic aspects of contemporary dialects of the English language. Prereq: Consent of instructor.
4900 Studies in American Public Address (4) May be repeated. Maximum credit 12 hours.
4999 Colloquium in Speech Communication (1) May be repeated for credit.

GRADUATE

5140 Communications Theory (3)
5210 Topics in Group and Interpersonal Communications (3)
5220 Quantitative Projects in Speech Communications (3)
5440 Organizational Communication (3)
5550-50-70 Studies in Persuasion (3,3,3)
5750-50-70 Studies in Rhetoric (3,3,3)
5911 Directing the Forensic Program (4)

Theatre (976)
1310 Introduction to Theatre (4) Theatre as experience, materials and techniques.
1320-30-40 Fundamentals of Play Production (3,3,3) 1320—Play analysis. 1330—Arts of performance (acting and directing) 1340—Physical production (technique and design).
2111-21 Acting (4,4) 2111—Realism: readings, improvisations and scene study. 2121—Extended Realism; voice and movement for the stage, basic rehearsal techniques. Prereq: Consent of instructor for 2121. Production participation required.
2111-21 Stagecraft (4,4) 2211—Techniques of scene construction. 2221—Fundamental methods of stage lighting. Production participation required.
2231 Basic Stage Costuming (4) Costume design and construction; basic theory and technique. Production participation required.
3121-22 Advanced Acting (4,4) Historical styles of acting. 3121-Renaissance. 3122—17th and 18th centuries. Prereq: Consent of instructor. Production participation required.
3151 Theatre Practicum: Performance (1-4) Supervised work on departmental productions. Available for credit only to theatre majors or with consent of department. Prereq: Consent of instructor. May be repeated. Maximum credit 4 hours.
3152 Theatre Practicum: Production (1-4) Supervised work on departmental productions. Available for credit only to theatre majors or with consent of department. Prereq: Consent of instructor. May be repeated. Maximum credit 4 hours.
3153 Summer Repertory Productions (1-4) Supervised work on summer repertory productions. Available only to members of summer company by consent of instructor. May be repeated. Maximum 4 credit hours.
3214-15 Technical Theatre (4,4) Special techniques in scenery and property construction; stage management; problems in basic technical theatre practice. Must be taken in sequence. Prereq: 2211-21 or consent of instructor.
3221-22 Introduction to Scene Design (4,4) 3221—Problems of stage design for: character, set, form, movement, scale, and style; rudiments of rendering and sound-planning preparation. 3222—Play interpretation through scenic means; setting as environment for dramatic action; rudiments of model making. Must be taken in sequence.
3263-83 History of the American Theatre (3,3,3) Development of the theatre as social institution in American life. 3262—From its beginnings to 1900. 3263—From 1900 to present.
3261-22 Introduction to Lighting Design (4,4) 3261—History and basic elements of light. 3262—Techniques of scene lighting, elementary theory; problems in realistic lighting. Must be taken in sequence. Prereq: 2211-21 and consent of instructor.
3451-52 Play Directing (4,4) Must be taken in sequence. Prereq: 2211.
3511-12 Introduction to Costume Design (4,4) Costumes as expression of character on stage; the application of costume history to specific design projects. Prereq: 2231 or consent of instructor.
4133-34 Special Problems in Acting (3,3) Advanced exercises, voice and movement. Prereq: 3121-22 and consent of instructor.
4151 Theatre Practicum: Performance (1-4) Continuation of 3151. Available for credit only to theatre majors. Prereq: Consent of instructor. May be repeated. Maximum credit 4 hours.

4152 Theatre Practicum: Production (1-4) Continuation of 3152. Available for credit only to theatre majors. Prereq: consent of instructor. May be repeated. Maximum credit 4 hours.

4153 Summer Repertory Productions (1-4) Continuation of 3153. Available only to members of summer company by consent of instructor. May be repeated. Maximum credit 4 hours.

4214-15 Advanced Technical Theatre (4,4) Advanced technical theatre management; advanced scenery and property execution; special problems in technical theatre.

4241-42 Advanced Scene Design (4,4) 4241-Descriptive drawing as an approach to three-dimensional design; theatrical graphic standards and preparation of design drawings. 4242-Perception of surface color; construction of spatial illusion through color with reference to rendering, scene painting, and preparation of painter's elevations. Must be taken in sequence. Prereq: 2211-21, 3221-22, and consent of instructor.

4341-42 Advanced Lighting Design (4,4) Relationship of light to setting in creating stage environment. Must be taken in sequence. Prereq: 3221-22 and consent of instructor.

4441-42 Advanced Play Directing (4,4) Problems of play interpretation; directing period plays; preparation of a play for public performance. Must be taken in sequence. Prereq: 3451-52 and consent of instructor.

4541-42 Advanced Theatre Costume Design (4,4) Advanced problems in costume design and construction; pattern drafting; draping. Prereq: 3511-12.

4751-52 Dramatic Theory and Criticism (3,3)

4951-52 Playwriting (4,4) Prereq: Consent of instructor.

GRADUATE

5011-12-13 Projects in Lieu of Thesis (3,3,3)

5250 Seminar in Playwriting (3)

5310 Studies in European Theatre History (3)

5320 Studies in American Theatre History (3)

5620 Projects in Lighting Design (3)

5630 Projects in Play Directing (3)

5640 Projects in Scene Design (3)

5650 Projects in Costume Design (3)

5660 Projects in Technical Theatre (3)

5670-71-72-73-74-75 Master Class in Acting (1,1,1,1,1,1)

5680-81-82 Design and Technical Theatre Seminar (1,1,1,1,1,1)

5890 Studies in Theatrical Production (3)

5912 Play Production in Secondary Schools (4)

5950-60-70 Studies in Dramatic Theory and Criticism (3,3,3)

Speech and Theatre (945)

1441 Introduction to Cinema (4) Development of motion pictures as a medium; film aesthetics; analysis and criticism of selected films.

2031 Introduction to Oral Interpretation (3) Art of reading aloud; development of interpretive techniques and their application to selected passages of prose, poetry, and drama.

3651 Oral Interpretation of Prose Literature (4) Prereq: 2031 or consent of instructor.

3661 Oral Interpretation of Poetry (4) Prereq: 2031 or consent of instructor.

3671 Oral Interpretation of Drama (4) Prereq: 2031 or consent of instructor.

4101 Foreign Study (1-16) See page 185.

4102 Off-Campus Study (1-16) May be repeated for major credit to a maximum of 12 hours. See page 185.

4103 Independent Study (1-16) May be repeated for major credit to a maximum of 8 hours. See page 185.

4560 Rhetoric of the Women's Rights Movements (4) Historical and critical study of public address in campaign for women's rights from the 1830's to the present. Same as Women's Studies 4560.

4840 Group Performance of Literature (4) Oral interpretation techniques of choral reading, readers theatre, and chamber theatre.

GRADUATE

5000 Thesis

5002 Non-Thesis Graduation Completion (3-15)

5110 Introduction to Graduate Research in Speech and Theatre (3)

5120 Directed Reading and Research (3)

5160 Theory and Technique in Oral Interpretation (4)

Statistics

See faculty list page 94.

Liberals arts students may major or minor in statistics under the supervision of the faculty of the statistics department in the College of Business Administration. The major is designed to prepare students for graduate studies in statistics or for professional work in various applications of statistical methods, including applications in the natural and social sciences, business, and industry. It is highly recommended that a student majoring in statistics have a minor in an area of application. Major:

(a) Required courses: 27 hours to consist of Mathematics 2840-50-60; Statistics 3450-60; Computer Science 4310; Statistics 3550 or Mathematics 4650 or 4750.

(b) Statistics electives: 15 hours from upper-division statistics courses not listed in part (a) above.

(c) Electives: 12 hours to be selected from no more than two of the following groups: Computer Science 3150, 3510, 3520, 4320; Industrial Engineering 3430, 3510, 3520, 3530, 4590; Industrial Management 4610, 4620; Mathematics 3760-80, 4060-70, 4510-20-30 (or 4518-28-38), 4660-70. Minor:

(a) Required courses: 21 hours to consist of Mathematics 2840-50-60; Statistics 3450-60; Computer Science 4310.

(b) Statistics electives: 9 hours from upper-division statistics courses not in part (a) of the minor.

University Studies (984)

(Non-Departmental)

University studies deal with important contemporary topics which are sufficiently comprehensive to require study and attention of students and faculty from more than one college. They are open to all qualified members of the UT Community.

1000 The First Course (3) An introduction to university education as an adventure in personal growth and professional development. B/N/C.

2010 Technology, Society and the Common Good (3,3) Introduction to the interlocking relationships between population, food production and distribution, environmental pollution, depletion of non-renewable natural resources, global arms race, etc. Two quarter sequence designed for students of all colleges; first quarter-global perspectives; second quarter-decisions for the future. Extensive use of films, field trips, student discussion.

4100 Energy Needs and Our Environment (3) Problems of present and projected energy resources and demands; economic, behavioral, legal, technical, and environmental opportunities and constraints; regional impacts of energy production and consumption. Topical focus will change from quarter to quarter. May be repeated with approval of instructor.

Women's Studies

See Cultural Studies.

Zoology (995)

Professors:

J. H. Abel(Head), Ph.D. Brown; R. M. Bagby, Ph.D. Illinois; D. L. Bunting, II, Ph.D. Ohio State; J. G. Carlson (Emeritus), Ph.D. Pennsylvania; A. C. Cole (Emeritus), Ph.D. Ohio State; J. C. Daniel, Jr., Ph.D. Colorado; D. A. Emrich, Ph.D. Minnesota; R. C. Fraser (Emeritus), Ph.D. Minnesota; B. Hochman, Ph.D. California (Berkeley); J. C. Howell (Emeritus), Ph.D. Colorado; E. T. Howley, Ph.D. Wisconsin; K. W. Jeon, Ph.D. London (England); A. W. Jones (Emeritus), Ph.D. Virginia; R. F. Lawler, Ph.D. Iowa; J. N. Liles, Ph.D. Ohio State; S. E. Flechter, Ph.D. Wisconsin; L. E. Roth (Vice Chancellor for Graduate Studies), Ph.D. Chicago; C. A. Shivers, Ph.D. Michigan State; J. T. Tanner (Emeritus), Ph.D. Cornell; H. G. Welch, Ph.D. Florida; M. C. Whiteside, Ph.D. Indiana; G. L. Whinston, Ph.D. Iowa.

Associate Professors:

K. D. Burnham, Ph.D. Iowa; A. C. Eichermacht, Ph.D. Kansas; D. J. Fox, Ph.D. Johns Hopkins, M.A. Handel, Ph.D. Kansas State; J. A. MacCabe, Ph.D. California (Davis); M. L. Pan, Ph.D. Pennsylvania; S. L. Pimm, Ph.D. New Mexico State; G. L. Vaughn, Ph.D. Duke.

Assistant Professors:

T. T. Chen, Ph.D. Florida; L. D. Etkin, Ph.D. Indiana; G. F. McCracken, Ph.D. Cornell, N. B. Greenberg, Ph.D. Rutgers.

UNDERGRADUATE

Prerequisites to upper-division courses:

Biology 1210-20-30 or Zoology 1118-28-38 are prerequisites for all upper-division courses, with the exception of 3090 and 4940. Additional prerequisites will be indicated with course descriptions. Courses numbered in the 4000s are no more advanced than those in the 3000s except as may be indicated by prerequisites.

Major: Consists of Biology 3110, 3120, 3130; 18 hours of upper-division zoology courses and 3 quarters of chemistry or biochemistry at the 2000 level or above. Of the 18 hours of upper-division zoology courses, a minimum of 6 hours must be at the 4000 level and must include at least one laboratory or field course. 1 to 3 hours of Zoology 3990 may also be included. Prerequisites to this major are: Biology 1210-20-30 or Zoology 1118-28-38 (Zoology 2920-30 may be substituted for Zoology 1118 or Biology 1220) and Chemistry 1110-20-30. Corequisites are Mathematics 1841-51, or 1840-50 or 1550-60 (Mathematics 1841-51 is the recommended choice) and a year sequence in physics (except 1410-20-30). Note: Students majoring in zoology are advised to exercise care in fulfilling the Science and Mathematics Triad requirements. Mathematics 1840-50 or 1841-51 or 1540-50-
3150 Invertebrate Zoology (5) Biology of invertebrates (especially insects) with emphasis on ecology, structure, and behavior. Prereq: Biology 3130. 3 hours and 2 labs.

3220 Physiology of Reproduction (3) (Same as Animal Sciences 5220.)

3230 Histology (4) Study of animal tissues. Prereq: Biology 3120. 2 hours and 2 labs.

3410 Bioethics (3) Relationship between biological discoveries and human values. Open discussion of selected dilemmas arising from new knowledge about medicine, behavior, resources, and technology.

3720 Ethology and Sociobiology (3) Basic concepts of the evolutionary approach to behavior with special reference to controversial issues in applications to psychology, the social sciences, and the arts. (Same as Psychology 3720.)

3920 Human Endocrinology (4) Basic course in human endocrinology with emphasis on practical diagnosis of hormone levels for analysis of glandular function and treatment of endocrine abnormalities. Three lectures and 1 discussion. Prereq: a course in physiology. (Does not carry credit in the Zoology major or minor.)

3990 Zoology Colloquium (1) Weekly discussions of contemporary zoology. Open to sophomores, juniors, and seniors. Each Zoology major is required to take a minimum of one hour. Grading: S/NC. May be repeated. Maximum 2 hours.

4027-8-9-10-11-12-13-14-15-16-17 Minicourses in Zoology (2,2,2,2,2,2,2,2,2,2,2,2,2,2,2) Selected, advanced topics in zoology, concentrated in time and subject matter. Students must plan in advance the proper sequence.

4050 Developmental Biology (4) Experimental approaches in morphogenesis, fertilization, cellular interactions, hormonal effects, and related topics with examples drawn primarily from invertebrates and vertebrates. Prereq: As posted. May be repeated for credit. Maximum 12 hours.

4070 Comparative Vertebrate Anatomy (5) Phylogenetic relations; problems and methods. Prereq: Biology 2130 or consent of instructor. 2 hours and 2 lab or field periods.

4140 Practicum in Zoology (1-3) Participation in faculty-organized research projects under supervision of staff members. Prereq: Junior or senior standing and prior consent of instructor.

4140 Practicum in Zoology (1-3) Participation in practical application of zoology in community institutions, government organizations, and industry. Approximately 5 hours of involvement per week. Prereq: Biology 3110, 3120, 3130, and senior standing.

4190 Mammalogy (4) Classification, evolution, distribution, behavior, and survival of major groups of mammals. Prereq: 3080 or equivalent. 3 hours and 1 lab.

4200 Ichthyology (5) Classification, collection and identification, distribution, life histories, and economic importance of fishes. Prereq: Biology 2130 or consent of instructor. 2 hours and 2 lab or field periods.

4210 Cell Physiology (5) Development of modern concepts in cell physiology from point of view of analysis of information and control which examines kinetics and integration of cellular activities. Prereq: Cell biology or any physiology, and organic chemistry. Biochemistry recommended. 3 lectures and 1 lab.

4240 Animal Ecology (4) Environmental factors determining distribution and numbers of animals; intra- and interspecific interactions; systems and methods. Prereq: Biology 3130. 2 hours and 2 labs.

4250 Comparative Animal Physiology I (3) Environmental physiology. Survey of physiological mechanisms and their evolutionary development in a variety of animals to survive in diverse physical environments. Prereq: Biology 3130-20. Coreq: Chemistry 3221.

4259 Comparative Animal Physiology Laboratory I (1) Coreq: 4250.


4269 Comparative Animal Physiology Laboratory II (1) Coreq: 4260.

4270 Immunology (3) (Same as Microbiology 4270.)

4280 Comparative Endocrinology (5) Comparative analysis of the physiology and morphology of endocrine glands in vertebrates and invertebrates. Their role and interaction in maintenance of the organism and its species. Prereq: 3060 or equivalent. 3 hours and 1 (3-hr) lab.

4290 Herpetology (4) Classification, distribution, life histories, collection, and identification of amphibians and reptiles, primarily of local species. 2 hours and 2 labs or field periods.

4300 Ornithology (4) Morphology, physiology, behavior, reproduction, population, evolution, field identification. 2 hours and 2 labs or field periods.

4320 Microtechnique (4) Selected recommended. 2 hours and 2 labs.

4330 General Cytology (4) Study of cellular organelles at the light and electron microscope levels and the functioning of these organelles. Prereq: Biology 3120.

4369 General Genetic Laboratory (2) Mainly Drosophila experiments designed to illustrate basic principles of inheritance. Prereq: Biology 3110. 2 labs.

4380 Organic Evolution (3) Modern concepts of animal evolution. Prereq: Biology 3110.

4390 Human Genetics (3) Principles and problems of inheritance in man. Prereq: Biology 3110.

4410 General Parasitology (4) Morphology, taxonomy, and physiology of parasitic worms and protozoa, with emphasis on host-parasite relationships. 3 hours and 1 lab. Prereq: Biology 3130 or consent of instructor.

4450 Introductory to Aquatic Ecology (4) Introduction to the biochemical nature of the inland waters. Biotic communities are described and their interrelations explored. Prereq: Chemistry 1110-20-30 and Biology 3120. Two hours and 2 labs.

4700 Arachnology (4) Biology of spiders, mites, scorpions, and relatives. Prereq: 3110 or 3130. 2 hours and 2 labs.

4720 Comparative Animal Behavior (4) Methods and principles. (Same as Psychology 4720.)

4729 Comparative Animal Behavior Laboratory (4) Laboratory and field studies. Coreq: 4720 (Same as Psychology 4729.)

4810-20-30 Insect Morphology and Taxonomy (4,4,4) 4810—Internal morphology of both generalized and specialized forms. 4820—Taxonomy of major or minor orders. 4830—Taxonomy of minor orders and immature forms. Prereq for 4820-30: 3110 or consent of instructor. 2 hours and 2 labs.

4940 Physiology of Exercise (4) Functions of body in muscular work; physiological aspects of fatigue, training, and physical fitness. Prereq: 2920-30 or 3080. 3 hours and 1 lab.

4990 Zoology Colloquium (1) Weekly discussions of contemporary issues and applications to zoology. Open to all students with a minimum ACT composite score of 27 or with a minimum GPA of 3.2 in college. Students must achieve at least a B in any quarter to be eligible for the next quarter. Students who do not satisfy these requirements must complete the sequence with appropriate quarters of Biology 1210-20-30. Must be taken in sequence. 1118 (Fall)-Processes: Structure and development. 1128 (Winter)-Genetics; Independent projects. Each quarter consists of six hours of combined lecture and lab. Students who receive credit for this sequence may not receive additional credit for Biology 1210-20-30 or Botany 1110-20 or 1118-28.

2450-70-50 Human Anatomy and Physiology for Nurses (4,4,4) Same as 2450-70-50 except 2 hours and 2 labs.

2461-71-81 Human Anatomy and Physiology for Nurses (4,4,4) Same as 2461-71-81 except 2 hours and 2 labs.
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<td>5670</td>
<td>Cellular Immunology (4)</td>
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<tr>
<td>5740</td>
<td>Physiological Ecology of Animals (2)</td>
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<td>5750</td>
<td>Physiological Ethology (3)</td>
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<td>5760</td>
<td>General Vertebrate Neuroanatomy (3)</td>
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<td>5780</td>
<td>Radiation Physiology (4)</td>
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<td>5790</td>
<td>Transport of Ions Across Epithelia (4)</td>
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<td>5820</td>
<td>Methods of Taxonomy (4)</td>
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<td>Aquatic Insects (4)</td>
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<td>Geographic Distribution of Animals (4)</td>
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<td>Insect Synecology (4)</td>
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<td>Doctoral Research and Dissertation</td>
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<tr>
<td>6110</td>
<td>Advanced Topics in Cell and Molecular Biology (1-3)</td>
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<td>6140</td>
<td>Seminar in Immunobiology (2)</td>
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<td>6910</td>
<td>Seminar in Radiation Biology (2)</td>
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</tbody>
</table>
College of Nursing

Sylvia E. Hart, Dean
Barbara M. Reid, Associate Dean
Dorothy B. Stephens, Assistant Dean

The College of Nursing at The University of Tennessee, Knoxville, was established in July 1971 in response to a long-recognized and well-established need for nurses prepared at the collegiate level and as part of a statewide comprehensive plan approved for The University of Tennessee system by its Board of Trustees and for the state by the Tennessee Higher Education Commission.

The undergraduate program offered by the college is fully accredited by the National League for Nursing. It combines the unique resources of the University with those of several cooperating health agencies in a manner which enables both faculty and students to become aware of and responsive to an evolving dynamic culture, rapid scientific and technological advances, and changing concepts of health, of human beings, and of society.

The baccalaureate nursing program has as its central focus and frame of reference the unique concerns of the health sciences, and of society. The baccalaureate nursing program has as its central focus and frame of reference the unique concerns of the health sciences, and of society. The baccalaureate nursing program has as its central focus and frame of reference the unique concerns of the health sciences, and of society.

General education courses, nursing courses, and electives are organized in a manner designed to promote creative thinking and innovative approaches at both the theoretical and practical levels. General education courses are incorporated into the nursing curriculum at both lower- and upper-division levels. Certain aspects of general education, primarily in the natural and behavioral sciences, are prerequisite to any courses in the nursing major. Other supporting courses are taken concurrently with nursing courses.

Since nursing is a humanistic science and an art, nursing courses provide theoretical content which draws heavily from the theories and principles of related sciences and disciplines. This content is organized, integrated, and synthesized in a manner which promotes a comprehensive understanding of the life process from conception through senescence. In nursing practice, this knowledge and understanding is combined with intellectual judgments, practical skills, and human compassion. Opportunities to develop this kind of expertise in a variety of settings and situations are integral components of all nursing courses.

A broad base of general education, a thorough study of human behavior, emphasis on health maintenance and promotion, and a strong family and community orientation are essential components of baccalaureate education in nursing. It is these characteristics which differentiate it from other types of basic nursing education.

Because of the expanding role of the professional nurse, the increasing complexity of health care delivery, and the ever-changing health needs of society, the goals of the program are to prepare graduates who are able to:

1. Assume beginning leadership positions in nursing in a variety of settings.
2. Work collaboratively with other health professionals.
3. Function as socially conscious and contributing citizens.
4. Pursue advanced education on either a formal or an informal basis.

GENERAL REQUIREMENTS

In order to obtain a Bachelor of Science in Nursing Degree, 12 quarters of full-time study or their equivalent are required. Students may enroll in nursing courses following successful completion of clearly specified lower-division courses. These courses may be taken at The University of Tennessee or at any accredited junior or senior college or community college. Each course must be successfully completed in order to be awarded the Bachelor of Science in Nursing Degree.

NOTE: Students are advised to consult the University's degree requirements as stated in the front of this catalog as well as the requirements for the College of Nursing. All degree seeking students in the College of Nursing should also consult College Association requirements on page 28 of this catalog.

GRADING POLICY

The satisfactory-no credit option is not permitted for any nursing course except 3900.

The minimum acceptable grade for all courses in the nursing curriculum, other than electives, is a C; a course in which a grade of D or F is achieved may be repeated once. If a grade of D or F is achieved on the second attempt, the student will be required to withdraw from the program.

Any student who achieves a grade of D or F for more than two clinical nursing courses will be required to withdraw from the program even if previous courses in which the grades of D or F were achieved have been repeated and a grade of C or better has been earned in the course. Clinical courses are: 2800, 3010, 3210-20, 3410, 4110, 4230, 4510-20, 4760.

If a student receives an Incomplete (I) in a required nursing course, the Incomplete must be removed before the student may enroll in any other required nursing courses.

If a student's clinical laboratory performance for any nursing course is deemed unsatisfactory, the grade for that course will be an F regardless of any grades related to the theoretical component of the course. If the unsatisfactory clinical performance is characterized by dangerous, inappropriate, or irresponsible behavior, behavior which actually or potentially places the patient's or family's welfare in jeopardy, the student will be required to withdraw from the program.

ASSOCIATION AND PROGRESSION PROCEDURES

1. Nursing students must achieve a course grade of C or better in all required lower-division courses, exclusive of electives.
2. During the academic year in which students are expected to complete all lower-division requirements, a petition for progression to upper-division nursing courses must be submitted. Petition forms are available in the college's Student Affairs Office, and must be submitted to this office no later than the third class day of December. Students selected for progression are notified no later than one day prior to the preregistration period for the spring quarter.

Students selected for progression must successfully complete Nursing 2800 prior to
enrollment in upper-division nursing courses. This course is offered in both the spring and summer quarters. Only students selected for progression may enroll in Nursing 2800.

(3) Students who expect to enroll in The University of Tennessee, Knoxville, College of Nursing, once they have completed lower-division requirements elsewhere, should contact the Associate Dean for Student Affairs at the UT College of Nursing as soon as they begin their lower-division courses. Transfer students who believe they have met lower-division requirements should submit a petition to begin upper-division courses as soon as they are admitted to the University. If the number of students qualified to begin upper-division nursing courses exceeds the number that can be accommodated during the fall quarter, the cumulative grade point average will be utilized to select those students who may enroll in upper-division nursing courses. Qualified students not selected are eligible to reapply for progression during the next review period.

(4) Transfer students who have been accepted by the University must complete all course requirements identified in the nursing curriculum. Transcripts will be evaluated on an individual basis. Students are free to take proficiency or challenge examinations in order to determine whether it is necessary for them to enroll in a course or whether they have met those course requirements in another way.

(5) Registered nurses seeking a baccalaureate degree in nursing must also apply for admission to the University and must be accepted on the same basis as others. They must complete all prerequisites and all required courses identified in the nursing curriculum. They may also take challenge or proficiency examinations in required courses whenever these are appropriate and available.

Registered nurses who have completed Chemistry 1410-20 with a grade of C or better, within ten years prior to their admission to the College of Nursing, have satisfied the chemistry requirement.

For registered nurses the following courses may be substituted for those required in the nursing curriculum if a grade of C or better was achieved and if the courses were taken within ten years prior to admission to the College of Nursing; Microbiology 2110 for Microbiology 2610; Nutrition 1230 for Nutrition 3020.

Registered nurses must successfully complete 3230-40-60, 4440, 4660, 4760, and 4860. After successfully completing Nursing 2810, registered nurses may challenge Nursing 3110, 4110, and 4230. The following course requirements are waived for challenge Nursing 3110, 4110, and 4230. The Bachelor of Science in Nursing degree requires a minimum of 189 quarter hours of credit.

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
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<tbody>
<tr>
<td>English 1010 or 1011; 1020; 1031; 1032 or 1033</td>
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<tr>
<td>Chemistry 1510-20-30</td>
<td>4</td>
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<tr>
<td>Biology 1210</td>
<td>4</td>
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<tr>
<td>Math 1540</td>
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<tr>
<td>Psychology electives</td>
<td>4</td>
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<tr>
<td>Sociology electives</td>
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<tr>
<td>Electives</td>
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<tr>
<td>Sophomore</td>
<td>5</td>
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<tr>
<td>Nutrition 3020</td>
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<td>Anthropology 4030</td>
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<td>Biology 3110</td>
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<tr>
<td>Sociology electives</td>
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<tr>
<td>Elective</td>
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<tr>
<td>Junior</td>
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<tr>
<td>Nursing 3010, 3110, 3410</td>
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<td>Nursing 3210-20</td>
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<tr>
<td>Psychology 3650</td>
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<tr>
<td>Philosophy 3611</td>
<td>4</td>
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<tr>
<td>Elective</td>
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<td>Senior</td>
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<tr>
<td>Nursing 4110, 4510</td>
<td>13</td>
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<td>Nursing 4230, 4520</td>
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<tr>
<td>Nursing 4440, 4660, 4760, 4860</td>
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<tr>
<td>Electives</td>
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</tbody>
</table>

TOTAL: 189 hours

At least 14 of the elective hours must be in humanities courses.

Nursing (720)

Professor: S. E. Hart (Dean), Ph.D. New York.

Associate Professors: D. H. Goodfellow, Ph.D. Peabody; J. A. Greene, Ph.D. Vanderbilt; M. E. Groer, Ph.D. Illinois; K. J. Kent, Ph.D. Illinois; J. N. Mozingo, Ph.D. Walden; B. M. Reid, M.S.N. Columbia.

Assistant Professors: M. T. Boynton, M.S.N. Emory; S. L. Bruning, M.S.N. Columbia; K. P. Cotten, M.S.N. SUNY (Buffalo); M. M. Donnellan, M.S.N. SUNY (Buffalo); P. G. Droppehlman, Ph.D. Pennsylvania; G. A. Evans, M.S. Tennessee; M. M. Fenske, M.N. Florida; S. M. Hodson, M.S. Tennessee; L. Jolly, M.S.N. Columbia; M. F. Kollar, M.N. Vanderbilt; D. R. Odle, M.S.N. Emory; H. E. Overton, M.P.H. Tennessee; M. A. Pierce, M.S.N. SUNY (Buffalo); V. M. Redford, M.S. Colorado; M. N. Stanford, M.S. Tennessee; D. H. Shoffner, M.S.N. Tennessee; P. L. Smith, M.S.N. Medical College of Georgia.

Instructors: S. M. Bowen, M.S., M.N. Tennessee; J. C. Coven, M.S.N. Tennessee; L. L. Harrison, Ph.D. Tennessee; J. Jozwik, M.S.N. Tennessee; L. C. Lindsay, M.P.H. Tennessee; S. A. Oliff, M.S.N. Texas Women's; M. S. Theodopolous, M.S.N. Boston.

Lecturer: D. B. Stephens, M.S. Tennessee.

GRADUATE

General requirements for the Master of Science in Nursing degree are given in the Graduate Catalog. The following courses are open only to MSN degree candidates who have not completed an undergraduate major in nursing: 2410 and 4200-10.

2410 Integrated Biomedical and Health Science (2-5) Examination and application of selected theories in anatomy, physiology, psychology and biology to the nursing process. Five modules each carry one credit. Prerequisite: One year of biology or chemistry or consent of instructor.

2800 Introduction to Clinical Nursing (4) Theory and laboratory activities for development of cognitive and psychomotor nursing skills; emphasis on determinants of health, nurse-client interactions, and nursing assessment in non-acute health care settings. 3 hours and 1 lab. Prerequisite: RN status or consent of instructor. Not for students who have taken 3210 or/and 3220.

Course of Nursing 2410
College of Nursing

4110 Family Health Nursing (10) Nursing needs of families in health and crisis. Emphasis on provision of comprehensive care to families in the child bearing and child rearing phases of family development. Application of theories of human growth and development, family dynamics, and crisis intervention, and interdisciplinary experience to develop skills necessary to provide quality nursing care to families experiencing normal pregnancy and childbirth or health problems such as complications of childbearing, congenital anomalies, and other high-risk birth, disturbed parent-child relationships, and gynecologic disturbances. 5 hours, 5 labs. Prereq: All 3000-level nursing courses or their equivalent. For nursing majors only.

4200-10 Integrated Psychosocial and Developmental Theories I, II (2,2) Examination and application of selected behavioral theories as applied to the nursing process. 4200 is a prerequisite to 4210. Open only to MSN candidates lacking an undergraduate major in nursing; others with consent of instructor. Prereq: 18 hours of behavioral science courses.

4220 Psychosocial and Long-Term Nursing (10) Nursing needs of clients whose primary health problems are of a developmental, behavioral, or long-term nature. Equal emphasis on prevention, health promotion, and rehabilitation. Laboratory experiences in a variety of psychiatric, extended care, and out-patient clinics. 5 lectures, 5 labs. Prereq: All 3000-level Nursing courses or their equivalent. For nursing majors only.

4260 Community Mental Health Nursing (6) Theories and principles of mental health and illness, history of mental health services, psychiatric nursing roles, and trends. Principles and theories underlying health screening of childbearing and early childhood development. 2 lecture, 2 lab. Prereq: 3220. For MSN candidates without a BSN degree.

4280 Nursing the Child Bearing Family (6) Theories and principles of family development, family dynamics, childbearing, and child rearing and their application to nursing practice in a variety of settings. Prereq: 3220. For MSN candidates without a BSN degree.

4320 Community Mental Health Nursing (6) Theories and principles of mental health and illness, history of mental health services, psychiatric nursing roles, and trends. Principles and theories underlying health screening of childbearing and early childhood development. 2 lecture, 2 lab. Prereq: 3220. For MSN candidates without a BSN degree.

4330 Nursing in the Specialties (2-4) Application of principles from behavioral, physical, social, and nursing sciences to solution of nursing problems. Includes exploration of nursing intervention needed to maintain or restore homeostasis in clients experiencing select ed physiological and/or behavioral deviations. Specific topics to be determined by faculty and students. May be repeated with consent of instructor. Maximum credit 12 hours. Prereq: Consent of instructor.

4350 Oncology Nursing (3) In-depth exploration of the cancer problem: medical and nursing intervention. Relates cellular kinetics to theories of carcinogenesis and metastasis, and examines treatment modalities and nursing intervention employed in all phases of the disease. Interdisciplinary approach analyzed. Prereq: Nursing 4230, RN status or consent of instructor.

4440 Scientific Inquiry in Nursing (3) Introduction to language of research, types of research design, methodological approaches, sampling, data analysis, and significance of findings. Evaluation of existing and ongoing nursing research studies. Prereq: Senior standing or MSN candidate.

4450 Nursing and Chronic Illness (4) Theories and principles of gerontology, chronicity and rehabilitation; nursing management of selected short and long-term health problems in a variety of clinical and community settings. 2 lecture, 2 labs. Prereq. or coreq: 3230. For MSN candidates without a BSN degree.

4510 Community Health Nursing: Family (3) Application of the nursing process to care of clients and their families in the home setting; utilization of community health services in planning comprehensive goal directed care; principles related to prevention and control of common communicable diseases are presented. 1.5 hrs. and 1.5 lab. Prereq: All 3000-level nursing courses: Prereq. or coreq: 4110 or 4280. For nursing majors only.

4520 Community Health Nursing: Aggregates (3) Community studies utilizing the epidemiological approach for comprehensive assessment of and intervention for aggregates at high risk for maturational or situational health and nursing problems; political and legislative community health issues are explored. 1.5 hrs. and 1.5 lab. Prereq: All 3000-level nursing courses. Prereq. or coreq: 4230 or 4260. For nursing majors only.

4660 Professional Nursing Seminar (3) Critical examination of legislative, legal, ethical, social, and educational issues and trends which have immediate or long-range implications for professional nursing practice. Prereq: 10 hours of 4000-level nursing courses. For nursing majors only.

4760 Nursing Management (5) Theory and practice of management principles with application to nursing care of groups of patients/clients; organization, planning, decision making and leadership are emphasized; nursing staff qualifications, staff utilization and nursing service delivery patterns are analyzed and evaluated; entry-level nursing management roles are practiced clinically. 3 hrs. and 3 lab. Prereq: 10 hours of 4000-level nursing courses. For nursing majors only.

4770 Comprehensive Health Assessment (4) Principles and theories underlying health screening of children and adults, including health history, interviewing, and physical examination. Practicum included. 3 hours and 1 lab. (4 hours each). Prereq: All 3000-level nursing courses or their equivalent or consent of instructor.

4790 Health Assessment Practicum (1-3) Selected clinical experiences in health assessment based on individual student needs and interests. Prereq: 4770 or equivalent and permission of instructor.

4860 Independent Study In Nursing (3) In-depth study of some aspect of nursing in which student has developed special interest. Study is pursued independently utilizing guidelines developed by the student with appropriate faculty guidance, supervision, and evaluation. May be repeated with consent of instructor.

Maximum credit 9 hours. Prereq: 10 hours of 4000-level nursing courses. For nursing majors only.

GRADUATE

5000 Thesis

5002 Non-Thesis Graduation Completion (3-15)

5010 Applied and Pathophysiology (5)

5020 Current Health Issues (2)

5030 Behavioral Dynamics (3)

5070 Theories of Nursing (3)

5103 Independent Study in Nursing (1-4)

5120 Secondary/Tertiary Nursing of Adults I (6)

5130 Secondary/Tertiary Nursing of Adults II (6)

5170 Readings in Applied Physiology (3)

5210 Applied Nursing Research (4)

5310 Secondary/Tertiary Nursing Field Work I (6)

5320 Secondary/Tertiary Nursing Field Work II (9)

5340 Secondary/Tertiary Nursing Seminar (2)

5410 Principles of Community Mental Health (3)

5450 Family-Centered Primary Care Nursing I (6)

5460 Family-Centered Primary Care Nursing II (6)

5480 Community Mental Health Nursing: Individual (3)

5490 Community Mental Health Nursing: Family (3)

5500 Community Mental Health Nursing: Group (3)

5510 Community Mental Health Nursing Field Work I (8)

5520 Community Mental Health Nursing Field Work II (8)

5540 Community Mental Health Nursing Seminar (2)

5550 Primary Care Nursing Field Work I (8)

5560 Primary Care Nursing Field Work II (9)

5630 Teaching Strategies and Practicum (6)

5650 Primary Care Nursing Seminar (2)

5680 Advanced Nursing Seminar (3)

5700 Management Strategies and Practicum (5)

5770 Special Topics (3)
Independent Departments

Department of Air Force Aerospace Studies

Air Force ROTC Program

Professor of Air Force Aerospace Studies: Colonel R. E. Culton (Head), M.A., Arizona; M.S. Troy State.
Assistant Professors: Major L. E. Cool, M.B.A. Texas; Major T. M. Bente, M.A. Webster College; Captain C. L. Little, M.A. Northern Colorado.

PURPOSE

The Air Force Reserve Officers Training Corps (AFROTC) is an educational program designed to provide the college student an opportunity to earn an Air Force commission as a second lieutenant while completing the University requirements for a bachelor's degree. The program provides education that will develop the skills and attitudes vital to the professional Air Force officer. Upon successful completion of the program and graduation from the University, students are commissioned as second lieutenants and they enter active duty.

THE PROGRAMS

The Four-Year Program: Students entering the Four-Year Program may register for the program at the same time and in the same manner as they enroll in their other college courses and there is NO MILITARY OBLIGATION. During their freshman and sophomore years, students enroll in the General Military Course (GMC). They then may compete for entry into the Professional Officer Course (POC) which is normally taken during the last two years of college. Selection into the POC is highly competitive and is based on qualification on an Air Force medical examination, scores achieved on the Scholastic Aptitude Test (SAT) or American College Test (ACT), scores achieved on the Air Force Officer Qualifying Test (AFOQT), successful completion of a four-week field training course at an Air Force base, and the recommendation of the Professor of Aerospace Studies. The Two-Year Program: The Two-Year Program consists of the Professional Officer Course (POC), the last two years of the Four-Year Program. It is designed to provide greater flexibility to meet the needs of students desiring Air Force opportunities. The basic requirement is that applicants have two academic years remaining at the undergraduate or graduate levels, or a combination of both. After being nominated by a Professor of Aerospace Studies, applicants seeking enrollment in the Two-Year Program are evaluated on scores achieved on the AFOQT, the Air Force medical exam, and a personal interview by a board of Air Force officers. Additionally, every POC applicant must agree to take and successfully complete a course in mathematical reasoning or its equivalent before graduation and commissioning.

Since the processing procedure must be completed approximately six months in advance of intended enrollment, interested students must apply early in the academic year preceding the fall term in which they intend to enter the program. Application should be made in writing or by personal visit to the Professor of Aerospace Studies.

WOMEN IN AFROTC

AFROTC at The University of Tennessee has been coeducational since 1970. Women complete the same courses as men and have the same opportunities. Upon successful completion of the AFROTC program and degree requirements, women are commissioned in the Air Force as second lieutenants. Pay and job opportunities are equal for women and men. Virtually all career fields in the Air Force are open to women, including flying positions (pilot and navigator).

THE COURSES

The General Military Course (GMC): This is a two-year course taken during the freshman and sophomore years with one hour of academic instruction and one hour of Leadership Laboratory a week. The curriculum covers two main themes—the mission and organization of the Air Force, and the history of the development of air power. These courses are open to any student enrolled in the University, and there is no military obligation associated with taking them. The Professional Officer Course (POC): This is a two-year course of instruction normally taken during the junior and senior years with three hours of academic instruction and one hour of Leadership Laboratory a week. The curriculum covers Air Force management and leadership and American defense policy. Admission is not automatic but is limited to fully qualified students selected by the Air Force ROTC staff.

Leadership Lab: Leadership Lab involves cadet participation in, and cadet direction of, corps leadership activities. It is largely cadet planned and organized in line with the premise that leadership training experiences will improve a cadet's ability to perform as an Air Force Officer. The freshman and sophomore Leadership Lab program involves initial Leadership Lab experiences such as preparing the cadet for individual, squadron, and flight movements in drill and ceremonies; customs and courtesies to include wearing of the uniform and saluting the flag; career opportunities; educational benefits and training problems; environment of the Air Force officer to include the military community, organizations, and functions; and preparation for field training. The junior and senior Leadership Lab program involves the cadets in advanced leadership experiences. The cadets will be responsible to a large degree for planning, organizing, directing, coordinating, and controlling the activities of the cadet corps; for preparing briefings and written communication; and to provide interviews, guidance, information, and other services which will increase the performance and motivation of other cadets.

Field Training: Every AFROTC cadet or applicant is required to attend a summer camp, called field training, normally between the sophomore and junior years. Cadets in the Four-Year Program attend for four weeks, while Two-Year Program applicants attend for six weeks. The curriculum consists of aircraft, aircrew, career and survival orientation, physical training, small arms training, a social action program, and supplemental training. Field training is conducted at a number of Air Force bases throughout the United States. In addition to receiving travel pay to and from the Air Force base, each cadet or applicant is paid for attending field training.
Flight Training: Flight training is offered free of charge to qualified pilot candidates who are AFROTC cadets. The cadet receives 13 hours of flight instruction. University credit is granted for the Ground School portion of the Flight Instruction Program.

UNIVERSITY CREDITS
The following credits are granted for Air Force Aerospace Studies work and are creditable toward a degree in some colleges.

Aerospace Studies 1200 series (Freshman)—6 quarter hours per year
Aerospace Studies 2200 series (Sophomore)—6 quarter hours per year
Field Training Academics (Sophomore)—6 quarter hours
Aerospace Studies 3200 series (Junior)—9 quarter hours per year
Flight Instruction Ground School—3 quarter hours
Aerospace Studies 4200 Series (Senior)—9 quarter hours per year.

SCHOLARSHIP PROGRAM
Air Force ROTC Scholarships are available to qualified applicants in both the Four- and Two-Year Programs. Each scholarship provides full tuition, laboratory and incidental fees, and full reimbursement for curriculum-required textbooks. In addition, scholarship cadets receive a non-taxable $100 each month during the school year while on scholarship status.

High School Students: Competitive four-year scholarships are available to high school male and female students who enroll in certain scientific and engineering career fields. Some scholarships are also available to male and female students who enroll in certain non-technical majors. Four-year scholarship applications are contained in the “Air Force ROTC Four-year College Scholarship Program Application Booklet.” Booklets may be obtained directly from Air Force ROTC Public Affairs, Maxwell, AL 36112.

College Students: Other scholarship opportunities exist for students already in college. Four-, three-, and two-year scholarships are available on a competitive basis and the student must have at least four, three, or two undergraduate or graduate years of study remaining in order to compete. Applications for these scholarships should be made directly to the Professor of Aerospace Studies.

In order to retain an AFROTC scholarship, students must maintain the minimum grade point average prescribed by the university and they must take and complete an English composition course or its equivalent before completing the GMC.

PENALTY AND ENTRIES
All cadets enrolled in AFROTC are furnished texts and uniforms. Enrollees are required to deposit $50 as security to the University against loss or damage to the uniform. The deposit, minus a nominal fee to cover cost of shoes, is returned to the student upon successful completion of AFROTC or upon early withdrawal. Professional Officer Course cadets receive a subsistence allowance of $300 per month during the academic year. In addition they are paid mileage to and from field training, plus pay commissaries with active duty rates while at field training.

ACTIVE DUTY COMMITMENTS
Commissioned graduates going into non-flying duties will be required to serve four years on active duty. Those graduates going into pilot assignments will be required to serve six years active duty after completion of pilot training. Those graduates going into navigator assignments will be required to serve five years active duty after completion of navigator training.

Curriculum

Air Force Aerospace Studies (094)

1210-20-30 Air Force Aerospace Studies (2,2,2)
Surveys the functions and organization of the Air Force. Emphasis on the Air Force Commands, the environment in which the Air Force operates, and how the Air Force works with the Army and Navy, providing foundation upon which study of the Armed Forces and the Air Force can build. 1 hour and 1 hour lab (Leadership Laboratory).

2210-20-30 Air Force Aerospace Studies (3,3,3)
Introduction to study of air power. Course is developed from a historical perspective starting before the Wright Brothers and through the 1980s. 1 hour and 1 lab (Leadership Laboratory).

2240 Field Training (Academic Program) (1-6) Role of United States military forces in contemporary world, with particular attention to United States Air Forces, its organization and processes. Description of component forces of U.S. military power, organization of America’s defense structure, policies of major powers, and elements and processes in national security. Conduction of Field Training bases in the country. Approximately 60 clock hours.

2310-20-30 Air Force Aerospace Studies (3,3,3) Air Force Leaders and Leadership, including theoretical, professional, and legal aspects, with attention to communicative skills. Military management functions, principles, and techniques are covered. 3 hours and 1 lab (Leadership Laboratory).

2320 Flight Instruction Ground School (Private Pilot) (3) Part of Air Force ROTC Flight Instruction Program designed to prepare student to operate safely as a pilot. A secondary objective is to enable student to pass FAA private pilot’s written examination. Thirty hour hours of classroom instruction. Subject areas covered are Pre-flight Facts-acquaints students with factors affecting flight; Meteorology—involves student in learning weather phenomena affecting flight, weather information, and services available to pilots; Flight Computer, Navigation, and Radio Navigation—covers the requirements to plan a cross-country, use of appropriate maps, charts, logs, and regulations that must be known to operate safely and legally.


2355 Commercial Pilot (3) Part of Air Force ROTC Flight Instruction Program which covers Advanced Flight Computer; Advanced Meteorology; Advanced VFR Navigation and Radio; Commercial Pilot Federal Aviation Agency (FAA) Flight Regulations, Navigation and Exam-O-Grams. The student is exposed to take Federal Aviation Agency (FAA) written examination for Commercial Pilot’s License.

4210-20-30 Air Force Aerospace Studies (3,3,3) Role and function of professional officer in a democratic society, socialization process, public attitudes, and value orientations associated with professional military service; legal ramifications national security forces; decision-making processes of Department of Defense; political, economic, and social constraints affecting U.S. defense policy; impact of technological and international developments upon strategic preparedness; emphasis on developing commissary skills. 3 hours and 1 lab (Leadership Laboratory).

Department of Military Science

Army ROTC Program

Professor of Military Science: Colonel Richard W. Griffin (Head), M.S. Georgia Institute of Technology

Assistant Professors of Military Science: LTC G. E. Crask, M.S. Livingston University, LTC T. P. Spinn, M.S. Wichita State University; MAJ R. Y. Buff, MBA Winthrop College; S. D. Piet, B.S. Southern Mississippi; MAJ L. J. Krueger, MPA Western Kentucky University, CPT S. L. Hill, M.S. University of Tennessee; MAJ R. L. Hower, M.A. Central Michigan University; MAJ T. M. Jorgensen; MAJ Webster College; MAJ D. F. Jackson, M.A. Virginia Tech University; CPT C. Pittman, M.A. Howard University.

UNIVERSITY ROTC PROGRAM
The University of Tennessee offers a voluntary ROTC program leading to appointment as an officer in the United States Army.

PURPOSE AND OBJECTIVE
The purpose is to provide professional education which will prepare students for appointment as commissioned officers in the Regular Army or the United States Army Reserve components.

Objectives of the program are to provide students with an understanding of the fundamental concepts and principles of military art and science; to develop in them a basic understanding of associated professional knowledge, a strong sense of personal integrity, honor, and individual responsibility, and an appreciation of the requirements for national security; and to establish the students for future professional development.

ROTC draws young men and women for training from all geographical, economic, and social strata of our society as well as from the many educational disciplines required for the modern Army. The program insures that men and women educated in a liberal and broad spectrum of American institutions of higher learning are commissioned annually into the officer corps.

ARMY ROTC SCHOLARSHIP PROGRAM
The Army ROTC scholarship program offers financial assistance to outstanding young men and women in the Army ROTC program who are interested in the Army as a career. Each scholarship provides for free tuition, textbooks, and laboratory fees in addition to a subsistence allowance of $100 per month for the period that the scholarship is in effect. Scholarships may be awarded for either two, three, or four years. High school seniors should contact their guidance counselors early in August or September of their senior year to apply for the four-year scholarship. Two- and three-year scholarship applicants should contact the Professor of Military Science for further information. Certain other privately financed scholarships and grants are available to ROTC students.

EARLY COMMISSIONING PROGRAM
By utilization of placement credit for the ROTC Basic Course, many students enter the Advanced Course in either their freshman or sophomore year. The "ECF" program enables students who complete the ROTC Basic Course to be commissioned in a reserve component prior to graduation of a baccalaureate degree.
newly commissioned officers begin their military service in the Army Reserve or Army National Guard while still pursuing their undergraduate degree.

SIMULTANEOUS MEMBERSHIP PROGRAM

Any student may enter the Army ROTC as an option which combines the Army ROTC basic subsistence allowance ($100/mo.) with membership in the Army Reserve or Army National Guard and allows the student to receive pay from both programs. ROTC cadets serve as "officer-trainees" in direct leadership/management positions. Participation with the reserve forces is one weekend per month and two weeks each summer.

UNIVERSITY CREDIT

The University of Tennessee grants the following credit for military science:

Military Science I—3 quarter hours (MS 1110)
Military Science II—8 quarter hours (MS 2110-20)
Military Science III—12 quarter hours (MS 3110-20-30)
Military Science IV—12 quarter hours (MS 4110-20-30)
Army ROTC Basic Summer Studies Basic 6 quarter hours. (MS 4000)
Army ROTC Advanced Summer Studies—6 quarter hours (MS 4000)

MILITARY SCIENCE CORE CURRICULUM

<table>
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<tr>
<th>Program</th>
<th>Hours Credit</th>
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<tr>
<td>Basic Military Studies</td>
<td>ME 1110 Fundamentals of Military Organization 3</td>
</tr>
<tr>
<td></td>
<td>Leadership and Management 3</td>
</tr>
<tr>
<td></td>
<td>2110-20 Applied Leadership and Management 3</td>
</tr>
<tr>
<td></td>
<td>2110-30 Advanced Leadership and Management 3</td>
</tr>
<tr>
<td></td>
<td>MS 3110-20-30 Advanced Leadership and Management 4</td>
</tr>
<tr>
<td></td>
<td>4110 Army ROTC Advanced Leadership and Management 4</td>
</tr>
<tr>
<td></td>
<td>Summer Studies 3</td>
</tr>
<tr>
<td></td>
<td>4110-20-30 Seminar in Leadership and Management 4</td>
</tr>
<tr>
<td></td>
<td>TOTAL: 39 hours</td>
</tr>
</tbody>
</table>

Substitution

MS 2000 may be substituted for Basic Military Studies of the Military Science Core Curriculum. Certain other courses within the University may be substituted for Military Studies with permission of the Professor of Military Science. Students seeking an appointment as Second Lieutenant are permitted to substitute Military Studies for non-technical electives, social studies, and/or humanities to satisfy degree requirements. This substitution is at the sole discretion of the academic deans of the separate schools and colleges.

ACADEMIC REQUIREMENTS FOR APPOINTMENT AS SECOND LIEUTENANT

The principal element for appointment is the basic ROTC course, since each degree field at the University is designed to provide a well balanced education in diversified fields, specific hour requirements inside the Military Science Core Curriculum are few. Prospective Lieutenants are required to take at least one course in each of the following five fields of study: human behavior, written communications skills, military history, national security policy and management. Although not required, students in the Advanced Studies Program are expected and encouraged to pursue at least one quarter of upper-division work in each of two different divisional course areas (other than major) as follows: mathematics, computer sciences, natural sciences, engineering, "languages," foreign languages, mass communications or accounting. In cases where a student is pursuing a discipline which is narrowly restricted (excluding Military Sciences Core Curriculum) with few elective options, any conflict in scheduling or course selection will be resolved in favor of academic degree requirements.

ENROLLMENT AND CONTINUANCE REQUIREMENTS

The general requirements for enrollment and continuance in the Army ROTC program are:

1. Basic Military Studies—MS I and II
   a. Be a citizen of the United States.
   b. Be physically qualified.
   c. Be not less than 18 years of age and have not reached 23 years of age at the time of enrollment.

2. Advanced Military Studies—MS III and IV
   a. Have completed the 3 year High School ROTC Basic Course, or an off-campus six-week field training course, or have the required amount of prior military service.
   b. Have two academic years of college remaining (either graduate or undergraduate).
   c. Be enrolled as a full-time student, either at The University of Tennessee or at a nearby institution in a cooperative program.
   d. Meet military screening and physical requirements.
   e. Regularly enrolled students who meet the academic prerequisites and do not desire a commission may take individual courses as electives with the permission of the department head and academic adviser.
   f. Placement Credit for Army ROTC Leadership and Management

The curriculum of the Army ROTC program is designed to qualify the officer for the branch to which he or she is assigned.

Specialized Military Training which will further qualify the officer for the branch to which he or she is assigned.

Curriculum

Military Science Studies (688)

1110 Fundamentals of Military Organization, Leadership and Management (3) Development of American military institutions, policies, practices, and traditions in peace and war from colonial times to present. Historical examples of effective and ineffective leadership and application of principles of war. Practical exercise in leadership development.

2000 Army ROTC Basic Summer Studies (6) Role of the United States Army as a component of our National Defense system with particular attention on mission, organization, functions of the various branches of the Army, and our national resources. Concentrated study of the techniques of military planning, examples of successful leadership styles, the development of personal and interpersonal skills, the management of organizations, leadership, affecting human behavior. (44 hours of instruction are presented each week). Conducted at Fort Knox, Kentucky by faculty from colleges and universities participating in the Army ROTC program. This course is taken in lieu of all or part of the Army ROTC Basic Program (MS 1110, MS 2110, MS 2120). Students may not receive more than a total of 9 credit hours for any combination of MS 2000 and MS 1110, MS 2110, or MS 2120. Successful completion of MS 2000 qualifies an individual for admission to the Advanced Military Science Program


Summer Studies (6)

Advanced Military Studies (6) Advanced ROTC program who are seeking a commission may take individual courses as electives with the permission of the commission.

IV. All students applying for enrollment in the Army ROTC program must:

1. Be a citizen of the United States.
2. Be enrolled as a full-time student, either at The University of Tennessee or at a nearby institution in a cooperative program.
3. Be not less than 18 years of age and have not reached 23 years of age at the time of enrollment.
4. Meet military screening and physical requirements.
5. Be enrolled in the Army ROTC program and have completed the 3 year High School ROTC Basic Course, or an off-campus six-week field training course, or have the required amount of prior military service.
6. Be regularly enrolled students who meet the academic prerequisites and do not desire a commission may take individual courses as electives with the permission of the department head and academic adviser.

PLACEMENT CREDIT FOR MILITARY TRAINING

On the basis of previous honorable active military service in any branch of the Armed Services, or participation of the Junior ROTC Program at Secondary Schools, a student may request exemption from portions of the Basic Course. Exemption allowed will be determined by the Professor of Military Science.

PAY AND ENTITLEMENTS

All students enrolled in the Army ROTC program are furnished texts by the Army Property Officer. Students enrolled in the ROTC Advanced Course receive uniforms and equipment plus an allowance or $100 per month during the academic year. While attending the ROTC summer studies each cadet receives approximately $650, plus meals and transportation.

COURSES AVAILABLE

The curriculum of the Army ROTC program is designed to qualify the student for appointment as an army officer. Upon appointment the new officer is also assigned to one of several branches of the army for which he or she is qualified and in which a need for officers exists.

After graduation and commissioning, the officer will attend a service school for further
Division of Continuing Education

Robert S. Hutchison, Vice President for Public Service and Continuing Education
Charles W. Hartsell, Assistant Vice President for Continuing Education, Administration
Raymond A. Shirley, Assistant Vice President for Continuing Education, Media

The Division of Continuing Education is responsible for the development and coordination of all statewide continuing education programs. The Division is concerned with developing and extending educational opportunities, including attainment of college degrees, for qualified students of all ages and walks of life who pursue knowledge outside the traditional campus setting. All statewide continuing education programs of the University should be coordinated through the Division.

Information concerning continuing education programs of the various campuses is set forth in the respective catalogs. Information on continuing education programs of The University of Tennessee, Knoxville, is given on page 101 of this catalog.

Center for Extended Learning


Associate Directors: D. F. Holder, Ph.D. Kansas; B. W. Wallace, M.S. Tennessee; R. H. Considine, Ph.D. Tennessee.

CEU Programs: Continuing Education Units are available for approved non-credit professional programs.

CLEP Open Center: Administers College Level Examination Program tests each month.

College Credit for High School Seniors: Coordinated in cooperation with the State Board of Education.

College Entrance Courses: To remove entrance deficiencies or to complete high school requirements.

Conferences: For specific clientele statewide.

Independent Reading: The student should contact the academic department for the desired reading course and then register for credit through the CEL.

Independent Study: Extends instructional services of the University from all campuses to the citizens of the state. Courses may be started at any time.

Non-Credit Courses and Certificate Programs: In areas of general interest and in technical, business, and professional fields.

Undergraduate Cooperative Education Program: For students desiring to work alternately quarters while going to school.

Video-tape Programs: Special educational programs on video-tape, both credit and non-credit. Tapes can be purchased or rented.

For Information on enrollment, costs, books, and credit, write: Center for Extended Learning, 420 Communications and University Extension Bldg., The University of Tennessee, Knoxville, Tennessee 37996-0300. Telephone: (615) 974-5135.

Radio Services

Director: R. A. Shirley, M.A. Tennessee.

Associate Directors: J. A. Chasteen; S. D. Williamson, Jr., B.M. Tennessee; N. L. Dryer, B.M. Indiana.

Assistant Directors: J. C. Atkins, M.S. Tennessee.

Staff: D. Burns, P. Doyle, M.S. Tennessee; R. J. England; W. G. Hauser, B.A. New Mexico; M. Kiser, B.S. Tennessee; R. W. Stagg.

Radio Services provides local regional, and statewide services in radio broadcasting and audio production. It directs the operation of WUTC, the University's 100,000-watt FM station in Knoxville and WUTC, the University's 50,000-watt FM station in Chattanooga. These stations operate 24 hours a day with varied programs of music, news, public affairs, discussion, drama and documentaries from local, state, national and international sources. The stations are members of the National Public Radio Network.

The department produces, duplicates and distributes educational radio programs for broadcast on an audio tape network of 168 Tennessee radio stations.

Program content and participants represent a wide range of subjects of public interest. The programs fall into three categories: agricultural and home-making information; current affairs; and cultural enrichment. The stations donate over 22,000 quarter-hours of broadcast time to the University each year. Its close contact with all types of broadcasting and its staff and facilities equip the department ideally for work with UT campuses in the production, duplication, and distribution of audio materials for educational use. It will upon request assist all UT campuses in communications development.

The department has a technical service which includes high-speed duplication of reel-to-reel or cassette audio tapes for University departments, recording conferences and workshops, audio production, and consulting work in audio or public radio technology.

Television Services

Director: R. A. Shirley


Chief Engineer: T. M. Cupp


Artist: Marshall Thurman.

Television services has responsibility for the administration, scheduling, production and distribution of credit courses and instructional materials over the campus closed-circuit system. The department helps all interested academic departments utilize the television closed-circuit system for instructional purposes. Some 8000 students are taught one or more resident classes each year by television.

The department also serves as a central television production facility for meeting other University needs. Television programs are produced, edited, and duplicated for open circuit broadcast, cable distribution, and videotape distribution. Production efforts
include UT sports events, University news and information, continuing education materials, and graduate and undergraduate credit courses for off-campus students.
The University Library

Donald R. Hunt, Director
Betty G. Bengtson, Associate Director/Technical Services
Kenneth E. Marks, Associate Director/Public Service
Marcia J. Myers, Associate Director/Administrative Services
Aubrey H. Mitchell, Associate Director for Collection Development

Professors:

Associate Professors:

Assistant Professors:

Instructors:

The UTK Library, as the premier library of the state, seeks to acquire and service all necessary recorded information, both print and non-print, that meets the needs of the University's teaching, research, and service programs.

The books, periodicals, non-print and any other materials contained in the four UTK library units are available to all students, faculty and staff of The University of Tennessee, Knoxville. Included among the holdings are 1,421,342 books, 1,304,234 microforms, 6,100 audio tapes, 123,400 slides, 1,264 video tapes, more than 2 million manuscripts, and various historical ephemera, maps, and oral history tapes. More than 21,000 periodical and serial titles are received annually.

The library in its four locations is open to all students and faculty, regardless of their fields of study. The James E. Hoskins Library at 401 West Cumberland is the main library where administrative and technical services offices are located. The dictionary catalog, listing the library holdings for the entire campus, is in Main, as are the general and research collections, comprehensive reference, interlibrary services, documents, 4000/5000-level reserves, newspapers, non-print materials, and Special Collections, the last a repository of local and regional source materials.

The John C. Hodges Undergraduate Library, on Volunteer Boulevard at Andy Holt Ave., has a limited collection of 175,000 volumes selected to meet the needs of students in undergraduate courses. Reserve materials for 1000-3000 level courses are available in this library as is a large collection of audio tapes, slides, and videocassettes.

Other libraries serving specialized areas are Agriculture-Veterinary Medicine in the Veterinary Medicine building and Music in the Music Building.

The libraries are administered by a director, associate directors (for collection development and public, technical, and administrative services) and a number of department heads. Questions and comments are invited in person or through the suggestion boxes located in each library. Continuing evaluation and building of the collections is the responsibility of the collection development librarian. While most materials are selected by faculty, recommendations for purchase are invited from all students and staff.

"Library Guides" are available in all library units, describing library services and facilities.
Computing Center

Gordon R. Sherman, Director
Asa O. Bishop, Jr., Associate Director
Dan R. Wilson, Associate Director
Michael L. Newman, Associate Director
Timothy P. MacKenzie, Assistant Director

Faculty Associates
Professors: G. R. Sherman (Director), Ph.D. Purdue; A. O. Bishop, Jr., Ph.D. Clemson; R. E. Cline, Ph.D. Purdue.
Assistant Professor:
D. W. Straight, Ph.D. Texas.

The University of Tennessee Computing Center (UTCC) provides computing facilities and services for the University's teaching, research, public service, and administrative activities.

UTCC offices and principal computing facilities are located on the first two floors of the Stokely Management Center (SMC) and on the P2 level and first floor of Andy Holt Tower. The computers at SMC include two IBM 370/3031's, an IBM 4341/2, a DECsystem-10 with dual KL10 processors in a symmetrical multi-processor (SMP) configuration, and a DEC PDP 11/55. An IBM 360/40 located in Andy Holt Tower is used exclusively for administrative work. Data entry services are provided with two Nixdorf 600/55 key-to-disk systems also located in Andy Holt Tower. In addition, UTCC maintains eight remote job entry stations for batch work and eleven sites for interactive computing services to the other campuses in the UT System through remote job entry facilities.

The IBM 3031's operate under SVS (Release 1.7 of OS/VS2) with HASP II Version 4, the IBM 4341 operates under VM/SP, and the IBM 360/40 operates under DOS with POEWER II. The DECsystem-10 operates under TOPS-10 with Galaxy. Time sharing features on the IBM computers include Coursewriter III and VM/CMS, with FORTRAN, PL/I, COBOL, and SAS/GRAPH. The DECsystem-10 time sharing system provides APL, FORTRAN, BASIC, COBOL, MACRO, and other special purpose application programs, including extensive graphics software support. Each IBM 3031 has six million bytes of memory, the IBM 4341/s has eight million bytes of memory, and the DECsystem-10 has 1024K words of memory.

A graphics center with ten Tektronix graphics terminals, five storage and five refresh, two digitizing tablets, and a graphics plotter is located in Ferris Hall. Additional graphics equipment, including three terminals, a large digitizing tablet, and a plotter, is located in the user work area in the Art and Architecture Building. A Calcomp 1051 plotter is used to produce graphics output from jobs run on both IBM and DECsystem-10 computers.

UTCC periodically offers intensive training seminars on the utilization of the IBM and DECsystem-10 computers for faculty, staff, and graduate students. UTCC also offers non-credit short courses each quarter in topics such as programming languages and special purpose programs. These courses are announced in the UTCC Newsletter the Campus Capsule section of the UT Daily Beacon, and this week on campus, a publication announcing campus events.

Computing services may 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.
The Institute for Public Service was established in 1971 within the Office of the Vice President for Public Service. The purpose of the Institute is to coordinate and promote public service activities throughout the University system, excluding services provided through the Institute of Agriculture.

The basic goal of the University public service effort is to bring to the citizens of Tennessee—their business, their industry, and their governments—the problem-solving capabilities uniquely embodied within their statewide University system.

Public service at The University of Tennessee includes all services offered to those outside the University, including teaching in certain non-degree situations, technical assistance, and applied research which is conducted specifically at the request and for the benefit of non-University organizations in Tennessee.

The Institute comprises the system-level public service operations listed below:

### County Technical Assistance Service

**Executive Director:** J. H. Westbrook, Jr., B.S. Tennessee.

**Associate Director:** R. M. Wormsley, B.S. Cumberland.

**Assistant Director for Administration:** T. D. McNamara, M.A. Austin Peay State.

**Legal Specialist:** P. C. Davis, J.D. YMCA Law School; R. E. Fults, J.D. Tennessee; W. C. McIntyre, J.D. YMCA Law School.

**Financial Specialist:** R. L. Adkins, B.S. Bethel.

**Communications and Publications Specialist:** B. E. Matter, B.S. Tennessee.

**Consultant:** R. A. Johnson, M.S. Tennessee.

**Senior Field Advisors:** J. R. Carnical, B.S. Austin Peay State; M. R. Garland, M.C.M. East Tennessee State; B. C. Rodgers, B.S. Tennessee Technological.

**County Field Advisors:** J. E. Headrick, B.S. Tennessee; C. R. Phebus, M.S. Vanderbilt; S. L. Yarbrough, M.S. Tennessee.

**Special Projects Coordinator:** M. J. Frank, B.A. Tennessee.

The County Technical Assistance Service was established by the Board of Trustees at the 1973 mid-year meeting and began operation September 1, 1973. Establishment of the Service was authorized by the 88th General Assembly for the purpose of providing "studies and research in municipal government, publications, educational conferences and attendance thereat, and furnishing technical, consultant, and field services to municipalities in problems relating to municipal government." The Service is headquartered in Nashville, with regional offices in Cookeville, Jackson, Johnson City, Martin and Knoxville.

### Municipal Technical Advisory Service

**Executive Director:** E. O. Miner, Ph.D. Utah.

**Assistant Directors:** W. K. Jones, B.S. Tennessee Technological; W. G. Head, M.P.A. Oklahoma.

**Specialist Consultants:** D. W. Huffer; J.D. Tennessee (Intergovernmental Relations); J. Kersh, B.S. Tennessee (Municipal Information); F. E. Kirk, B.S. in C.E. Southern Methodist (Public Works); J. H. Leuty, B.S. Tennessee Polytechnic (Finance and Accounting); A. C. Lock, Jr., B.S., C.E. Oklahoma State (Public Works); W. Ownbey, J.D. Tennessee (Ordinance Codification); M. T. Pentecost, B.S. Murray State (Finance and Accounting); E. Puett, J.D. Tennessee (Municipal Law).

**Municipal (District) Consultants:** W. R. Bailey, B.S. Florida State; E. W. Meisnerhöld, M.S. in P.A. Syracuse; J. Muscatello, Jr., M.P.A. West Virginia; M. M. Tallent, M.A. Midwestern State; H. R. Yungmeyer, B.S.B.A. Denver.

**Librarian:** C. C. Hewlett, M.S. Tennessee.

The 75th General Assembly (1949) established a Municipal Technical Advisory Service at The University of Tennessee. The legislation designated the purposes to be "studies and research in municipal government, publications, educational conferences and attendance thereat, and furnishing technical, consultative, and field services to municipalities in problems relating to fiscal administration, accounting, tax assessment and collection, law enforcement, improvements and public works, and any and all matters relating to municipal government." Services are currently provided in the fields of municipal law, municipal management, public works, finance and accounting, ordinance codification, municipal information, and intergovernmental relations. Headquarters for
the agency is located on the Knoxville campus; regional offices are maintained in Cookeville, Jackson, Johnson City, Martin, and Nashville. This program is carried on in cooperation with the Tennessee Municipal League.

**Center for Industrial Services**

Executive Director: R. E. Harris, M.S. Tennessee, P.E.

Assistant Director: T. C. Parsons, M.S. Tennessee, P.E., CPA.


Management Consultant: J. E. Ross, M.B.A. Tennessee Technological, P.E.

Research Associate: N. W. Wiesenbuegel, M.L.S. Peabody.

The Center for Industrial Services has the primary role of assisting Tennessee's manufacturing firms by providing technical and managerial assistance to those companies seeking assistance. By the Tennessee Public Acts of 1963, the assigned objectives for the Center are "to render service to the industries in this state by providing information, data, and materials relating to the needs and problems of industry which might be supplied and solved through research; by providing information about available research facilities and research personnel in Tennessee colleges and universities, and in governmental and private research laboratories; by keeping Tennessee's industries informed about the supply of and demand for trained qualified personnel; and by cooperating with the Tennessee Department of Economic and Community Development in carrying out its duties."

This statewide program encourages and assists managers of Tennessee firms to draw upon the intellectual resources of the colleges and universities to upgrade the firm's performance. Field engineers experienced in manufacturing operations take the initiative in encouraging the upgrading and expansion of management in their plant environment.

The Center for Industrial Services is headquartered in Nashville. Regional offices are maintained in Cookeville, Jackson, Johnson City, Martin and Knoxville.

**Center for Government Training**

Executive Director: G. M. Mabrey, III, M.C.M. East Tennessee State.

Associate Director: A. C. North, Jr., B.S. Middle Tennessee State.

Assistant Director: G. T. Himes, Jr., B.S. Belmont.

Senior Regional Manager: D. R. Waynick, B.S. Lambuth

Regional Managers: D. J. Edmondson, B.S. Tennessee (Chattanooga), J. W. Fort, M.A. Austin Peay State; J. W. Pryor, J.D. Memphis State.

Project Manager: J. H. Wintker, M.S. Tennessee.

Assistant Project Manager: P. S. Blanton, MSSW Tennessee.

Manager of Program Development and Evaluation: J. H. Wenberg, M.S. Tennessee (Chattanooga).


The Center for Government Training has responsibility for providing professional assistance and establishing training and career development programs for state and local government officials and employees throughout the state. Headquarters is located in Nashville, but regional offices are also maintained in Jackson and Knoxville. The Center is charged with identifying and analyzing needs for public service education and training at the state and local levels in Tennessee, and with developing and conducting programs for training of public agency employees, working with institutions of higher education in the state and other educational facilities. The Center acts as a clearing house for information relative to public service personnel education and training programs.

**Critical Care Education Center**

Director: N. J. Shepard, B.S. Middle Tennessee.

Assistant Director: P. P. Vaughan, M.S.N. Vanderbilt.

Coordinators: V. S. Rice, M.S.N. Vanderbilt.

The Critical Care Education Center, created in 1971 by the Middle Tennessee Hospital Council, became a part of the former UT Nashville campus in 1979. Following the merger of UTN and Tennessee State University in 1979, the Center was moved to the Institute.

The Center provides: (1) a monthly series of one-hour videotape courses used to keep hospital personnel updated on the latest developments in critical care; and (2) a four-week, 140-hour critical care course that provides certification required by the Joint Commission on Accreditation of Hospitals for registered nurses to staff and intensive care units.
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